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PUBLIC DOCUMENTS
OF THE
STATE OF WISCONSIN

BEING THE REPORTS OF THE VARIOUS
STATE OFFICERS, DEPARTMENTS
AND INSTITUTIONS

For the Fiscal Term Ending June 30, 1912

VOLUME 5



MADISON
DEMOCRAT PRINTING COMPANY, STATE PRINTER
1914



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OF THE

RAILROAD COMMISSION

STATE OF WISCONSIN

VOLUME IX

MARCH 13, 1912, TO AUGUST 22, 1912.

COMPILED BY

J. M. WINTERBOTHAM

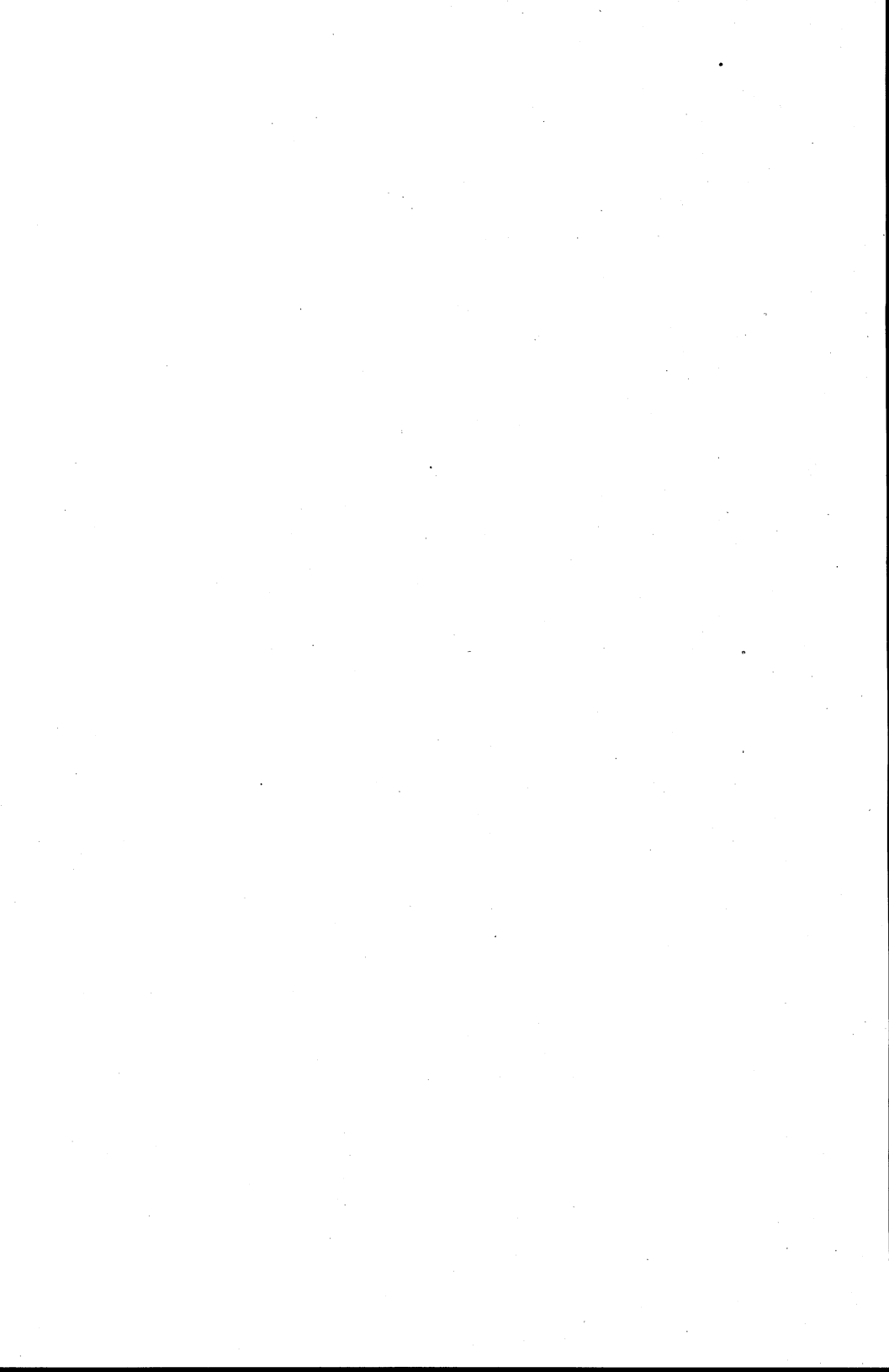
Secretary



MADISON, WISCONSIN

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1912



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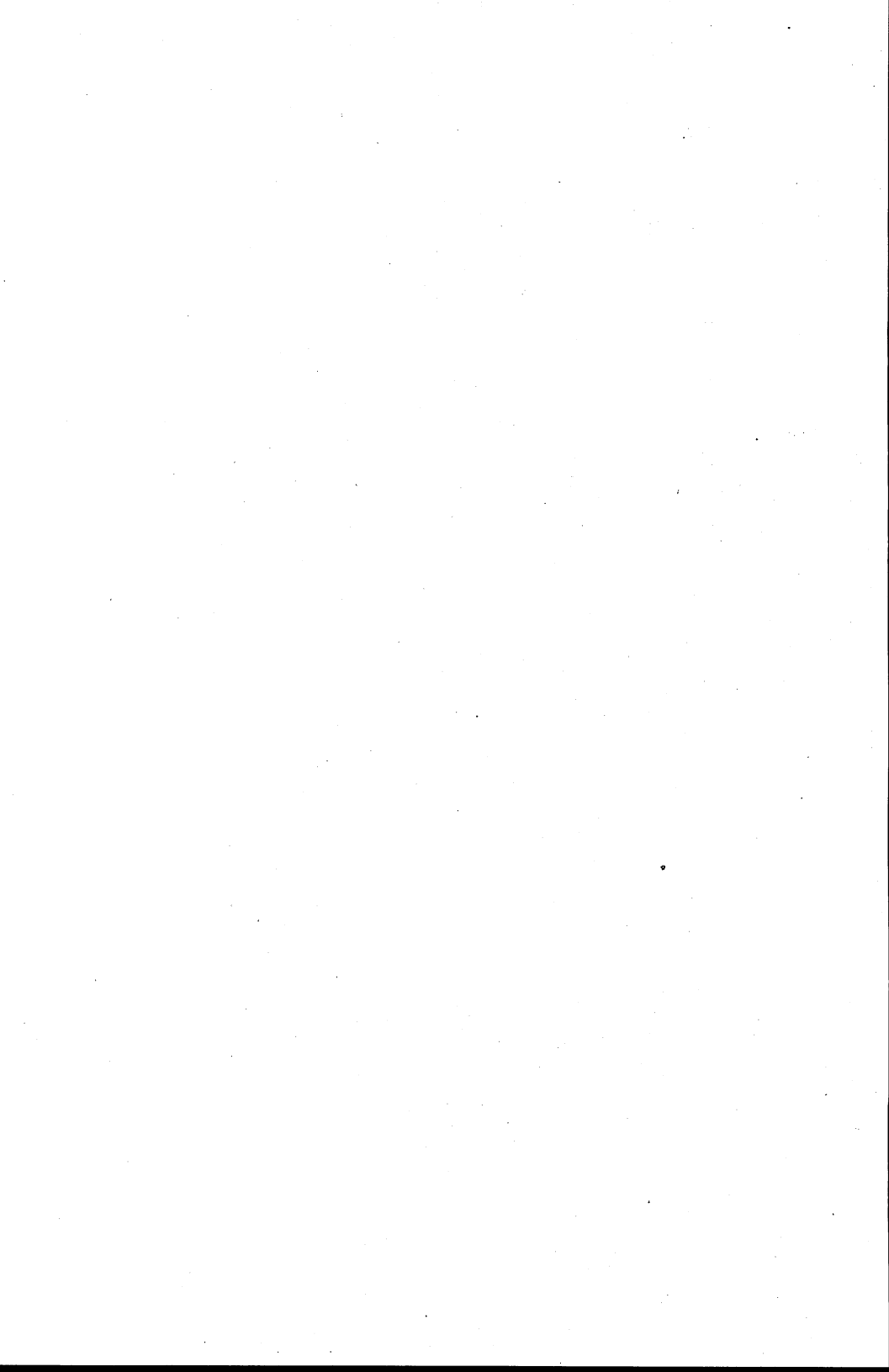


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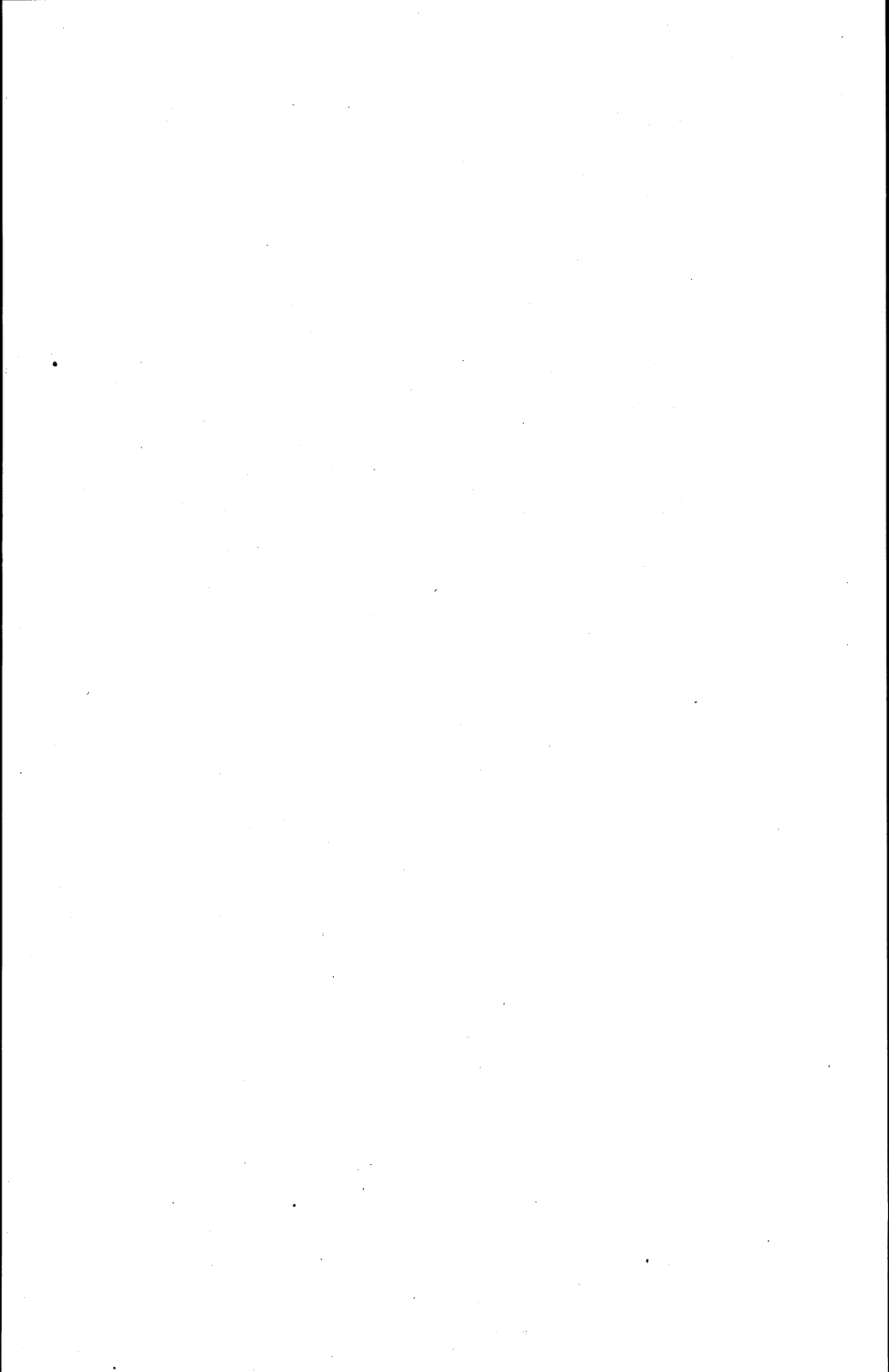
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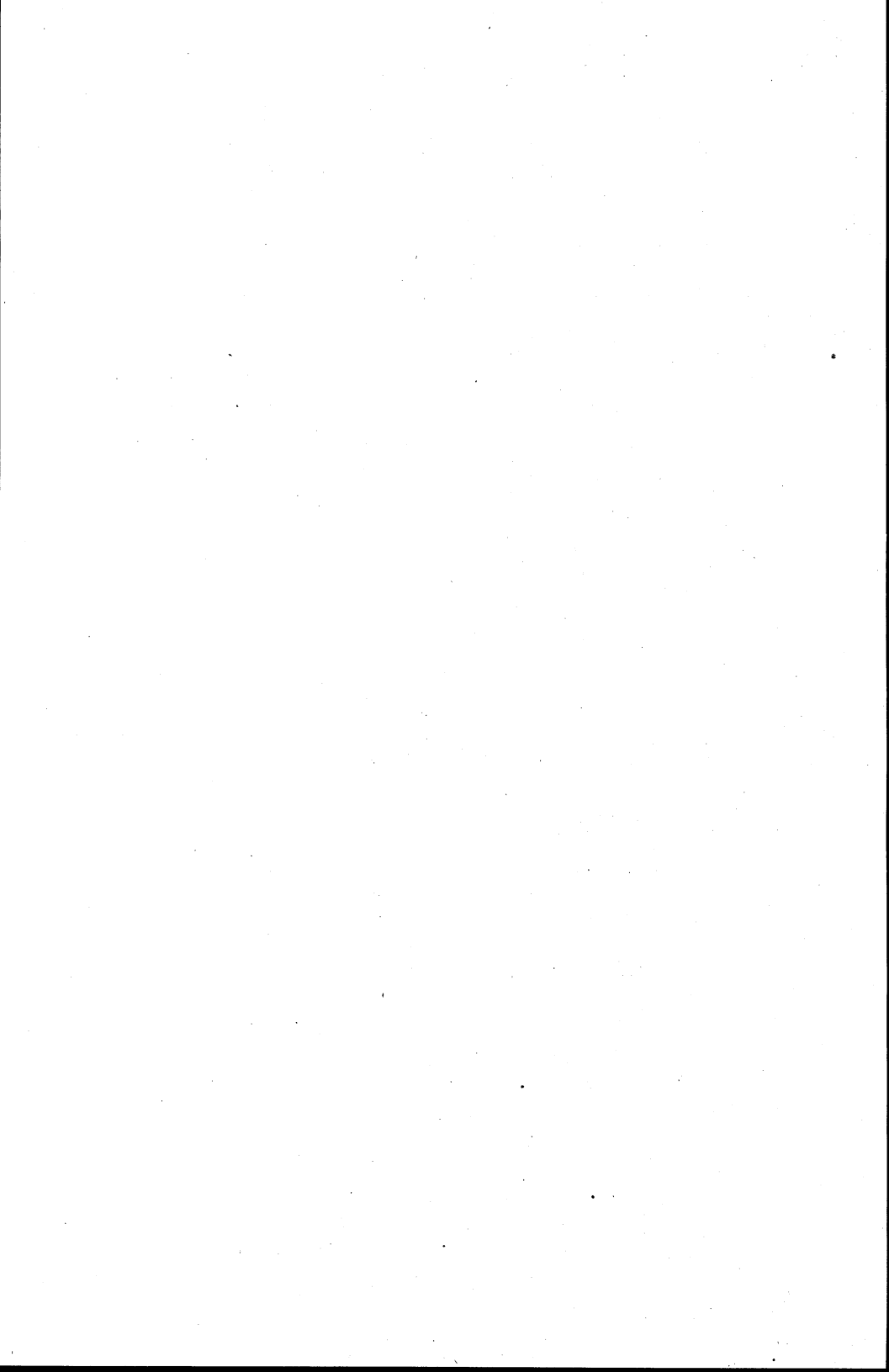
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OPINIONS AND DECISIONS

OF THE

Railroad Commission of Wisconsin

ELMORE T. ELVER

vs.

SOUTHERN WISCONSIN RAILWAY COMPANY.

Submitted Jan. 5, 1912. Decided March 13, 1912.

Petitioner alleges that the street car service of the So. Wis. Ry. Co. in Madison, Wis., is inadequate, due to the low speed at which the cars are operated; neglect to operate a sufficient number of cars to adequately serve the public, and the insufficient capacity of the cars now used; congested cars during rush hours; unnecessary delays, in particular by reason of respondent's requirement that patrons both enter and alight from the rear door of the cars; failure to keep cars clean or adequately heated; and inadequate brakes, making it practically impossible to avoid collision.

The schedule speed of cars on the main line is only $7\frac{1}{2}$ miles per hour. Observation indicates that under normal conditions a faster schedule could be maintained. It is believed that increased frequency of cars would relieve congestion and attract short-haul traffic simultaneously. The need appears to be a more frequent service rather than large cars to relieve the congested condition. Although business has increased from 40 to 50 per cent since 1906-7, a 12 minute schedule is now maintained in place of the 10 minute schedule then in force. There seems to be a reasonable demand for a 5 minute service between Camp Randall and Baldwin street or beyond, and the traffic increases indicate that this demand will continue to develop. It appears that if certain sections of the main line are double tracked the 5 minute schedule will be possible. The service on the South Madison line is also inadequate, and an additional passing track will be necessary to give adequate service. The service on the East Johnson-West Main street line will be made the subject of further investigation. Much unnecessary delay was shown to have been caused by respondent's refusal to open the front body door and the front right hand vestibule door, thereby forcing a rear exit from a crowded car. It is believed that the front vestibule can be opened for an exit on the right hand side without subjecting the motorman to influences or conditions which will materially interfere with the safe operation of his car. It will be to the advantage of the company and pas-

sengers alike, to more strictly enforce the rule requiring left hand vestibule doors to be locked at all times. East or west-bound cars are held for each other at the entrance to double track as if there were no means of permitting them to proceed on schedule from these points without delay. This practice results in delays of from 6 to 8 minutes and it appears that much more acceptable service would be rendered in running these cars to the other end of double track. Certain cars are not stopped for passengers, but leave them for a car following within approximately 500 to 1000 feet. When the motorman on the first car uses proper judgment and does not allow the second car to become overcrowded when his own has vacant seats, this method should result in satisfactory operation.

Held: The street car service of the respondent in Madison, Wis., is at present inadequate. The following changes are ordered for the improvement of the service: In order to facilitate the movement of passengers, the company is required to allow exit through both front and rear right hand vestibule doors and to direct the attention of the public to the front exit. Passengers are not to be permitted to stand on the front platform while the car is in motion. The left hand front and rear doors are to remain closed at all times. The Wingra Park and the South Madison cars are both to give service between Mills street and capitol park in both directions. Cars are to proceed on schedule and the practice of holding them at the entrance to double track is to be discontinued. When two cars are operated on the same schedule, the first car, except with full load, is not to run by prospective passengers if by so doing the extra car following is overloaded. Conductors are to announce street crossings. The company is required to establish a 10 minute schedule on the Wingra Park-Fair Oaks line instead of the present 12 minute schedule, and a 20 minute schedule on the South Madison line instead of the present 24 minute schedule. This is to be accomplished by decreasing the running time between switches, using the same number of regular cars for the schedule. The preceding provisions are to be made effective within ten days after the service of this notice and the company is to notify the public of the changes in schedule at least five days before they go into effect. The company is further ordered to make such extensions or additions to double track or sidings, overhead and other equipment as may be approved by the Commission in order that a 5 minute service may be maintained between Baldwin street and Breeze Terrace on the Fair Oaks-Wingra Park line, and a 10 minute schedule on the South Madison line. Such service is to go into effect not later than July 1, 1912. The subject of brakes, size and types of cars, later schedule or owl service, ventilation, smoking and other matters pertaining to the operation of cars and adequacy of the service are still before the Commission for further investigation and may be made the subject of a further order.

On Jan. 5, 1912, Elmore T. Elver filed a complaint and petition before the Commission showing that he is a practicing attorney, located at the city of Madison, Dane county, Wis., and stating that the Southern Wisconsin Railway Company is a common carrier located in the city of Madison, Wis., engaged in the transportation of persons in the state of Wisconsin, and as such

common carrier and railway company is subject to the provisions of ch. 87 of the Statutes and acts amendatory thereof, and is likewise subject to the provisions of ch. 362 of the Laws of 1905, and acts amendatory thereof; and alleging:

“That said railway company neglects and refuses to operate cars on its system with sufficient headway to adequately serve the public.

“That the company neglects to operate a sufficient number of cars on its system to adequately serve the public and that the cars furnished on said system are small and of insufficient capacity to care for the traffic on the company’s several lines.

“That the service is particularly inadequate on all its lines during the hours of 6 to 9 a. m., 11:45 a. m. to 2 p. m., 5 to 8 p. m., and 10:30 to 11:30 p. m., during which said hours the seating capacity is insufficient to accommodate the patrons of said company, causing over-crowding and jolting with the accompanying annoyance and discomfort.

“That the operation and management of the cars on the several lines of said company is such as to cause delays and loss of time, in particular by reason of the fact that the patrons of the company are compelled both to enter and alight from the rear door of said cars.

“That the cars are not kept in a cleanly and sanitary condition.

“That cars are not adequately heated.

“That the cars are provided with inadequate brakes, thus making it practically impossible to avoid collision.”

The petitioner prays the Commission to compel said company to remedy the inadequacies set forth in the complaint.

During the latter part of January, 1912, preliminary investigations were made by members of the Commission’s engineering staff which showed that the company was making plans to conduct an investigation on its own account. Notice was served on Jan. 29, 1912, that the hearing on the case would be held on Feb. 17, 1912, and on Feb. 4, 1912, the company put on a force of about forty men to take certain observations regarding traffic.

A man was stationed on every car run by the company during the week Feb. 4 to Feb. 10, inclusive, and observations taken and recorded of passengers boarding and leaving the cars at each and every crossing or regular stop on the line. Observations were also made of temperature at approximately half hour intervals.

For several weeks previous to this time it had been the practice of the company to record on a daily sheet the total number

of passengers carried on each and every car on the Fair Oaks-Wingra Park line, together with the time of leaving the terminal. From these daily records the company determined the density of traffic and the time when extra cars were required. From the data taken during the week of Feb. 4 to Feb. 10, inclusive, the company expected to verify estimates already made regarding the percentage obtaining between the maximum number of passengers on the car at any one time and the total passengers carried as shown by the conductor's trip report, so that by applying this percentage factor to trip totals the overloaded cars could be determined and extra cars run.

Following the observations of the Commission's inspector on the first east-bound Fair Oaks car on the mornings of Jan. 25 and Jan. 27, the company, beginning on Jan. 29, added an extra car on this east-bound run to relieve the excessively crowded condition of the regular car. Similar relief was given the large number of working men and women who use the west-bound car on the Johnson street line, leaving the Gisholt Machine Works about 6:03 p. m.

Under date of Feb. 7, 1912, the following reply was received by the Commission from the respondent:

"In re the complaint and inquiry into the adequacy of the street car service in the city of Madison, before you for hearing on the 17th inst., I desire to say:

"First. There should be no conflict between the Commission and our company if, as I assume, we are both seeking the truth as a path to better conditions in the interest of those we both serve. He serves self best who first serves others. We should both approach all public service questions with the one desire of solving them properly with mutual regard and respect, each for the other.

"Second. The question is, are we giving to the people of Madison a reasonably adequate street car service? My answer is yes.

"Schedule. We are operating our Fair Oaks-Wingra Park line, also our Johnson-Main street line on a twelve minute headway, and, subject to delays at railroad crossings, this results for more than ninety per cent of the time in a car passing any given point in one direction every twelve minutes. Our South Madison line is operated on a twenty-four minute schedule, and unless delayed at one of the three railroad crossings which intersect this line, a car will be found leaving South Madison as well as the capitol square every twenty-four minutes for more than 90 per cent of the time. To maintain an exact schedule in street railway operation is an impossibility. It never has been done

and never will be done, no matter whether the operation is over a single or double track or is conducted by an individual, a corporation or a municipality. Just so long as men are fallible, just so long as human law is subject to natural law, we will fail to accomplish a perfect service. Let us see what some of the causes of delay are and how they may be remedied.

“(a) We have in Madison twenty-seven steam railroad tracks intersecting our street car tracks, of these twenty-seven separate tracks our cars are obliged to cross fifteen every two to twelve minutes, varying according to location. The delays at these crossings due to passing trains amount to not less, on an average, than thirty minutes each day. Our cars are frequently held from four to eight minutes at East Madison, South Madison, Mills street or University avenue crossings, and there is no practical remedy for this. The Commission, by insisting upon a strict observance of the law regulating the obstruction of highways by passing trains, can modify but never entirely eliminate these delays.

“(b) The great mass of our Madison patrons move with the utmost deliberation when entering or leaving a car. If they are requested to step lively or to move forward in a crowded car, they resent it as an unwarranted infringement of their personal right or as tending to belittle their intelligence. By their lack of thoughtfulness or of consideration for others, they constantly cause in this way unnecessary vexatious delays, which in the aggregate amount to seven minutes each day. This is a matter which every street railway management and every state commission in the United States has dealt with for many years without solving the problem or changing in any material degree the mental attitude of car patrons toward the company rules which interfere with their pleasure or what they deem their individual right to do as they please.

“(c) Waiting at street crossings for belated passengers is another prolific source of delays, especially during the rush hours. It would be a good ruling for the Commission to say that cars are not obliged to wait for passengers who are not on the crossing ready to enter when the cars stop. It would assist materially in maintaining the schedule.

“(d) Delays due to platform riders can be reduced if the state board of health will prohibit smoking on all street cars in the state, or if the common council will pass an ordinance prohibiting it in Madison. For a lady or gentleman to have to leave or enter a car through a crowd of smokers is unpleasant, unsanitary and causes delays. Many of those smokers would go inside if they could not chew their favorite weed on the platform. Smoking on the cars also causes excessive expectoration which means spitting on the floor or some other part of the car by the smoker in spite of the utmost vigilance on the part of the conductor. These conditions can be materially bettered if we all co-operate.

“(e) There are numerous accidents due to carelessness of passengers in stepping on or off the cars. Account must be made of each of these accidents, no matter how slight, and the car must be held until the conductor can question the injured party and obtain the names of witnesses. Add to this, accidents due to careless drivers, careless pedestrians, careless children playing in the streets, all of which must be carefully recorded and reported, and you have causes for delay which no amount of care exercised by the employes of the company can entirely eliminate.

“(f) Delays due to motormen who deliberately ignore the schedule are rare, but when discovered are dealt with summarily.

“(g) Delays due to broken parts or to failure of power are not frequent and are usually found to have been unavoidable.

“(h) It matters not whether the operation is over a single or double track, all of the causes of delay which I have mentioned above are as much in evidence in one case as in the other. Neither New York, Chicago, Milwaukee, Minneapolis or any other city has ever been able to prevent accidents and so delays. Cars are passed and schedules destroyed many times each day in every big city. Street railway managers are struggling with this problem of delayed schedules persistently, but no surface street railway can ever get away from failures incident to its location. Any schedule based on ideal mechanical, physical and mental conditions must perforce fail. If a schedule is to be maintained, if it is to be of any value whatever, the people must be more helpful and there must be opportunity for motormen to make up lost time. In 1907 and again in 1909 we tried a ten minute schedule, tried it earnestly and fairly, but we found that using all the power available, with the car crew exercising vigilance as well as speed in their signals, we could not maintain it, while accidents due to the higher speed were much more numerous. We doubt if any surface street railway can escape frequent, disastrous accidents if compelled to operate at high speed.

“(i) During the months of December, January and February our power bills show an enormous loss of power due to lack of traction. Ice, snow and grease on the rails has made it not only difficult to start, but difficult to stop quickly or to hold the wheels to the rail when running, resulting in the loss of a large amount of power which under such conditions simply runs to waste, causing numerous delays. Under the policy adopted by the city in raising the street level above the level of the rails of our tracks, we have everywhere gutters above our rails from three to six inches deep, constantly being filled with snow, ice and dirt which our car scrapers can not remove and which causes loss of power, delays and derailments. Johnson street and State street are both examples of this sort of construction.

Delays due to such conditions might be eliminated if the city will co-operate.

"Sanitation. Cleanliness and sanitation are things that we have always prided ourselves upon. We keep three men busy all of the time night and day cleaning our cars with water, soap and brooms; they do nothing else. In addition, all cars are cleaned weekly in winter and daily in summer with compressed air so as to remove all germs, dust or material of any kind from corners, crevices and seats. The courts have well said that a "street car is not a lady's parlor." It is not to be supposed that all classes of people can enter and leave our cars so frequently in all sorts of weather, carrying all sorts of filth from street, factory or shop, and not leave their mark. Cars leave our barn as clean as water and soap can make them but before reaching the end of the line people may have brought quantities of filth into them, users of tobacco may have spat in a dozen different places without being discovered and the wind filled every corner, crevice or surface with dust. We believe our cars are kept as clean as a reasonable regard for existing conditions, inherent in the service, can demand.

"Collision. In the matter of collisions, we have never injured any person by reason of cars colliding. Such collisions as have occurred, and they are very rare, have caused but little damage and have been due to slippery rails where no known device could prevent the car from sliding. The machinery of our cars is inspected with the greatest care both night and day, with the result that during the year 1911 we did not have a single accident due to lack of attention on the part of our shop men or to any discoverable mechanical imperfection.

"Since 1907 when the present owners purchased the street railway property we have proceeded steadily to rebuild, extend and add to it. We believe that the work we have accomplished has met the reasonable requirements of traffic and that we are unquestionably in advance of any like operation in any similar city in the United States. Nevertheless we shall continue our second track work until the congested district, say from Camp Randall to Baldwin street on the main line, and within which the riding is at times excessive, can be given a more frequent service. We hope to do a part of this work this year and the remainder next year. It is our purpose, as we have stated and demonstrated many times, to meet every reasonable requirement of our patrons; we are now adding largely to our car equipment, believing that such investment will solve some of our problems. We welcome intelligent, honest criticism and hope that through the medium of your Commission we can all come to a better understanding of existing conditions.

"During the entire winter, weather and track conditions due to the weather have been abnormal. People have sought the cars because it has been too cold to walk; as a consequence we have had at certain hours of the morning and evening very heavy rid-

ing combined with very slippery rails. A much larger percentage of our street railway patronage is dependent upon weather conditions than might be thought possible. Warm, sunny days will cause a falling off of 15 to 25 per cent of the riding, while a sudden change to rain, snow or cold will create an immediate overload. We have had certain data prepared for the purpose of assisting in the solution of the load and other problems, all of which will be presented to you by our representatives.

"I am obliged to be out of the city on the 17th, otherwise I would have been present at the hearing, but our vice-president and our counsel will be present to answer to the complaint."

The first hearing was held on Feb. 17, 1912, in the assembly room at the capitol in Madison.

Elmore T. Elver, the petitioner, appeared in his own behalf. *E. J. B. Schubring*, attorney, and *Dudley Montgomery*, vice-president and superintendent, appeared for respondent.

The petitioner, being duly sworn, testified that, in his opinion, the blame for the present situation rested on the company and not on the men; that the front entrances to cars were closed and that much time, probably a minute or more, was lost in forcing a rear exit of passengers; that there was an insufficient number of cars operated during the hours stated; that there was insufficient headway; that it was "impractical" to allow a woman on a crowded car and cited certain examples.

He suggested two things: first, that larger cars are needed, and second, that passengers be allowed to make exit from the front.

He testified that the company "never" cleaned its cars; that the heating was "insufficient, inadequate and criminal"; that the stoves were too small and that coal was not furnished by the company. An example was cited. He testified that the company employed insufficient help to clean and heat the cars; that the cars were equipped with inadequate brakes and that serious accidents were likely to occur therefrom; that cars did not stop for passengers at crossings and an example was cited in the Sixth ward (on the Fair Oaks line) where a woman froze her feet waiting for a car, one car having failed to stop to take her aboard.

J. W. Peper was called by the petitioner and submitted as testimony a record of thirteen observations he had made of car temperatures during the months of January and February, six of thirteen observations being at temperatures below 32° Fahrenheit, two observations in cars with no thermometers, and three

observations at a temperature of 55 or above. Maximum observed was 85° F. and the minimum was 10° F.

Mr. Peper testified that car schedules were not maintained; that there was 5 to 15 minutes between cars; that when he rode he seldom got a seat and sometimes hung on the outside; that he saw eighty-five passengers on a car in one instance; that there was difficulty in getting out of the car if pushed to the front, inasmuch as an exit was not permitted at the front; that passengers were carried by the crossings at which they wished to get off because they could not reach the rear door; that the cars were dirty and had not had a bath or a dusting; that cars were congested at the time stated in the complaint; that property values in the east end of the city were low because of the poor street car service; that the company did only what it was forced to do and that it did nothing voluntarily; that he had seen misunderstanding of signals between motorman and conductor nearly resulting in an accident; that cars did not always stop to pick up passengers at Blount and Williamson streets. When asked for suggestions to improve matters he stated that the front door should be opened and that in case of accident it would be dangerous to have the front door locked; and that "pay-as-you-enter" cars would prove a profit to the company and a convenience to passengers.

Upon cross-examination by Mr. Schubring, Mr. Peper admitted that there was some difference between heating a house and heating a moving car with a large glass surface exposure, but thought a fire could be made to burn. He admitted that he had refused to pay his fare but denied that he had ever caused disturbance, kicked the door or abused the conductor. He said that he rode during the rush hours sometimes inside, sometimes outside, and that he sometimes smoked; that there were not many smokers and that most men preferred a seat rather than remain on the platform for the purpose of smoking. Mr. Peper approved a recommendation for the prohibition of smoking on street cars.

B. A. Honeycomb, living at 802 Jenifer street, appearing for himself as an individual and as a representative of the Commercial Travelers' Association, testified that the depot connections of the street car system were "rotten"; that cars were crowded, especially at the hours stated, and ran late both winter and summer; that cars stop on the wrong side of the street, making

crossings dangerous; that cars should make near-side stops instead of far-side stops at street crossings; that he was on a west-bound car at the East Madison depot that waited eight minutes for the east-bound car, although there was double track; that cars wait at the entrance to double track on both ends (referring to Park street and East Madison depot); that passengers could not get in or out of cars on account of congestion; that cars were small, of single truck type and rough riding; that the conductors did not assist in unloading passengers; that the heating was improper; that cleanliness of cars was the same morning and evening, apparently indicating that cars were not cleaned before being sent out on runs in the morning.

Mr. Honeycomb recommended double truck cars, equipped with air brakes on account of the hills and sharp curves in Madison; and suggested that sufficient cars be added to properly handle the business and that cars make better connections with trains.

Dr. C. F. Rodolf, living at 943 E. Gorham street, in his testimony said that the company did not pay wages high enough to get adequate help; that the men did not know what to do when a fuse was blown on a car and called the barn for help, indicating their unfamiliarity with the car equipment under their control; that the men taken into the service were not trained; that conductors did not know even the principal points about the city and often misdirected people through their ignorance; that conductors seldom called the streets; that cars were often cold; that it might be difficult to heat cars and doubted if stoves were big enough but thought it could be better; that the company observed the letter and not the spirit of the law regarding the heating of cars; that his main objection was due to the fact that the street car men were improperly trained and were paid insufficient wages; that he did not go home at noon because he could not get a car; that a later service should be given by the company; that it was a great inconvenience not to be able to get a car after about eleven o'clock and thought that perhaps an "owl" service should be established. Dr. Rodolf said that Madison, because of its peculiar geographical proportions, needed a street car service as good as that in an ordinary city of 75,000 or 100,000.

Leroy Thayer, living at 522 S. Mills street, testified that he used the South Madison cars and that from 6:30 a. m. to 7:24

a. m. they were crowded about the same as were the Wingra Park cars; that he had seen seventy-two passengers on a car leaving the square at 6:06 p. m. That because it was so frequently impossible to get a seat some people had to take a West Main street car and walk across to points on the South Madison line; that the schedule was kept pretty well, but that it was only a 24 minute schedule; that a 24 minute service was not sufficient for South Madison; that people living in the territory served by that car line could not go home to dinner at noon because the round trip could not be made in the hour when cars run on a 24 minute schedule; that a 12 minute schedule was necessary; that he had not paid any attention to heating or cleanliness of cars; that formerly the small cars with longitudinal seats were used on the South Madison line, but that the larger cars with cross-seats, the same as on the Wingra Park line, were then being operated; that cars often left ahead of time; that when there was a show at the Fuller, South Madison people had to leave early to get a car or walk.

F. W. Curtis, living in Wingra Park, testified that it was seldom possible to get a seat east of Breeze Terrace during the hours when he used the cars; that there was overcrowding of cars even when there was nothing special; that passengers were not allowed to leave the car by the front door; that passengers were inconvenienced in being compelled to use the rear exit; that it was difficult to heat cars with the present stoves and that the distribution of heat ought to be nearer the floor; that he was certain that the quality of service had decreased in the last five years; that five years ago, when there was a ten minute schedule, he could count on the cars being on time; that he could not do the same now; that cars were often held at the entrance to double track, sometimes as much as six minutes for the car coming out. He testified that he would abide by a rule to stop smoking and thought it would be beneficial.

Mr. M. S. Dudgeon, living in the Tenth ward and representing the Advancement Association of that ward, testified that heating was insufficient; that cars were crowded and ran at irregular intervals; that the cars failed to make use of double track and that existing conditions were worse than before the double track was put in, because cars going east formerly waited for those coming west at Francis street on State, giving passengers a view down State street, whereas at the time of this hear-

ing the east-bound cars waited at Park and University and no one could tell how soon the west-bound car would arrive, or whether time could be saved by getting off the car and walking to destination. Mr. Dudgeon testified that the printed rules posted in the cars said that the front vestibule door should be closed while the car was in motion, but that verbal rules and those acted upon were to the effect that the front doors were to be closed at all times; that passengers have been carried past the corner at which they wished to get off because the conductor could not see them coming to the rear door because of the crowded condition of the car; that he has seen such acute congestion that the vestibule doors could not be closed; that at times the temperature on the cars had been unendurable and so inconvenient that women and children could not come down town; that the company did not furnish heat in the cars, regardless of the temperature, until the day upon which they were compelled to do so by law; that on Sunday, November 12, 1911, the cars were very cold and that a fire was found on a certain South Madison car, the same having been built by the crew with fuel obtained from a source entirely independent of the street car company; that he had no complaint to make regarding the men, but rather commended them.

C. W. Rhodes, living near Livingston and Jenifer streets, testified that he rode two, four or six times a day; that he had ridden from Jenifer street to the capitol on the footboard; that he did not depend on a schedule or use it, but watched for an east-bound car to go by Livingston street and then went out expecting to catch the west-bound which met the other a few blocks east; that he could not tell about the heating of the cars because he never could get inside to find out; that the cars were so crowded that the conductor could not get to the back platform to properly handle his car; that he saw a conductor start a car while a woman was trying to get on and that he had seen three women thrown to the street on this account; that the capacity of the car was being reduced 10 or 15 per cent by keeping the front vestibule closed; that the back platforms were icy and slippery and that women and children had often fallen therefrom; that larger cars and an adequate schedule were needed; that there were delays to cars at the entrance to double track waiting for a car bound in the opposite

direction on the other track, thus getting no benefit from double track; that orders were changed and that there were so many bosses that the motormen and conductors did not know whom to obey; that the order to stop smoking might help the service some but that something bigger was needed to remedy the situation; that the majority of the men who stood on the rear platform did not smoke.

L. F. Porter, living near the east end of the Fair Oaks line, testified that cars were always crowded in the evening when he went home; that the heating system was antiquated and the cars cold in the morning and not unusually clean; that cars were too far apart and half as many more or twice as many cars were necessary; that he had to wait until two or three cars passed before being able to get on one leaving the capitol in the evening; that discipline was very bad on the cars, the conductors and other employes having boxing matches or crowding around the stove telling stories; that streets were not called and that the men sometimes said "Get off, old man"; that he was disgusted with the service and wanted to sell his property and move across the lake away from the car lines; that the conductor had at times swept the car and raised a dust while he was a passenger; that the prohibition of smoking might improve matters some; and that those who blocked the rear platform should be made to get inside if possible.

H. W. Marvin, living at 1220 Main street, testified that he used the South Madison cars and that they were crowded when he used them in the evening; that he had no complaint to make of the heating as he dressed warm and therefore did not mind the cold cars; that men stay on the rear platform even if they do not smoke, as they feel that the car would soon be crowded and they would have to give up their seats to ladies; that no extras were run on the South Madison line to relieve heavily loaded cars; that people often walked on account of the infrequency of cars on a 24 minute schedule; that part of the crowding on South Madison cars was because they carried people for the territory between the capitol and Park street and University avenue; that motormen ought to have room to operate brakes but that the company ought to let people out and in the front door; that a 12 minute schedule should be maintained on the South Madison line.

Mr. A. Opegard testified that in his opinion larger cars should be used to overcome the crowding; that these should be double truck cars because they are more comfortable than single truck cars; that the cars were rough riders on East Johnson street and that when he asked the conductor to let him off at Ingersoll street he replied, "Oh, you'll know the place; that's where the car bobbs"; that the steps should be perforated instead of solid to keep people from slipping and to clean the snow and dirt off their shoes when getting into cars; that to stop smoking on the cars would add to cleanliness and comfort; that it would add to speed and comfort to open the front door for exit; that he thought "Pay-as-you-enter" cars would be satisfactory.

Dudley Montgomery, vice president and superintendent of the Southern Wisconsin Railway Company, testified that as such he had charge of the operation of the system; that the conductors sometimes sweep out the cars; that they had orders to do so when they have time at the end of the line, and that this might occur two or three times a day; that cars were cleaned every night, a man being employed for the purpose of sweeping cars and cleaning out ashes; that every car was washed down inside and out once every week or ten days and that three men were employed by the company as car cleaners; that passengers who violated the ordinance prohibiting spitting in cars were often warned and sometimes arrested; that it would be hard to determine just how many stay on the rear platform only to smoke, but thought some would be there anyway; that it might be possible for the company to enforce a rule prohibiting smoking but it would be difficult.

That the stoves used in heating the cars were up to date and that this system of heating was standard for heating single truck cars; that the hot air system had not proven a success and that hot water heating was for double truck cars; that during the week of Feb. 4 to 10, inclusive, when the company had observers on every car, the temperature in the cars were 60° F. or above for 75 per cent of the time when the outdoor mean temperatures for the week ranged from -5 to -12, and the coldest record was -22; that there is difficulty in heating a moving car with such a large glass radiating surface, with doors being opened frequently, and with air sifting up through trap doors in the floor; that the men were not expected to have fires in the

cars when the company did not furnish coal, but that coal was furnished when the company thought it necessary to have fires; that the heating of the cars in Winnipeg, Man., Canada, and in Chicago by electric heaters had not proven satisfactory during the present winter; that he considered the cars to be satisfactorily heated by stoves; that no special effort was made to heat cars differently during the test week.

That cars were operated on a 12 minute headway on the Fair Oaks-Wingra Park line, and on the E. Johnson-West Main street line, and on a 24 minute headway on the South Madison line; that it required 8 cars to run the schedule on the main line; 3 on the Johnson street, and 2 on the South Madison line; that extra cars were operated between 7 and 8 in the morning, about noon, and from about 4 to 6:30 in the evening, according to the consistent demands of traffic as shown by the daily sheets compiled from conductor's trip reports; that additional cars were also run on Saturday, Wednesday and Sunday evenings and some in the afternoons as the traffic might demand; that the company tried to keep in touch with special events that might call for extra cars; that the record, from which the necessity of extra cars was determined, showed the total passengers carried on the trip, including cash fares, half fares and transfers, as taken from the conductors' trip reports; that this record did not show the maximum number of passengers on the car at any one time; that counts were made by having men on every car to determine what this maximum figure might be; that the primary demand for extra cars was on the main line; that the seating capacity of the big (cross-seat) cars was thirty with stoves and of the small (side seat) cars was twenty-eight with stoves.

Mr. Montgomery testified that traffic observations were made during the week of Feb. 4 to Feb. 10, inclusive, and that upon the assumption that fifty constituted a crowded but not a congested load, the following cases of overcrowding were observed:

On the Johnson st. line.....	6	trips	in	1200	trips
“ South Madison line.....	11	“	“	600	“
“ Main line (89 regular) (11 extra).....	100	“	“	1500	“

and further that, comparing the maximum number of passengers on the car at any one time, as shown by actual count during the test period, to the total passengers per trip, as

shown from conductors' trip reports, the following percentages were found to obtain:

On Wingra Park-Fair Oaks.....	about	62	per cent.
“ Johnson st.-West Main.....	“	75	“
“ South Madison.....	“	85	“

and that upon the assumption that these percentages applied to January conditions, the following figures showed the number of cars that carried over fifty passengers at any one time:

Of about 6,800 trips in January on the Wingra Park-Fair Oaks line, only 163 had more than 50 passengers as a maximum and of these 163 trips 124 of them were during the first sixteen days,—or in percentages 2.4 per cent of cars were overcrowded during the month and 1.8 per cent of the overcrowding occurred during the first 16 days when weather conditions were extreme.

Of approximately 5,400 trips on the Johnson street line only 15 carried over 50 passengers.

Of approximately 2,700 trips on the South Madison line only 14 carried over 50 passengers.

That during the first sixteen days of January the increase in traffic over the corresponding period a year ago was 30 per cent, whereas the normal increase that might have been expected was only 10 per cent; that from other observations the passengers that stand by preference on a car carrying thirty people seated, was found to be eight; that from tests made about two years ago, the average passenger was found to ride about $2\frac{1}{2}$ miles on the main line; that it was approximately $3\frac{1}{4}$ miles from the end of the line at the barn in Fair Oaks to capitol park, running time twenty-four minutes, and approximately $3\frac{1}{4}$ miles from the capitol to the cemetery, at the end of the Wingra Park line, running time twenty-four minutes; that the running of extra cars added expense to the company for cars, power and wages; that extra men were guaranteed pay for ten hours, even if they only worked six or eight hours; that cars were frequently delayed at railroad crossings; that cars were often held for passengers a half block away, but that orders have been given not to wait for such belated passengers during rush hours; that weather and rail conditions were the causes of worst delay; that with a light dry snow and a slippery rail the wheels spin.

That a 10 minute schedule was operated in the winter of 1906-7, but that it was given up in the spring of 1907 because

it was impossible to make the schedule with the summer car equipment and on account of the danger of accidents; that passengers demanded open cars in preference to closed cars in summer time; that often the cars lost 10, 20 or 30 minutes when running on the 10 minute schedule in 1906-7 and the best record was five days in one week without losing a run; that when an attempt was made to run a 10 minute schedule in the fall of 1907, much motor trouble developed and the equipment was in such shape that it was necessary to go to a 12 minute schedule; that motor conditions were improved by grooving commutators and reducing the voltage at the power plant from 600 to 550, the higher voltage having caused motor burn-outs in the winter of 1906-7; that there was 40 to 50 per cent more travel in the winter of 1911 and 1912 than when the 10 minute schedule was operated and many more stops were necessary; that the track from Camp Randall to the cemetery and from Baldwin street to the car barns had had no renewals since 1906-7 and was therefore in worse shape for operation than in 1906-7, and that track renewals being made were with heavier rail; that even a 12 minute schedule could not be maintained in rush hours; that some time might have been lost in the manner of loading and unloading passengers from the one door at the rear; that by trial with both front and rear doors open about 75 per cent of the passengers would use the rear exit; that a large part of the people leave the "Pay-as-you-enter" cars at the rear; that the new "near-side" cars in Philadelphia provide only one door, and that at the rear, for entrance and exit; that the reason for keeping the front door closed was that the motorman might more strictly and carefully attend to his duties and that when passengers were on the front platform it would interfere with the motorman's strict attention to duty; that it was safer for people on the street and on the car to have the motorman alone, where he would be more careful; that men boarded a car, stood on the rear platform and refused to go inside the car; that people bunched on the rear platform and caused delay, but that this tendency was not so marked before the front door was ordered closed; that people were not quick to respond to conditions of traffic.

That double truck cars were not needed on the Madison system but that single truck cars operating frequently on double track was the solution; that when the extra cars were operated

ahead of the regulars, Fair Oaks to Camp Randall, the people refused to take the extra because it was a side-seat car, but waited for the regular which was a large car with cross-seats and that therefore the extra was run behind the regular car and the regular instructed not to make all crossing stops, and thereby compel the traffic to distribute itself between the two cars; that there was no hard and fast rule by which the first car passed up certain crossings, but that motormen were to use judgment; that orders had not been given for the first car to make no stops east of Baldwin street; that the motorman on the regular car in front could tell about how many passengers he had left for the extra following and should not leave enough to overcrowd the extra.

That the brakes on the cars were in good condition; that they were sufficient and satisfactory and more comfortable for passengers than air brakes; that the cars operated did not exceed 13 tons in weight; that new car designs were being considered and that new cars would be purchased.

That fewer extras were operated after the complaint was filed than before; that no extras were operated four years ago, that is, no regular system of operating extra cars; that he could not say whether or not the capacity for handling traffic had increased 40 to 50 per cent during this period when the traffic increased by that amount; that the same schedule was being operated as five years ago, except that extras were being run systematically, varying according to the traffic.

HEATING OF CARS.

On Saturday, Jan. 6, 1912, the Commission's inspectors investigated condition of stoves, amount and kind of coal used, location and reading of thermometers and attention was given to fires on the various cars in operation at that time.

Fourteen cars were observed, six of these carried no thermometers and eight had thermometers in the top of the car opposite the stove. The general condition of fires was fair or good with some exceptions where poor fires were noted.

A report from the Madison station of the United States weather bureau shows the average temperature during the period of the inspection -18° , while car temperatures ranged

from 32° to 72°. In most cases fires were given good attention. Pea sized anthracite coal was used with an occasional addition of scrap wood by some conductors.

From the fact that with an outside temperature of -18° the car temperature was observed to reach 72°, it would seem to indicate that under favorable conditions cars can be heated with at least some degree of comfort. Allowance must be made for the fact that all thermometers were located on the car ceiling opposite the stove at a point where a near maximum would be registered. The air in this part of the cars was, no doubt, much warmer than that lower down, but it was reported to be stale and foul, as deck ventilators were very rarely opened.

Following the investigation just referred to it was suggested that fires would burn better and not choke as easily if the coal were of a coarser grade, and nut size instead of pea size was recommended. The company reported a few days later that nut coal made too much heat and that one car was set on fire from its use. Subsequently a mixture of nut size and pea size coal was used.

Observations by members of the engineering staff corroborate testimony at the hearing of the failure of the company to have fires on the cars during the cold days in late fall and early winter—in particular on Nov. 12, 1911.

It is the practice of the company, as observed by the Commission's inspector, to take out fires and ashes and clean the stoves in all cars each night as they come to the barn. The man detailed to this particular duty also sweeps the cars and lays paper and kindling in the stoves ready to start fires when cars are taken out in the morning. The conductors start their own fires after the cars are out of the barn.

While it seems clear that it is much more difficult to heat a moving car having a large glass exposure than a stationary enclosure of like proportions, the observations and incidents reported would seem to indicate that when properly taken care of, cars can be kept at a comfortable temperature.

CLEANING OF CARS.

As already stated, the Commission's inspector found that one night man at the barn is detailed to sweep the cars as a part of his regular duties, and once every week or ten days every car comes into the barn to be washed down with soap and water.

The Commission has expressed itself in the following manner regarding the cleanliness of cars:

"Few things are more revolting to one's sense of cleanliness and decency than a filthy street car, not to speak of the prejudice to passengers' health. We believe that the most rigid discipline and supervision should be maintained in the cleaning and scrubbing corps. No cars should be permitted to leave the car house except in a perfectly clean condition, and only in the most exceptional cases should it become necessary to let a car go out during cold weather without a good fire. The rule regarding cleaning should be absolute. We realize that under extraordinary circumstances, especially during days of sudden changes in temperature, a car may have to be started from the car house without a good fire, but this should not be necessary very often. We do not deem it expedient to say exactly how often scrubbing and sweeping shall be done. Once a day should be the least for either or both. It was objected to by witnesses that cars should be swept at the end of a run. If such sweeping is done intelligently, before passengers enter for the return run, it may be of advantage during muddy or slushy days. It certainly appears to be preferable to have a car swept during the proper moments when it is in service, to having it continue to accumulate mud throughout the day. During muddy seasons it may be necessary to flush or scrub cars daily, while during dry, clean seasons daily sweeping, wiping and dusting may be sufficient for days at a time. Some testimony was offered to the effect that the free use of water in cleaning cars was damaging to the machinery. Independent advice does not substantiate this assertion. We find that cars are so constructed that water may be used freely in cleaning them without injury to the machinery. These, too, are details of management into which we do not consider it necessary to go at this time. What should be insisted upon is a clean car, and the management of the company must devise the best ways and means of accomplishing this result. It may even be necessary to run a car, which was started out clean in the morning, directly back into the car house after an hour or two of service during the busy hours when streets are excessively muddy, and have it thoroughly cleaned before continuing it in the service. A car which is plastered with mud early in

the morning should not be permitted to carry passengers until late at night unless it is cleaned during the day. However, these again are details of the company's administration which it must meet in whichever way appears to it to be the best. The public is entitled to the cleanest cars which practical operation makes possible." *City of Milwaukee v. T. M. E. R. & L. Co.* 1907, 1 W. R. C. R. 662, 679, 680.

Testimony offered in the case under consideration was of a contradictory nature concerning the cleanliness of cars, and while the Commission's inspectors have observed some cars with snow and ice on platforms and some dirt incident to entrance of many people into any vehicle, conveyance or enclosure directly from the street, they report that most cars seem to have been passably clean.

In regard to the testimony by one witness that the wooden steps were slippery and dangerous it must be said that an inspection of the company's cars shows that all closed cars with the exception of No. 23, a side-bench car used only as a tripper, are equipped with metal step-treads, built up in honey-comb fashion in such a way as to aid the passenger in maintaining a foothold and enabling him to partly remove dirt and snow from his shoes as he enters the car. Furthermore, all these car steps, with the single exception noted, are of the same type and same height.

CAR CAPACITY.

The Commission's inspectors report that the cars operated on the several lines of the company at this season of the year are all of the single truck two motor, hand brake, closed, double end type and differ principally in the classifications as listed below.

The "class 50" cars, Nos. 50 to 54 inclusive, are the latest addition to the company's rolling stock and have the following approximate dimensions which directly affect entrance, exit and movement of passengers inside the car:

11 cross seats, 4 end seats, seating capacity 30, with stove, (increased to 32 without stove).	
Minimum width of aisle—at seat level.....	23"
Width of aisle at seat back—handle to handle.....	31½"
Maximum opening of car body door.....	32"
Minimum clearance at outside door.....	36"
Distance between grab handles at step.....	39"
Width of platform—door to door.....	93"
Length of platform.....	57"
Height of step above rail.....	13" to 16"
Height of platform above step.....	13"

The "class 40" cars, Nos. 40 to 49 inclusive, have the following approximate dimensions which directly affect entrance, exit and movement of passengers within the car:

11 cross seats, 4 end seats, seating capacity 30, with stove, (increased to 32 without stove).	
Minimum width of aisle—at seat level.....	23"
Width of aisle at seat back—handle to handle.....	26½"
Maximum opening of car body door.....	30"
Minimum clearance at outside door.....	32"
Distance between grab handles at step.....	35"
Width of platform—door to door.....	85"
Length of platform.....	54"
Height of step above rail.....	13" to 16"
Height of platform above step.....	13"

The "class 30" cars, Nos. 32 to 36 inclusive, are the old side bench type with no cross seats, and have the following approximate dimensions directly affecting exit, entrance and movement of passengers within the car:

Width of aisle seat to seat.....	42"
Maximum opening of car body door.....	31"
Minimum clearance at outside door.....	32" to 33"
Distance between grab handles at step.....	38"
Width of platform—door to door.....	54"
Length of platform.....	54"
Height of step above rail.....	13" to 16"
Height of platform above step.....	13"

The only other closed car in service is No. 23, a side bench, single truck car of about the same type as the "class 30", except that the entrances are much narrower, the outside door giving only 24" clearance.

The company submitted in testimony certain figures to show what per cent of cars were congested over certain periods of time, and in arriving at the figures a load of fifty passengers was considered the dividing line between a crowded car and a congested car. The company's superintendent in his testimony at the hearing maintained that while the comfortable load in off-peak hours might be taken as the seating capacity plus the number who would stand by preference, the figure was an unjust or improper one to use in rush hours. Even granting that a difference should be made, it would appear to be of doubtful expediency to place the figure as high as fifty on a car that seats only thirty, and has the dimensions of the Madison cars. Although the observations of the Commission's staff have not as yet been carried to a point which warrants the fixing of a definite figure, it would appear that during rush hours the com-

fortable load may be considered as the seating capacity plus a number standing which will not prevent free movement of the conductor or of passengers in loading or unloading. Observations taken seem to indicate that this figure ought to be perhaps five or even seven below the fifty passengers assumed by the company.

This figure is suggested as a measure of the permissible car capacity during rush hours, but not as a figure which may not be exceeded under certain circumstances. It is a recognized fact that some passengers prefer to crowd into the first car rather than stand or take chances of securing seats in a second car a minute later, and it does not appear that this matter can always be controlled by the company. In this connection it may be pointed out that the company may, in general, secure much better distribution of its loads in such cases, through the enforcement of intelligent supervision and suggestion on the part of its employes, especially at the capitol square and at other congested points.

In the report of the public service commission of Maryland of Dec. 31, 1911, the following paragraph concerning its work with the United Railways & Electric Co. in Baltimore is noted:

“Car crowding is, as already stated, a difficult matter to deal with. The waiting passenger insists on taking the first car that arrives, no matter how full it may be. Instances were frequent where an overloaded car was followed within half a minute by one which must have been in plain sight, but the full car was taken in preference to a wait of 30 seconds. To some extent and in some aspects, therefore, the matter of overloaded cars is one which the public, rather than the company, can control.”

Bion J. Arnold, in his report on the Pittsburg transportation problem in 1910, says in part:

“While it is generally recognized in this country that a seat for every passenger is impracticable during rush hours, knowledge of the fact that such a policy is possible in foreign cities seems to justify the more insistent demands for more seats here at the time passengers wish to travel.”

Various attempts have been made by many municipalities in this country to prevent overloading of street cars by limiting the number of passengers that may ride on the cars, and either imposing a fine on the company or employes for exceeding this limit or permitting the passengers to ride free or at

a reduced fare when the limit is exceeded. This method of regulation has generally not given satisfaction to the company or to the public.

In this state, however, the law delegates to the Railroad Commission the authority to require adequate service and in the opinion of the engineering department enough cars should be furnished so that the so-called comfortable load may not in general be exceeded.

FRONT EXIT.

In the consideration of the efficient handling of heavy traffic the question of one or two exits from a car is an important one. During the time of the investigation, and for some time previous to it, the company refused to open the front car body door and the front right hand vestibule door for the exit or entrance of passengers. The testimony submitted is substantiated by independent observations showing that there is without question much unnecessary delay caused by forcing a rear exit from a crowded car.

Short-haul passengers by preference remain near the rear door rather than to elbow a passageway from the front of the car to the rear and then perhaps be carried a block beyond destination. Inspectors have observed cases where a passenger in the front of the car has given the proper signal of his desire to leave the car at the next crossing, and although the car came to a stop, the conductor could not see him coming through the dense crowd in the aisle and gave the signal to go ahead. This passenger was then carried to the next crossing as a ringing of the bell would only give the indication to the conductor that someone desired to alight at that crossing. On a car carrying about fifty-five passengers it has been found that delays of 20 to 25 seconds are not uncommon, due to one or two passengers crowding from the front to the rear of the car for exit. Certainly 50 per cent or more of this time could have been saved by a front exit.

The objection to opening the front vestibule for entrance and exit seems to center in the danger that the motorman will be detracted from his duty of handling the car; the passengers on the platform will try to open a conversation with him or

crowd him and not give him freedom in handling the controller and brakes.

This argument carries some weight and if the passage across the platform would endanger the lives of passengers and pedestrians because of interference with the handling of the car, it would be of doubtful expediency. However, it is believed that the front vestibule can be opened for an exit on the right hand side without subjecting the motorman to influences or conditions which will materially interfere with the safe operation of his car. If it were a universal practice to keep the motorman strictly to himself, and if cars had never been in regular operation using the front platform for a passenger exit and entrance, then there might well be an extended study of the situation with reference to its effect on the motorman before this front exit is permitted.

There is ample evidence that cars are being operated satisfactorily when passengers have the front exit, and the "Pay-as-you-enter" cars and "Pay-within" cars almost without exception make use of the front exit. The near-side cars in Philadelphia, referred to in the testimony submitted by the company, have the only passenger entrance and exit in the front vestibule. Both the motorman and the conductor are on the front platform and all the passengers cross it getting in and out of the body of the car. In the type of car having doors controlled by motormen and conductors, the motorman has this additional duty as well as that of handling the controller and brakes. Reviewing the operation of street railways in respect to this front exit, it is believed that this feature will facilitate movement of passengers and maintenance of schedule in Madison.

While the practice of riding on the front platform is permitted or even encouraged on some street car systems, it is thought best, for the present at least, not to recommend it in Madison. A rule of the company requiring that the left hand vestibule door be closed at all times appears to be for the best interests of the service; but certain violations of this rule on the part of employes has been noted by the inspectors, especially the practice of some motormen in using the left hand door in going out to throw switches. It is believed that it will be to the advantage of company and passengers alike to more strictly enforce this rule and require the left hand vestibule doors to be locked at all times.

It is believed that the company can, by placards in the cars and through its employes, direct attention to the front exit and secure the cooperation of the public in establishing the habit of front exit to facilitate passenger movement. It is also believed that exit should be permitted at the rear as it would obviously be as unreasonable to force a passenger from the rear clear through the car to the front as it has been to force him from the front clear through to the rear. Passengers who need the services and attention of the conductor in leaving cars should not be denied the same.

If the company expects to have the cooperation of the public in rapid movement of passengers from cars it would appear that it should provide every possible means of encouraging such movement. In the company's standard type of closed car there are two short longitudinal seats in each end of the car leaving some little distance between the first cross seat handle and the door. In a quick exit passengers are willing and ready to move to the door, but they will hesitate if they have no means of steadying themselves during the last few seconds of braking. It is believed that two straps above each of these longitudinal seats will give passengers a means of support when moving toward the door and prevent the throwing of passengers in a heap against the front door as the car comes to a stop.

OPERATION, ETC.

Observations by the Commission's inspectors indicated that the contention of the complainant was correct regarding the enforced delays on Park street of the east-bound Fair Oaks cars for the west-bound Wingra Park cars, regardless of the fact that there was a double track all the way down State street to the capitol. The same condition was found to exist at the entrance to double track at the East Madison railroad station on Wilson street. At that point west-bound cars were being held for east-bound cars and no advantage was gained in movement of cars by having a double track. East or west-bound cars were held at the corner of Carroll and Mifflin streets for each other as if there were no means of permitting cars to proceed on schedule from these points without delay. This practice resulted in delays of from 6 to 8 minutes from actual observations

by members of the Commission's engineering staff, and it is considered that the discontinuance of this practice will increase the efficiency of the service.

It is not known exactly how long this condition existed, but the Southern Wisconsin Railway Company, on its trainmen's bulletin board under date of Jan. 12, 1912, ordered cars to wait as noted above. It should be pointed out that the delay caused by this method of operation is apt to prove an accumulative delay, affecting not only the cars at one end, but the car at the intermediate point and at the other end of this double track as well. It is understood that the company defended this order on the ground that it kept the cars spaced and prevented bunching of cars. The spacing of cars or operating on a headway as against a schedule, when a schedule is supposed to be in effect, is not considered a sufficient reason for holding cars at entrance to double track or at intermediate points on double track. It appears that much more acceptable service would be rendered by the company in running these cars to the square and to the other end of double track, in one case the C. & N. W. and C. M. & St. P. depots, and the other the University, than by holding these cars at the points referred to with cars sometimes full of passengers.

Under date of March 1, 1912, the company issued the following order which is in line with the opinion above expressed:

“NOTICE

FAIR OAKS—WINGRA PARK LINE.

“Cars will not wait at Wilson and Franklin streets, or Carroll and Mifflin streets, or North Park street for cars going in the opposite direction, but will leave these points on schedule time, except as hereinafter provided:

“East-bound cars must not leave Wilson and Franklin streets unless the switch point shows that the last car through went west. West-bound cars must not leave North Park street unless the switch point shows that the last car through went east.

“If any car overtakes the regular ahead at Wilson and Franklin streets or at North Park street, conductors are to transfer their passengers to the head car (provided there is room in that car and the passengers wish to transfer) and then wait until the block is cleared as above.

“Extra cars must always leave the switch points at East Mad-

ison and on North Park street as they find them, unless the regular car is directly behind them.

“South Madison cars must always leave the switch point on North Park street as they find it.

“When there is more than one car in a trip, the head car is to come to a *full* stop in each switch and notify the crew of the head car going in the opposite direction as to the number of cars that are following him.

“SOUTHERN WISCONSIN RAILWAY COMPANY,

“(Signed) *Dudley Montgomery, Vice President.*”

In the case of one car overtaking another, as referred to in the order when both cars are full, it seems best that both these cars proceed to the next switch on the same time, inasmuch as the traffic demands the two cars. The method of operation of cars will be the subject of further study and observation.

Certain observations have been made by the Commission's inspectors which seem to indicate that under normal conditions cars can make a faster schedule, inasmuch as most of the time the cars are either running on the series position (first running position) of the controller, or coasting, and only at infrequent intervals has it been necessary to run on the parallel position and attain the approximate maximum speed of the car. The general impression of an average passenger is that the cars are very slow.

In a good brisk walk a man can make a mile in 15 minutes, and if he just misses a car at the capitol he can walk the mile to the vicinity of Park and University streets before being overtaken, as the car would not arrive at that point until 18 minutes after he had left the capitol. Some have even walked to Breeze Terrace before being overtaken. Similar comments may be made regarding east-bound cars; and unless a man is just in time for a car he will probably walk. The schedule speed of cars on the main line is only $7\frac{1}{2}$ miles per hour.

Because of this condition it is believed that the company is losing many fares that it could claim if a frequent fast service were maintained.

It seems obvious that greater inducements are necessary under normal conditions to attract short-haul traffic than are necessary to attract long-haul traffic, as the former class of patrons have an option of walking. It is assumed that short-haul traffic is acceptable to the company. Inasmuch as the cars are crowded

principally in the short-haul territory on a system having the characteristics of the one in Madison, this is a further reason for a more frequent service. It is believed that an increase of frequency of cars would relieve congestion and attract this short-haul traffic simultaneously. This might seem contradictory, but having attracted the short-haul traffic during all periods of the day, the congestion at peak periods could be handled by additional cars on double track.

A study of the case seems to indicate that at the present time the need in the city of Madison is a more frequent service rather than large cars to relieve the congested condition. Generally, a more frequent service is more acceptable and will better take care of heavy traffic than large cars at less frequent intervals, but where large numbers of people leave a church, theater or other large gathering, it becomes necessary to provide extra cars, even on the reduced headway operation, to adequately handle traffic.

The company's testimony, that notice was taken of special events in the city which might cause heavy traffic demands on the street car service, is not borne out by observations of members of the engineering staff on several occasions since the hearings. On Sunday nights and sometimes Sunday noons, and on the occasion of attractions at the local Opera House, the cars have been found to be loaded to the limit of extreme discomfort. Granting that there are special occasions, it is obviously the duty of the management of the company to keep itself fully informed and to make liberal provisions for expeditiously handling crowds on such occasions.

The daily peak travel also has some characteristics of regularity of magnitude and direction which are within the knowledge of the company and for which it can prepare. Inasmuch as the company sometimes calls into service all its equipment to handle peak-hour traffic and still does not prevent crowding of cars, there is reason to believe that this is one factor demanding more equipment. In the event of a more frequent service being maintained beyond a reduction of running time of the present number of cars, additional cars would be needed.

Numerous observations have been taken by the Commission's inspectors which have furnished a basis, aside from the already general impression, for believing that the cars on the Fair Oaks-Wingra Park line can, during the greater part of the day,

maintain a 10 minute schedule with the same number of cars that are now used in a 12 minute schedule. It appears to be evident that the cars as now operating on a 12 minute schedule are not driven to the maximum safe limit except perhaps in rush hours and on rare exceptions.

Reference has already been made to the small amount of time that cars are running on the parallel position of the controller which gives maximum running speed. It is not believed that a ten minute schedule will require reckless running. Cars that move not much faster than a man walks are a source of annoyance, aggravation and irritation to the traveling public and the company cannot expect to attract short-haul business by that manner of operation.

More power will be required to move these cars on a faster schedule and the strain, wear and tear on the motors will be greater, but the company should not expect to preserve the equipment at the expense of reasonable and adequate service. With the use of both front and rear exits and a systematic movement of passengers the stops would be of shorter duration, especially in rush hour periods when maximum speeds between stops will be necessary. This would offset the decrease in time allowed between switches and it is believed that the number of runs dropped out during the day, due to falling behind time, would not average more than is now the case on a 12 minute schedule.

In the testimony submitted by the company, it is admitted that business has increased 40 to 50 per cent since 1906-7, but, whereas at that time and at certain earlier periods a 10 minute schedule was maintained, the service now rendered is on a 12 minute schedule, giving only 83 per cent as many regular cars per hour. There are probably more extra cars operated at the present time, but it is scarcely to be considered that 83 per cent as many regular cars can adequately handle a 40 or 50 per cent increase in traffic. The fact that this percentage of increase has taken place is no reason for decreasing the efficiency of the service by a slower schedule and fewer cars per hour, even considering the fact that more stops will have to be made.

There seems to be a reasonable demand for a 5 minute service between Camp Randall and Baldwin street or beyond, and in the light of the traffic increases that the company admits, it is believed that this demand will continue to develop. It would appear advisable that the company be required to make at

least such extensions or additions to overhead, double track or sidings and other equipment, as may be approved by the Railroad Commission, in order that this more frequent service may be inaugurated early in the summer of 1912.

It is the opinion of the engineering staff that if certain sections of the main line are double tracked as a part of the comprehensive plan to double track the main line from Breeze Terrace to some point beyond Baldwin street, a study of the situation shows that the 5 minute schedule is possible. It is believed that the line should be double tracked from a point within about two hundred feet of the East Madison railroad crossings near Blair street to such a point on Jenifer street that cars may flag by sight the distance to Ingersoll street until that section is double tracked. It is also necessary to have more double track between Camp Randall and Park street, and it seems best to double track from a point about two hundred feet east of the C. M. & St. P. crossing to about Charter street, as this part of the street is not yet paved and double tracking could, therefore, be made more speedily and easily.

It is not entirely out of reason that the Mills street switch may be pressed into service as a passing point in emergencies until double track can be laid all the way in to Park street.

The company's contention that the track is in poor operating condition is not deemed a valid objection to the establishment of a 10 minute schedule on the main line, as it is without question the duty and obligation of the company to keep its track in satisfactory condition for good service.

The service on the South Madison line is deemed inadequate by the engineering staff and a 20 minute schedule necessary until such time as an additional passing track can be put in to give a service of at least double the present frequency.

The service on the East Johnson-West Main street line will be made the subject of further investigation.

The respondent company, through its superintendent, testified that the Madison public was slow to respond to conditions of traffic and the members of the engineering staff have made some observations on this point. Of 188 observations taken of from one to six passengers leaving cars, the average time per passenger was found to be 2.56 seconds, but when taking into consideration the fact that about 45 per cent of the total passengers leaving did so before the car came to a stop, the time re-

quired per passenger for leaving was found to average only 1.62 seconds. In boarding cars an examination of 256 observations of from one to six passengers showed an average time per passenger of 2.40 seconds. During the period of the above observations about 15 per cent of the total people boarding the car did so while the car was in motion, reducing the average time per passenger to 2.03 seconds. The larger per cent of passengers leaving moving cars as compared to the per cent boarding cars is, of course, due to the fact that people are ready on the platform or steps to get off when the car slows down and those boarding the car must generally wait until the conductor signifies a clear passage.

Inasmuch as the subject of response by the people to conditions of traffic has been brought to the attention of the Commission's inspectors it is only reasonable that it be noted that the company itself has not always responded quickly to meet traffic conditions. As an instance, reference may be made to the report by members of the engineering staff acting on special orders from the Commission concerning the handling of equipment on Monday, Feb. 26, 1912. A heavy snowstorm struck Madison between 3 a. m. and 4 a. m. on that day, and as the wind was blowing approximately 40 miles an hour, bad drifting was encountered in many quarters. The company's cars made headway with considerable difficulty and some time before 8:30 were blockaded at various points. The snow plow was clearing State street between 8:30 a. m. and 9:30 a. m. and then went east to the barn for repairs, followed by a regular main line car. A west-bound car was released near Brearly street. When the plow reached the barn the regular car following was run inside and shortly after 7 o'clock other regular cars were taken off their runs and sent into the barn. This action would appear to indicate that all effort to maintain service was temporarily abandoned. The other five regular cars were stuck in the snow, but none of them were between the barn and the capitol.

The plow left the barn for the capitol about 11 o'clock or shortly thereafter, but was not followed by any regular or special cars until 12:36 p. m. From an operating point of view it would appear that constant, or at least frequent movement of cars following the plow would have done much toward keeping the track open under extremely trying conditions. To

the Commission's inspectors there did not appear to be any good reason why cars could not have been running at least between the capitol square and the barn in order to keep this track open and give people an opportunity to travel.

It is unlikely that a regular schedule could have been maintained, but it would appear that a snow plow is of minimum use in fighting snow during a continuing storm if cars are not run over sections already cleared to keep this track open.

MISCELLANEOUS.

It appears that passengers would be greatly benefited, especially at night and in such weather when windows are frosted, if conductors would call the streets. It seems that the company should take more interest in the convenience to the traveling public in this respect and see that their employes comply with ordinance 1429 passed by the common council of the city of Madison, requiring the conductors to call streets.

The respondent at the hearing pressed the matter of the prohibition of smoking, endeavoring to show that smoking led to congestion of the rear platform. It is believed that with the use of the front exit certain other factors causing back platform congestion are eliminated and that the smoking feature will be less important. There does not seem to be sufficient evidence that the prevention of smoking would eliminate the congestion complained of, but it is considered an item thereof and one affecting the cleanliness of cars and convenience of passengers and will therefore be made the subject of further investigation in the light of new conditions.

As alleged in the complaint, the Commission's inspectors have found that certain cars are not stopping for passengers, but leaving them for a car following within approximately 500 or 1000 feet. This seems to be a reasonable method of operation, when proper judgment is used therein. The method of the company in operating the west-bound extra behind the west-bound regular permits the extra to come out of the barn and follow the regular west-bound without necessitating the latter crossing the railroad track at the barn and with a minimum loss of time at that end of the line. As most of these extras run only to Camp Randall, they are permitted to overtake the

regular just east of the C. M. & St. P. tracks and turn back ahead of the regular east-bound car. Upon reaching the east end of the line at the barn the cars are again in the most advantageous positions relative to one another and the extra can go into the barn without delay to the regular by switching or crossing the railroad tracks.

In order to distribute the load between the two cars when operated in this order, especially on the west-bound trip, it is sometimes necessary for the first car to run by prospective passengers. It would appear that when the motorman on the first car uses proper judgment and does not allow the second car to become overcrowded when his own has vacant seats, this method should result in satisfactory operation.

CO-OPERATION BY THE PUBLIC.

Since it is the purpose of this investigation and the accompanying order to bring about an improvement in the street car service, it seems advisable to call attention to the fact that the public itself can assist very materially in making these improvements work for its own best interests. In order that the company may give the improved service herein ordered, it becomes necessary for the traveling public to be on the alert to assist in quickly unloading and loading cars, in moving to the front door, and keeping the platforms from becoming crowded. In making a faster schedule it is important that passengers should be at the crossings promptly in order to avoid unnecessary delays. In maintaining the faster schedule, it may also be necessary to make certain regulations regarding stops around the capitol square, and the public should adjust itself to any such reasonable traffic regulations as may be necessary upon proper notice by the company.

The subject of brakes, size and types of cars, later schedule or "owl" service, ventilation, smoking and other matters pertaining to the operation of the cars and adequacy of the service, are still before the Commission for further investigation and may be made the subject of a further order.

In the matter of schedules, additional passing tracks, the use of front vestibules and car doors, operation of cars on double track, announcing of street crossings and other matters herein

discussed, it is believed that the following order will work for an improvement of the service:

IT IS THEREFORE ORDERED:

(a) That passengers shall be allowed to cross the front platform of all closed cars for the purpose of exit through the right hand vestibule door.

(b) That passengers shall not be permitted to stand on the front platform while the car is in motion.

(c) That the company shall by placards in the cars and through its employes direct the attention of the public to the front exit and endeavor to establish the habit of front exit to facilitate movement of passengers.

(d) That the rear door may be used as either exit or entrance and the company shall not prohibit exit from the rear right hand door of the car, and it is optional with the company whether or not passengers shall be permitted to enter by the front right hand door.

(e) That whenever motorman, officer or other employe finds it necessary to leave the car, to throw switches or for any other reason, he shall use the right hand door; and that the left hand front and rear doors shall remain closed at all times.

(f) That the territory between Mills street and capitol park is not to be considered the exclusive territory of the Wingra Park cars, but that both the Wingra Park cars and South Madison cars shall jointly give service in this territory in both directions.

(g) That cars shall proceed on schedule on double tracks and that the practice of holding east-bound cars on Park street and west-bound cars at the East Madison station near Franklin and Wilson streets shall be discontinued.

(h) That conductors shall announce street crossings.

(i) That when two cars are operated on the same schedule, the first car, except with full load, shall not run by prospective passengers if by so doing the extra car following is overloaded.

(j) That the company shall establish a 10 minute schedule on the Wingra Park-Fair Oaks line instead of the present 12 minute schedule, and a 20 minute schedule on the South Madison line instead of the present 24 minute schedule, and that this be accomplished by decreasing the running time between switches, using the same number of regular cars for the schedule.

(k) That the company shall notify the public of such changes in schedule at least five days before such changes go into effect.

(l) That the company shall make at least such extensions or additions to double track or sidings, overhead and other equipment as may be approved by this Commission in order that a 5 minute service may be maintained between Baldwin street and Breeze Terrace on the Fair Oaks-Wingra Park line and a 10 minute schedule on the South Madison line, such service to go into effect not later than July 1, 1912.

(m) That sections (a) to (j) of this order shall become effective within ten days from and after the service of this notice.

MARINETTE AND MENOMINEE BOX COMPANY

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Decided March 20, 1912.

Petitioner alleges overcharge on a shipment of two carloads of lumber from Oconto to Marinette, Wis. The rate of 3 cts. per cwt. which was contended for was in effect on respondent's line from Marinette to Oconto and was later made effective on shipments in the opposite direction. The same rate was also in effect in both directions upon the C. & N. W. line.

Held: The rate charged was unusual and unreasonable, and a reasonable charge would have been 3 cts. per cwt. Refund is ordered on this basis.

The petitioner is a corporation engaged in manufacturing box shooks and crates at Marinette, Wis. It alleges that on May 17 and May 23, 1911, respectively, it shipped two cars of lumber from Oconto to Marinette, Wis., on which respondent assessed charges of 4 cts. per cwt.; that respondent's G. F. D. No. 7078-G quotes a rate, Oconto to Marinette, Wis., of 4 cts. per cwt., while the same tariff quotes a rate of 3 cts. per cwt. Marinette to Oconto, Wis.; that C. & N. W. Ry. Co. has a tariff No. 11694-D, effective Aug. 2, 1910, quoting a rate of 3 cts. on lumber from Oconto to Marinette, and 3 cts. from Marinette to Oconto, Wis.; that when respondent's attention was called to the fact that the C. & N. W. Ry. Co. had a rate either way between Oconto and Marinette, while that of respondent was 3 cts. one way and 4 cts. the other, it claimed that it was an error on its part, and at once issued supplement No. 21½ to G. F. D. No. 7078-G, making correction; that the charge based on the rate of 4 cts. amounted to \$45.88, and if a rate of 3 cts. had been applied the freight charges would have been \$34.41. Wherefore, petitioner prays that respondent be authorized to refund to it the amount of the difference between \$45.88 and \$34.41, or \$11.47.

The respondent, answering the petition, admits all the allegations thereof and states that with the authority of the Com-

mission it is willing to make the reparation asked for in the petition.

The claim was submitted upon the papers, pleadings, vouchers, and documents on file.

The facts in the case are similar to those in *Steven & Jarvis Lumber Co. v. C. St. P. M. & O. R. Co.* 1907, 2 W. R. C. R. 131, and *Menasha Paper Co. v. M. St. P. & S. S. M. R. Co.* 1909, 4 W. R. C. R. 360. In the latter case it was said:

“There is nothing in the traffic situation which would justify a higher rate on wood pulp shipped from Rhinelander to Ladysmith than if the shipment was in the opposite direction between the same points. It therefore follows that the prayer of the petitioner should be granted.”

We therefore find and determine that the rate of 4 cts. per cwt., charged petitioner on the above shipments from Oconto to Marinette, Wis., was unusual and unreasonable, and that a reasonable charge would have been 3 cts. per cwt.

NOW, THEREFORE, IT IS ORDERED, That the Chicago, Milwaukee & St. Paul Railway Company be and the same is hereby authorized and directed to refund to the said Marinette & Menominee Box Company the sum of \$11.47, which is the amount herein found to be in excess of the reasonable charge for the aforesaid shipment.

MENASHA PAPER COMPANY

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

Decided March 27, 1912.

Petitioner alleges overcharge on a shipment of eleven carloads of slabs from Ingram to Ladysmith, Wis. The rate contended for was made effective after the shipments had moved. Respondent contends that petitioner made the shipments in question merely to test the market, but facts indicate that there has been a constant shipment of slabs by petitioner from Ingram.

Held: The rate exacted was excessive when the value of the commodity as well as other elements are considered. The reasonable rate for such shipments would have been $2\frac{1}{2}$ cts. per cwt. as subsequently made effective. Refund is ordered on this basis.

The petitioner is a corporation engaged in the manufacture of pulp and paper at Ladysmith, Wis. It alleges that between Oct. 26, 1911, and Nov. 13, 1911, it shipped eleven carloads of slabs from Ingram, Wis., to Ladysmith, Wis.; that the respondent charged the rate of 3.4 cts. per cwt., or a total charge of \$151.71 on said shipments; that on Nov. 14, 1911, respondent's supplement No. 22 to its tariff G. F. D. No. 8362 established a rate of $2\frac{1}{2}$ cts. per cwt. on slabs moving from Ingram to Ladysmith. Wherefore, petitioner prays that the respondent be authorized and required to refund to it the sum of \$42.26, the amount of the overcharge upon the above shipments.

The respondent, answering the petition, admits all the formal allegations thereof, and alleges that the rates charged by it for the occasional shipments was not unreasonable; that the petitioner began shipping said slabs without informing respondent with regard to its purpose or giving any assurance of large shipments; that it would appear that petitioner was testing the desirability of these slabs in the market; that when it was satisfied after its test, it made representations to respondent and in consequence a lower rate was given, based upon the expectation of largely increased shipments; that under the circumstances the rate charged respondents was not unlawful,

unjust or unreasonable. Wherefore, respondent prays that the petition be dismissed.

The claim was submitted upon the papers, pleadings, and documents on file.

There is nothing in the record to show, nor have we been able upon investigation to ascertain, that the petitioner made the shipments in question merely to test the market, as alleged by the railway company. If it were a fact that certain trial shipments were made as a test, the contention of respondent would be sound. But it appears that from the very beginning to the present time there has been a constant shipment of slabs by the petitioner from Ingram. It also appears that the rate exacted of the petitioner was excessive when the value of the commodity as well as the other elements necessarily involved in determining the reasonableness of a rate are considered.

The rate of $2\frac{1}{2}$ cts. per cwt., which became effective Nov. 14, 1911, and is now in effect, is a reasonable one, and yields fair compensation to the carrier for the service rendered.

We therefore find and determine that the rate of 3.4 cts. per cwt., exacted of the petitioner for the aforesaid shipments of slabs in carload lots from Ingram to Ladysmith, was unusual and exorbitant, and that the reasonable rate that should have been applied to said shipments is the rate of $2\frac{1}{2}$ cts. per cwt., now in effect. The amount of the refund based upon a rate of $2\frac{1}{2}$ cts. per cwt. is \$34.17.

NOW, THEREFORE, IT IS ORDERED, That the Minneapolis, St. Paul & Sault Ste. Marie Railway Company be and same is hereby authorized and directed to refund to the petitioner the said sum of \$34.17.

GOODMAN LUMBER COMPANY

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

Decided March 27, 1912.

Petitioner alleges unreasonable charges on a shipment of two carloads of elm logs from Goodman to Pembine, Wis. The rate contended for was made effective after the shipments had moved.

Held: The rate exacted was unusual and exorbitant and the reasonable rate for such shipments would have been 2½ cts. per cwt., as subsequently made effective. Refund is ordered on this basis.

The petitioner is a corporation engaged in the purchase and sale of forest products and the manufacture and sale of lumber at Goodman, Wis. It alleges that it shipped two cars of elm logs as follows: On Oct. 13, 1911, one car weighing 53,200 lbs., and on Oct. 20, 1911, another car weighing 54,800 lbs.; that said shipments were made from Goodman to Pembine, Wis., a distance of less than twenty-five miles, wholly within the state of Wisconsin; that on Nov. 21, 1911, the respondent charged and collected payment of the petitioner of the sum of 3 cts. per cwt. in excess of the log rate of 1½ cts. per cwt. on saw logs for manufacture and reshipment for a distance of twenty-five miles or less, as governed by tariff G. F. D. 13185; that on Oct. 27, 1911, a reduced rate on shipments from Goodman to Kiel, by way of Pembine, was authorized by the Commission, by G. F. D. 14184, which would have made the tariff on the above described shipments 2½ cts. per cwt. from Goodman to Pembine, this being the admitted amount of respondent's share of the joint rate from Goodman to Kiel, and 2 cts. less per cwt. than the amount charged by the respondent; that the rate of 4½ cts. per cwt. on lumber from Goodman to Pembine, a distance of less than twenty-five miles, when applied to saw logs, was unreasonable, on the ground that it is out of proportion to the service rendered and prohibitive on account of the low value per cwt. of the commodity shipped. Wherefore, petitioner prays that the respondent be required to refund to

it the difference between its proportion of the rate from Goodman to Pembine and the actual rate of $4\frac{1}{2}$ cts. charged and collected, which difference amounts to 2 cts. per cwt., and on 108,000 lbs. amounts to \$21.60.

The respondent, answering the petition, admits all the formal allegations thereof and admits that the shipments moved and the freight was collected thereon as alleged in the petition. It states further that it is willing to make the refund requested, if duly authorized by the Commission.

The matter was submitted upon the pleadings, papers, and documents on file.

Under the circumstances disclosed, it is very evident that the contention of the petitioner is correct and that the rate of $4\frac{1}{2}$ cts. per cwt. upon lumber moving from Goodman to Pembine was unusual and exorbitant. This is conceded by the railway company and it voluntarily reduced its rate from $4\frac{1}{2}$ cts. to $2\frac{1}{2}$ cts. per cwt. in order to eliminate the apparent discrimination.

We find and determine that the rate of $4\frac{1}{2}$ cts. per cwt., exacted of the petitioner by the respondent for the aforesaid shipment of lumber, was unusual and exorbitant, and that the reasonable rate to have been applied to such shipments was $2\frac{1}{2}$ cts. per cwt., the rate now in effect. The weight of the shipments was 108,000 lbs., consequently the reparation to be awarded is \$21.60.

Now, THEREFORE, IT IS ORDERED, That the Minneapolis, St. Paul & Sault Ste. Marie Railway Company be and the same is hereby authorized and directed to refund to the petitioner, the Goodman Lumber Company, the said sum of \$21.60.

OWEN & BROTHER COMPANY

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

Decided March 27, 1912.

Petitioner alleges that the rate of 16 cts. per cwt., exacted for the shipment of a carload of buckwheat from Ridgeland to Milwaukee, Wis., was exorbitant. At the time the shipment moved the respondent had in effect a joint rate of 12½ cts. per cwt. on carload lots with the C. & N. W. Ry. Co. Subsequent to the shipment this rate was made effective on the M. St. P. & S. S. M. Ry.

Held: It is the duty of the railway company, in the absence of any specific directions to the contrary, to route shipments over lines whereby the freight charges will be least. The charge exacted was unusual and exorbitant and a reasonable charge would have been 12½ cts. per cwt., as subsequently made effective. Refund is ordered on this basis.

The petitioner is a corporation engaged in the business of buying and selling grain, with offices at Milwaukee, Wis. It alleges that on Oct. 14, 1911, it shipped over respondent's line from Ridgeland, Wis., to Milwaukee, Wis., one carload of buckwheat weighing 35,260 lbs., and that petitioner charged thereon freight amounting to \$56.46, or a rate of 16 cts per cwt.; that at the time the said shipment was made the respondent had in effect a joint tariff with the Chicago & North Western Railway Company via Rhinelander, Wis., as shown by tariff G. F. D. 5704, issued Nov. 28, 1905, providing a through rate on buckwheat in carload lots between said points of 12½ cts. per cwt.; that said shipment should have been routed and billed in accordance with the last named tariff; that the respondent has now issued its tariff G. F. D. No. 14428, effective Dec. 23, 1911, applying over its own rails from Ridgeland to Milwaukee a rate of 12½ cts. per cwt. on buckwheat in carload lots, minimum weight 30,000 lbs.; that the charges made on said shipments are erroneous, illegal, unusual and exorbitant. Wherefore, petitioner prays that the respondent be required to refund to it the sum of \$12.34, being the excessive charges exacted for the aforesaid shipments.

The respondent, answering the petition, admits all the formal allegations thereof and states its willingness to make the refund asked for in the petition.

The claim was submitted upon the pleadings, documents, vouchers, and schedules on file.

Upon the acquisition of the lines of the Wisconsin Central Railway Company, the respondent was obliged to adjust many rates to meet conditions upon competing lines. Evidently there was an oversight in not fixing the rate over its own line between the points mentioned in accordance with the joint rate it had in effect between said points with the Chicago & North Western Railway Company. It is the duty of the railway company, in the absence of any specific direction to the contrary, to route shipments over lines whereby the freight charges will be least. Under the circumstances, the petitioner is entitled to reparation.

We find and determine that the charge of 16 cts. per cwt., exacted of the petitioner by the respondent for the shipment of one carload of buckwheat from Ridgeland to Milwaukee, Wis., on Oct. 14, 1911, was unusual and exorbitant, and that the reasonable charge for such shipment would have been a rate of 12½ cts. per cwt.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, be and the same is hereby authorized and directed to refund to the petitioner the sum of \$12.34.

A. M. ROGERS

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY,
MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY COM-
PANY.

Submitted Dec. 12, 1911. Decided March 28, 1912.

Complaint was made of inadequate train service and facilities at an intersection of respondents' lines east of Laona Jct., Wis., due to the failure of the M. St. P. & S. S. M. R. Co. to stop its trains for the accommodation of passengers and the refusal of the C. & N. W. R. Co. and the M. St. P. & S. S. M. R. Co. to transfer freight from one road to the other. While the former company maintains a station at this point, the latter does not, but stops its trains at Laona Jct., three-quarters of a mile west. Under present conditions persons residing at points on the C. & N. W. R. Co's line north as well as south of the crossing have difficulty in going to and from Crandon, the county seat of Forest county, and Rhinelander, the principal city and market of this section of the state. As regards the interchange of carload freight, it appears that the principal carload shipments consist of forest products and are naturally destined to mills situated upon the line on which they originate. It would be practically impossible to secure remunerative rates for shipments of forest products in the present case if they were to be transferred from one line to another. If there were any necessity for the shipment of carload freight from the territory here involved to points on the "Soo" line, a joint arrangement could be made whereby the same could be taken to Laona and there routed by way of the L. & N. R. Co's line. As regards less than carload shipments, while not a great number would be inconvenienced by the stopping of local freight trains of the M. St. P. & S. S. M. R. Co. for the purpose of receiving and discharging freight in less than carload lots, yet those who actually require such service are greatly inconvenienced and put to an unnecessary expense in shipping and receiving freight under existing conditions.

Held: The present service and facilities of the M. St. P. & S. S. M. R. Co. at the point in question are inadequate. To subject passengers to a walk of three-quarters of a mile over a country road in all seasons of the year seems unreasonable, and especially so at a place where this could be obviated by stopping trains at the crossing of the two roads, where one of the roads maintains a station. Under existing circumstances there is no present necessity for facilities for transferring freight in carload lots at the crossing in question, but it seems only reasonable that the transfer of freight in less than carload lots should be made at this point. It is ordered that the M. St. P. & S. S. M. R. Co. stop its local passenger and freight trains at the crossing in question, on signal, every day except Sunday, for the taking on or letting off of passengers and for the receiving or discharging of freight in less than carload lots.

The petitioner resides at Newald, Wis. He alleges that the respondent's lines of railway intersect at a point three-quarters of a mile east of Laona Jct., but they refuse to transfer freight from one road to the other; and that the Minneapolis, St. Paul and Sault Ste. Marie Railway Company refuses to stop its trains at such intersection for the accommodation of passengers. Wherefore, petitioner prays that the respondent railway companies be required to provide facilities for the interchange of freight traffic at that point and that the Minneapolis, St. Paul & Sault Ste. Marie Railway Company be required to stop passenger trains at said point for the convenience of the public.

The respondent, the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, answering the petition, admits all the formal allegations thereof, but states that there is no practical necessity for any connection between its lines and the lines of the Chicago & North Western Railway Company at the junction of the two roads or for the stopping of passenger trains at said point for the accommodation of the public.

The respondent, the Chicago & North Western Railway Company, answering the petition, submits to the Commission all the matters and facts set forth in the petition for such action as the Commission may deem advisable after an investigation and hearing.

The hearing was held on Dec. 12, 1911. The petitioner appeared in person. The Chicago & North Western Railway Company was represented by *C. A. Vilas*, its general attorney, and the Minneapolis, St. Paul & Sault Ste. Marie Railway Company by *Kenneth Taylor*, its attorney.

It appears from the testimony that the main line of the Minneapolis, St. Paul & Sault Ste. Marie Railway Company runs in a general easterly and westerly direction through the state of Wisconsin and is crossed by a line of the Chicago & North Western Railway Company extending from Green Bay, Wis., in a general northerly direction to Saunders, Mich., where it connects with another line of the same company. The respondents' lines intersect at a point about three-quarters of a mile east of Laona Jct. in the county of Forest, Wis. At this intersection the Chicago & North Western Railway Company maintains a station for the convenience of the public. The Minne-

apolis, St. Paul & Sault Ste. Marie Railway Company neither maintains a station nor stops its trains at this point. Its regular stopping point is Laona Jct., three-quarters of a mile to the west. The Laona & Northern Railway Company runs from Laona to Laona Jct., connecting at the former place with the line of the Chicago & North Western Railway in question and at the latter place with the line of the Minneapolis, St. Paul & Sault Ste. Marie Railway Company. Passengers desiring to transfer from one line to the other are obliged to walk three-quarters of a mile, the distance between Laona Jct. and the crossing in question. In inclement weather and when the highway is muddy or covered with snow it is a hardship upon passengers to be required to walk this distance. While conveyances for the transfer of passengers seems to be available, the charge of one dollar per passenger exacted for the transportation between the two points is excessive and doubtless prohibitive in many instances.

It is argued on the part of the respondents that persons residing in cities are often obliged to travel a greater distance to reach depots than the distance between Laona Jct. and the North Western crossing. This contention can not be regarded as serious. Where sidewalks exist and are kept clear of snow and mud, as is the case in cities, the average person can walk a mile or more, if necessary, to reach a railway station without much inconvenience. But to subject passengers to a walk of three-quarters of a mile over a country road in all seasons of the year seems unreasonable, and especially so at a place where this could be obviated by stopping trains at the crossing of the two roads, where one of the roads maintains a station.

Persons residing at Newald and other points within this state on the line of the Chicago & North Western Railway Company, north of the crossing in question as well as south of the crossing, have difficulty at present in going to and returning from Crandon, the county seat of Forest county, and Rhinelander, the principal city and market place of that section of the state. In order to go from any such points north of the crossing by rail to Crandon, a person is obliged to stop at the crossing, walk or ride upon the highway to Laona Jct., take a "Soo" train at the latter point for North Crandon, and there transfer to a Wisconsin & Northern Railway Company train for Crandon, or to go south to Laona, transfer to the Laona & Northern train

for Laona Jet., and thence over the lines of the Minneapolis, St. Paul & Sault Ste. Marie Railway Company and the Wisconsin & Northern Railway Company, as already indicated; or go by a circuitous route a distance of two hundred miles northerly through the state of Michigan and thence southerly to Pelican and northwest to Crandon. A similar difficulty is encountered in going to and returning from Rhinelander. People living south of the crossing who are tributary to the North Western line are subjected to the same inconvenience. As the trains on the various lines are operated without much regard to connection at junction points, the time consumed in traveling between the points mentioned is prohibitive of the undertaking, except upon urgent and important matters.

The necessity for facilities for transferring freight in carload lots is not apparent. The principal carload shipments consist of forest products and are naturally destined to mills situated upon the line on which they originate. It would be practically impossible to secure remunerative rates for the shipments of such products if they were to be transferred from one line to another. Mills situated upon a line of railroad are generally in better position to handle the forest products along the line of such railroad to the advantage of shippers than mills on connecting lines. Furthermore, if there was any necessity for the shipment of carload freight from the territory here involved to points on the "Soo" line, a joint arrangement could be made whereby the same could be taken to Laona and there routed by way of the Laona & Northern. The distance between Laona and Laona Jet. is but seven miles. Such freight could therefore be transferred with an additional haul of but fourteen miles.

Under the existing circumstances, we do not believe that there is any present necessity for facilities for transferring freight in carload lots at the crossing point in question.

While not a great number would be inconvenienced by the stopping of the local freight trains of the Minneapolis, St. Paul & Sault Ste. Marie Railway Company for the purpose of receiving and discharging freight in less than carload lots, yet those who actually require such service are greatly inconvenienced and put to an unnecessary expense in shipping and receiving freight under existing conditions. It seems only reasonable under such circumstances that the transfer of such freight should be made at this point. This will not impose any undue burden

upon either of the roads. It will be unnecessary for local freight trains on the "Soo" line to stop except when having freight to discharge or when signaled to receive freight.

After a careful consideration of all the facts and circumstances disclosed by the investigation, we are of the opinion and it is our judgment that the present train service and facilities of the "Soo" line at the point and in the particulars above mentioned are inadequate, and that in order to render the same reasonably adequate the Minneapolis, St. Paul & Sault Ste. Marie Railway Company should stop its local passenger and freight trains at the crossing of its line with the line of the Chicago & North Western Railway Company at a point three-quarters of a mile east of Laona Jct. on signal, for the purpose of taking on and letting off passengers and for the purpose of receiving, discharging and transferring freight.

Now, THEREFORE, IT IS ORDERED, That the Minneapolis, St. Paul & Sault Ste. Marie Railway Company stop its local passenger and freight trains every day, except Sunday, at the crossing of its line with that of the Chicago & North Western Railway Company, at a point three-quarters of a mile east of Laona Jct., on signal, for the taking on or letting off of passengers, and for the receiving or discharging of freight in less than carload lots.

4—R. D.

W. A. BLACKMAN, ET AL.

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted Oct. 17, 1911. Decided March 30, 1912.

Petitioners allege that the grade crossing of the tracks of the C. & N. W. Ry. with the Prairie du Sac road in the village of Merrimac, Wis., is dangerous; that the north-bound platform at the station is without shelter to protect passengers in bad weather and that in going to and coming from trains passengers are obliged to cross a side track located between the depot and the main track. Investigations of similar situations elsewhere show that passengers will not cross the tracks to board trains as promptly when they are exposed to bad weather conditions as they will when shelter is provided.

Held: Some additional protective measure is required. The respondent is ordered to station a flagman at the crossing in question and to provide a shelter upon the north-bound platform. In accordance with respondent's suggestion, it is ordered to move the depot at Merrimac up to the main line and throw the passing track, which now lies between the main line and the depot, to a position in the rear of the depot.

The petitioners are residents of Merrimac, Wis., and allege in effect that the crossing of the highway over the tracks of the respondent railway company near the station at Merrimac, Wis., is dangerous and should be protected by a flagman; that there is a side track between the main track and the depot which side track passengers are obliged to cross in passing between the depot and trains; that there should be a covering on the west side of the north-bound main track to protect passengers in inclement weather when waiting to take trains going north.

The respondent railway company has filed no answer to the petition.

The matter came on for hearing on Oct. 17, 1911. The petitioners, *W. A. Blackman, George Loos, and J. E. Kirchstein* appeared in person, and the respondent was represented by *H. C. Cheyney*, its assistant general freight agent.

Merrimac is an incorporated village situated in Sauk county, and has a population of about 375, the greater number living in the northeast portion. It is located northeast and southwest

of the tracks of the respondent railway company. The only school in the village is located southwest of the tracks. This situation makes it necessary for the children from the northeast portion of the village, attending school, to cross these tracks three and four times a day.

The tracks at the crossing in question are in a curve extending northwest and southeast, and consisting of two main tracks, one spur, one passing siding, and a house track. From a point 1,300 feet southeast of the station to a point 2,680 feet northwest, the tracks form a gauntlet. Crossing the bridge over the Wisconsin river, trains in either direction are obliged at times to wait at one side or the other. At present time all of these tracks lie south of the station. The grade is descending from the northwest to the southeast. At a distance of about 250 feet northwest of the station, the tracks pass through an eight to twelve foot cut, extending a distance of from 400 to 500 feet. The highway is known as the Prairie du Sac road, extending from Prairie du Sac to the bridge, and crosses the tracks at Merrimac at an approximate angle of 35 degrees east and west. The construction is dirt and the width of the highway is 66 feet. A crossing bell is located in the southwest angle of the highway and right of way, which is operated from the two main tracks only. The grade from the tracks west is about -0.02 grade. From the tracks east the grade varies from $+0.1$ to $+0.5$ in 500 feet. The view to the northwest of one standing on the west approach, about one hundred feet west of the tracks, is obstructed by the rise in ground that forms the west side of the cut. The view to the southeast is obstructed by a lumber shed. Standing on the easterly approach within 150 feet of the approach, the view to the northwest is partially obstructed by the rising ground forming the east side of the cut, and it is difficult for one to see approaching trains, which are also obscured because of the curvature of the tracks. The view to the southeast is obstructed by the station, the elevators, and the natural rise of the ground southeast of the station.

It appears from the testimony that on Feb. 5, 1912, 220 people and 100 teams crossed the tracks, and that on Feb. 6, 1912, 470 people and 172 teams crossed the tracks.

On account of the gauntlet track crossing the Wisconsin river, located southeast of the station, it is sometimes necessary for south-bound trains to wait for north-bound trains crossing the

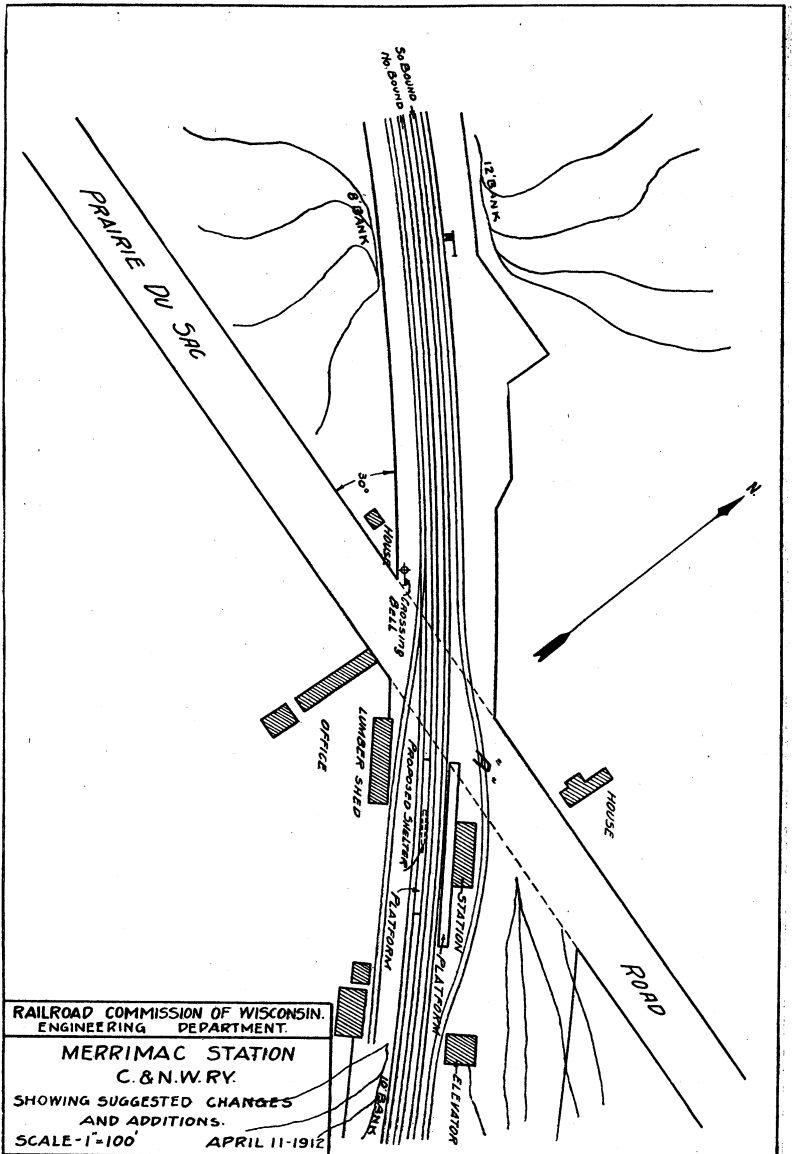
river. It is also necessary at times to break up the south-bound trains in order to get them off the main line and keep the highway crossing clear. In doing this, cars stand on either side of the highway, on the two side tracks and spur track, in which case the view of the tracks in either direction from either approach of the highway is obstructed, which requires a person to go within a few feet of either main track in order to see whether or not a train is approaching. During the time that the inspector of the Commission was making his observations, two cars were standing on the siding northwest of and adjacent to the station. These cars extended from the highway to about the northwest line of the station. The south-bound way freight pulled in and the merchandise cars, which were to be unloaded when placed at the station, brought the back end of the train across the highway, which necessitated cutting the train so as to leave a portion of it on the south-bound main track, north-east of the highway, while the remainder of it was pulled up to the station for unloading. In the forward end of this train were cars which it was necessary to place on the passing track, southwest of the main track. In order to do this, such cars were taken to the bridge for the purpose of getting them around the cars which were being unloaded at the station. The cars at the station were left standing on the south-bound track, and the rest of the train, standing northwest of the crossing, kept the crossing bell ringing constantly. While this switching was being done, a north-bound freight train passed, and had any person desired to use the highway at that time, it is questionable whether he could have crossed in safety, as the train crews were not paying any attention to the travel on the highway. The only warning teams or pedestrians would have had would have been the ringing of the crossing bell, which at that time was in good working condition and was being operated by the way freight train which was standing on the south-bound main track, as well as by the approaching train. The station building and platform are constructed of wood and are raised from the track level a distance of about four feet and are adjacent to the siding northeast from the south-bound main track. Passengers, in order to get the level of the track, are obliged to get on the platform, which is without any railing, and then descend four or five steps. In getting to the north-bound platform, it is necessary to cross the siding and both main tracks. In order to

reach the south-bound platform it is necessary to cross the siding. There is no shelter on the north-bound platform to protect the people from the elements. According to the agent, he endeavors to have north-bound passengers move across the track when the trains are about 1,300 feet southeast of the depot. There are oil lamps on the platform adjacent to the station, but there are no lights on the north-bound platform.

The passing track is made necessary by the gauntlet track crossing the Wisconsin river, and the other tracks are required for the local business. When the tracks are occupied, the view of approaching trains from either approach of the highway is entirely obscured. This causes an extremely dangerous condition at the highway crossing, and the present protective feature, consisting of the crossing bell, does not afford sufficient protection. In order to have this bell warn teams and passengers of approaching trains, it would be necessary for the same to be operated from all of the yard tracks as well as the two main line tracks, and, in view of the necessity at times to fill all such tracks with cars, this condition would cause the bell to ring constantly, which would tend to confuse persons traveling upon the highway and be more or less of a nuisance.

From the inspection made by the engineer of the Commission and the testimony taken upon the hearing, it is apparent that some additional protective measure is required at the crossing in question. On Oct. 7, 1911, the company stated in a letter that it would be willing to move the depot up to the main line, and throw the passing track, which now lies between the main line and the depot, to a position in the rear of the depot, and recommended securing additional team facilities by installing an additional side track some distance west of the station. The company was willing to install this track the present spring, providing the petitioners would abandon the demand for a flagman and a shelter shed.

The following sketch shows changes in the yard proposed by the railway company, together with additions that the inspection of the engineer of the Commission reveals are necessary:



The station location in the sketch is in accordance with the respondent's proposition contained in the letter above mentioned. Track "A," as shown in the sketch, is moved northeast of the station a sufficient distance to allow placing the station adjacent to the south-bound track "B," and the station building is

lowered to the level of the tracks. The respondent's proposition for the improvements suggested by it is based upon the willingness of the people of the village to abandon their demand for a shelter upon the north-bound platform and gates on the highway. However, as it is necessary for passengers taking north-bound trains to cross the tracks before the trains reach the station, it would appear, from investigations of similar situations elsewhere, that passengers will not cross the tracks as promptly when they are obliged to stand exposed to bad weather conditions as they will when there is some provision made for sheltering them. We therefore deem it advisable and necessary that some shelter should be provided on the south platform to protect passengers waiting for trains.

In view of the fact that the bell does not provide ample protection to persons traveling upon the highway, it would appear that some other protection should be provided. Gates do not furnish the protection that the public generally believes they do. If gates should be installed at the crossing in question, it would necessitate locating the man operating the same in a gate-house, so situated that he would be able to see over the depot or any of the box cars that might be near the crossing. But this would not prevent children or other persons passing under the gate, which experience shows is customary where gates are installed at crossings. A much better protection at the particular crossing in question would be a flagman who would not only be able to warn teams of approaching trains, but, if necessary, prevent unaccompanied children from crossing. After a careful consideration of all the matters involved in this proceeding, we are of the opinion that, in order to render the crossing in question reasonably safe for the public traveling upon the highway, it will be necessary for the railway company to make the changes indicated by it in its letter above referred to and as shown upon the foregoing sketch, and, in addition, to station a flagman at the crossing to warn pedestrians and teams upon the highway of approaching trains, and also to construct a shelter upon the south platform mentioned.

Now, THEREFORE, IT IS ORDERED, That the Chicago & North Western Railway Company be and the same is hereby required:

1. To move the depot at Merrimac up to the main line and throw the passing track, which now lies between the main line

and the depot, to a position in the rear of the depot, as indicated on the foregoing sketch;

2. To erect a shelter on the platform situated across the tracks south of the station for the purpose of protecting passengers from the elements;

3. To station a flagman at said crossing, charged with the duty of warning people upon the highway of approaching trains. Such flagman should remain on duty at all times when train movements are taking place.

Three months is deemed a reasonable time within which to comply with this order.

KEITH & HILES LUMBER COMPANY

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY,
WISCONSIN AND NORTHERN RAILWAY COMPANY.

Decided April 8, 1912.

Petitioner alleges excessive charges on shipments of thirty-two car-loads of logs from Siding 234, on the line of the M. St. P. & S. S. M. Ry. Co. between Gagen and Atkins, to Crandon, Wis. The rate contended for had previously been in effect and was subsequently re-established by respondents upon petitioner's complaint. Owing to the fact that the minimum weight provisions of the marked capacity of cars used were ignored, and that several errors in extensions were made in freight bills, there was an undercharge of \$8.18, according to the published tariff.

Held: The rate exacted was unusual and a reasonable rate would have been 1.95 cts. per cwt. as subsequently re-established. Refund is ordered on this basis. The undercharge is to be deducted from the amount of reparation claimed by the petitioner.

The petitioner is a corporation engaged in the manufacture of lumber at Crandon, Wis. It alleges that between June 21, 1911, and June 30, 1911, inclusive, it shipped thirty-two car-loads of logs from Siding 234, located on the line of the Minneapolis, St. Paul & Sault Ste. Marie Railway Company between Gagen and Atkins, to Crandon, on which the Wisconsin & Northern Railway Company assessed charges at the rate of 2.25 cts. per cwt., as provided in tariff M. St. P. & S. S. M. G. F. D. No. 13194; that prior to May 5, 1911, the respondents in tariff M. St. P. & S. S. M. G. F. D. No. 12954, effective Jan. 18, 1911, carried a rate between these points of 1.95 cts. per cwt., which rate was advanced in said tariff G. F. D. No. 13194, effective May 5, 1911, to 2.25 cts. per cwt.; that at the time of such advance the petitioner had on hand at Siding 234 a quantity of logs which it had purchased on the basis of a rate of 1.95 cts. per cwt. and which it was unable to move prior to the time of such advance in rates; that upon complaint of the petitioner the respondent again reduced the rate to 1.95 cts. per cwt., effective July 15, 1911, as shown in G. F. D. No. 13634; that the rates charged upon the shipments in question are excessive to the extent that they exceed 1.95 cts. per cwt.; that petitioner was obliged to pay the sum of \$55.87 on said ship-

ments in excess of what it would have been obliged to pay if the rate in effect had been 1.95 cts. per cwt. Wherefore, petitioner prays that the respondents be required to refund to it the said sum of \$55.87.

The respondent railway companies admit all the allegations of the petition and join in the prayer thereof.

The matter was submitted upon the papers, pleadings, documents, and vouchers on file.

The tariff references given in the petition are correct. These tariffs, however, provide for a minimum weight of the marked capacity of the car used. In the collection of charges this was ignored in several instances. There are also several errors in extensions shown on freight bills. The total amount of charges paid was \$412.53. The correct amount that should have been paid is \$420.71. There was, consequently, according to the published tariff, an undercharge of \$8.18. This must be taken into consideration in making reparation upon the shipments in question. The following statement shows the corrections that should be made:

Car.	Weight charged.	Rate. Cents.	Charges.	Should be		Refund basis	
				Weight.	Charges.	Rate. Cents.	Charges.
Soo 3785.....	60.00	2.25	\$13.50	O K	\$13.50	1.95	\$11.70
" 3385.....	60.000	"	13.50	O K	13.50	"	11.70
" 3107.....	60.000	"	13.50	O K	13.50	"	11.70
W C 2061.....	51.90	"	11.68	60.000	13.50	"	11.70
Soo 1527.....	50.600	"	11.39	O K	11.39	"	9.87
" 3273.....	60.00	"	13.50	O K	13.50	"	11.70
" 3393.....	60.000	"	13.50	O K	13.50	"	11.70
" 2331.....	50.000	"	11.25	O K	11.25	"	9.75
" 2041.....	50.100	"	11.27	O K	11.27	"	9.77
" 3305.....	60.000	"	13.50	O K	13.50	"	11.70
W C 3453.....	60.000	"	13.50	80.000	18.00	"	15.60
" 2409.....	57.300	"	12.89	60.000	13.50	"	11.70
Soo 3163.....	60.000	"	13.50	O K	13.50	"	11.70
" 3719.....	60.000	"	13.50	O K	13.50	"	11.70
" 3247.....	50.000	"	11.5.*	60.000	13.50	"	11.70
" 3389.....	60.000	"	13.50	O K	13.50	"	11.70
" 3133.....	60.000	"	13.50	O K	13.50	"	11.70
" 2363.....	54.900	"	12.35	O K	12.35	"	10.71
" 1635.....	54.200	"	12.10	O K	12.20	"	10.57
W C 2195.....	60.000	"	13.50	O K	13.50	"	11.70
Soo 3385.....	60.000	"	13.50	O K	13.50	"	11.70
Soo 50487.....	60.000	"	13.50	O K	13.50	"	11.70
" 1991.....	50.000	"	11.50*	O K	11.25	"	9.75
" 50831.....	60.000	"	13.50	O K	13.50	"	11.70
" 1527.....	50.000	"	11.50*	O K	11.25	"	9.75
W C 2367.....	60.000	"	13.50	O K	13.50	"	11.70
Soo 2041.....	50.000	"	11.50*	O K	11.25	"	9.75
W C 2181.....	60.000	"	13.50	O K	13.50	"	11.70
Soo 3315.....	60.000	"	13.50	O K	13.50	"	11.70
" 3273.....	60.000	"	13.50	O K	13.50	"	11.70
" 3057.....	60.000	"	13.50	O K	13.50	"	11.70
" 3513.....	60.000	"	13.50	O K	13.50	"	11.70
Grand total..			\$412.53		\$420.71		\$364.62

*Overcharge of 25 cts., error in exp. bill extension.

Amount of charges properly assessable.....	\$420.71
" " " paid.....	412.53
" " " due railroad company.....	\$8.18
REFUND: Paid.....	\$412.53
Should be.....	364 62
Excessive charges.....	\$47.91

The increase in the rate was not justified under the circumstances. It was evidently the result of an oversight in the publication of the new tariff. When the respondents were advised of the error they immediately corrected the same, but meanwhile the shipments in question moved and were subject to the rate that was made effective by the publication of the new tariff.

We therefore find and determine that the rate exacted of the petitioner for the aforesaid shipments of logs from Siding 234 to Crandon was unusual and that the reasonable rate that should have been in effect and applicable to such shipments was 1.95 cts. per cwt.

The undercharge must be deducted from the \$55.87 claimed by petitioner.

Now, THEREFORE, IT IS ORDERED, That the respondents be and the same are hereby authorized and directed to refund to the petitioner the sum of \$47.91.

ROBERT KRULL COMMISSION COMPANY

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Decided April 13, 1912.

Complaint was made of illegal demurrage charges on a carload shipment of hay from Reedsville to Milwaukee, Wis. The petitioner alleges that the C. & N. W. Ry. Co. exacted a charge of \$4 for car service in violation of sec. 1797—10m of the Wis. St., which provides that a "consignee shall be allowed for unloading without car service or demurrage being assessed, additional free time equivalent to the number of days in excess of seventy-five miles per day of twenty-four hours, consumed by the common carrier in transporting freight from point of shipment to point of destination." The car in question was delivered to the carrier on Jan. 5 and did not reach its destination until Jan. 23, 1912. Had the car been transported at the average rate of 75 miles per day, it would have reached its destination within two days after its receipt by the carrier.

Held: As the delay in unloading, after receipt of the shipment by the consignee, was less than the time the shipment was in transit in excess of the statutory allowance, the demurrage charge exacted of the petitioner was illegal. Refund is ordered.

The petitioner is a corporation engaged in the hay and grain business at Milwaukee, Wis. It alleges that on Jan. 5, 1912, a carload of hay was consigned to it at Milwaukee, Wis., which had been shipped from Reedsville, Wis., a distance of ninety-three miles; that notwithstanding almost daily requests by petitioner to respondent to hasten the delivery of such shipment, the same did not reach its destination until Jan. 22, 1912; that on account of the delay petitioner has suffered a financial loss; that up to and including Jan. 20, 1912, there was a great demand for hay in Milwaukee, but that on Jan. 22, the date on which said shipment arrived at Milwaukee, the market declined \$2 per ton; that respondent exacted a charge of \$4 for car service on said shipment, in violation of sec. 1797—10m. Wherefore, petitioner prays that the respondent be required to refund to it the said sum of \$4.

The respondent, answering the petition, alleges that because of unusually severe weather conditions the car in question was

delayed at Sheboygan, Wis.; that because of such conditions it was necessary for the respondent to move coal in preference to all other classes of freight, and that said car was therefore obliged to wait.

The claim was submitted upon the pleadings, papers, documents, and vouchers on file.

Section 1797—10m provides as follows:

“In all cases where common carriers move carload freight from point of shipment to point of destination at an average rate of less than seventy-five miles for each twenty-four hours, consignee shall be allowed for unloading, without car service or demurrage being assessed, additional free time equivalent to the number of days in excess of seventy-five miles per day of twenty-four hours, consumed by the common carrier in transporting said freight from point of shipment to point of destination.”

It is conceded that the car here in question was delivered to the carrier on Jan. 5, 1912, at Reedsville, Wis., and that same did not reach its destination until Jan. 23, 1912. If the car had been transported at the average rate of seventy-five miles per day, it would have reached its destination within two days after its receipt by the carrier. Under the statute, the shipper was entitled to at least thirteen days additional time for free unloading. As the delay in unloading, after receipt of the shipment by the consignee, was less than the time the shipment was in transit in excess of the statutory allowance, no car service or demurrage should have been charged to or exacted of the petitioner. It follows that the demurrage paid to the carrier must be refunded.

For the reasons stated, we find and determine that the charge of \$4 for car service, exacted of the petitioner by the railway company for the delay in unloading the car of hay in question, was illegal.

NOW, THEREFORE, IT IS ORDERED, That the Chicago & North Western Railway Company be and the same is hereby required and directed to refund to the petitioner, the Robert Krull Commission Company, the said sum of \$4.

E. P. BACON COMPANY

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

Decided April 16, 1912.

Petitioner alleges unreasonable and exorbitant charges on a carload shipment of rye from Corning to Milwaukee, Wis. At the time the shipment moved the respondent had in effect a rate of 10 cts. per cwt. on rye in carloads from Portage to Milwaukee, applicable as the maximum at intermediate points. Since Corning is intermediate between Portage and Milwaukee, this rate was applicable to the shipment in question.

Held: The rate exacted was unusual and exorbitant and 10 cts. per cwt. would have been the reasonable and proper rate under the circumstances. Refund is ordered on this basis.

The petitioner is a corporation engaged in the commission business at Milwaukee, Wis. The petition alleges that on Aug. 29, 1911, petitioner shipped a carload of rye from Corning, Wis., to Milwaukee, Wis., on which the railway company charged a rate of 18.3 cts. per cwt., amounting to \$115.07 for the shipment; that respondent, in its tariff W. C. A—163 and later by supplement No. 13 to said tariff, effective Nov. 1, 1911, established a rate of 10 cts. per cwt., applicable from Endeavor, Wis., to Milwaukee, Wis., Endeavor being the first station north of Corning; that the charge exacted of the petitioner for the aforesaid shipment was unreasonable and exorbitant. Wherefore, petitioner prays that the respondent be required to refund to it 8.3 cts. per cwt. on said shipment of 62,880 lbs., amounting to \$52.19.

The respondent, answering the petition herein, states that it is willing to adjust this claim according to the finding of the Commission.

The claim was submitted upon the pleadings, vouchers, and documents on file.

Respondent's tariff A—163, naming a rate of 10 cts. per cwt., was properly applicable to the shipment in question.

This tariff, as originally issued and made effective Sep. 29, 1903, provided a rate of 10 cts. per cwt. on rye in carloads from Portage to Milwaukee, applicable as the maximum at intermediate points. Corning is intermediate between Portage and Milwaukee. Supplement No. 3 to such tariff, effective Aug. 21, 1906, made a number of changes in rates. These changes appeared under the heading "Refer to tariff described above and make the following corrections and additions." Among the changes thus made was an additional rate from Portage to Milwaukee of 9 cts. per cwt. on grain in carload lots. The supplement, however, provided that terminal rates only will not apply from intermediate points. This did not cancel the 10 ct. rate and the same is still in effect without further change insofar as Portage and intermediate points are concerned, but effective Nov. 1, 1911, supplement No. 13 to said tariff specifically added Corning at a 10 ct. rate. Endeavor, the first station north of Corning, takes a 9½ ct. rate on grain in carloads to Milwaukee, which rate has been in effect since Aug. 21, 1906.

Although there is some confusion in the tariff relative to the rates properly applicable to the shipment here in question, it seems that the rate of 10 cts. per cwt. could have been lawfully applied, and being the lowest rate in effect should have been used in computing the charge.

We find and determine that the rate of 18.3 cts. per cwt., exacted of the petitioner by the respondent for the aforesaid shipment of one carload of rye from Corning, Wis., to Milwaukee, Wis., on Aug. 28, 1911, was unusual and exorbitant, and that the reasonable and proper rate that should have been applied to such shipment is the rate of 10 cts. per cwt.

As the weight of the car was 62,880 lbs., the proper charge to have made was \$62.88, or \$52.19 less than the actual amount received by the carrier.

NOW, THEREFORE, IT IS ORDERED, That the Minneapolis, St. Paul & Sault Ste. Marie Railway Company be and the same is hereby authorized and directed to refund to the petitioner the said sum of \$52.19.

LORENZ SCHNEIDER

vs.

STANLEY, MERRIL AND PHILLIPS RAILWAY COMPANY.

Decided April 16, 1912.

Petitioner alleges excessive and discriminatory charges on a carload shipment of fence posts from a siding between Bellinger and Gilman to Stanley, Wis. The rate contended for was made effective after the shipment had moved.

Held: The rate exacted was unusual under the circumstances and a reasonable rate would have been 3 cts. per cwt., as subsequently made effective. Refund is ordered on this basis.

The petitioner is a farmer residing near Stanley, Wis. He alleges that the rates on shipments of green tamarack fence posts from a siding between Bellinger and Gilman to Stanley are unjust, excessive, unreasonable and discriminatory; that on Feb. 13, 1912, he shipped a car containing 1,200 green tamarack fence posts from said siding over respondent's line to Stanley; that the weight reported by respondent on this car was 65,800 lbs. net; that respondent charged $4\frac{1}{2}$ cts. per cwt., making freight charges for actual haul of thirteen miles \$29.61; that such charge is unjust and unreasonable; that, effective Feb. 20, 1912, and subsequent to movement of said shipment, the respondent railway company published a rate of 3 cts. per cwt. on wooden fence posts, carloads, minimum 50,000 lbs. per car, between points named. Wherefore, petitioner prays that the respondent be required to refund to him the sum of \$9.87, which is the amount collected of petitioner as freight charges on said car in excess of the freight charges had the same been assessed on the basis of the published rate effective Feb. 20, 1912.

The respondent, in its answer, admits all the formal allegations of the petition, and that, effective Feb. 20, 1912, and subsequent to the movement of shipment in question, it published a rate of 3 cts. per cwt. on wooden fence posts, carloads, minimum 50,000 lbs. per car, between points named; but contends that the freight charges were assessed on the basis of scale weight of 64,800 lbs. and published rate of $4\frac{1}{2}$ cts. per cwt.,

which rate was quoted petitioner prior to cutting and shipping said posts; that the rate in effect at the time of shipment and as applied was discriminatory to the extent of exceeding the present rate of 3 cts. per cwt., and it will willingly make refund in the sum of \$9.87.

The claim was submitted upon the pleadings, papers, vouchers, and documents on file.

It is conceded that the rate exacted of the petitioner for the shipment in question was discriminatory. The rate subsequently put in effect is fairly remunerative and should have been applicable to such shipment. Under the circumstances, we find and determine that the rate exacted of petitioner was unusual, and we further find that a reasonable rate for the services rendered by the respondent for the transportation of said posts, as aforesaid, would have been 3 cts. per cwt.

Now, THEREFORE, IT IS ORDERED, That the said Stanley, Merrill & Phillips Railway Company refund to the said Lorenz Schneider the sum of \$9.87.

5—R. D.

HOWARD TEASDALE

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY,
CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted Feb. 13, 1912. Decided April 20, 1912.

Petitioner alleges that the C. & N. W. Ry. Co. and the C. M. & St. P. Ry. Co. refuse to establish a switching charge for the service rendered in switching cars from one line to points on the other, within the city of Sparta, Wis., for team track delivery. Respondents contend that a regulation which permits a carrier to avail itself of the terminal facilities of a connecting carrier, such as sec. 1797—11 of the statutes and ch. 302 of the Laws of 1911, is invalid. Respondents have made a physical connection of their tracks at Sparta. They charge \$2 per car for switching cars from one line to the other to and from industries located along their spur tracks, but the regular distance tariff rates are charged for the transfer of cars from the team tracks of one road to those of the other. The latter service is regarded as an independent movement. It is more convenient and less expensive for certain shippers and receivers of freight to load and unload cars at the teaming tracks of the C. M. & St. P. Ry. Co. than at those of the C. & N. W. Ry. Co.

Held: The question here presented was fully considered in *Clark v. C. M. & St. P. R. Co.* 1907, 1 W. R. C. R. 590, where it was held that under sec. 1797—11 a railroad company could be required to receive cars from a connecting carrier and deliver them upon its public teaming track for unloading. Ch. 302 of the Laws of 1911 was enacted for the express purpose of removing any doubt as to the authority of the Commission to require the service herein sought by the petitioner. The Commission should not attempt to set at naught legislation, even though convinced of its invalidity, unless the enforcement of the same would result in some irreparable injury. No such consequence can result from any order of the Commission requiring compliance with the particular statute whose validity is challenged by the respondents, for in a proper proceeding any order of the Commission based upon the statute may be reviewed in court and the validity of the statute tested. The distance tariff rates now applicable to the switching service required for team track delivery are prohibitive of the service. The switching of cars for team track delivery or from team tracks when loaded thereon is similar in character to the service now furnished industries located in Sparta along spur tracks of either road, and unless the same charge is made a discrimination would exist between shippers. It is ordered that in lieu of the distance tariff now exacted, respondents establish a switching rate of \$2 per car for transferring intrastate freight in carload

lots from the line of one to the teaming or spur track of the other for team track delivery, or from such teaming or spur tracks, when cars are furnished for team track loading to the line of the other carrier.

The petitioner is a resident of the city of Sparta, Wis., and alleges that he receives coal and other products shipped both over the lines of the Chicago & North Western Railway Company and destined to be unloaded from a team track of the Chicago, Milwaukee & St. Paul Railway Company in the city of Sparta, and over the line of the Chicago, Milwaukee & St. Paul Railway Company in said city of Sparta destined to be unloaded from a team track of the Chicago & North Western Railway Company; that the tracks of said companies are now connected within the limits of said city and that said companies have all the facilities for the rendering of such service and have put in force and effect like service to certain tenants of buildings located near the tracks of said railroads, which tracks are not private tracks of the said tenants, and upon which tracks any cars originating upon the line of the company which owns the spur to which they are destined are now and for years past have been placed without additional compensation, and for any car received by one carrier from the connecting carrier a switching or transfer charge of \$2 is now fixed by the tariffs in effect; that the said companies should be required to make such reasonable rules and regulations as to such service and the charges therefor as shall be reasonable and proper in order that the petitioner and others similarly situated may be able to handle any shipments in accordance therewith; that such rates, rules and regulations should be so made as to be applicable on shipments received by the petitioner, school district No. 1 of the city of Sparta, and all other persons requiring the same.

The Chicago, Milwaukee & St. Paul Railway Company, answering the petition herein, alleges that it is the common practice to establish switching rates for the movement of carload shipments between connecting lines and industries, and that the practice is now and in the past has been followed at Sparta, and that it has a duly published tariff naming switching rates to and from the Chicago & North Western Railway Company's connection on shipments destined to or received from industries located on the lines of this respondent; and that the charges for the services provided for by said tariff are reasonable.

The Chicago & North Western Railway Company, answering the petition herein, alleges that it believes that its rules and regulations in relation to transfer switching at Sparta are just and fair and within the law as passed by the legislature of Wisconsin; that it makes transfers or switching to industry tracks, but that it has no arrangements for the transfer or switching from its own team tracks to the team tracks of any other railroad, and that it is not reasonable or just that it should be required to make transfers from the team tracks of its own line to the team tracks of any other line, or that it should allow transfers to be made from any other line of railroad to its team tracks; that it has furnished ample and sufficient team tracks to accommodate the business on its line; that to allow the use of those team tracks by other railroads for the delivery of carload freight would be to take the property of this respondent without due process of law, and that it can not be compelled to surrender the use of its team tracks to other lines of railroad for the purpose of delivery of carload freight.

The matter came on for hearing on Feb. 13, 1912. The petitioner appeared in person; the Chicago, Milwaukee & St. Paul Railway Company by *J. N. Davis*, its assistant commerce counsel; and the Chicago & North Western Railway Company by *C. A. Vilas*, its general attorney.

It appears from the evidence that shortly after the enactment of ch. 302 of the Laws of 1911 the respondent railway companies made a physical connection of their tracks near the city limits of the city of Sparta, so as to enable the transfer of freight in carload lots from the line of one company to that of the other. Thereupon the companies made and duly published a tariff providing a charge of \$2 per car for switching cars from the tracks of one company and delivering them to industries situated on a spur or teaming track of the other company. Both companies have spur tracks within the city of Sparta which are used not only for the purpose of serving the industries located along the same, but also as public teaming tracks.

The Chicago, Milwaukee & St. Paul Railway Company has a spur known as the Newton spur, which is used to serve several industries located along the right of way or adjoining the track and also serves as a public teaming track. It has another spur known as the Brittingham & Hixon spur, which serves the industries adjoining the same and is also used as a public team-

ing track. The Newton spur extends for a distance of about three-quarters of a mile, almost at right angles with the main track, into the central part of the city. The city schools, the state school, and the pumping station of the municipal water plant are within easy access of this spur, also a number of shippers and receivers of freight have their warehouses and places of business located within a short distance of this spur as well as of the Brittingham & Hixon spur, and would be greatly inconvenienced if they were permitted to receive the freight, shipped over the line of the Chicago & North Western Railway Company, upon either of these spurs for the purpose of unloading. As these spurs are a mile nearer to their respective places of business than the teaming tracks of the Chicago & North Western Railway Company, the expense of hauling freight that distance would be obviated.

The president of the Jefferson Tobacco Company testified that if the tobacco company could use the teaming tracks of the Chicago, Milwaukee & St. Paul Railway Company for loading and unloading freight which was received from or destined to points on the line of the Chicago & North Western Railway Company, it would save one-half of the present cost of hauling the freight to and from its warehouse. Under existing conditions, this company is obliged not only to haul carload shipments from the track of the Chicago & North Western Railway Company to its place of business, but is also obliged to haul the same back again in order to get the benefit of the concentration rates on tobacco; that since Christmas, 1911, it has received ten cars of tobacco from points on the line of the Chicago & North Western Railway Company and shipped out over the same line during said time six cars of tobacco; that the Newton spur is but about two blocks away from its warehouse, and that to haul the tobacco a distance of over a mile often results in damage to the same,—the damage resulting from the shaking and dropping off.

The secretary of the state board of control, at the instance of that body, says:

“The state public school is located at Sparta. The total tonnage of coal, etc., received at that institution is about 2,250 tons per year. The Chicago, Milwaukee & St. Paul Railway Company refuses to switch any cars received for the state public school from the tracks of the Chicago & North Western Railway Company unless the regular freight tariff is paid, and that would mean a tariff of 60 cts. per ton. The employees of the Chicago, Mil-

waukee & St. Paul Railway at Sparta, when asked to switch cars received over the Chicago & North Western tracks, informed the officials of the state public school that they only switch cars for companies, corporations or individuals who have warehouses on their tracks. If the cars are switched from the Chicago & North Western tracks to the sidetrack of the Chicago, Milwaukee & St. Paul Railway Company most convenient to the state public school, it makes a difference of one mile in the hauling. If the switching is done at a reasonable rate, there would be a saving to the state of at least \$300 per year, and a great deal of inconvenience will be avoided.

“The state public school would be willing to pay a reasonable charge for the switching of cars, but the regular rate of 60 cts. per ton is regarded as excessive.”

It was also shown by the testimony of the president of the water commission and the chairman of the street committee of the common council that the city and many other shippers and receivers of freight in carload lots would save from 20 to 33 per cent if they could receive their freight shipped from points on the line of the Chicago & North Western Railway Company upon the teaming tracks of the Chicago, Milwaukee & St. Paul Railway Company.

The city receives coal for the school buildings, pumping station, as well as stone and other materials for street purposes. In addition to the saving in the cost of unloading, there would be a great saving of time, and in consequence cars could be released in from nine to twelve hours after their receipt, as compared with the ten to twenty hours that is now required. A considerable portion of the shipments that would be convenienceed by an arrangement which would enable shippers to receive and deliver their carload freight upon the teaming tracks of either road regardless of the point of origin or destination of the shipments, are intrastate. The distance tariff rates now applicable to the switching service required for team track delivery as above indicated are prohibitive of the service. To render the service available to others than those having industries located adjoining the spurs, the petitioner, as a member of the state senate, was the author of and instrumental in having ch. 302 of the Laws of 1911 enacted.

Sec. 1797-11 provides as follows:

“All railroads shall afford all reasonable and proper facilities for the interchange of traffic between their respective lines for forwarding and delivering passengers and property, and shall

transfer, switch for a reasonable compensation, and deliver without unreasonable delay or discrimination, any freight or cars, loaded or empty, destined to any point on its tracks or any connecting lines; provided, that precedence over other freight shall be given to live stock and perishable freight."

Secs. 1802c and 1802d, being a part of sec. 1 of ch. 302 of the Laws of 1911, are as follows:

"Every railway corporation whose track crosses the track of any other railway corporation at grade in any town, city or village, or whose tracks and right of way shall be adjacent to the tracks and right of way of any other railway corporation, within the limits of any city or incorporated village, shall, within sixty days after a written request of the railroad commission, or the town board of supervisors, make a track connection between each other within such town, city, or village to afford all reasonable and proper facilities for the interchange of traffic between their respective lines for forwarding and delivering freight, and shall transfer or switch and deliver without unreasonable delay or discrimination any freight or cars, loaded or empty, destined to any point on its tracks or any connecting line, and of the expense thereof shall be borne equally between each of the said corporations, unless otherwise ordered by the railroad commission."

"The railroad commission shall, upon written request of any consignee, upon notice to the applicant and the said companies, make such reasonable rules and regulations for the switching of cars from one of such connecting railroads to the other as shall be reasonable and proper."

As already stated, the respondent railway companies have made a physical connection of their tracks at Sparta so that at present cars may be transferred from the tracks of either company to those of the other, and hence the only question here remaining for solution is the refusal of the companies to establish a switching charge for the service rendered in switching cars from one line to points on the connecting line within the city for team track delivery. Practically the only service required in the situation as at present existing is the transfer of cars from the tracks of the Chicago & North Western Railway Company to the teaming tracks of the Chicago, Milwaukee & St. Paul Railway Company. Because of the location of their industries and places of business, it is more convenient and less expensive for certain shippers and receivers of freight to load and unload cars when set on the teaming tracks of the Chicago, Milwaukee & St. Paul Railway Company than when the same

are placed upon the teaming tracks of the Chicago & North Western Railway Company. At present the Chicago, Milwaukee & St. Paul Railway Company receives such cars from the connecting carrier and charges for the service the regular distance tariff rates. This service is regarded as an independent movement. As to interstate traffic, the movement from the line of the Chicago & North Western Railway Company to the teaming tracks of the Chicago, Milwaukee & St. Paul Railway Company is treated as a separate intrastate shipment, and charges are made therefor accordingly. While the St. Paul road is the one that will be the most vitally affected by the proposed substitution of a switching charge for the distance tariff rates, both carriers oppose the proposition because of the principle involved. The objection, as we understand it, is not directed to the switching of cars from one line to the other for the purpose of further transportation or for delivery to industries located upon the spur tracks of either road, but the switching of cars for a switching rate for the sole purpose of using the teaming tracks of one carrier at the transfer point for the loading and unloading of freight which is destined to, or received from, points on the line of the other carrier.

In *Clark v. C. M. & St. P. R. Co.* 1907, 1 W. R. C. R. 590, the question here presented was fully considered, and it was there held that under sec. 1797-11, a railway company could be required to receive cars from a connecting carrier and deliver the same upon its public teaming track for unloading. The reasons which led to such conclusions need not be here reiterated, but suffice it to say that they are equally applicable to the instant case, for the conditions in both cases are similar. However, since the ruling in the *Clark* case was challenged in an action brought in the circuit court to set aside the order of the Commission, and notwithstanding the action was dismissed by the carrier after pending for a considerable length of time, the legislature at the recent session enacted ch. 302 of the Laws of 1911, for the express purpose of removing any doubt as to the authority of the Commission to require the service herein sought by the petitioner, and particularly of meeting the situation at Sparta and any other similar situation that might exist or hereafter arise in the state. At the time of its passage, this act was deemed adequate to remedy the evil complained of at Sparta. Therefore, in view of the well-known legislative intent, we do

not feel at liberty to indulge in any construction of this statute that will defeat the end sought to be obtained thereby.

The able and interesting brief of counsel for the respondents upon the question of the validity of any regulation which in effect permits a carrier to avail itself of the terminal facilities of a connecting carrier as intended by the statutes here invoked, has been given careful study and consideration, but the determination of the validity of a statute is a judicial and not an administrative function. Tribunals such as this Commission should not attempt to set at naught legislation, even though convinced of its invalidity, unless the enforcement of the same would result in some irreparable injury. No such consequence can result from any order of the Commission requiring compliance with the particular statute whose validity is challenged by the respondents, for in a proper proceeding any order of the Commission based upon such statute may be reviewed in court and the validity of the statute tested.

The companies have voluntarily established a charge of \$2 per car for switching cars from one line to the other to and from industries located along their spur tracks in the city of Sparta, and as the switching of cars for team track delivery or from team tracks when loaded thereon is similar in character and no more onerous to the carriers, it would seem that the same charge should be made for the latter service; otherwise a discrimination would exist between shippers as to charges for the same service which would probably not be justified under the statute.

NOW, THEREFORE, IT IS ORDERED, That the Chicago & North Western Railway Company and the Chicago, Milwaukee & St. Paul Railway Company be and the same are each hereby required to cease and desist from charging the distance tariff rates for transferring freight in carload lots shipped over the line of either of said railway companies from points within this state to the city of Sparta to the teaming or spur tracks of the other of said railway companies for team track delivery, and from charging such rates for transferring freight in carload lots from such teaming or spur tracks, when cars are furnished for team track loading, to the line of the other carrier to points in this state on which the same is destined, and that in lieu of such rates the said railway companies shall charge \$2 per car, and shall perform such service when requested to do so by the consignee or consignee of any freight offered in carload lots,

MASON & MARTIN

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Decided April 23, 1912.

Petitioner alleges excessive charges on a carload shipment of live stock from Blue Mounds to Cudahy, Wis., and on one from Blue Mounds to Milwaukee, Wis. The rates exacted were found to be excessive and ordered reduced in the case of *Arries & Packham et al. v. C. & N. W. R. Co.* 1911, 7 W. R. C. R. 131. The substitute rate therein ordered was lawfully in effect when the shipment to Milwaukee was made, but the shipment to Cudahy was made before the order became effective.

Held: The excessive charge on the shipment to Milwaukee was unlawful and therefore may be refunded without an order. The rate exacted on the shipment to Cudahy was unusual and a reasonable charge would have been 11 cts. per cwt. plus \$2 for a stop to finish loading. Refund is ordered on this basis.

Petitioners are dealers in live stock at Blue Mounds, Wis., and Verona, Wis. They allege that the respondent railway company charged them for transporting a car of live stock from Blue Mounds to Cudahy, Wis., on July 10, 1911, stopping the car at Verona, Wis., to finish loading, the sum of \$35.86, which was excessive and unreasonable, as the same should not have exceeded the sum of \$23.86; that the said railway company charged the petitioner for transporting a car of live stock from Blue Mounds to Milwaukee on or about Aug. 1, 1911, stopping the car at Verona to finish loading, the sum of \$34.32, which amount was excessive and unreasonable, as the same should not have exceeded the sum of \$24.66; wherefore, petitioners pray that the respondent railway company be authorized and directed to refund to it the sum of \$21.66.

The respondent railway company, answering the petition herein, submits the matter involved to the Commission for such action as the Commission may deem proper. The matter was submitted upon the papers, pleadings, and documents on file.

The delay in the decision in this case was due to the inability of the Commission to obtain either of the freight bills for the shipments in question until within the last few days. There

are two shipments involved in this proceeding, one from Blue Mounds destined to Cudahy, and the other from Blue Mounds destined to Milwaukee. The shipment to Milwaukee was made on or about Aug. 1, 1911. The order in the case of *Arries & Packham et al. v. C. & N. W. R. Co.* 1911, 7 W. R. C. R. 131, was entered June 28, 1911. The rate thereby established was therefore lawfully in effect when the shipment to Milwaukee was made, although the railway company did not publish the same until Sep. 11, 1911. Inasmuch as this order had the effect of providing for the stopping of live stock in transit to finish loading at Verona when shipped from Blue Mounds to Milwaukee, the excessive charge on such shipment was unlawful and therefore may be refunded by the railway company without an order.

We have been unable to get the freight bill or a copy of the freight bill covering this shipment. However, the assistant general freight agent advises us that the refund on such shipment will be made without an order being issued.

The shipment from Blue Mounds to Cudahy was made July 10, 1911, before the order in the *Arries & Packham* case became effective. The freight bill for this shipment shows that it consisted of cattle and hogs, and the local rate of 5.3 cts. per cwt. from Blue Mounds to Verona, plus a rate of 11 cts. from Verona to Cudahy, was applied, on the basis of the minimum loading weight of 22,000 lbs., which made the charges upon the shipment \$35.86. There is an error in the rate applied from Verona to Cudahy. The rate in effect at the time of the shipment was 10.3 cts. instead of 11 cts. The charges on this shipment, based on the stopping in transit rate in force previous to April 1, 1911, and reinstated by the order of the Commission in the *Arries & Packham* case on June 28, 1911, would be 22,000 lbs. at 11 cts. per cwt., being the rate from Blue Mounds to Cudahy, plus \$2 for the stopping to finish loading at Verona. The total charge therefore would amount to \$26.20. The excess charge would amount to \$9.66.

We therefore find and determine that the charge exacted of the petitioners for the aforesaid shipment of cattle and hogs from Blue Mounds to Cudahy was unusual, and that the reasonable charge to have been made for such shipment is \$26.20.

Now, THEREFORE, IT IS ORDERED, That the Chicago & North Western Railway Company be and the same is hereby authorized and directed to refund to the petitioner the sum of \$9.66.

SEMRAD BROS. & PUSCH BREWING COMPANY

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY,
MINERAL POINT AND NORTHERN RAILWAY COMPANY.

Submitted Feb. 13, 1912. Decided April 24, 1912.

Petitioner alleges that there are no joint rates in effect upon less than carload shipments of beer between Highland, Wis., on the line of the M. Pt. & N. Ry. Co. and certain stations on the C. & N. W. Ry. Co's line. Up to May 1, 1911, the single distance tariff rate was applied upon through shipments over the two lines, but since then petitioner has been charged the sum of the two local rates. The C. & N. W. Ry. Co. offers to establish joint distance rates with the M. Pt. & N. Ry. Co. from Highland equal to 125 per cent of the straight Wisconsin distance tariff rates. Petitioner claims that the proposed rates as well as present rates are unreasonable and prays that the rate be restored to its former basis by applying the single distance tariff directly from Highland. The single distance tariff contended for is in effect between Highland and points on the C. M. & St. P. line and also to more distant points on the C. & N. W. line.

Held: Under the circumstances of the present case the third class rates, applied under the Wisconsin distance tariff, are sufficiently high so that they may fairly be applied for the joint haul from Highland to C. & N. W. points. Respondents are ordered to discontinue their present less than carload rates on beer from Highland to all points on the C. & N. W. line within Wisconsin as to which the third class Wisconsin distance tariff rates, if applied directly from Highland, would be lower than the rates at present in force, and to substitute in lieu thereof the third class rates of the Wisconsin distance tariff, applied to the total distance from Highland to the points of destination.

The petitioner, a brewing corporation located at Highland, Wis., on the line of the respondent Mineral Point & Northern Railway Company, complains of the lack of joint rates on beer between the respondent companies, from Highland to certain stations on the Chicago & North Western line within a comparatively short distance, not usually exceeding 45 miles.

It appears from the complaint that up to May 1, 1911, the rates on beer from Highland to the C. & N. W. points covered by the complaint were the regular Wisconsin distance rates applied to the total distance, without any addition by reason of the two-line haul. At one time beer was classified as fourth

class, but within the past few years third class rates have been applied. Since May, 1911, the single distance tariff rate has not been applied upon through shipments over the two lines, but the petitioner has been charged the sum of the two local rates on the lines of the respondents. The rate increases caused by these changes were shown in a table embodied in the complaint, the substance of which will be set forth later in this opinion.

The original complaint named only the Chicago & North Western Railway Company as respondent. This respondent answered the complaint, admitting the existence of the rates complained of, denying that they were unjust or unreasonable, and offering to establish joint distance rates with the Mineral Point & Northern Railway Company from Highland, equal to 125 per cent of the straight Wisconsin distance tariff rates. The Mineral Point & Northern Railway Company was made a party by amendment of the complaint at the time of the hearing, and has since expressed its willingness to make whatever joint rates with the Chicago & North Western line the Commission may find reasonable, without submitting any evidence or argument upon the matter.

At the hearing, which was held at the office of the Commission Feb. 13, 1912, the petitioner was represented by *Joseph E. Semrad*, and the respondent Chicago & North Western Railway Company by *C. A. Vilas*.

The petitioner's shipments are all made in less than carload lots, the majority being consigned to retail liquor dealers. Upon such shipments, the petitioner's claim is that the increase caused by the withdrawal of the straight distance tariff from Highland to the Chicago & North Western points is unreasonable, and that the offer of the respondent Chicago & North Western Railway Company to establish rates 25 per cent higher than the single line distance rate is also unreasonable. The petitioner seeks to have the rate restored to its former basis, namely, that the distance tariff be applied directly from Highland. Emphasis was laid upon the fact that this arrangement had been in force on the Chicago & North Western line up to May, 1911, and that it was still effective between the Mineral Point & Northern and Chicago, Milwaukee & St. Paul lines. It was further claimed on the part of the petitioner that the Mineral Point & Northern Railway Company was really not an independent rail-

way, reaching market points of its own, but was merely a feeder for the Chicago & North Western and Chicago, Milwaukee & St. Paul lines. Finally, it was pointed out that the rates from Highland to such points as Chicago, Milwaukee, Racine, Kenosha, Waukesha, Manitowoc, Fond du Lac, Oshkosh, and Green Bay were upon a single tariff basis, and there was no reason why a single rate should be applied on shipments to these more distant points and the sum of two local rates to the nearer points to which the petitioner ships.

In addition to the general complaint as to the excessiveness of the present rates, the petitioner pointed out that its shipments to certain communities were made directly to the ultimate consumer and not to retail dealers, and were so small as to move on the minimum rate of 25 cts. per shipment. The result of the present rates, made up of the sum of the locals, is to require the payment of the 25 ct. minimum twice on the original shipment and twice on the empty case returning. As the petitioner's customers are able to get such single case shipments from Madison, Milwaukee and other Chicago & North Western points upon the single minimum rate of 25 cts., the petitioner is obliged to absorb the extra 25 cts. each way in order to compete with brewers in other cities. This condition, however, as was pointed out by the attorney for the respondent company at the hearing, would be obviated by the establishment of any joint rate between the two respondents, since the minimum would then be charged only once, and the joint rate proposed by the respondent, equal to 25 per cent in excess of the straight distance tariff, would be as effective to remedy this trouble as the straight distance rate that the petitioner prays for.

The foregoing review of the pleadings and evidence shows that all the parties are agreed as to the establishment of joint rates, and that the petitioner's grievance, so far as it relates to the charging of two minimum rates on a single package, will be remedied whatever the joint rates may be. The only question to be considered, then, is as to what the joint rates should be.

It appears that the only rates applicable to the petitioner's shipments from Highland to Chicago & North Western points are the third class rates under the western classification. As was stated at the hearing, the third class rates from Highland to Chicago, Milwaukee, Racine, Fond du Lac, and many other

points at similar distances, are joint rates between the two respondent companies; and, furthermore, these rates are in all cases the same from Highland as from Whitson Junction, where the lines of the respondents connect. But from Highland to Madison, Janesville, Elroy, Platteville, and intermediate points, no joint rates are now in effect, and the petitioner is forced to pay the sum of the local distance rates.

A joint haul over two or more lines of railway necessarily involves elements of expense not found in a haul of the same distance over only one line. This greater expense is generally not sufficient, however, to warrant the exaction of the sum of the two local rates applying to and from the junction point of the connecting lines, and joint rates are therefore generally fixed considerably lower than the sum of the locals. When the traffic is moved on a distance tariff basis, as is the case here, joint rates should ordinarily be fixed at a reasonable distance rate for the combined distance over the two roads, plus the reasonable cost of transfer between the two railways. In line with this method, the respondent Chicago & North Western Railway Company has suggested that the distance rates from Highland be made equal to the distance rate for the total mileage plus 25 per cent. This addition of 25 per cent to the straight distance rate would seem, however, to result in an unjustifiably high rate. The following table shows, for each point within the territory to which the petitioner ships, the third class distance rate if applied directly from Highland, the same rate with an addition of 25 per cent as suggested by the respondent company, and also the present rate made up of the sum of the local rates. The present rates to Verona and Madison are not distance rates, but are equal to the third class rate from Highland to Milwaukee, applied to Verona and Madison as intermediate points.

FORMER, PROPOSED AND PRESENT RATES ON BEER FROM HIGHLAND, WIS.

From Highland to	Miles	3d class rate, cts.	25% above 3d class rate, cts.	Present rate, sum of locals, cts.
Cob.....	10	9.0	11.25	16.0
Montfort.....	15	10.0	12.5	18.0
Preston.....	21	14.0	17.5	19.0
Fennimore.....	28	16.0	20.0	21.0
Werley.....	36	14.0	22.5	25.0
Woodman.....	44	19.0	23.75	27.0
Stitzer.....	29	16.0	20.0	23.0
Lancaster.....	37	18.0	22.5	25.0
Livingston.....	19	12.0	15.0	19.0
Rewey.....	29	16.0	20.0	21.0
Edmund.....	10	9.0	11.25	16.0
Dodgeville.....	13	12.0	15.0	18.0
Ridgeway.....	27	16.0	20.0	21.0
Barneveld.....	33	17.0	21.25	23.0
Blue Mounds.....	37	13.0	22.5	15.0
Mt Horeb.....	42	19.0	23.75	26.0
Verona.....	51	20.5	25.63	26.5
Madison.....	65	22.0	27.5	26.5

It will be seen from the above table that the present rates are in all cases from 5 to 8 cts. per 100 lbs. higher than the single distance rate would be if applied from Highland. It is further apparent that the rate suggested by the Chicago & North Western Railway Company, amounting to 25 per cent in excess of the straight third class rate, ranges from 2.25 to about 5 cts. higher than the straight distance rate. It is hardly to be contended that the reasonable cost of transferring the shipments from the Mineral Point & Northern to the Chicago & North Western line averages as high as even the lowest of these figures, namely 2.25 cts. It was pointed out by the respondent at the hearing that distance rates between Hillsboro, on the Hillsboro & North-eastern Railway, and Chicago & North Western points were fixed at 120 per cent of the straight distance rate from Hillsboro, and this was the only statement made in explanation of the suggested establishment of the 25 per cent excess in the present case. On the other hand, it appears from the tariffs on file with the Commission that in connection with the Marinette, Tomahawk & Western Railway line the Chicago & North Western Railway Company charges the straight distance rate without any addition, and the same is true in connection with the Hazelhurst & Southeastern line, except that the 25 mile distance rate is there used as a minimum.

On the whole, it would seem that under the circumstances of the present case the third class rates, applied under the Wiscon-

sin distance tariff, are sufficiently high so that they may fairly be applied from Highland to Chicago & North Western points without any addition for the cost of transfer between the respondent lines. Up to a comparatively short time ago beer was classified at fourth class, and the change from fourth to third class resulted in an increase of 20 to 25 per cent on the petitioner's shipments. While the third class rating is not attacked in this proceeding, it seems from all the facts bearing upon the matter that such rating, in connection with the Wisconsin distance tariff, which is in itself amply remunerative, results in rates about as high as the petitioner should be called upon to pay, even for the joint haul. That is, such rates appear to be high enough to pay all the costs of performing the service on each line, including interest on the investment, and also the cost of transfer. It is a significant fact that these straight distance rates are still in force on the Chicago, Milwaukee & St. Paul line from Highland, and were applied by the respondent Chicago & North Western line itself for a long time preceding May, 1911. Careful consideration of the entire case seems to warrant an order that the respondents re-establish the third class distance rates on beer from Highland to Chicago & North Western points.

IT IS THEREFORE ORDERED, That the respondents, the Chicago & North Western Railway Company and the Mineral Point & Northern Railway Company, discontinue their present less than carload rates on beer from Highland, Wis., to all points on the Chicago & North Western line within Wisconsin as to which the third class Wisconsin distance tariff rates, if applied directly from Highland, would be lower than the rates at present in force, and that the said respondents substitute in lieu of the rates so discontinued the third class rates of the Wisconsin distance tariff, applied to the total distance from Highland to the points of destination.

EAU CLAIRE CONCRETE COMPANY

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY,
 CHICAGO, ST. PAUL, MINNEAPOLIS AND OMAHA RAILWAY COM-
 PANY,
 MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
 COMPANY.

Submitted March 12, 1912. Decided April 24, 1912.

Petitioner, a manufacturer of concrete blocks at Eau Claire, Wis., prays that the distance rates on brick, established by respondent railway companies pursuant to the Commission's order in *Ringle et al. v. C. M. & St. P. R. Co. et al.* 1911, 7 W. R. C. R. 598, be applied to concrete blocks, which are a building material competitive with brick. Previous to the Commission's order, concrete blocks were subject to the same rates as brick. Through an error, the C. M. & St. P. Ry. Co. made the Commission's brick rates applicable to concrete blocks also, but its intention is to restore concrete blocks to the old basis. Concrete blocks are somewhat lower in value per 100 lbs., they are loaded to about the same average weight per car, and they do not seem to involve any greater risk in handling. The competitive situation as between the two commodities makes the application of lower rates to brick than to concrete blocks a serious handicap to the manufacturer of concrete blocks.

Held: Since the Commission's rates on brick are based primarily on the cost of service and are believed to be sufficiently remunerative to respondents, concrete blocks should be placed upon the same basis of rates. As the only legally effective rate of the C. M. & St. P. Ry. Co. on concrete blocks within Wisconsin is the brick rate for which the petitioner prays, the petition is dismissed as regards that company.

The C. St. P. M. & O. Ry. Co. and M. St. P. & S. S. M. Ry. Co. are ordered to discontinue their present rates on concrete blocks between points within Wisconsin, and to substitute therefor the rates named upon brick in the Commission's order in *Ringle et al. v. C. M. & St. P. R. Co. et al.* 1911, 7 W. R. C. R. 598.

The petitioner, which is engaged in the manufacture of concrete blocks at Eau Claire, Wis., alleges that, pursuant to the order of this Commission in *Ringle et al. v. C. M. & St. P. R. Co. et al.* 1911, 7 W. R. C. R. 598, the respondent railway companies established distance rates on brick as named therein, but have not applied the same rates to concrete blocks, which are a building material competitive with brick and were, previous to said order, subject to the same rates as brick. The prayer

of the petition is that the brick rates ordered by the Commission be made effective also upon concrete blocks.

Each of the respondent companies answered the complaint separately, admitting the existence of the brick rates mentioned in the complaint, but denying that the failure to apply the same rates to concrete blocks was discriminatory or unjust. The respondent Chicago, Milwaukee & St. Paul Railway Company further alleged that by mistake the tariff in which the Commission's brick rates were made effective was made subject to the western trunk line circular applying brick rates to concrete blocks, but that the intention of the respondent was to correct the tariff immediately. The respondent Chicago, St. Paul, Minneapolis & Omaha Railway Company alleged that the brick rates fixed by the Commission did not yield a fair return for the services performed, and that the respondent was averse to extending rates on brick to other commodities.

The hearing was held at the office of the Commission, March 12, 1912. The petitioner was represented by *George M. Childs* and the respondent Minneapolis, St. Paul & Sault Ste. Marie Railway Company by *A. H. Bright*. The other respondent companies were not represented at the hearing, but later submitted their views upon the case in writing.

It appears from the testimony that the petitioner is in active competition with manufacturers of ordinary building brick, and that the carriers, while applying the Commission's rates to brick, have left concrete blocks at the old rates which formerly applied to both concrete blocks and brick. According to a statement submitted by the petitioner, its concrete block shipments for 1910 were 53 cars, for 1911 36 cars, and for January, February and the first week of March, 1912, 26 cars. The distance of such shipments never exceeds 150 miles, and an examination of the statement above referred to shows an average distance of 40 miles. For distances about equal to this average, the present rates on concrete blocks are about 55 per cent higher than the present rates on brick. Practically all of the shipments covered by the statement were made upon the Chicago, St. Paul, Minneapolis & Omaha Railway.

In support of the contention that concrete blocks are entitled to brick rates, it was urged that these blocks are used for exactly the same building purposes as brick, have always moved on brick rates, are now accorded brick rates by western trunk

line circular No. 1-G, and are so similar to brick in loading, value, etc., that the two commodities should be treated alike. A concrete block of the kind made by the petitioner weighs 120 lbs., and sells for 15 cts. at Eau Claire. Thus the market price of the block is 12.5 cts. per 100 lbs. The lowest price of common brick at Eau Claire during the past year, according to the testimony, was \$7.50 per thousand, which amounts to about 18.75 cts. per 100 lbs. A concrete block in a wall takes the place of 24 ordinary bricks, but the labor cost of laying it is, it seems, but little if any less than the cost of laying 24 bricks. As to the loading of concrete blocks, it appears that the petitioner's average loading is about 60,000 lbs. per car, which is about the same as the average loading of brick. In fact, the petitioner's concrete blocks are heavier than brick in proportion to the space occupied, as is evidenced by the fact that a concrete block weighing 120 lbs. occupies the same space as 24 bricks weighing about 96 lbs. As to the risk incurred in transportation, there is nothing to indicate that a materially greater hazard is present in the case of concrete blocks than in the case of brick. It is true that the concrete blocks have air chambers, while ordinary bricks are solid; and this fact may perhaps lead to a somewhat greater danger of breakage in concrete blocks than in brick. But no facts have been presented to indicate that such is the case. During the three years that the petitioner has been shipping concrete blocks, it has received in damage allowances from the railways less than \$15, with the exception of an item of \$36.42 which was paid on account of the capsizing and wrecking of a car; and the latter loss would undoubtedly have occurred also had the car been loaded with brick. It cannot be said, from the facts before the Commission, that the danger of breakage of concrete blocks so far exceeds that of brick as to warrant a difference in freight rates.

It is not disputed that it has been customary to include concrete building blocks with common brick in railway tariffs. This practice is illustrated both by the frequent inclusion of such blocks specifically in commodity tariffs on brick, and by the general rule of the western trunk line circulars above referred to. In the official and southern classifications, also, building brick and concrete blocks are placed in the same classes, both as to less than carload and carload shipments. The respondents,

while not denying that such classification has been usual, claim that the Commission's rates on brick are so low that they should not be extended to any other commodity. They further claim that an important factor in the fixing of the Commission's rates on brick was the existence of low competitive rates from Illinois into Wisconsin brick markets, and that since no such outside competition is present in the case of concrete blocks, the circumstances do not demand the extension of the brick rates to them. However, as was carefully pointed out in the opinion of this Commission on the re-hearing of the brick case *Ringle et al v. C. M. & St. P. R. Co. et al.*, 1911, 7 W. R. C. R. 598, 600, while comparative rates are sometimes of value as indicating what the competitive situation is in a given industry and what the customary practices of carriers are, the primary basis of properly constructed rate schedules is the cost of performing the service, including a reasonable return upon the capital invested. Although adjustments and modifications are sometimes necessitated by the existence of peculiar commercial or traffic conditions, these circumstances are very seldom so important as to deflect the rates to any great extent from the cost curve. It was this cost basis of rates, so adjusted as to take proper account of the conditions actually found to exist, that was used in fixing the rates on brick by this Commission. Those rates were the subject of careful consideration both in the original proceeding and upon the re-hearing, and, under all the circumstances now known to the Commission, the claim of some of the respondent companies that the brick rates are not remunerative does not appear to be well founded.

Since the Commission's rates on brick are based primarily on the cost of service, and are believed to be sufficiently remunerative to the respondent companies, it is difficult to find any good reason why concrete blocks should not be accorded the same rates. They are a little lower, if anything, in value per 100 lbs., they are loaded to about the same average weight per car, they do not seem to involve any greater risk in handling, and the competitive situation as between the two commodities makes the application of lower rates to brick than to concrete blocks a serious handicap to the manufacturer of concrete blocks. At present concrete blocks are upon the same rate basis as drain tile, sewer pipe and vitrified coping. Such commodities as these were expressly excluded from the Commission's rates

on brick, when the matter was called to the attention of the Commission on the re-hearing of the brick case, because the higher value, lighter loading, and greater risk of handling these tile products demand that they be charged higher rates than brick. But concrete blocks resemble ordinary brick in almost every particular, and do not have the characteristics which subject the tile products to higher rates. It is therefore entirely proper that concrete blocks should be classed with brick, while drain tile, sewer pipe, and similar products remain at their present rating.

It is the conclusion of the Commission, therefore, that concrete blocks should be placed upon the same basis of rates as brick. In the case of the Chicago, St. Paul, Minneapolis & Omaha Railway Company and the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, this change will be ordered. In the case of the Chicago, Milwaukee & St. Paul Railway Company, it seems that through the mistake of the railway company the Commission's local rates on brick, when put into effect, were made subject to the western trunk line rules, which, as has been stated before, make brick rates applicable to concrete blocks. The railway company stated in its answer that it was about to correct the mistake, but no correcting tariff has been filed, nor has approval of any such change been requested of the Commission. Therefore, the only legally effective rate of the Chicago, Milwaukee & St. Paul Railway Company at the present time on concrete blocks within Wisconsin is the brick rate for which the petitioner prays, and as to that railway company the petition will be dismissed.

IT IS THEREFORE ORDERED, That the respondents, the Chicago, St. Paul, Minneapolis & Omaha Railway Company and the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, discontinue their present rates on concrete blocks between points within the state of Wisconsin, and substitute therefor the rates named upon brick in the order of this Commission upon the re-hearing of the case of *Ringle et al. v. C. M. & St. P. R. Co. et al.* 1911, 7 W. R. C. R. 598.

IT IS FURTHER ORDERED, That, as to the respondent Chicago, Milwaukee & St. Paul Railway Company, the petition be and the same is hereby dismissed.

WAUKESHA LIME AND STONE COMPANY

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY,
CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted Jan. 9, 1912. Decided April 25, 1912.

Complaint was made of unreasonable and discriminatory rates on gravel, crushed stone and lime between Waukesha and other Wisconsin points. Comparisons were made of the rates on these commodities in Wisconsin and neighboring states and the terminal and movement costs of transporting them were analyzed. The value of gravel is so low in proportion to its weight that, under present rates, a carload cannot be moved at all without paying freight charges which exceed the value of the shipment. A carload of crushed stone can be moved only forty miles before its value is equaled by the freight charges. Although lime is more valuable than gravel or crushed stone, it still ranks as a low grade commodity.

Held: Gravel and crushed stone must be given very low rates in order to move at all and it would seem that a rate sufficient to cover the actual cost of operation plus a comparatively small rate of return upon the capital invested would be as high as the traffic can stand. There are a number of factors which result in a comparatively low cost of transporting gravel and crushed stone, and which constitute a further justification for a low basis of rates. The heavy loading of gravel and crushed stone reduces the proportion of "dead" weight to "pay" weight. These commodities can be loaded in gondola or open cars and therefore do not involve as high interest charges as must be made when a more expensive type of freight car is used. The risk of handling gravel and crushed stone is very slight. The shippers themselves load and unload the cars, so that the railway's service consists only in moving the loaded car. Due to their difference in value there is some doubt as to the wisdom of placing gravel and crushed stone under the same rate, and if occasion should demand it the separation may be made later.

The somewhat perishable nature of lime and its comparatively light loading are elements tending to increase the cost of its transportation. As the result of these factors, together with the low value of lime, it would seem that the rate should be about sufficient to cover the actual expenses of operation plus a rate of return on the investment which is a little lower than the average for all traffic.

The C. M. & St. P. Ry. Co. and the C. & N. W. Ry. Co. are ordered to discontinue their present rates on gravel, crushed stone and lime, from Waukesha to points on their respective lines within Wisconsin, and substitute therefor the rates prescribed by the Commission. Any existing commodity rates that are lower than the rates provided in this order should be retained.

The petitioner, a corporation engaged in the manufacture, production and marketing of lime, crushed stone, fluxing, rubble and building stone, sand and gravel, located at Waukesha, Wis., complains of the rates on the lines of the respondent railway companies upon gravel, crushed stone and lime between Waukesha and other Wisconsin points. It alleges that it was induced to make a large investment in its plant upon the representation of the officials of the respondents that competing rates would be established by them. With the complaint is presented a statement comparing various rates which the petitioner is required to pay on Wisconsin intrastate traffic with rates on the same commodities in Illinois and between Wisconsin and Illinois. The rates upon the petitioner's products are alleged to be unreasonable and unjustly discriminatory, and the prayer is for the establishment of a distance tariff upon gravel, crushed stone and lime in the state of Wisconsin which will be fair and reasonable and equal to that now in force in Illinois.

Separate answers were filed by the respondent companies, both of which deny that any representations were made by the respondents upon which the petitioner is entitled to any change in rates, and deny also that the rates complained of are excessive, unreasonable or unjustly discriminatory, and pray that the petition be dismissed.

The hearing was held at the office of the Commission Jan. 9, 1912. *Merton, Newbury & Jacobson*, by *M. A. Jacobson* and *F. L. Gilbert*, appeared for the petitioner, *C. C. Wright* for the respondent Chicago & North Western Railway Company, and *O. W. Dynes* for the respondent Chicago, Milwaukee & St. Paul Railway Company.

The major part of the petitioner's testimony at the hearing related to the rate comparisons set forth in the complaint. The present rates charged the petitioner on gravel and crushed stone within Wisconsin are fixed upon a distance basis. Table I shows what these rates are and how they are applied from Waukesha to various Wisconsin points:

TABLE I.
PRESENT RATES ON CRUSHED STONE AND GRAVEL.
WITHIN WISCONSIN, AS APPLIED FROM WAUKESHA.
C. & N. W. and C. M. & St. P. Lines.

Miles	Rate, cts. per cwt.	Miles	Rates, cts. per cwt.	Miles	Rates, cts. per cwt.	Miles	Rates, cts. per cwt.
10	1.50	60	2.75	120	4.00	220	5.25
20	1.75	70	3.00	140	4.25	240	5.50
30	2.00	80	3.25	160	4.50	260	5.75
40	2.25	90	3.50	180	4.75	280	6.00
50	2.50	100	3.75	200	5.00	300	6.25

Illustrations of Rates from Waukesha to various Wisconsin points on above basis:

C. & N. W. & C. M. & St. P. rates.				C. & N. W. rates:			C. M. & St. P. rates:		
To	C&N.W. miles	CM&StP miles	Rate, cts.	To	Miles	Rate, cts.	To	Miles	Rate, cts.
Milwaukee.....	20	21	1.75	Madison.....	62	3 0	Madison.....	76	3.25
Racine.....	37	52	2.25	Watertown.....	41	2.5	Watertown.....	37	2.25
Janesville.....	58	51	2.75	So. Milwaukee....	24	2.0	Burlington.....	46	2.5
Fond du Lac.....	83	95	3.75	Jefferson Jct....	30	2.0	Stoughton.....	61	3.0
Oshkosh.....	101	117	4.00	Kenosha.....	47	2.5	Rich'd Center... 134	4.25	
				Sheboygan.....	73	3.25			
				Genoa Jct.....	75	3.25			
				Elroy.....	136	4.25			
				Woodman.....	155	4.5			

These rates on gravel and crushed stone were claimed by the petitioner to be too high, as compared with rates in Illinois and between Wisconsin and Illinois (which will be set forth later), and also as compared with the rate under which these commodities are transported from Wauwatosa, Wis., to Milwaukee and points within the Milwaukee switching district. This last named rate, fixed at \$6 per car, is the regular Milwaukee switching rate, and, according to the testimony of the petitioner, this rate amounts to less than half a cent per 100 lbs. for a haul which at its greatest length, from Chestnut street to West Allis, exceeds 19 miles. The longest haul under this rate, however, which the witness for the petitioner knew to have been actually made, was about 13 miles.

Nearly all of the rates on gravel and crushed stone within Wisconsin are upon the same distance basis as is shown in table I. An examination of the tariffs of the respondent companies on file with this Commission has disclosed comparatively few com-

modity rates on these products, lower than the distance rates. Table II shows such lower commodity rates as have been found, comparing them with the distance tariff rates.

TABLE II.
RATES ON CRUSHED STONE AND GRAVEL
BETWEEN WISCONSIN POINTS, LOWER THAN DISTANCE RATES.
C. & N. W. and C. M. & St. P. Lines.

C. & N. W. Line.					C. M. & St. P. Line.				
From	To	Miles.	Rate cts.	Distance rates.	From	To	Miles.	Rate cts.	Distance rates.
<i>Crushed Stone:</i>					<i>Crushed Stone:</i>				
Ablemans.....	Kenosha....	155	4.0	4.5	Greenleaf.....	Oconto.....	49	2.25	2.5
Ablemans.....	Racine.....	145	4.0	4.25	Knowles.....	Appleton...	148	4.0	4.25
Ablemans.....	So. Milw....	132	4.0	4.25	Amberg.....	Marinette...	41	2.0	2.5
Eden.....	Kenosha....	89	3.0	3.5	<i>Gravel:</i>				
Edeu.....	Fond du Lac	8	1.0	1.5	Beloit.....	Madison....	55	2.25	2.75
Ives.....	Racine.....	3	1.0	1.5	Madison.....	Madison....	41	2.25	2.5
Ives.....	Beloit.....	82	3.0	3.5	Janesville....	N. Milw.*...	80	2.5	3.25
Red Granite....	Kenosha....	153	4.0	4.5	Janesville....	N. Milw.*...	37	2.0	2.25
Red Granite....	Racine.....	143	4.0	4.25	Genesee.....	Watertown..	78	2.25	3.25
Red Granite....	So. Milw....	130	4.0	4.25	Janesville....	Chilton.....	16	1.25	1.75
Red Granite....	Waukesha..	140	4.0	4.25	Elkhart Lake..	Green Bay..	51	2.5	2.75
Red Granite....	La Crosse..	280	4.5	6.0	Elkhart Lake..	Madison....	60	2.0	2.75
Red Granite....	Evansville..	158	4.0	4.5	Eagle.....	Madison....	60	2.0	2.75
Oakfield.....	La Crosse..	25	4.5	5.25	Elkhart Lake..	Milwaukee..	61	2.5	3.0
Oakfield.....	Fond du Lac	8	1.0	1.50	<i>Gravel:</i>				
<i>Gravel:</i>					<i>Gravel:</i>				
Pt. Washington	Milwaukee..	26	1.75	2.0					

* Also Bay View, West Allis, Wauwatosa, etc.

It will be seen from table II that for the most part the commodity rates on gravel and crushed stone are not more than one-quarter or one-half cent below the distance-tariff rates. On the Chicago & North Western line most of the commodity rates apply to distances greater than those over which these commodities are ordinarily shipped by the petitioner, whose principal market seems to be in Milwaukee, Racine, Madison, and other points within a radius of less than a hundred miles.

The principal reliance of the petitioner, to show the unreasonableness of the present rates on gravel and crushed stone, is placed upon a comparison of these rates with certain rates in Indiana and Illinois, and between Wisconsin and Illinois. Owing to the incompleteness of the Commission's file of tariffs applying outside the state of Wisconsin, it has been impossible to verify all of the outside rates presented by the petitioner, but there is no reason to believe that they are not correctly stated.

Table III shows these rates on crushed stone and gravel, as set forth by the petitioner, also the rates for these commodities for the same distances in Wisconsin:

TABLE III.
RATES ON GRAVEL AND CRUSHED STONE.
SUBMITTED BY PETITIONER FOR COMPARISON WITH WISCONSIN RATES.

From	To	Road	Miles.	Rate, cts. per cwt.	Wisconsin rate for same distance.
<i>Gravel:</i>					
Libertyville, Ill.....	Racine, Wis.....	C. M. & St. P.	40	1.5	2.25
Joliet, Ill.....	Chicago, Ill.....	A. T. & S. F.	41	1.0	2.50
Joliet, Ill.....	Waukegan, Ill.....	E. J. & E.....	75	2.0	3.25
Kickapoo, Ind.....	Terre Haute, Ind.....	C. & E. I.....	97	2.0	3.75
Beloit, Wis.....	Chicago.....	C. M. & St. P.	98	1.75	3.75
Janesville, Wis.....	Chicago.....	C. & N. W.....	99	1.75	3.75
Waukesha, Wis.....	Chicago.....	Soo.....	100	2.0	3.75
Rondout, Ill.....	Whiting, Ind.....	E. J. & E.....	117	2.25	4.0
Attica, Ind.....	Chicago.....	C. & E. I.....	119	1.75	4.0
Rondout, Ill.....	So. Chicago.....	E. J. & E.....	122	2.25	4.0
Porter, Ind.....	Waukegan, Ill.....	E. J. & E.....	130	2.5	4.25
W. Melcher, Ind.....	Chicago.....	C. & E. I.....	155	1.75	4.50
<i>Crushed Stone:</i>					
Lemont, Ill.....	Chicago.....	C. & A.....	25	1.0	2.0
Joliet, Ill.....	Chicago.....	A. T. & S. F.	41	1.0	2.50
Lemont, Ill.....	Dwight, Ill.....	C. & A.....	48	1.5	2.50
Joliet, Ill.....	Waukegan, Ill.....	E. J. & E.....	75	2.0	3.25
Waukesha, Wis.....	Chicago.....	Soo.....	100	2.25	3.75
Chicago, Ill.....	Brewer, Ill.....	C. & E. I.....	127	2.10	4.0
Lemont, Ill.....	Springfield, Ill.....	C. & A.....	160	2.5	4.5
Chicago, Ill.....	Terre Haute, Ind.....	C. & E. I.....	178	2.3	4.75

As a further illustration of the existence of rates on gravel and crushed stone in Illinois and other neighboring states which are lower than the Wisconsin intrastate rates, table IV has been compiled by the Commission. The table is by no means exhaustive, for the Commission's file of tariffs applying wholly without Wisconsin is not sufficient for a complete investigation of the rates in neighboring states. Nor do the rates shown in the table, all of which are lower than the Wisconsin rates, necessarily represent the general level of rates on the lines named; in fact, many more rates were found to be equal to or higher than the Wisconsin rates, than were found to be lower. The table is intended merely to supplement that presented by the petitioner, and to show that the railways have found it worth their while, in some cases at least, to establish rates lower than those in force in Wisconsin.

TABLE IV.
SPECIFIC COMMODITY RATES ON GRAVEL AND CRUSHED STONE
IN OTHER STATES, LOWER THAN WISCONSIN RATES.

From	To	Road	Miles	Rate, cts. per 100 lbs.	Wiscon- sin rate for same distance
<i>Gravel:</i>					
Spaulding, Ill.	Elgin, Ill.	C. M. & St. P.	4	1.0	1.5
Bellewood, Ill.	Chicago	C. G. W.	13	1.0	1.75
Spaulding, Ill.	Franklin Park, Ill.	C. M. & St. P.	20	1.0	1.75
Franklin, Ind.	Indianapolis, Ind.	Big 4.	32	1.5	2.25
Winona, Minn.	La Crosse, Wis.	C. & N. W.	33	2.0	2.25
Janesville, Wis.	Rockford, Ill.	C. M. & St. P.	34	2.0	2.25
St. Charles, Ill.	Chicago	C. G. W.	36	1.5	2.25
Cary, Ill.	Chicago	C. & N. W.	38	1.5	2.25
Indianapolis, Ind.	Crawfordsville, Ind.	Big 4.	43	2.0	2.5
Libertyville, Ill.	Evanston, Ill.	C. M. & St. P.	43	2.0	2.5
Covington, Ind.	Urbana, Ill.	Big 4.	44	1.5	2.5
Peoria, Ill.	Bloomington, Ill.	Big 4.	46	2.0	2.5
Aurora, Ill.	Chicago	C. & N. W.	45	2.0	2.5
Beloit, Wis.	De Kalb, Ill.	C. & N. W.	49	2.0	2.5
Beloit, Wis.	Freeport, Ill.	C. & N. W.	54	2.5	2.75
Galt, Ill.	De Kalb, Ill.	C. & N. W.	55	2.5	2.75
Ft. Madison, Ia.	Galesburg, Ill.	A. T. & S. F.	55	2.0	2.75
Terre Haute, Ind.	Danville, Ill.	Big 4.	57	1.5	2.75
Terre Haute, Ind.	Mattoon, Ill.	Big 4.	57	1.75	2.75
Delhi, O.	Connersville, Ind.	Big 4.	58	2.5	2.75
Ives, Wis.	Chicago	C. & N. W.	65	2.5	3.0
La Fayette, Ind.	Indianapolis, Ind.	Big 4.	65	2.0	3.0
St. Charles, Ill.	So. Freeport, Ill.	C. G. W.	71	2.5	3.25
Terre Haute, Ind.	Indianapolis, Ind.	Big 4.	72	2.0	3.25
Atchison, Kan.	Kansas City, Mo.	A. T. & S. F.	73	3.0	3.25
East Alton, Ill.	Pana, Ill.	Big 4.	74	1.9	3.25
Janesville, Wis.	Deerfield, Ill.	C. M. & St. P.	75	1.75	3.25
Shelbyville, Ind.	Cincinnati, O.	Big 4.	83	2.5	3.5
Terre Haute, Ind.	Urbana, Ill.	Big 4.	88	2.0	3.5
Beloit, Wis.	Chicago	C. & N. W.	91	2.75	3.75
Covington, Ind.	Bloomington, Ill.	Big 4.	92	2.25	3.75
Peoria, Ill.	Urbana, Ill.	Big 4.	95	3.25	3.75
Terre Haute, Ind.	Pana, Ill.	Big 4.	96	2.0	3.75
Putnam, Ill.	Cambridge, Ill.	C. R. I. & P.	100	3.5	3.75
Terre Haute, Ind.	Vincennes, Ind.	Big 4.	103	2.5	3.75
Rockton, Ill.	Chicago	C. M. & St. P.	102	1.75	3.75
East Alton, Ill.	Mattoon, Ill.	Big 4.	115	2.5	4.0
St. Charles, Ill.	Galena, Jct., Ill.	C. G. W.	122	3.5	4.0
<i>Crushed Stone:</i>					
Chicago	Maywood, Ill.	C. G. W.	12	1.0	1.75
Buffalo Ia.	Moline, Ill.	C. R. I. & P.	13	1.4	1.75
Moline, Ill.	Clinton, Ia.	C. M. & St. P.	42	2.15	2.5
Ives, Wis.	Chicago	C. & N. W.	65	2.0	3.0
Waukesha, Wis.	Chicago	C. & N. W.	102	3.33	3.75
Eden, Wis.	Chicago	C. & N. W.	140	3.5	4.25
Oakfield, Wis.	Chicago	C. & N. W.	155	3.5	4.5

As to the lime rates of which the petitioner makes complaint, the situation is somewhat different than in the case of the crushed stone and gravel rates. Shipments of lime are in almost all cases governed by commodity, not distance, rates, and it seems that a number of the important lime producing points in the eastern part of Wisconsin are grouped together as shipping points. Thus, to nearly all Wisconsin points, except those located

within a comparatively short distance of the shipping point, the rates on lime from Waukesha, Eden, Oakfield, Port Washington, Belgium, and Brillion on the Chicago & North Western line are equal, as are also those from Waukesha, Cedarburg, Knowles, Sherwood, and Templeton on the Chicago, Milwaukee & St. Paul line. Table V shows the rates on lime on the respondents' lines from important lime producing points in Wisconsin to the principal cities of the state located on the respective railway lines:

TABLE V.
RATES ON LIME WITHIN WISCONSIN.
C. & N. W. AND C. M. & ST. P. LINES.

1. Chicago & North Western Line.

To	Rates in cents per 100 pounds.											
	From Waukesha		From Eden		From Oakfield		From Pt. Washington		From Belgium		From Brillion	
	Miles	Rate	Miles	Rate	Miles	Rate	Miles	Rate	Miles	Rate	Miles	Rate
Milwaukee.....	20	3.3	55	4.0	70	4.0	26	3.5	34	3.5	100	4.5
Racine.....	37	6.0	78	6.0	93	6.0	43	6.0	51	6.0	123	6.0
Watertown.....	41	4.0	53	5.0	38	5.0	86	6.5	91	6.5	104	6.5
Kenosha.....	47	6.0	88	6.0	103	6.0	53	6.0	61	6.0	133	6.0
Janesville.....	58	5.0	92	6.5	77	6.5	104	6.5	112	6.5	143	6.5
Madison.....	62	6.0	97	6.0	82	6.0	108	6.0	116	6.0	148	6.0
Beloit.....	71	6.0	105	7.5	90	7.5	117	7.5	125	7.5	156	7.5
Fond du Lac.....	83	6.0	8	2.5	8	2.5	71	4.5	63	4.5	57	4.5
Manitowoc.....	98	6.0	77	4.5	77	4.5	52	4.5	44	4.5	22	4.0
Oshkosh.....	101	6.0	26	3.3	26	3.3	89	4.5	81	4.5	40	4.5
Appleton.....	120	6.0	45	3.3	45	3.3	95	4.5	87	4.5	21	3.3
Green Bay.....	136	6.7	74	3.3	74	3.3	89	5.0	81	5.0	51	3.3
Elroy.....	136	8.0	171	8.0	158	8.0	182	8.0	190	8.0	22	8.0
Lancaster.....	149	8.0	183	8.0	168	8.0	194	8.0	202	8.0	234	8.0
Grand Rapids.....	180	8.0	105	8.0	105	8.0	168	8.0	160	8.0	154	8.0
La Crosse.....	195	10.0	230	10.0	215	10.0	241	10.0	249	10.0	281	10.0
Antigo.....	19	10.0	124	10.0	124	10.0	182	10.0	174	10.0	108	10.0
Wausau.....	201	8.0	126	8.0	126	8.0	184	8.0	176	8.0	110	8.0
Ashland.....	352	10.0	284	10.0	281	10.0	342	10.0	334	10.0	268	10.0

2. Chicago, Milwaukee & St. Paul Line.

To	Rates in cents per 100 pounds.									
	From Waukesha		From Cedarburg		From Knowles		From Sherwood		From Templeton	
	Miles	Rate	Miles	Rate	Miles	Rate	Miles	Rate	Miles	Rate
Milwaukee.....	21	3.3	22	3.3	60	4.0	92	4.5	26	3.5
Watertown.....	37	4.0	66	6.0	104	6.0	136	6.0	46	6.0
Burlington.....	46	6.0	65	6.0	103	6.0	135	6.0	69	6.0
Janesville.....	51	5.0	94	6.5	132	6.5	164	6.5	98	6.5
Racine.....	52	6.0	53	6.0	91	6.0	123	6.0	57	6.0
Stoughton.....	61	5.0	10	6.0	141	6.0	173	6.0	107	6.0
Madison.....	76	6.0	103	6.0	141	6.0	173	6.0	107	6.0
Portage.....	85	7.5	98	6.0	63	6.0	168	6.0	94	6.0
Fond du Lac.....	95	6.0	81	6.0	15	2.5	151	6.0	70	5.0
Menasha.....	121	6.0	79	4.5	*47	3.3	10	3.3	110	6.0
Oshkosh.....	124	6.0	109	6.0	69	5.0	179	6.0	99	5.0
Appleton.....	126	6.0	83	4.5	*52	3.3	15	3.3	115	6.0
Mineral Point.....	132	8.0	175	8.0	213	8.0	245	8.0	179	8.0
Richland Center.....	134	10.0	161	10.0	199	10.0	231	10.0	165	10.0
Oconto.....	167	7.5	125	7.5	*124	7.5	67	7.5	156	7.5
Prairie du Chien.....	173	10.0	200	10.0	238	10.0	270	10.0	204	10.0
Grand Rapids.....	178	8.0	190	8.0	156	8.0	200	8.0	186	8.0
La Crosse.....	190	8.0	202	8.0	168	8.0	202	8.0	198	8.0
Wausau.....	220	8.0	232	8.0	198	8.0	302	8.0	228	8.0
Merrill.....	239	8.0	251	8.0	217	8.0	321	8.0	247	8.0
Eau Claire.....	299	8.0	311	8.0	277	8.0	381	8.0	307	8.0

* Routed via. Soo line, Fond du Lac to Menasha.

It will be noted from the above table that the rates from Waukesha are lower than those from the other line shipping points to Milwaukee, Janesville, Beloit, Watertown and Stoughton. The farthest of these points from Waukesha is 71 miles. On the other hand, as to four points within a radius of 71 miles, the rate from Waukesha is the same as the rates from the more distant line producing points. These stations are Racine, Kenosha and Madison on the Chicago & North Western line, and Racine and Burlington on the Chicago, Milwaukee & St. Paul line. In other words, with the exception of these four stations and neighboring stations taking similar rates, Waukesha is taken out of the group with the more distant line shipping points as to hauls of some seventy miles, while as to longer hauls Waukesha and the other shipping points are grouped together. A similar general situation is shown by the table for each of the other line producing points, except that the radius through which the shipping point is given an advantage seems to be in most cases greater than in the case of Waukesha, averaging perhaps, roughly, 85 or 90 miles.

The petitioner set forth in its complaint a few rates on lime from Wisconsin lime producing points to Chicago, to show that Waukesha was at a disadvantage as compared with those points, in being obliged to pay an equal rate for a shorter mileage. This equality among the interstate rates between all the lime shipping points and Chicago is explainable, however, on the same ground as the equality of the intrastate rates for the longer distances: the fact that the Wisconsin lime centers are grouped upon the same rate basis. Thus, Waukesha seems to be on an equality with the other lime producing points above named on shipments to practically all points on the respondents' lines in Illinois, Iowa, and Minnesota.

Among the facts which are material in determining the cost of the service for which the respondents charge the rates complained of, are the loading per car and the average value of the products shipped. The testimony is rather incomplete on these points, but information obtained from the petitioner and the respondents subsequent to the hearing indicates that the products involved in this case load and are valued about as follows:

	Average loading per car, tons.	Average value per ton.
Gravel.....	44	\$0.23
Crushed stone.....	44	0.47
Lime.....	13	3.00

The extent of the petitioner's shipping business in these commodities is indicated by the following statement of shipments during the year 1911:

Gravel	133,433 tons
Crushed stone	52,250 tons
Lime	13,360 tons

According to the testimony, the petitioner pays the railroads in freight charges about \$100,000 a year.

It will be seen from the foregoing statements that the value of gravel and crushed stone in proportion to its weight is very low. In fact, it is probable that these two commodities are the cheapest of all the commodities regularly shipped. Coke, soft coal, and brick are, in proportion to their weight, among the cheapest articles of commerce, but the value of gravel and crushed

stone per ton is less than a quarter of the value of these products. The average value of a carload of gravel seems to be about \$10, and the lowest of the present freight rates, which is 1.5 cts. for 10 miles, amounts to \$13.20 per car. Thus, under the present rates it is impossible to move a car of gravel at all without paying freight charges which exceed the value of the shipment. In the case of crushed stone, the value of a carload is about \$20.68. Under the present rates, a car of crushed stone could be moved only forty miles before its value would be equalled by the freight charges.

It is plain, therefore, that these commodities, in order to move at all, must be given very low rates. While the circumstances do not, of course, warrant the reduction of rates below the actual cost of operation, it would seem that a rate sufficient to cover such actual cost, plus a comparatively small rate of return upon the capital invested, would be as high as the traffic can stand. It is better for both carriers and shippers that such freight should be carried at rates which will contribute but little in the way of return upon the investment, than that the traffic should be lost altogether.

In addition to the extremely low value of gravel and crushed stone as an element to be considered in rate making, there are a number of factors which result in comparatively low cost to the carrier in transporting these commodities, and which therefore constitute a further justification for a low basis of rates.

In the first place, the loading of gravel and crushed stone is very heavy. Since the same amount of "dead" weight, i. e., weight of the car itself, which produces no revenue, must be hauled whatever the car is loaded with, a heavy loading reduces the proportion of "dead" weight to "pay" weight. In other words, the revenue producing part of the weight hauled is greater, in proportion to the unremunerative part of the weight, than is the case where the loading is light. This and other resulting economies make a heavy loading an important factor in reduction of rates.

Further, gravel and crushed stone are commodities that can be loaded in gondola or open cars, which, comparatively speaking, are an inexpensive class of car and therefore do not involve the same amount of interest charges that are to be allowed when higher types of freight cars are used. Another consideration is,

the fact that the shippers themselves perform the work of loading and unloading the cars at their quarries and the points of destination, and the railway company's service consists only in moving the loaded car. Moreover, it is obvious from the nature of the commodities that the risk of handling is very slight. No amount of jarring or exposure to the elements can do them any damage.

Thus far the two commodities, gravel and crushed stone, have been considered as belonging to the same category. As a matter of fact, however, the difference in value between the two is a hundred per cent, and it would seem that upon commodities of so low a grade this marked difference in value would warrant a difference in rates. Crushed stone can be moved much farther than gravel without absorbing the entire value of the shipments in the freight charges, although on crushed stone itself the shipping distance is very small. The situation would probably be somewhat improved, at least in the case of gravel, if the two commodities were separated and gravel were given a rate a little lower than that upon crushed stone. The general practice, however, is to place the two commodities together, and transport them under the same rates. This general practice is not universal, for, as has been shown in tabular statements earlier in this opinion, commodity rates are often established separately upon gravel and upon crushed stone. But in this case, since the rates provided in the order are rather general in character, the regular practice of placing these commodities under the same rates is adhered to, although we are in some doubt as to the wisdom of the policy. If occasion should demand it, the separation may be made later.

The considerations above outlined, as to the low value, heavy loading, and other elements tending to reduce both the value and the cost of the service involved, would seem to warrant the establishment of such a schedule of rates on gravel and crushed stone as that named in the order herein. The costs of performing this service, when analyzed according to the methods often outlined in previous decisions of this Commission, consist of a terminal expense of about 0.90 ct. per 100 lbs., while the movement cost is about 0.24 ct. per gross ton per mile, a gross ton

being a ton of gravel or crushed stone plus the proportion of the dead weight of the car assignable to that ton. When these figures are properly adjusted to allow for the difference in expense between gross and net tonnage, and other elements, the resulting distance tariff will probably cover all the requirements of the situation with fairness to shipper and carrier alike.

Although the rates ordered in this case are about as low as the circumstances warrant for distance rates, it does not follow that such commodity rates as may now be in effect, lower than the rates herein ordered, should be canceled. Such commodity rates are generally based on special conditions and they will not be disturbed by the order herein.

Lime is a much more valuable commodity than gravel or crushed stone. The mere statement of its value, equal to about \$3 per ton, indicates the necessity of rates much higher than those upon the other two commodities named. But despite this fact, lime ranks as a low grade commodity. Comparatively few articles of commerce are of less value per ton than lime. In addition to gravel and crushed stone, it will be found that coke, soft coal, pulpwood and brick are of lower value; but such commodities as iron ore, hard coal, pig iron, salt, lumber, and grain are more valuable than lime in proportion to their weight.

The low value of lime, however, is to some extent offset as a rate-making criterion by certain other factors peculiar to this commodity. Conspicuous among these is the risk involved in the transportation. Exposure to moisture has so injurious an effect upon lime that it partakes to some degree of the nature of a perishable commodity. Another important fact in connection with lime is its very light loading, which does not seem to average over 14 tons to the car, the minimum weight being 12 tons. The light loading tends to increase the cost of transportation of lime for the same reason that the very heavy loading of crushed stone and gravel reduces the cost of hauling those commodities; and this element should receive due consideration in the fixing of the rates.

While lime, therefore, from the point of view of value alone, should pay rates that are somewhat lower than the average rates for all carload traffic, the nature of the commodity and its comparatively light loading are elements tending to fix the proper

rate upon lime somewhat higher than the average rate. As the result of all these factors, it would seem that the rate on lime should be about sufficient to cover the actual expenses of operation, plus a rate of return on the investment, which is a little lower than the average for all traffic.

The foregoing considerations have weighed largely in the construction of the distance tariff on lime which is set forth in the order herein. Upon this basis, the terminal cost of this traffic is found to be about 3 cts. per 100 lbs., and the movement cost is about 0.28 ct. per gross ton. As the expense per gross ton is lower than the cost per net ton, and the unit cost of so-called local traffic exceeds that of through traffic, certain adjustments of the above basic figures are necessary in the construction of a tariff, and in this case, also, the rates named in the order have been somewhat affected by the general trend of the commodity rates now in existence. The effect of these commodity rates, however, has not been such that all of such rates can be safely eliminated. In the present situation it is both necessary and proper that any existing commodity rates that are lower than the rates provided in the order should be retained.

IT IS THEREFORE ORDERED, That the respondents, the Chicago, Milwaukee & St. Paul Railway Company and the Chicago & North Western Railway Company, discontinue their present rates on gravel, crushed stone and lime, from Waukesha, Wisconsin to points on their respective lines within Wisconsin, and substitute therefor the following rates, subject in each case to the same minimum weights as are in force at the present time :

On Gravel and Crushed Stone, Carloads:

Miles	Rate. cts. per 100 lbs.	Miles	Rate. cts. per 100 lbs.	Miles	Rate. cts. per 100 lbs.
5	1.20	55	2.20	110	3.00
10	1.30	60	2.30	120	3.10
15	1.40	65	2.40	130	3.20
20	1.50	70	2.47	140	3.30
25	1.60	75	2.54	150	3.40
30	1.70	80	2.61	160	3.50
35	1.80	85	2.68	170	3.60
40	1.90	90	2.75	180	3.70
45	2.00	95	2.82	190	3.80
50	2.10	100	2.90	200	3.85

On Line, Carloads.

Miles	Rate, cts. per 100 lbs.	Miles	Rate, cts. per 100 lbs.	Miles	Rate, cts. per 100 lbs.
5	3.25	80	5.40	210	8.00
10	3.40	85	5.55	220	8.20
15	3.55	90	5.70	230	8.40
20	3.60	95	5.80	240	8.60
25	3.75	100	5.90	250	8.80
30	3.90	110	6.10	260	9.00
35	4.05	120	6.20	70	9.20
40	4.20	130	6.40	280	9.40
45	4.35	140	6.60	290	9.60
50	4.50	150	6.80	300	9.80
55	4.65	160	7.00	320	10.20
60	4.80	170	7.20	340	10.60
65	4.95	180	7.40	.....	.....
70	5.10	190	7.60	.....	.....
75	5.25	200	7.80	.....	.....

WISCONSIN LAKES ICE AND CARTAGE COMPANY

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted Feb. 26, 1912. Decided April 30, 1912.

Petitioner complains that the rate of 2 cts. per cwt. on ice from petitioner's plant at Silver Springs to Milwaukee, Wis., is unreasonable and discriminatory and prays for the establishment of a reasonable rate and for a refund of the excess above such reasonable rate upon all shipments from Silver Springs to Milwaukee within a year of the filing of the complaint. The ice shipped from Silver Springs is of a comparatively low grade. The loading averages about 50,000 lbs. per car. Testimony was admitted showing the cost per ton of ice delivered at various points in Milwaukee and the average profit to the petitioner at each point. Comparisons were made with other short distance rates on ice in Wisconsin and neighboring states and the cost of the service to the carrier was ascertained.

Held: In determining what rates are reasonable for the traffic involved in this case, the various conditions surrounding the petitioner's business, both as to the character of the commodity, the method of handling the traffic, and the competition which the petitioner meets are important. Attention has also been given to comparative rates, although they are at best an unsatisfactory indication as to what rates would be reasonable in the case under consideration. The principal basis for computing the reasonable rate is the cost of the service to the carrier. In view of the fact that ice is of comparatively low value in proportion to its weight, is transported in regular movements and is subject to little risk in transit, and in consideration also of the rather heavy loading of ice and the fact that no extra equipment of any kind is necessary in handling it, this commodity is entitled to a comparatively low rate. While the rate must necessarily be sufficient to cover the actual expense of the service, the traffic is of a kind that should not be expected to contribute as much in the way of interest upon the railway company's investment as does the average traffic on the line. The present rate of 2 cts. per cwt. is a little higher than the petitioner should be required to pay and the respondent is ordered to substitute therefor a rate of 1.7 cts. per cwt. Refund is ordered of the amount collected on shipments of ice from Silver Springs to Milwaukee, arriving at destination since Jan. 10, 1911, in excess of the rates herein found reasonable.

The petitioner is a corporation engaged in the ice business at various points in Wisconsin, its principal market being at Milwaukee. It complains of the rate on ice from its plant at

Silver Springs, Wis., to Milwaukee, claiming that such rate, which is now fixed at 2 cts. per 100 lbs., is unreasonable, excessive, discriminatory and exorbitant. It prays for the establishment of a reasonable rate and for a refund of the excess above such reasonable rate upon all its shipments of ice from Silver Springs to Milwaukee within a year of the filing of the complaint.

The answer of the respondent company denies that the present rate is unreasonable, excessive, discriminatory or exorbitant, alleges that such rate is the regularly established and published rate of the respondent, and asks that the petition be dismissed.

At the hearing, which was held at Milwaukee, Feb. 26, 1912, *H. V. Kane* appeared for the petitioner and *C. A. Vilas* for the respondent company.

Silver Springs is located on the respondent's Milwaukee-Sparta and Milwaukee-Fond du Lac lines, about seven miles north of Milwaukee. It is served by no other railway company. The present 2 ct. rate has been in effect only for about three years. Formerly a switching rate of \$6 per car was in effect, and prior to about 1905 the rate was 1.5 cts. per 100 lbs. There is no regular station at Silver Springs, but cars from the petitioner's siding are billed from Lindwurm, which is a mile nearer Milwaukee than Silver Springs. At the so-called Cement Mill siding, about a mile nearer Milwaukee than Lindwurm, the petitioner has another ice plant, reached by both the respondent and the Chicago, Milwaukee & St. Paul line, from which the present rate to Milwaukee on the respondent's line is \$6 per car.

The ice shipped from Silver Springs to Milwaukee is of a comparatively low grade, used for cooling purposes in refrigerator cars, cold storage plants, etc., and is unfit for domestic use. It is sold in Milwaukee for from \$1.75 to \$2.85 per ton, the average price being about \$2.25 per ton. The loading averages about 50,000 lbs. per car. The petitioner's shipments are unloaded at various sidings in Milwaukee, depending upon the ultimate destination of the ice. Ice sold to the Blatz Brewing Company is unloaded at Detroit street and is teamed from the cars to the brewing company's refrigerator cars. The contract price at which this ice is sold is \$1.75 per ton. Ice destined to various fruit houses, meat markets, ice cream factories, etc., is unloaded at Scott street, North avenue and Becher street, and sells for \$2.00 to \$2.50 per ton at the first two points and \$2.85 to \$3.00

per ton at Becher street. As to the extent of the shipping business done by the petitioner, it appears from the complaint that 403 cars were shipped from Silver Springs to Milwaukee between Jan. 16 and Sept. 30, 1911, and it was testified that the shipments for 1905 were 397 cars and for 1909 642 cars. In the latter year, however, a part of the shipments were consigned to Cudahy, Wis.

The petitioner submitted testimony to show the cost per ton of the ice delivered at the various delivery points in Milwaukee, and the average profit to the petitioner at each point. It seems from this testimony that the cost of harvesting, storing and loading the ice on cars is about 60 cts. per ton. Under present conditions there is a shrinkage of about 20 per cent in transit and unloading, and the cost of this shrinkage, according to the petitioner's figures, amounts to about 20 cts. on each ton sold. Depreciation and interest on the petitioner's investment is figured at 10 cts. per ton. The freight rate from Silver Springs to Milwaukee is 40 cts. per ton. The total cost of the ice to the petitioner, therefore, at the time it is ready for unloading, is computed at \$1.30 per ton, without any allowance for office and other general expenses. The cost of unloading varies considerably as between the different delivery points, owing to the different methods of handling the ice according to the use to which it is to be put. The following statement shows what this unloading cost is reported by the petitioner to be at each delivery point, also the price at which the ice is sold and the profit accruing on each ton. The figures as to the number of cars shipped cover the period during which the petitioner asks a refund, and is made up from the expense bills submitted.

Delivery point.	No. of cars.	Cost per ton up to delivery point.	Cost of unloading.	Total cost.	Average selling price.	Profit.
Detroit St.....	63	\$1.30	\$0.34	\$1.64	\$1.75	\$0.11
Scott St.....	151	1.30	.75	2.05	2.25	.20
Becher St.....	31	1.30	.85	2.15	2.85	.70
North Ave.....	146	1.30	.75	2.05	2.25	.20

The usual course of operation in the transportation of the petitioner's ice is to load the cars at Silver Springs in the morning, have them taken out by way freight, or, sometimes, by switch

engines from Milwaukee, during the afternoon, and spot them for unloading early the next morning at Milwaukee. The traffic being one that requires quick handling to avoid shrinkage, the petitioner unloads the cars as promptly as possible, and has not paid any demurrage charges within the past few years. No special equipment of any kind in the way of rolling stock is furnished to the petitioner; in fact, considerable stress was laid, in the petitioner's testimony, upon the fact that the box cars provided for its ice shipments are generally of very poor character, often out of repair and so dirty that considerable expense is required for cleaning them. If refrigerator cars were used for there ice shipments, the shrinkage in weight during the transportation would average only about 4 per cent, but the present shrinkage is about 20 per cent. The amount of shrinkage does not affect the rate which the petitioner pays, for the reason that the cars are not weighed until they reach Milwaukee and the freight is paid on the weight at destination; but the shrinkage is, of course, an important element in determining the profits of the petitioner on its ice business.

The ice business in and about Milwaukee is subject to considerable competition. The witnesses for the petitioner at the hearing gave the names and locations of a number of ice companies which are engaged in practically the same operations as the petitioner, although it seems that none of them ship as short distances as the petitioner. Moreover, the particular kind of ice that the petitioner sells is meeting an increasingly severe competition in the use of artificial ice by breweries, meat markets and similar industries. Not only is there actual competition from this artificial ice, but the tendency of many present users of natural ice is to install artificial ice machines unless the petitioner sells to them on very favorable terms.

The petitioner called especial attention to the existence of rates from Silver Springs to Milwaukee in previous years much lower than the rates now in effect. The rate of \$6 per car in effect up to 1909 amounted to only 1.2 cts. per 100 lbs. on a car of average loading. Since the increase in rates, the quality of the cars furnished and of the service rendered has not improved, while the petitioner's shipments have been larger and the petitioner has been subject to greater expense of harvesting and keener competition in the market. The present rate of \$6 per

car on ice from the Cement Mill siding, which is only two miles nearer Milwaukee than Silver Springs, was also emphasized.

A further point made on the part of the petitioner was that the transportation of ice involved practically no risk of damage in transit. The shrinkage which is an inevitable accompaniment of the transportation is the loss of the shipper, even though the railway company's failure to furnish proper cars contributes largely to the shrinkage. An officer of the petitioner testified that no claims for damages had ever been made by the petitioner.

On the part of the respondent company, it was testified that the petitioner's plant at Silver Springs was located on an extremely busy line of the railway company and in a place where it was the policy of the railway company not to foster industries. Since the completion of the belt line around the city of Milwaukee, the respondent company has determined to confine the development of new industries, so far as possible, to that portion of the belt line between West Allis and Butler, which is off the main Milwaukee-Sparta and Milwaukee-Fond du Lac lines. Furthermore, it was testified that there was considerable objection from residents along the shore of Lake Michigan north of Milwaukee, to the development of that region industrially, and that it was likely that certain switching tracks in the neighborhood of Lindwurm would ultimately have to be removed.

Emphasis was placed by the respondent company upon the fact that the traffic in question is not to be considered a switching traffic, but is in all respects a regular line traffic. This is due to the fact that the ice business demands prompt movement, which is not true of the commodities usually subject to switching tariffs; also the fact that the ice traffic does not result in further shipments out, while switching rates are made with a view to a second haul out of Milwaukee. The lower rates formerly in effect on ice from Silver Springs to Milwaukee were characterized by the witness for the respondent company as extremely low and unremunerative.

The contention of the respondent that the traffic in question should be considered not as switching traffic but as a regular line traffic, is not disputed by the petitioner, whose reliance is placed upon the claims that the present rates are exorbitant for a regular line traffic, when the distance and the other elements entering into this case are taken into account,

The respondent also called attention to the fact that in the case of the North avenue shipments, which constitute over 35 per cent of the petitioner's ice shipments, the service consists of the haul to the center of the city and then a back haul by a switch engine for two or three miles to the point of destination. The necessity of prompt movement was also emphasized by the railway company as an element tending to justify the present rate. Furthermore, it was urged that the average revenue per car, amounting to about \$10, was as low as the railway company should be required to accept for any line haul. Finally, it was pointed out that the petitioner's rates are the lowest that are enjoyed by any ice company shipping into Milwaukee, and for this reason it was claimed that the suggestion in the petitioner's testimony, that the rates were higher than the petitioner's business could bear and their continuance would result in a cessation of shipments from Silver Springs, was untenable.

The respondent company placed in evidence a statement showing ice rates for various short-distance hauls, which, it was stated, had been tabulated in a recent decision of the interstate commerce commission. In addition to the rates so submitted, the Commission has compiled from its tariff files a number of other rates on ice for hauls up to about 75 miles. These rates, together with those submitted by the respondent company, are shown in table I:

TABLE I.
COMPARATIVE STATEMENT OF RATES ON ICE, FOR VARIOUS SHORT DISTANCES.

Railway	From	To	Miles	Rate in cents per ton
A. T. & S. F.	E. Ft. Madison, Ill.	Ft. Madison, Ia.	1	25
Frisco.	Bridge Jct. Ark.	Memphis, Tenn.	4	55
"Soo".	Madison, Wis.	Manitowoc, Wis.	5	40
C. E. I. & P.	Rock River, Ill.	Rock Island, Ill.	5	25
C. & N. W.	Ravenswood, Ill.	Chicago, Ill.	6	40
Omaha.	Mendota, Minn.	St. Paul, Minn.	6	(*)
C. B. & Q.	Cheyenne, Wyo.	Pontoosuc, Ill.	6	60
A. T. & S. F.	Ft. Madison, Ia.	Chicago, Ill.	6	45
C. & N. W.	Summerdale, Ill.	Chicago, Ill.	7	40
C. & N. W.	Rose Hill, Ill.	Chicago, Ill.	8	40
"Soo".	Alverno, Wis.	Manitowoc, Wis.	9	40
C. & N. W.	Bogers Park, Ill.	Chicago, Ill.	9	45
C. B. & Q.	Beardstown, Ill.	Jacksonville, Ill.	10	60
C. B. & Q.	Bean Lake, Mo.	Atchison, Kan.	10	50
Mo. Pac.	Kansas City, Mo.	Independence, Mo.	10	50
Big 4.	Augusta, Ind.	Indianapolis, Ind.	11	55
C. & N. W.	Crystal Lake, Ill.	Barrington, Ill.	11	30
Mo. Pac.	Leeds, Mo.	Kansas City, Mo.	11	30
Gr. Nor.	Sloux Falls, S. D.	Tea, S. D.	11	40
C. & E. I.	Gravois, Mo.	St. Louis, Mo.	11	40

TABLE I.—Continued.

Railroad	From	To	Miles	Rate in cents per ton
C. & N. W.	Evanston, Ill.	Chicago, Ill.	12	45
"Soo"	Valder, Wis.	Manitowoc, Wis.	12	50
C. M. & St. P.	Watertown, Ill.	Davenport, Ia.	12	40
Nor. Pac.	White Bear, Minn.	St. Paul, Minn.	12	30
Frisco	Kirkwood, Mo.	St. Louis, Mo.	12	40
Grand Tr.	Thorold, Ont.	Suspension Br., N. Y.	12	40
C. & N. W.	Belvidere, Ill.	Marengo, Ill.	12	30
I. C.	Dixon, Ill.	Amboy, Ill.	12	50
C. G. W.	Chicago, Ill.	Maywood, Ill.	12	45
Omaha	River Falls, Wis.	Ellsworth, Wis.	13	(*)
C. G. W.	Chicago, Ill.	Bellewood, Ill.	13	45
C. & E. I.	Kirkwood, Mo.	St. Louis, Mo.	13	40
Wabash	Keokuk, Ia.	Carthage, Ill.	13	50
C. & N. W.	Greenwood Street.	Chicago, Ill.	14	45
C. & N. W.	Wilmette, Ill.	Chicago, Ill.	14	60
C. & N. W.	Kenilworth, Ill.	Chicago, Ill.	15	60
C. B. & Q.	Savanna, Ill.	Chadwick, Ill.	16	60
I. C.	Mendota, Ill.	La Salle, Ill.	16	50
C. & N. W.	Collins, Wis.	Manitowoc, Wis.	17	50
C. & N. W.	Desplaines, Ill.	Chicago, Ill.	17	50
I. C.	Clinton, Ill.	Farmer City, Ill.	18	50
Gr. Nor.	Sioux Falls, S. D.	Lennox, S. D.	18	45
C. B. & Q.	Bean Lake, Mo.	Leavenworth, Kan.	19	60
C. M. & St. P.	Pewaukee, Wis.	Milwaukee, Wis.	20	50
A. T. & S. F.	Ft. Madison, Ia.	Decorrah, Ill.	20	50
C. M. & St. P.	Waukesha, Wis.	Milwaukee, Wis.	21	50
C. & N. W.	Twin Lakes, Wis.	Harvard, Ill.	21	50
C. B. & Q.	Keokuk, Ia.	Canton, Mo.	22	60
C. R. I. & P.	Moline, Ill.	Orion, Ill.	22	50
Mo. Pac.	Creve Coeur, Mo.	St. Louis, Mo.	22	50
C. B. & Q.	Bean Lake, Mo.	St. Joseph, Mo.	23	50
Nor. Pac.	Stillwater, Minn.	St. Paul, Minn.	24	50
Frisco	Crecent, Mo.	St. Louis, Mo.	25	60
C. & N. W.	Lake Geneva, Wis.	Harvard, Ill.	26	50
C. & E. I.	Eureka, Mo.	St. Louis, Mo.	27	60
Frisco	Eureka, Mo.	St. Louis, Mo.	27	60
C. B. & Q.	Atchison, Kan.	L.avenworth, Kan.	29	60
C. & N. W.	Salem, Wis.	Waukegan, Ill.	31	40
Minn. & St. L.	Waconia, Minn.	Minneapolis, Minn.	31	40
C. M. & St. P.	Merton, Wis.	Milwaukee, Wis.	32	50
C. & N. W.	Williams Bay, Wis.	Harvard, Ill.	32	50
I. C.	E. St. Louis, Ill.	Alhambra, Ill.	33	50
C. M. & St. P.	Kansasville, Wis.	Milwaukee, Wis.	34	50
C. & N. W.	Barton, Wis.	Milwaukee, Wis.	34	50
Mo. Pac.	Kansas City, Mo.	Tonganoxie, Kan.	34	60
"Soo"	Cedar Lake, Wis.	Milwaukee, Wis.	35	70
C. M. & St. P.	North Lake, Wis.	Milwaukee, Wis.	35	50
I. C.	Lincoln, Ill.	Springfield, Ill.	35	50
Big 4.	Anderson, Ind.	Indianapolis, Ind.	36	60
I. & N.	Evansville, Ind.	Carmi, Ill.	38	60
Nor. Pac.	Big Lake, Minn.	Minneapolis, Minn.	39	40
C. B. & Q.	Bean Lake, Mo.	Kansas City Mo.	39	50
Grand Tr.	Dunnville, Ont.	Buffalo, N. Y.	39	50
C. B. & Q.	Beardstown, Ill.	Virden, Ill.	40	80
C. M. & St. P.	Random Lake, Wis.	Milwaukee, Wis.	40	50
C. & N. W.	Barton, Wis.	Cudany, Wis.	42	50
Wabash	Keokuk, Ia.	Clayton, Ill.	42	60
Minn. & St. L.	Waconia, Minn.	St. Paul, Minn.	43	40
C. B. & Q.	Armour, Mo.	Kansas City, Mo.	44	50
C. & N. W.	Barton, Wis.	So. Milwaukee, Wis.	45	50
C. B. & Q.	Ft. Madison, Ia.	Monmouth, Ill.	46	60
I. C.	Springfield, Ill.	Decatur, Ill.	46	60
Mo. Pac.	Omaha, Neb.	Nebraska City, Neb.	46	60
"Soo"	Gray's Lake, Ill.	Chicago, Ill.	48	60
C. & N. W.	Salem, Wis.	Milwaukee, Wis.	49	60
Gr. Nor.	Big Lake, Minn.	Minneapolis, Minn.	49	40
C. B. & Q.	Montrose, Mo.	Quincy, Ill.	50	70
I. C.	Kankakee, Ill.	Chicago, Ill.	54	60
A. T. & S. F.	Leavenworth, Kan.	St Joseph, Mo.	54	60
Wabash	Westville, Ind.	Chicago, Ill.	55	60

* \$6.00 per car, maximum weight 30,000 lbs.

TABLE I.—Concluded.

Railroad	From	To	Miles	Rate in cents per ton
A. T. & S. F.....	Ft. Madison, Ia.....	Galesburg, Ill.....	55	60
Big 4.....	Ashborough, Ind.....	Indianapolis, Ind.....	57	80
C. & N. W.....	Twin Lakes, Wis.....	Milwaukee, Wis.....	57	60
C. B. & Q.....	Ft. Madison, Ia.....	Galesburg, Ill.....	62	60
"Soo".....	Silver Lake, Wis.....	Chicago, Ill.....	64	60
C. G. W.....	St. Charles, Ill.....	German Valley, Ill.....	65	65
Gr. Trunk.....	Hamilton, Ont.....	Buffalo, N. Y.....	68	60
Gr. Nor.....	Sioux Falls, S. D.....	Irene, S. D.....	69	75
C. & N. W.....	Lake Geneva, Wis.....	Milwaukee, Wis.....	70	60
A. T. & S. F.....	Kansas City, Mo.....	Atchison, Kan.....	73	60
"Soo".....	Burlington, Wis.....	Chicago, Ill.....	75	60
C. & N. W.....	Williams Bay, Wis.....	Milwaukee, Wis.....	76	60

It will be seen from the table that very few of the rates are lower than those now accorded the petitioner. In many cases the rates for similar distances are considerably higher. It is further to be noted, however, that rates for distances several times as great as that over which the petitioner ships, are, in general, not much higher than those used by the petitioner, the prevailing rate for distances as high as 45 miles being about 50 cts. per ton. Of especial interest, in this connection, are the various rates from ice-shipping points to Milwaukee. As to these, it will be seen that the shippers of ice at Pewaukee, 20 miles; Waukesha, 21 miles; Merton, 32 miles; Kansasville and Barton, each 34 miles; North Lake, 35 miles; and Random Lake, 40 miles, all have a rate of 50 cts. per ton, while the petitioner's rate for seven miles is 40 cts. per ton. At all of the points last named, according to the testimony, competitors of the petitioner are located. The petitioner itself also ships from Pewaukee and Barton.

It is further to be remarked, with regard to the above table, as has often been said by this Commission in previous decisions, that comparative rates are at best an unsatisfactory indication as to what rates would be reasonable in the case under consideration. This fact is very well illustrated by the present case. The commodity here involved is a low grade of ice, sold at about \$2.50 per ton, while ice used for domestic purposes sells for from \$6 to \$8 per ton. Such a difference in value is a material element in considering the reasonableness of a rate, but there is nothing to indicate what kinds of ice move under the various rates shown in the table. Again, the petitioner's shipments are

moved regularly and in considerable quantities from a producing point very near a large city into that city, where competition is keen and the conditions surrounding the movement are naturally very different from those involved in a movement from one rural community to another. On this point it will be observed that many of the rates given in the table apply between points of comparatively small commercial importance, where competition may be small or non-existent, and the movement in some of these cases may consist of only a few isolated shipments in a season. What the real facts are as to all these points, cannot be stated, and the result is that the rate comparisons are more valuable as an illustration of what rates actually are than as any indication of what they ought to be in the present case. It may be said further, that the Commission's file of tariffs applying wholly outside of Wisconsin is hardly complete enough to make a comprehensive collection of short-distance ice rates possible.

In determining what rates are reasonable for the traffic involved in this case, the various conditions surrounding the petitioner's business, both as to the character of the commodity, the method of handling the traffic, and the competition which the petitioner meets, are important and have received due consideration. Attention has also been given to the comparative rates shown in table I, although the weakness of such a comparison as a criterion for rate making is always to be kept in mind. But in this as in most cases, the principal basis for computing the reasonable rate is the cost of the service to the carrier, and this cost has been ascertained in the present case by the methods often explained in decisions of this Commission. Considering the fact that the commodity involved is of comparatively low value in proportion to its weight, is transported in regular movements and is subject to little risk in transit, and considering also the rather heavy loading of ice and the fact that no extra equipment of any kind is necessary in handling it, it is apparent that this commodity is entitled to a comparatively low rate. While the rate must necessarily be sufficient to cover the actual expense of the service, the traffic is of a kind that should not be expected to contribute as much in the way of interest upon the railway company's investment as does the average traffic on the line.

An application of the principles just stated to the circumstances of this case seems to warrant the conclusion that the

present rate of 2 cts. per 100 lbs. is a little higher than the petitioner should be required to pay. At the same time, the cost figures at hand do not at this time justify the Commission in fixing the rate as low as 1.5 cts. per 100 lbs., the figure at which it was placed by the railway company up to about 1905. When the movement and terminal expenses of the railway company upon this traffic are properly adjusted to take account of the length of the haul and the other conditions peculiar to this traffic, it is found that a rate of 1.7 cts. per 100 lbs. is about fair as between the shipper and the carrier, and the establishment of such rate will be ordered.

The prayer of the petition includes a request for a refund of the amount collected of the petitioner during the year preceding the filing of the complaint, in excess of the rate which the Commission may find to be reasonable. It follows, from the reduction of the rate from 2 cts. to 1.7 cts. per 100 lbs., that the petitioner is entitled to such refund, which will apply on all shipments from Silver Springs to Milwaukee which arrived at destination after Jan. 10, 1911. The amount of the refund is a matter of computation which may be settled between the parties, with further recourse to the Commission in case of disagreement.

We therefore find and determine that the present rate of 2 cts. per 100 lbs., charged and collected by the respondent railway company upon carload shipments of ice from Silver Springs to Milwaukee, is unreasonable and exorbitant, and that a reasonable rate for the service rendered would be 1.7 cts. per 100 lbs.

IT IS THEREFORE ORDERED, That the respondent, the Chicago & North Western Railway Company, discontinue its present rate of 2 cts. per 100 lbs. on carload shipments of ice from Silver Springs Siding, Wis., billed from Lindwurm, Wis., to Milwaukee, Wis., and substitute in lieu thereof a rate of 1.7 cts. per 100 lbs., subject to the same minimum weight and allowance for packing as is at present in effect.

IT IS FURTHER ORDERED, That the said respondent company be and the same is hereby authorized and directed to refund to the petitioner, the Wisconsin Lakes Ice and Cartage Company, the amount collected by said respondent of said petitioner on shipments of ice from Silver Springs to Milwaukee, on shipments arriving at destination since Jan. 10, 1911, in excess of the rates herein found reasonable.

RHINELANDER PAPER COMPANY

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

NEKOOSA-EDWARDS PAPER COMPANY,

Intervener.

Submitted Feb. 20, 1912. Decided April 30, 1912.

Petitioner and intervener complain that the rates established by the Commission in *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co.* 1911, 8 W. R. C. R. 105, are excessive and discriminatory. Respondent was therein given the option of lowering the petitioner's rates on pulp wood from Wisconsin points to Rhineland, Wis., or raising the rates of petitioner's competitors to Nekoosa, Port Edwards and Fox river points to equal those fixed in *In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168. Respondent chose the second alternative. The original petitioner prays that instead of having an option respondent be required to reduce the petitioner's rates about 20 per cent. The intervener asks that the Commission restore the situation as it existed prior to the Commission's order, when a lower basis of special rates was applied to Nekoosa. The intervener claims that petitioner has so great an advantage in rates on its raw materials that, even when Nekoosa enjoys the lower special pulp wood rates, there is no ground for a further concession to Rhineland. A comparison of Rhineland's average advantage in rates on shipments of raw materials in with Nekoosa's average advantage on shipments of paper out, shows that under present rates petitioner's mill at Rhineland is still under a burden of 0.5 cts. per cwt. of paper. The restoration of the former system of rates would result in a net disadvantage to Rhineland, on the total movement of pulp wood, fuel and paper of about 0.67 cts. per cwt. of paper. The application of the Commission's pulp wood rates to Nekoosa has resulted in an increase of about 20% in rates. The intervener acquired large timber interests and made contracts for the purchase of pulp wood upon the basis of the special pulp wood rates formerly in effect.

Held: There is nothing in the competitive situation or in any of the other factors entering into the determination of reasonable rates, which warrants a lower basis of rates on pulp wood for Nekoosa than for Rhineland. A marked increase in rates on a commodity supplied to the intervener under contracts and timber purchases already made for some time in the future, is to be avoided, unless the former rates were so low as not to be reasonable from the point of view of the carrier. The special pulp wood rates granted in the past to the Nekoosa mills are shown by an analysis of the cost figures to be sufficiently high so that their re-establishment under the present circumstances would not seem to work an injustice to the

railway company. The pulp wood rates to Rhinelander on the respondent's line should be proportionately reduced. Respondent is ordered to re-establish in its entirety its tariff G. F. D. No. 13692, originally effective Aug. 16, 1911, and canceled by the respondent company on Nov. 30, 1911. It is further ordered that upon carload shipments of pulp wood to Rhinelander, Wis., from Wisconsin points, and to Grand Rapids, Port Edwards, Nekoosa, Menasha and Neenah, Wis., from all Wisconsin points not affected by the first part of this order, the respondent company establish maximum distance rates as prescribed by the Commission. Respondent is directed to refund to the intervener the amount collected upon shipments of pulp wood from Wisconsin points to the intervener at Grand Rapids, Port Edwards and Nekoosa, in excess of the rates herein ordered, between Nov. 30, 1911, and the date of the effectiveness of this order and to refund to the petitioner the amount collected upon shipments of pulp wood from Wisconsin points to Rhinelander, in excess of the distance rates herein ordered, between Jan. 3, 1911, and the date of the effectiveness of this order.

This case arises upon a re-hearing of the matters involved in the case of *Rhinelander Paper Co. v. M. St. P. & S. S. M. R. Co.* 1911, 8 W. R. C. R. 105, concerning the respondent's rates on pulp wood from Wisconsin points to Rhinelander, Wis. By the order of the Commission in that case, dated Nov. 10, 1911, the respondent company was given an option, either to reduce the rates on pulp wood to Rhinelander so that they would be proportionately as low as those from Wisconsin shipping points to the Nekoosa, Port Edwards and Fox river valley paper mills, or to raise the rates applying to the latter mills to equal those fixed by this Commission *In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168.

Pursuant to this order, the respondent company chose the second of the plans mentioned, and canceled its tariffs which gave special pulp wood rates to Nekoosa, Port Edwards and the Fox river valley points. This cancellation took effect Nov. 30, 1911, and has resulted in the application, since that date, of the rates fixed by the Commission in the *Pulp Wood* case on all pulp wood shipments to Nekoosa and Port Edwards.

On Nov. 29, 1911, the Nekoosa-Edwards Paper Company filed with the Commission a petition setting forth that it was engaged in the manufacture of paper, wood pulp and sulphite at Port Edwards and Nekoosa, Wis., consuming in such operations a large quantity of pulp wood; that most of this pulp wood was shipped to it in trainload lots from Glidden and other points at the rates which the respondent company was then proposing to cancel under authority of the Commission's order

of Nov. 10; that the petitioner had no notice of the proceedings before the Commission upon the complaint of the Rhineland Paper Company until after the order therein was entered; that the proposed cancellation of rates and substitution of the Commission's rates would effect the petitioner vitally and injuriously and would result in the exaction of grossly excessive, unjust and discriminatory charges for the transportation of pulp wood to Nekoosa and Port Edwards; that the findings made by the Commission in its order of Nov. 10, 1911, were based on insufficient evidence and without full and adequate investigation, and that the Commission's rates, as established *In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168, were fixed upon an erroneous and unsound basis and are so grossly excessive and discriminatory, as against the petitioner, as to menace its business. The petition closed with a prayer for an order restraining the cancellation of the tariff upon pulp wood into the petitioner's mills, and the restoration of the Commission's rates, and also fixing just and reasonable rates on pulp wood as between the petitioner and other users of timber products.

Upon a petition as above outlined an order was issued by this Commission on Dec. 1, 1911, authorizing a further hearing in the matter. The request for an order restraining the cancellation of the special pulp wood tariffs applying to Nekoosa and Port Edwards, was not granted.

On Jan. 2, 1912, the original petitioner, the Rhineland Paper Company, filed an amended petition, setting forth the discriminatory rate situation which was the basis of the original complaint in this proceeding, and further alleging that, as applied to pulp wood shipments to Rhineland, the rates fixed by the Commission *In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168, are unjust, unreasonable, excessive, extortionate, discriminatory and unlawful, and that reasonable and non-discriminatory rates for the service performed would not exceed 80 per cent of the rates so fixed by the Commission. The petitioner prays that the Commission modify its order of Nov. 10, 1911, so as to require the respondent company to desist from charging upon shipments of pulp wood to Rhineland any rates in excess of 80 per cent of the Commission's rates; and, upon this basis, the petitioner asks for refunds on a large

number of shipments specified in the complaint, amounting to a total refund of \$2,542.38.

The respondent Minneapolis, St. Paul & Sault Ste. Marie Railway Company filed an answer to the amended petition, alleging that such petition is a complete departure from the original cause of complaint, in that it attacks the rates fixed by the Commission after the respondent has fully satisfied the original complaint by putting those rates uniformly into effect; that the interests of many parties, carriers and shippers, who have a right to be heard, are involved; and that the real controversy at present is between the petitioner and the intervener as to whether the rate situation assailed in the original petition should be restored. Wherefore, the respondent asks that the amended petition be dismissed and the proceedings be confined to the issues raised in the original petition and answer, and in the intervening petition of the Nekoosa-Edwards Paper Company.

A hearing was held upon the amended petition and the intervening petition, at the office of the Commission, Feb. 20, 1912. The petitioner was represented by *Drew & Jameson*; the respondent company by *A. H. Bright*; and the intervener by *Goggins & Brazeau* and by *Felix Streyckmans*.

The effect of the various pleadings in this proceeding seems to be as follows: The original petitioner is asking that, instead of having an option between lowering the petitioner's rates and raising the rates of its competitors, the railway company be required to adopt the first method, by reducing the petitioner's rates about 20 per cent. The intervener is asking that the Commission restore the situation as it existed prior to the Commission's order in the present case, dated Nov. 10, 1911. The railway company resists the effort of the petitioner to reduce the Rhinelander rates, but apparently is not much concerned as to whether the present uniform application of the Commission's rates, or the former application of the Commission's rates to Rhinelander and of rates on a lower basis to Nekoosa, shall prevail.

The case of the intervener involves two propositions: first, the justice of the old system under which the Commission's rates were applied to Rhinelander and a lower basis of special rates was applied to Nekoosa; and second, the excessiveness of

the rates now applied upon the intervener's shipments of pulp wood, as the result of the cancellation of the former special rates to Nekoosa from Glidden and neighboring points.

The first proposition, namely, that the conditions under which the intervener ships pulp wood entitle it to rates lower than the Commission's rates, though the latter rates are applied to Rhineland, was the subject of a large amount of testimony relating to the quantities, prices and freight rates upon both the raw materials and the manufactured products of the intervener and the petitioner. A general summary of this testimony, supplemented by such information as has been obtained in the investigations of the Commission subsequent to the hearing upon points not fully covered by the testimony, is shown in table I.

The data shown in table I as to shipments of paper out from Nekoosa and Rhineland require some explanation. They are obtained from statements submitted by the intervener and the petitioner, and, especially in the case of the intervener, the shipments to a given state often take various rates depending upon the part of the state to which they are made. Usually the large majority of the shipments to a state are made on a single rate, while a few scattering carloads are sent to cities taking a different rate. For purposes of comparison between the two mills, therefore, the rate named in the table as the typical rate to each state is the one on which the greater part of the shipments of each mill move. The result is that the difference between the actual rates from Nekoosa and from Rhineland, as shown in the table, is sometimes not equal to the "usual rate advantage" shown in the last column of the table; for the latter is intended to show the uniform difference in rates to the same point of destination, while the rates actually named in the table are those on which most of the paper moves. The statement on the part of the petitioner is for eleven months only, while that of the intervener covers an entire year, but in comparing the percentage of paper shipped to the different states, this difference is immaterial.

TABLE I.
SHIPMENTS OF RAW MATERIAL IN AND MANUFACTURED PRODUCTS OUT
OF THE PETITIONER'S AND INTERVENER'S MILLS.

1. Paper Shipped Out.

Shipments to	Rhineland, 11 mo. 1911.			Nekoosa, year 1911.			Usual rate advantage, Nekoosa over Rhineland, cents.
	Amount tons.	Per cent of total shipments.	Typical rate, cents.	Amount tons.	Per cent of total shipments.	Typical rate, cents.	
Alabama.....			45	294	0.77	43	2
Arizona.....	39	0.24	204	40	0.11	147	0
Arkansas.....	76	0.46	42.5	208	0.71	46	0.5
Colorado.....	549	3.34	60	1,374	3.62	60	0
Connecticut.....	98	0.59	32			30	0
Dist. of Columbia.....			27	130	0.34	24.5	2.5
Florida.....			34	146	0.39	31.5	2.5
Georgia.....	114	0.69	45	351	0.92	43	2
Idaho.....			122.5	16	0.04	122.5	0
Illinois.....	3,057	18.60	12	5,237	13.78	10	2
Indiana.....	241	1.46	16	1,596	4.20	14	2
Iowa.....	1,170	7.12	18	1,572	4.14	14.5	0
Kansas.....	1,348	8.20	25	1,105	2.91	30	0
Kentucky.....	39	0.24	18	344	0.91	16	2
Louisiana.....	197	1.20	34	812	2.14	31.5	2.5
Maryland.....			27	41	0.11	24.5	2.5
Massachusetts.....			32	135	0.36	29.5	2.5
Michigan.....	577	3.51	17	1,221	3.21	14	0
Minnesota.....	600	3.65	8	1,032	2.72	12.5	*4.5
Minnesota.....	305	1.86	8	100	0.26	16.5	*8.5
Minnesota.....			14.5	39	0.10	14.5	0
Mississippi.....	48	0.29	42	235	0.62	34	2
Missouri.....	2,499	15.20	16	4,232	11.30	16	0
Missouri.....			20	3,015	7.94	20	0
Montana.....			108	78	0.21	112.5	*4.5
Nebraska.....	410	2.49	20	3,507	9.23	20	0
New Jersey.....			30	56	0.15	27.5	2.5
New Mexico.....	59	0.36	85	16	0.04	105	0
New York.....	138	0.84	26.5	556	1.46	24	2.5
North Carolina.....			45	232	0.61	42.5	2.5
Ohio.....	1,336	8.13	17	2,129	5.60	15	2
Oklahoma.....	686	4.17	45	918	2.39	55	0
Pacific Coast.....			75	1,294	3.41	75	0
Pennsylvania.....	128	0.78	20	1,092	2.88	25.5	2.5
South Dakota.....			29	46	0.12	29	0
Tennessee.....	27	0.16	27.5	1,018	2.68	25	0
Texas.....	189	1.15	69	985	2.62	74	0
Utah.....			75	362	0.95	75	0
Virginia.....			27	222	0.58	24.5	2.5
Washington.....			119	11	0.03	119	0
West Virginia.....			22	161	0.42	20	2
Wisconsin.....	2,402	14.61	10	1,054	2.77	7.5	2.5
Wisconsin.....			7.5	854	2.25	7.5	0
Wyoming.....	108	0.66	70			70	0
Total.....	16,440	100.00		37,986	100.00		

*Rhineland's advantage.

2. Sulphite Shipped Out.

From Rhinelander				From Nekoosa			
Destination	Miles	Annual ship't, tons	Rate, cts. per cwt.	Destination	Miles	Annual ship't, tons	Rate cts. per cwt.
Park Falls.....	77	1,200	5	Merrill.....	65	38,709	{ 6 4 1 6
				So. Centralia....	3		
				Grand Rapids....	7		
				Kaukauna, etc....	147		

3. Pulp Wood Shipped In

To Rhinelander			To Nekoosa		
Origin	Annual amount, est., tons	Average rate, cts. per cwt.	Origin	Annual amount, est., tons	Average rate, cts. per cwt.
All points.....	62,000	3.12	All points.....	141,770	3.5
Wis. Soo line points...	24,800	2.67	Wis. Soo line points..	141,770	3.5
C. & N. W. points.....	18,600	2.83	Glidden, Wis.....	74,180	3.5
Soo line Mich & Minn..	18,600	4.00			

4. Other Commodities Shipped In

Commodity	At Rhinelander				At Nekoosa			
	Origin	Annual amt., tons	Rate cts. per cwt.	Av. price delivered, ton	Origin	Annual amt., tons	Rate cts. per cwt.	Av. price delivered, ton
Fuel:*								
Coal.....	Lake ports..	2,240	4.5	\$4 03	Illinois.....	1,516	10.75	.....
Screenings.....	Lake ports..	8,355	4.5	3 43	Lake ports...	41,338	5.0	\$3 45
Total fuel.....		10,595	4.5	3 56		42,854	5.2	.....
Ground wood pulp.	Canada.....	5,500	12.5	\$23 10	Canada.....	9,036	16.0	.....
Ground wood pulp.					Fox I. Val..	2,188	6.0	.....
Total pulp.....		5,500	12.5	\$23 10		11,224	14.05	.....
Sulphur.....	Louisiana...	1,500	33.5	\$29 20	Louisiana....	4,337	31.5	.....

* A comparatively small quantity of sawmill refuse is used as fuel at both mills. At Rhinelander its cost is 10 to 20 per cent less than that of coal and screenings; at Nekoosa it costs about the same as coal and screenings.

Various additional facts were brought out in the testimony relating to the different commodities included in the foregoing table. As to the shipment of paper out, it was testified, as the table shows, that within Wisconsin Nekoosa usually has an advantage of 2.5 cts. per 100 lbs. over Rhinelander; to Louisiana and most points east of the Mississippi river Nekoosa's ad-

vantage is either 2 or 2.5 cts.; to points west of the Mississippi river and south of Minnesota the rates from Rhinelander and from Nekoosa are generally the same; while to most Minnesota, North Dakota and Montana points Rhinelander has an advantage of 4.5 cts. or more over Nekoosa. The testimony also shows, however, that as a matter of fact it is very difficult for Wisconsin paper mills to ship their products into Minnesota, owing to the low rates upon which paper is moved from paper mills in that state to the markets in the Twin Cities and Duluth.

As to sulphite, the only movement of this product from the petitioner's mill is to Park Falls, Wis., where, under a contract expiring in April, 1912, the petitioner ships 100 tons per month. It was testified that after the expiration of this contract the petitioner would cease making shipments of sulphite and would use its entire product in the manufacture of paper. The sulphite shipments of the intervener constitute about 20 per cent of its output of that commodity, the remainder being used in its own mills. Its shipments reach a number of Wisconsin paper mill points, but, so far as the testimony shows, those mentioned in the table are probably among the most important. The intervener introduced considerable testimony to the effect that the market for sulphite has of recent years been much affected by increasingly heavy importations of sulphite from foreign countries, especially Sweden. From statistics submitted by the intervener, it appears that the sale of foreign sulphite in the United States now greatly exceeds that of domestic sulphite and has increased over 400 per cent since 1907. As a result, the market price of sulphite has fallen from about \$41 per ton to about \$29 per ton during the same period, and this shrinkage in market value has caused the business of manufacturing sulphite to be operated upon a very narrow margin. It appears from the testimony that the capacity of the intervener's sulphite mills exceeds the ability of its paper mills to consume their product by about 20 per cent, so that it is necessary for the intervener to ship a considerable amount of sulphite if it is to keep its entire equipment employed.

The shipments of pulp wood, the commodity directly involved in this case, in to the petitioner's mill are by no means confined to the respondent company's line, while those of the intervener seem to be practically all made over that line. The various figures given in the table as representing the amount of

the petitioner's shipments are mere estimates based on statements made in the testimony. The amount of the intervener's pulp wood shipments was stated at the hearing by a witness who had computed the amount, as shown in table I. Another witness for the intervener stated the total pulp wood shipments of the intervener to be about 90,000 cords a year, and he also stated the weight of a cord of pulp wood to be about 4,700 lbs. Upon this basis the intervener's pulp wood shipments would be about 211,500 tons instead of 141,770 tons as the other testimony shows. The latter figure was, however, the result of a calculation by a witness who had prepared statistics on a number of points for presentation at the hearing, while the former amount was a mere off-hand statement. The figure of 141,770 tons was undoubtedly intended by the intervener to be authoritative.

The figure of 2.67 cts. per 100 lbs. is given by the petitioner as the average freight rate upon pulp wood shipments on the respondent's line from Wisconsin points to Rhinelander. Using the petitioner's claim for refund, filed in this proceeding, as a basis, the intervener computed the average cost of such shipments to the petitioner to be 2.46 cts., but the figure given by the petitioner is probably based on a greater number of shipments. The average freight rate on the Chicago & North Western line, over which nearly a third of the petitioner's shipments are received, was testified to be 2.83 cts. The average rate on shipments from Michigan and Minnesota points was not stated in the testimony, but from the various specific rates mentioned, upon which the petitioner ships, it would seem that an average figure of 4 cts. per 100 lbs. would not be far out of the way. As to the intervener, the average freight cost of pulp wood shipments seems to have been uniformly about 3.5 cts. prior to the Commission's order in this case, due to the fact that by far the largest part of its shipments came from a single locality.

Of the other raw materials shipped in to the paper mills, the item of fuel is the most important. The petitioner's shipments, which are somewhat less than a quarter as large as the intervener's, are moved from Lake Michigan or Lake Superior ports upon a 90 ct. rate, while those of the intervener pay \$1.00 per ton. As to the screenings, however, which constitute over 95 per cent of the intervener's fuel shipments, the

table shows that the final cost at the mill is nearly the same to both petitioner and intervener. Thus, as far as the comparative cost of fuel for paper manufacture in the two plants is concerned, the freight rate advantage of Rhinelander is less important than it would at first seem. Most of the ground wood pulp used by both the petitioner and the intervener comes from Canadian points, via Sault Ste. Marie. According to the testimony, the paper mills have found it necessary to buy considerable quantities of this wood pulp in recent years because low water conditions on the Wisconsin river have made it impossible to manufacture as much pulp as the paper mills need.

Upon the basis of the figures presented at the hearing and summarized in table I, it is claimed by the intervener that the petitioner has so great an advantage in the rates on its raw materials, even when Nekoosa enjoys the 3.5 ct. pulp wood rate from Glidden and neighboring points, that there is no ground for a further concession to Rhinelander. Just what this alleged advantage of Rhinelander upon raw materials amounts to, may be determined by constructing, from the facts given in table I, an approximation of the total freight charges of the petitioner and of the intervener, and reducing these charges to cents per 100 lbs. This is done in the following tabulation:

Commodity	Rhinelander			Nekoosa		
	Tons	Rate. cts. per cwt.	Total freight	Tons	Rate. cts. per cwt.	Total freight
Pulp wood.....	62,000	3.12	\$38,688	141,770	3.5	\$99,279
Fuel.....	10,595	4.5	9,536	41,338	5.2	42,992
Ground wood pulp.....	5,500	12.5	13,750	11,224	14.05	31,539
Sulphur.....	1,500	33.5	10,050	4,337	31.5	27,323
Total.....	79,595		\$72,094	198,669		\$201,093
Average freight per ton.....		\$0.9049			\$1.0122	
Av. freight per 100 lbs.....		4.52 cts.			5.05 cts.	

Rhinelander's average advantage on shipments in.....0.54 ct. per 100 lbs.

The above statement shows that the average advantage which Rhinelander had in freight rates before the order of the Commission was made in the present case, upon raw material shipped in to the petitioner's mill, as compared with the intervener's mill at Nekoosa, was a little over half a cent per 100 lbs. If, instead of the special pulp wood rate of 3.5 cts., the inter-

vener is assumed to pay the Commission's distance rate now in effect, averaging about 4.5 cts. per 100 lbs., the total freight on pulp wood to Nekoosa will become \$127,593, the total freight expenses of the intervener \$229,447, and the average freight per 100 lbs. 5.77 cts. Thus, under the present system of rates, with both Rhinelander and Nekoosa using the Commission's distance tariff, Rhinelander's advantage on raw materials shipped in is about 1.25 cts. per 100 lbs.

It seems that in the manufacture of paper, for every ton of pulp wood that is used, about 830 lbs. of coal and other materials are consumed, and the product of this amount of material averages about 700 lbs. of paper. These figures were obtained in the pulp wood rate investigation (*In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168, 184), and are corroborated by so much of the testimony in the present case as bears upon the subject. The tonnage output of paper, then, represents about 24.7 per cent of the tonnage of raw materials shipped in. Applying this percentage to Rhinelander's advantage of 0.54 ct. per 100 lbs. in freight rates on raw material before the two mills were placed uniformly on the distance rate basis, the plant at Rhinelander should have been able, so far as freight costs were concerned, to manufacture paper at about 0.13 cts. lower cost per 100 lbs. of paper than the plant at Nekoosa. And under the present system of pulp wood distance rates, the freight rate advantage of Rhinelander in the manufacture of paper should be about 0.31 cts. per 100 lbs. of paper.

The next question is whether this freight rate advantage, of approximately an eighth of a cent under the former rates and a third of a cent under the present system, which accrues at the Rhinelander mill up to the time that the paper is ready for shipment, is neutralized or overbalanced by the disadvantage in freight rates which the Rhinelander mill suffers upon paper shipped out. This may be determined by reducing the advantage which Nekoosa enjoys on paper shipped out to cents per 100 lbs., so as to admit of comparison with Rhinelander's advantage on raw materials shipped in. This is done in the following tabulation, the data for which are found in table I. The net advantage to Nekoosa is determined by subtracting the disadvantage on shipments to points where Rhinelander has the lower rate, from the advantage on shipments to points where Nekoosa has the lower rate, and reducing the amount thus ob-

tained to cents per 100 lbs. This is done on the basis of the tonnage shipped from both mills, and, as will be seen from the tabulation, the final result is practically the same whether the Nekoosa or the Rhinelander shipments are taken as a basis.

Nekoosa's	On basis of shipments from Rhinelander			On basis of shipments from Nekoosa		
	Pct. of total shipments.	Tons shipped	Nekoosa total adv. or disadv.	Pct. of total shipments	Tons shipped	Nekoosa total adv. or disadv.
No advantage.....	42.93	7,057	\$0.00	51.20	19,456	\$0.00
.5 cts. advantage.....	0.46	76	7.60	0.71	268	26.80
2.0 cts. advantage.....	33.67	5,557	2,214.80	33.11	12,586	5,034.40
2.5 cts. advantage.....	17.43	2,865	1,432.50	11.79	4,476	2,238.10
			\$3,654.90			\$7,299.20
4.5 cts. disadvantages.....	3.65	600	540.00	2.93	1,110	999.00
8.5 cts. disadvantages.....	1.86	305	518.50	0.26	100	170.00
			\$1,058.50			\$1,169.00
Total.....	100.00	16,440	\$2,596.40	100.00	37,996	\$6,130.20
Nekoosa's advantage:						
Per ton.....		15.793 cts.			16.134 cts.	
Per 100 lbs.....		.79 ct.			.81 ct.	

The above statement shows that the average advantage which Nekoosa has over Rhinelander on shipments of paper out is about eight-tenths of a cent per 100 lbs. If this advantage is compared with Rhinelander's present advantage of about three-tenths of a cent per 100 lbs. of paper on the freight movement up to the time the manufacture of the paper is completed, it will be seen that the Rhinelander mill is still under a burden of about half a cent per 100 lbs. of paper. And the restoration of the former system of rates, by which Rhinelander paid the Commission's rates while Nekoosa enjoyed a special rate of 3.5 cts. on pulp wood, would result in a net disadvantage to Rhinelander on the total movement of pulp wood, fuel and paper of about 0.67 cts. per 100 lbs. of paper.

The foregoing calculations would seem to dispose of the argument that the granting of comparatively lower rates to Nekoosa than to Rhinelander is justified by the advantage which Rhinelander has on its in-bound shipments of raw material. These calculations have taken account only of freight rate costs in arriving at the competitive advantages and disadvantages of the two mills, and have not attempted to include any differences

that may exist in the cost of labor, the efficiency of the water power, etc. These latter matters are not fully covered by the testimony, but so far as they are touched upon it would seem that the advantage, if any, is with the Nekoosa mill. It is safe to say, then, that the competitive conditions as between the two mills do not justify a more advantageous rate basis on pulp wood at Nekoosa than at Rhinelander.

An entirely distinct ground exists, however, upon which the intervener claims it is entitled to a proportionately lower rate than Rhinelander, and that is the fact that the intervener's shipments of pulp wood are made in trainload lots, handled at either end of the haul by the intervener's own engines, with a resulting decrease in expense to the railway company. It seems that the trainload shipments referred to consist of ten to twenty cars each. On the other hand, the testimony of the petitioner shows that the petitioner is able to make shipments of the same size from a number of points, and that, with the added inducement of a lower rate for trainload lots than for single carload shipments, it could easily furnish cars in lots of ten to twenty per day, or, in some cases, even more.

The second branch of the intervener's case involves the proposition that, independently of the relation between the Rhinelander and the Nekoosa rates, the Commission's distance rates, which are now applied to Nekoosa, are excessive. The application of the Commission's rates on pulp wood to Nekoosa has resulted in an average increase of about one cent per 100 lbs. on all its pulp wood shipments, or a total increase of about \$28,354 per annum if the intervener's shipments for 1911 are taken as a basis. The hardship of this increase was emphasized by the intervener by pointing out that the intervener has made large investments in timber lands in the neighborhood of Glidden and Mellen, the product of which will continue to be a source of supply for some twenty years. These timber interests, together with various contracts for the purchase of pulp wood from lands not owned by the intervener, have been acquired upon the basis of the special pulp wood rates which had long been in effect to Nekoosa and Port Edwards; and in view of these facts the additional freight expense of nearly \$30,000 a year was claimed by the intervener to be unjust and exorbitant.

The following table shows the rates named in the special pulp wood tariff under which the intervener shipped prior to the order of the Commission in the proceeding, and also the Commission's distance rate now in effect from the same points, together with the percentage relation which the former bear to the latter:

To Nekoosa from	Former tariff rates	Present rates		Per cent difference.
		Miles	Rate	
Glidden.....	3.5	143	4.33	19.17
Foster.....	3.5	161	4.60	23.91
Mellen.....	3.5	162	4.60	23.91
Ballou.....	3.8	166	4.60	17.39
High Bridge.....	3.8	169	4.60	17.39
Marengo.....	3.8	174	4.75	20.00
Upson.....	3.8	175	4.75	20.00
Iron Belt.....	3.8	180	4.75	20.00
White River.....	3.8	181	4.90	22.45
Hoyt.....	3.8	182	4.90	22.45

The increase caused by the cancellation of the special tariff amounts to about 20 per cent. So marked an increase in rates on a commodity supplied to the intervener under contracts and timber purchases already made for some time in the future, is a change to be avoided, unless the former rates were so low as not to be reasonable from the point of view of the carrier. That the former rates were not unreasonably low, is amply borne out by the facts now before the Commission. These lower rates were put into effect by the voluntary action of the railway company. The carrier evidently considered them sufficiently remunerative. Moreover, it is to be noted that the distance rates on pulp wood fixed by this Commission were expressly stated in the order (*In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168, 231) to be maximum rates, and the order stipulated for the continuance of all rates on pulp wood lower than those named in the distance tariff. Thus the distance rates fixed by the Commission were not intended to represent a precise limit below which it might not be proper for rates to be fixed, but were placed as an upper limit on pulp wood rates. The special pulp wood rates granted in the past to the Nekoosa mills, while of course not as remunerative as the Commission's distance rates from the same points, are shown by an analysis of the cost figures to be sufficiently high so that their

re-establishment under the present circumstances would not seem to work an injustice to the railway company.

The conclusion that the former special rates on pulp wood to Nekoosa should be restored, necessarily involves the determination that the pulp wood rates to Rhineland on the respondent's line should be proportionately reduced, for, as was found in the former consideration of this case and as is shown more fully by the statistics and calculations already presented in this opinion, there is nothing in the competitive situation or in any of the other factors entering into the determination of reasonable rates, which warrants a lower basis of rates for Nekoosa than for Rhineland. The petitioner asks in its amended petition for a reduction of 20 per cent from the Commission's distance rates. The present distance tariff, however, is so arranged that this method of reduction, by the application of a fixed percentage of reduction to each rate in the tariff, cannot properly be used. The distance rates given in the order herein effect a reduction of about 20 per cent in the general level of the rates without throwing any rates out of line with the general scheme of the tariff.

Since Nov. 30, 1911, the Commission's distance tariff rates have been applied by the respondent company on shipments to Nekoosa. The restoration of the former tariff on pulp wood to Nekoosa entitles the intervener to a refund of the excess over the rates named in that tariff, collected of the intervener on shipments moving from the points named therein. The original petitioner, also, by reason of the determination that the application of the present distance rates on pulp wood upon its shipments is not, under the present circumstances, reasonable, is entitled to a refund equal to the excess of that distance tariff over the one herein made effective. The petitioner's refund will cover all of its pulp wood shipments moving to Rhineland from Wisconsin points within a year of the filing of the amended complaint, which reached the Commission's office on Jan. 3, 1912. Any difficulty experienced by the parties in determining the proper amount of refund upon this basis may be made the subject of a further order by the Commission.

IT IS THEREFORE ORDERED, That the respondent company, the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, re-establish in its entirety its tariff G. F. D. No. 13692, originally

effective Aug. 16, 1911, and canceled by the respondent company on Nov. 30, 1911.

IT IS FURTHER ORDERED, That upon carload shipments of pulp wood to Rhinelander, Wis., from Wisconsin points, and to Grand Rapids, Port Edwards, Nekoosa, Menasha and Neenah, Wis., from all Wisconsin points not affected by the first paragraph of this order, the respondent company establish the following maximum distance rates:

Miles	Rate in cts. per 100 lbs.	Miles	Rate in cts. per 100 lbs.	Miles	Rate in cts. per 100 lbs.
5	1.35	55	2.35	110	3.15
10	1.45	60	2.45	120	3.25
15	1.55	65	2.55	130	3.35
20	1.65	70	2.62	140	3.45
25	1.75	75	2.69	150	3.55
30	1.85	80	2.76	160	3.65
35	1.95	85	2.83	170	3.80
40	2.05	90	2.90	180	3.80
45	2.15	95	2.97	190	3.80
50	2.25	100	3.05	200	4.05

IT IS FURTHER ORDERED, That the above named respondent company be and the same is hereby authorized and directed to refund to the intervener, the Nekoosa-Edwards Paper Company, the amount collected by the respondent upon shipments of pulp wood from Wisconsin points to the intervener at Grand Rapids, Port Edwards and Nekoosa, in excess of the rates herein ordered, between Nov. 30, 1911, and the date of the effectiveness of this order; and also refund to the petitioner, the Rhinelander Paper Company, the amount collected by the said respondent from said Rhinelander Paper Company upon shipments of pulp wood from Wisconsin points to Rhinelander, in excess of the distance rates herein ordered, between Jan. 3, 1911, and the date of the effectiveness of this order.

RHINELANDER PAPER COMPANY

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY,
CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.*Submitted April 9, 1912. Decided April 30, 1912.*

Petitioner complains of a lack of joint rates on pulp wood on the lines of the respondents between Bagdad and Rothschild, Wis. The present rate is made up of the sum of the local distance rates to and from Heafford Junction as fixed by the Commission *In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168. Much emphasis is laid by the petitioner upon the joint rates in effect on pulp wood between the "Soo" line and the C. & N. W. and C. M. & St. P. lines from various "Soo", line points to Appleton, Kaukauna and other Fox river valley points as set forth in *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co.* 1911, 8 W. R. C. R. 105, 109. Although the petitioner is not attempting to sell at those points, and the rates are of no avail to anyone competing with the petitioner in selling at Rothschild, it is contended that if the buying associations supplying the Fox river valley mills with pulp wood are entitled to joint rates lower than the sum of the locals, the petitioner is equally entitled to joint rates in the particular territory in which it desires to sell, though it is not in direct competition with the buyer who is accorded joint rates. The market for pulp wood on the "Soo" line is, in general, quite remote from Bagdad and is limited to a small number of manufacturing points. Further, most of the larger paper mills are so situated, by reason of contracts or ownership of timber lands, that they are not likely to be in the market for the petitioner's pulp wood.

Held: It would be hardly reasonable that the petitioner's market should be restricted, by lack of joint rates alone, to the distant paper mills in the Fox river valley or in the neighborhood of Grand Rapids and Nekoosa. Under the circumstances, petitioner has a right to joint rates to a market point as conveniently located as Rothschild. The freight rate is a large element in the selling price of a low grade commodity like pulp wood, and if the timber owner is entitled to the additional profit caused by joint rates to the Fox river valley mills, the petitioner should be entitled to a similar additional profit on its sales at Rothschild. Moreover, discriminatory conditions are not the only ones justifying the establishment of joint rates in a given case. Where the other circumstances, chief among which is the cost of the service to the carrier, make the assessment of the sum of the local rates unreasonable, as appears to be the case here, joint rates may properly be established without reference to the existence or absence of direct competition between shippers. The M. St. P. & S. S. M. R. Co. and the C.

M. & St. P. Ry. Co. are ordered to discontinue their present rate on carload shipments of pulp wood from Bagdad to Rothschild, Wis., and to substitute in lieu thereof a joint rate of 4.60 cts. per cwt. Refund is ordered on this basis for the shipments coming within the limitation of the statute.

The petitioner, a corporation located at Rhinelander, Wis., and owning pulp wood timber lands near Bagdad, Wis., on the line of the respondent Minneapolis, St. Paul & Sault Ste. Marie Railway Company, complains of the lack of joint rates on pulp wood on the lines of the respondents between Bagdad and Rothschild, Wis. The present rate from Bagdad to Rothschild is 5.64 cts. per 100 lbs., made up of the sum of the local distance rates on the respondents' lines to and from Heafford Junction. The petitioner prays for the establishment of a joint rate not exceeding 4.35 cts. per 100 lbs., and for a refund upon its shipments during the year 1911 of the amount charged in excess of such rate.

The separate answers of the respondent companies admit that the only rate applicable on pulp wood between Bagdad and Rothschild is the sum of the local rates, but allege that such rate, being made up of the distance rate fixed by this Commission for each line, is not unreasonable. The answer of the Minneapolis, St. Paul & Sault Ste. Marie Railway Company also alleges that the petitioner has never made any request for the establishment of a joint rate and has made its shipments with full knowledge of the existing rates, and denies that the petitioner is entitled to a refund even if the Commission should determine to order a joint rate lower than the sum of the locals.

At the hearing, held at the office of the Commission April 9, 1912, *Drew & Jameson* appeared for the petitioner, *Kenneth Taylor* for the respondent Minneapolis, St. Paul & Sault Ste. Marie Railway Company, and *J. N. Davis* for the respondent Chicago, Milwaukee & St. Paul Railway Company.

The haul from Bagdad to Rothschild consists of 52 miles on the "Sco" line and 53 miles on the St. Paul line, the interchange being made at Heafford Junction. The sum of the local rates fixed by this Commission *In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168, amounting to 5.64 cts. per 100 lbs., is now applied, and the petitioner asks for a rate equal to the single line rate for the combined mileage, or 3.85 cts., plus 0.5 cts. for the expense of transfer. The petitioner shipped 234 cars of pulp wood from Bagdad to Rothschild in 1911, under a contract with the Mara-

thon Paper Mill Company, located at that point. Although this particular contract has expired, it was testified that the petitioner expected to continue shipping to Rothschild. The terms under which the petitioner is taking pulp wood from the lands near Bagdad require that the cutting be finished within four years, and for this reason the petitioner is unable to use the entire product at its own mill at Rhineland and is forced to market a part of it.

Much emphasis was laid by the petitioner upon the joint rates now in effect on pulp wood between the "Soo" line and the Chicago & North Western and Chicago, Milwaukee & St. Paul lines from various "Soo" line points to Appleton, Kaukauna and other Fox river valley points. The tariff containing these rates was involved in the case of *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co.* 1911, 8 W. R. C. R. 105, and is set forth in full on page 109 of that case. As was pointed out in that case, the rates named in that tariff are higher than the Commission's distance rates would be if based on the combined distance, the average excess of the tariff rate being 0.66 cts. to Appleton and 0.56 cts. to Kaukauna. From this circumstance and from the fact that the transfer at Heafford Junction involves merely a shifting of the cars from one track to another and not the expensive switching that is sometimes necessary where the interchange takes place in a city, it was the claim of the petitioner that an allowance of 0.5 cts. for interchange, over and above the Commission's rate based on the combined mileage, would result in a reasonable rate.

The respondent Minneapolis, St. Paul & Sault Ste. Marie Railway Company, referring to the joint tariff naming rates from "Soo" line points to Appleton and Kaukauna, claimed that those rates were made with a view of obtaining for the "Soo" line a part of the manufactured product shipped out of Appleton and Kaukauna, while no such out-shipment could be obtained from Rothschild. The joint rate to the Fox river valley points was also distinguished from the present situation by reason of the fact that the haul beyond the junction point in the case of the Fox river valley points was in no case over fourteen miles, so that practically the entire shipment was over the initial line, while in the present case fully half of the haul is carried on over the second line. This circumstance, however, as was

pointed out by the petitioner, has no bearing upon the cost of interchange between the two railway lines.

It was the position of the respondent companies at the hearing that there was no occasion for the establishment of a joint rate in the present case because there was no competitor of the petitioner who was able to ship to Rothschild on a better rate basis than the petitioner. The existence of joint rates to Fox river valley points was declared to be immaterial, since the petitioner was not attempting to sell at those points, nor were those rates of any avail to anyone competing with the petitioner in selling at Rothschild. The petitioner, on the other hand, urged that if the buying associations supplying the Fox river valley mills with pulp wood were entitled to joint rates lower than the sum of the locals, the petitioner was equally entitled to joint rates in the particular territory in which it desired to sell, though it was not in direct competition with the buyer who was accorded joint rates.

The principles by which the Commission is governed in the establishment of joint rates have been stated in various decisions and need not be set out in full here. While it does not always follow from the fact that a shipper desires to make shipments over two lines of railway that the carriers should be required to make joint rates lower than the sum of the local rates, the law makes it the duty of the Commission to establish such joint rates when a proper occasion presents itself. The natural aversion of the railway companies to the movement of raw materials off from their own lines must sometimes yield to the right of the public to rates which are, under all the circumstances, reasonable. The present case would seem to furnish ample warrant for the exercise of the Commission's power to fix joint rates, for the petitioner is the owner of a considerable amount of pulp wood timber which must be moved within a limited time, and, except for the petitioner's own mill at Rhinelander, there are practically no paper mills on the "Soo" line for a long distance from Bagdad. The petitioner's own mill at Rhinelander is unable to use all the pulp wood produced on this land, and it would hardly be reasonable that the petitioner's market should be restricted, by lack of joint rates alone, to the distant paper mills in the Fox river valley or in the neighborhood of Grand Rapids and Nekoosa. The following statement shows the dis-

tance from Bagdad to the principal paper mill points on the "Soo" line, and the pulp wood distance rate to such points:

Paper mill point	Miles from Bagdad	Distance rate, cts.
Park Falls	111	3.95
Grand Rapids	171	4.75
Nekoosa	178	4.75
Eau Claire	188	4.90
Neenah	240	5.80

It is thus apparent that the market for pulp wood on the "Soo" line is, in general, quite remote from Bagdad and is limited to a small number of manufacturing points. It is to be considered, also, that most of the larger paper mills are so situated, by reason of contracts or ownership of timber lands, that they are not likely to be in the market for the petitioner's pulp wood. Under these circumstances, it would seem that the petitioner has a right to ask for the establishment of joint rates to so conveniently located a market point as Rothschild.

It may be true, as the respondent company points out, that the lack of joint rates does not place the petitioner at an unfair disadvantage as against any competing seller of pulp wood in the same territory. Yet, since the freight rate is a large element in the selling price of so low grade a commodity as pulp wood, it is manifest that the timber owner selling to the Fox river valley mills and moving his shipments upon a joint rate, is able to make more profit than he would make if he had to pay the sum of the local rates; and if he is entitled to the additional profit caused by joint rates to the Fox river valley mills, the petitioner should be entitled to a similar additional profit on its sales at Rothschild. Moreover, discriminatory conditions are not the only ones justifying the establishment of joint rates in a given case. Where the other circumstances, chief among which is the cost of the service to the carrier, make the assessment of the sum of the local rates unreasonable, as appears to be the case here, joint rates may properly be established without reference to the existence or absence of direct competition between shippers.

Since the primary basis for the fixing of reasonable rates is the cost of the service to the carrier or carriers, it is plain that a reasonable joint rate between two carriers operating under sub-

stantially similar conditions should be equal to the single line rate for the total distance, plus the cost of transferring the shipments from the initial to the receiving line. What this transfer cost is, is a matter capable of fairly close approximation, although in any given case it may depend largely on local conditions at the point of transfer. The suggestion of the petitioner that this cost may be met by a charge of 0.5 cts. per 100 lbs., can hardly be accepted in this case, in view of the data at hand as to the expense of the interchange. If the figure is placed at 0.75 cts. per 100 lbs., however, it would seem that the transfer cost will be fully covered. This amount added to the local rate for the total mileage, or 3.85 cts. per 100 lbs., results in a joint rate of 4.60 cts. per 100 lbs., which is a little over a cent per 100 lbs. lower than the rate the petitioner is at present forced to pay. Since the conditions have been found to be such as warrant a joint rate, and the rate of 4.60 cts. per 100 lbs. will, it is believed, yield adequate returns to the carriers for the services performed, the establishment of such rate will be ordered.

The petitioner asks for a refund upon all shipments from Bagdad to Rothschild during the year 1911. It follows from the reduction of the rate herein ordered, that the petitioner is entitled to a refund, but as the complaint was filed Jan. 23, 1912, the refund will apply only on shipments arriving at destination on or after Jan. 23, 1911. The amount of the refund will be left to the parties for computation, and in case of disagreement the matter can be again taken up before the Commission.

We therefore find and determine, that the rate of 5.64 cts. per 100 lbs., collected of the petitioner by the respondent companies upon shipments of pulp wood over their lines from Bagdad to Rothschild, is exorbitant, and that a reasonable rate for such shipments would be 4.60 cts. per 100 lbs.

IT IS THEREFORE ORDERED, That the respondents, the Minneapolis, St. Paul & Sault Ste. Marie Railway Company and the Chicago, Milwaukee & St. Paul Railway Company, discontinue their present rate of 5.64 cts. per 100 lbs. on carload shipments of pulp wood from Bagdad to Rothschild, Wis., and substitute in lieu thereof a joint rate of 4.60 cts. per 100 lbs.

IT IS FURTHER ORDERED, That the respondents above named be and the same are hereby authorized and directed to refund

to the petitioner, the Rhineland Paper Company, the amount collected by them in excess of the rate above ordered to be made effective, on all carload shipments of pulp wood from Bagdad to Rothschild, arriving at destination on or after January 23, 1911.

CHAS. F. WEST ET AL.
vs.
CITY OF EAU CLAIRE.

Submitted April 17, 1911. Decided May 1, 1912.

Complaint was made that the rates charged for water by the city of Eau Claire, Wis., are unreasonably high and that the flat rates largely prevailing in the city are unjust and discriminatory. A new schedule of rates subsequently filed and made effective provides a considerable reduction of meter rates and a reduction of a number of the flat rates. Comparison of the utility's income accounts for the last two years and a report filed with the Commission show a reduction of the total and net operating revenues under the new schedule of rates, but petitioners are still desirous of a formal investigation of the matters in complaint. A cost analysis was made on the basis of the reported expenses for the last fiscal year and an apportionment was made between fire and general service. The estimated pumpage for 1911 indicates a great deal of waste and leakage. In accordance with the expressed intention of the city water works department, 257 meters were added during the year 1910-1911 and the policy of metering is being carried still further.

Held: The present method of allowing the water department \$21,000 for all water used by the city may well be discontinued. The city should pay a definite amount for fire protection and for water used for flushing purposes. An allowance of \$15,000 appears to be reasonable for these services. For all other water the city should pay at regular rates. All public buildings should be metered as soon as possible and until such time as a rate can be fixed for sprinkling and for fountains the city should make an allowance to the water department for these uses. The necessity of making extensions and installing a great many meters and the consequent uncertainty concerning the amount of water used makes it inadvisable to reduce rates to a point where estimated revenues would barely cover operating expenses. With the metering of police and fire stations and the extension of the meter system along lines outlined by the city water works department, many of the flat rates will become, to all intents and purposes, obsolete. The city of Eau Claire is ordered to discontinue its present rates and charges for metered water and substitute therefor the schedule of lower rates prescribed by the Commission. Rules relating to time of payment, penalties and charges for additional customers are to remain as at present. Flat rates are to remain as at present. All public buildings are to be metered and charged for at regular rates. Counters are to be installed on pumps supplying water to the distribution system and a record of day and night pumpage kept in permanent record form. This decision is made with the understanding that the com-

pletion of the policy of metering and further records of operation may make it advisable to re-open the case.

Complaint in this matter was filed with the Commission on Feb. 18, 1911, by twenty-nine residents of the city of Eau Claire.

The complain alleges:

1. That the water rates charged are unreasonably high and excessive.

2. That the flat rates largely prevailing in the city are unjust and discriminatory.

3. That the great number of dead ends in the water works system makes the water in many localities unhealthful and unfit for domestic use.

4. That at least 1,500 householders and freeholders of the city using water for domestic purposes are charged what is known as a flat rate and such rates are unjust and discriminatory.

5. That 300 consumers have meters and the rates charged such persons are much less than those charged to flat rate users, and are unjust and discriminatory.

6. That the water rates charged householders and freeholders of said city for water for domestic uses are unreasonably large, high and excessive, and are unjust and discriminatory.

7. That the water plant was fully paid for more than a year prior to the filing of the complaint, and that the annual cost of operation and repairs does not exceed \$5,000 and should not exceed \$4,000, and that maintenance and extensions during the past year did not exceed \$4,000, but notwithstanding this the city during the last twelve months levied and collected for water supplied for domestic uses more than \$35,000.

Following is the schedule of quarterly rates as filed by the Eau Claire Water Company on Aug. 7, 1907, which was the schedule complained of:

FLAT RATES.

Payable Monthly.

Banks—One self-closing faucet	\$1.50
One faucet with hose connection.....	2.00
Bakeries—Daily average of each barrel of flour used, per barrel	\$1.00
Providing no bakery less than.....	2.50
Barber Shops—First chair and basin	1.50
Each additional chair.....	.75
Baths—Private without heating attachments.....	.75
Private, with heating attachment.....	1.00
Hotel or boarding house, first tub.....	2.00
Each additional tub.....	1.00
Public baths, first tub.....	3.00
Each additional tub.....	2.00

Blacksmith Shops—First fire.....	1.25
Each additional fire.....	2.00
Building Purposes—Brick per 1000 laid.....	.10
Stone, per perch.....	.07
Plastering per 100 yds. (two coats).....	.25
Boarding Houses—Per room.....	.35
Providing no license less than.....	2.50
Halls, Theaters and Hotels.....	Special rates
Laundries—Public, per tub.....	2.00
Offices—One person, with wash basin.....	1.25
Each additional person.....	.50
Printing Offices—Six hands or less.....	3.00
Each additional hand.....	.35
Photograph Galleries.....	Special rates
Residences—Occupied by one family, four rooms or less.....	1.20
Five rooms.....	1.45
Six rooms.....	1.70
Seven rooms.....	1.90
Restaurants.....	Special rates
Stables—Private, one horse.....	1.00
Each additional horse.....	.50
Cow, each.....	.50
Livery, Boarding or Sale Stable, 6 horses or less, including wash- ing carriages.....	3.00
Steam Boilers.....	Special rates
Saloons—Two self-closing bar faucets.....	2.50
One self-closing and one hose bar faucet.....	3.50
Wash basin with hose connection.....	1.25
Wash basin, self-closing faucet.....	.75
Stores—One basin, self-closing faucet.....	2.00
One basin with hose connection.....	2.50
Stores and manufacturing combined.....	Special rates
Shops.....	Special rates
Urinals—Private, self-closing faucet.....	.50
Self-closing, stores, banks, offices, etc.....	.75
Self-closing, restaurants, saloons.....	1.25
Public, self-closing faucet.....	2.00
Water Closets—Private.....	1.00
Self-closing, stores, banks, offices.....	1.25
Restaurants, saloons, etc.....	1.50
Public.....	2.00
Wash Basin—In dwelling, in addition to first faucet.....	.50
In hotel, in private room.....	.75
Hotel wash room, each basin.....	1.00

METER RATES.

Payable Monthly.

When the daily consumption is:

	Cts.
100 to 300 gallons per 1,000 gallons.....	30
300 " 1,000 " ".....	25
1,000 " 6,000 " ".....	20
6,000 " 14,000 " ".....	15
14,000 " 20,000 " ".....	13
20,000 " 30,000 " ".....	12
Above 30,000 gallons per 1,000 gallons.....	10

Consumers are required to furnish and keep their meters in repair and protected from frost and injury of every kind.

Licensed plumbers of the city and employes of the Eau Claire Water

Co. are the only persons authorized to make connections with water mains and to set or remove meters.

Water takers are reminded that all leaks should be promptly attended to, as the meter will register all water that passes it.

SEASON RATES.

Sprinkling Lawns—With 1/8 inch nozzle, four hours per day and 50 ft. front or less.....	\$5.00
Each additional foot front.....	.10
Streets in addition to lawn, sprinkling per foot front.....	.05
Street Sprinkling—Wagon per season.....	225.00
In case of corner lots, measurements shall be taken on both fronts for street sprinkling.	
Fountains—To be used not over six hours per day for the season of six months as follows:	
1/16th inch jet.....	\$10.00
1/8 inch jet.....	20.00
3/16th inch jet.....	35.00
Soda Fountains	\$10.00 to \$15.00
Hydrant Rental:	
200 hydrants on original franchise.....	\$54.00 for yr.
“ extensions	44.00 “
Private fire hydrants.....	25.00 “

On Feb. 24, 1911, the city filed a schedule of rates to be substituted for the former schedule. An examination of the new schedule showed that it would result in a reduction to consumers on a meter basis, and that flat rates were not changed materially. In one respect the new schedule violates the law, in that a charge is made for meter rent to consumers who do not own their meters, while those who own their meters are exempt. In other respects the schedule was found satisfactory and was placed on file.

Following is the new schedule:

SCHEDULE OF QUARTERLY FLAT RATES.

For kitchen faucet, service charge 25 cts., output charge 75 cts., total	\$1.00
For first basin or lavatory.....	.50
Additional basins or lavatories, each.....	.25
For first water closet.....	1.00
Additional water closets, each.....	.50
For first bath tub.....	1.00
For additional bath tubs, each.....	.50
For urinal in dwelling, self-closing faucet.....	1.00
For public urinals.....	2.50

For special fixtures and services not named above the rates shall be fixed by the council on application.

In buildings which are subdivided, each dwelling, flat, store, tenement or other apartment separately used, shall be considered as a separate service in determining the rates.

RATES FOR LAWN SPRINKLING.

For a street frontage of 30 feet or less, for the season..... \$3.00
 For each additional foot of street frontage over 30 feet..... .10

In computing the frontage of a corner lot the measurement will be taken on the street showing the least frontage, but the width of the boulevard shall be included and considered as forming a part of the lot.

Street sprinkling from the hose used in lawn sprinkling, 5 cts. per front foot. Lawn and street sprinkling in unmetered services to be done only from 6 o'clock to 8 o'clock in the evening, and from 6 o'clock to 8 o'clock in the morning, or during such other hours as the council may direct. If sprinkling shall be done during hours not authorized, and in violation of the rules governing the same, the charge for the season shall be increased 50 per cent.

On all unmetered services the nozzle of the lawn hose must not be larger than $\frac{1}{8}$ inch and no hose or other appliance without such nozzle nor any broken or leaky hose shall be used.

RATES FOR CONSTRUCTION WORK.

Brick per 1,000, mason's measurements.....	\$0.10
Stone per 100 cubic feet, mason's measurement.....	.20
Plastering per 100 yards, mason's measurement.....	.25
Cement or concrete walls and piers, per cubic yard.....	.07
Concrete walks or floors, per square yard.....	.02

SCHEDULE FOR METERED SERVICE.

Meters are to be rented to consumers at the following quarterly rates:

For $\frac{5}{8}$ inch meter	\$0.25
“ $\frac{3}{4}$ “ .....	.40
“ 1 “ .....	.50
“ $1\frac{1}{2}$ “	1.00
“ 2 “	1.50
“ 3 “	2.50
“ 4 “	5.00
“ 6 “	10.00

Consumers who own their meters will be exempt from the above rental charge; if, however, any person who owns a meter shall so request the city will purchase such meter at its true value considering its age and condition.

SERVICE OR CONSUMER'S CHARGE.

The minimum charge on metered service includes the service charge thereon.

Additional consumers on a meter shall each pay 25 cts. a quarter service charge.

CHARGES FOR WATER.

In the reading of meters no account will be taken of less than 100 cubic feet.

In computations the amount charged will be made to terminate in 5 or 0.

For 500 cubic feet or less in any one quarter.....	\$0.75
“ each additional 100 cubic feet up to 1,000.....	.15
“ each 100 cubic feet from 1,000 to 2,000 .....	.14
“ each 100 cubic feet from 2,000 to 3,000 .....	.13
“ each 100 cubic feet from 3,000 to 4,000 .....	.12
“ each 100 cubic feet from 4,000 to 5,000 .....	.11

For each 100 cubic feet from 5,000 to 6,000	\$0.10
“ each 100 cubic feet from 6,000 to 7,000 .....	.09
“ each 100 cubic feet from 7,000 to 8,000 .....	.08
“ each 100 cubic feet from 8,000 to 9,000 .....	.07
“ each 100 cubic feet from 9,000 to 10,000 .....	.06
“ each 100 cubic feet from 10,000 to 11,000 .....	.05
“ each 100 cubic feet from 11,000 to any amount...	.04

That all charges for water service shall become due and payable on the first days of January, April, July, and October of each year, except charges made by the season.

That a penalty of 5 per cent of the amount of any of said charges shall be added to the same on and after the first day of the month succeeding the date on which such charges are due and payable.

All services for which the charge is made by the season, such as unmetered lawn and street sprinkling, shall become due and payable on the first day of October of each year.

On metered services the charge for a minimum of 500 cubic feet is intended to cover and include what is otherwise known as a service charge.

Petitioners were still desirous that a formal investigation of the matters in complaint be made, so a hearing was held in the city of Eau Claire on April 17, 1911. Appearances were entered as follows: *A. C. Larson* and *W. H. Frawley*, for petitioners; *Arthur H. Shoemaker*, for respondent.

Aside from some testimony relating to the dead ends the hearing dealt almost exclusively with matters of finance and efficiency which have been considered in connection with the following discussion.

With regard to dead ends in the system it was admitted by the city that about twenty-nine of these were in existence at the time of the hearing and that water service to consumers situated near the dead ends was unsatisfactory.

The intention of the water works authorities, as expressed at the hearing, is to eliminate these dead ends as rapidly as possible. No question was raised as to whether this condition should be changed and in view of the expressed intention of the city to remedy the situation it does not seem that an order relating to dead ends need be made at this time. An inspection by representatives of the Commission shows that the city has been following the policy of eliminating dead ends when practical.

Aside from this matter of dead ends the only matter in dispute is the general subject of rates and related matters pertaining to the cost of operation of the plant.

It is the expressed intention of the water works department to place all premises having sewer connection on a meter basis and to furnish meters to any other users who request them, all meters to be owned and installed by the city. In general

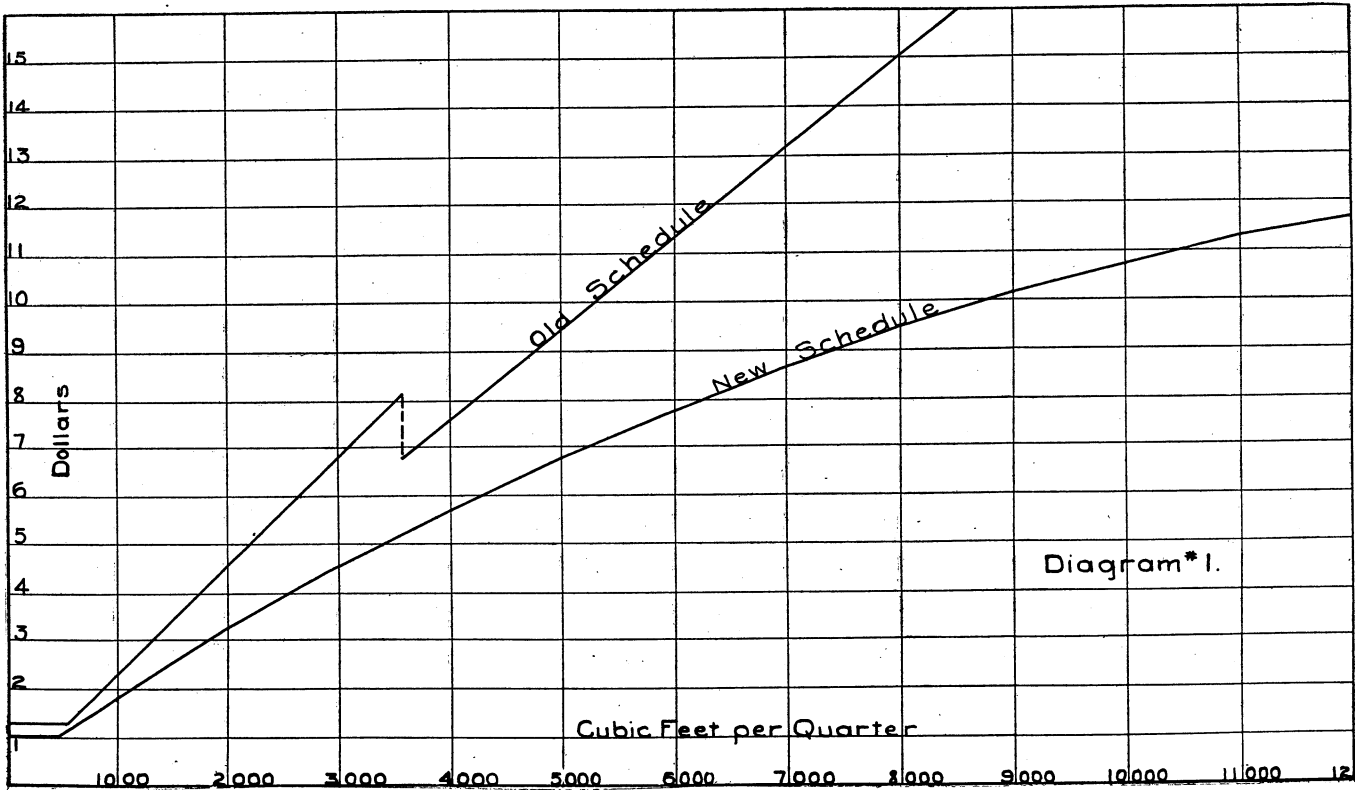
this follows lines recommended by the Commission and there seems to be no reason why this policy cannot be carried out as planned. With the metering of police and fire stations and the extension of the meter system to private users along the lines outlined above, most of the large users of water will soon be on a meter basis. Officials of the city stated to representatives of the Commission that they expected to have three-fourths of all consumers metered by the end of the current year.

When this is done the practical result will be that many of the flat rates will become to all intents and purposes obsolete. With unimportant exceptions it may be said that the consumers who will still be supplied on a flat rate basis will be small residences, and in most cases residences which will be charged for a kitchen faucet only. In order to determine, therefore, to what extent the new rates are a reduction from those previously in effect, comparison should be made of the rate for a kitchen faucet under old and new flat rates and of old and new meter rates. There may be instances where other portions of old and new flat rate schedules should be compared, but such instances, with the development of the city's plan of metering, will be relatively unimportant.

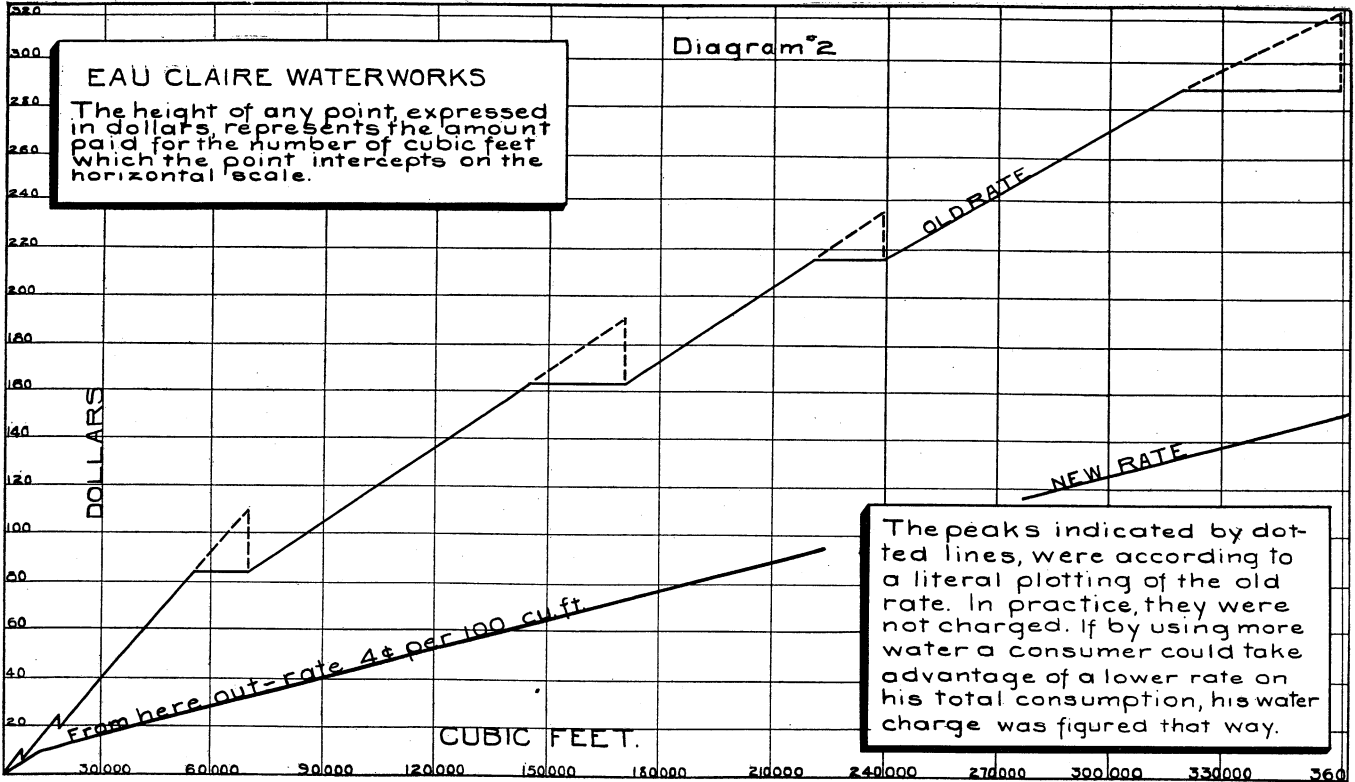
Following is a comparison of the old and new rates for a kitchen faucet:

No. of rooms	Old rate	New rate
4.....	\$4.80 per year	\$4.00 per year
5.....	5.80 " "	4.00 " "
6.....	6.80 " "	4.00 " "
7.....	7.60 " "	4.00 " "
8.....	8.40 " "	4.00 " "
10.....	10.00 " "	4.00 " "

A number of the flat rates, as indicated by counsel for the applicants, have not been reduced and others have been reduced only slightly. The two following diagrams show the amount paid per quarter under old and new meter rates. Diagram I shows the two schedules for uses up to 12,000 cu. ft. per quarter. Diagram II shows them for all uses up to 360,000 cu. ft. per quarter. Most of the consumers of water will use less than 12,000 cu. ft. of water each and the reduction in quarterly charges under the new rate can be found by reference to Diagram I:



Diagram*1.



Following is a statement of the income account of the utility for the past two years:

	1910	1911
OPERATING REVENUES:		
Earnings from commercial sales.....	\$40,189 79	\$35,982 84
Miscellaneous earnings from operation.....	449 73	1,914 21
Total operating revenues.....	\$40,649.52	\$37,897.05
OPERATING EXPENSES:		
Pumping.....	\$5,387 16	\$5,103 96
Distribution.....	549 61	1,772 90
Commercial.....	921 65	1,082 73
General.....	1,716 86	1,848 88
Undistributed.....	665 39	724 32
Total of above expenses.....	\$9,240 67	\$10,532 79
Available for all other purposes.....	\$31,408 85	\$27,364 26

The new rates became operative on Jan. 1, 1911. The testimony showed that during the last two quarters of 1910, total operating revenues were \$21,383.24, so that the corresponding revenues for the first two quarters of 1911 were \$16,513.81, or an average reduction of about 25 per cent. One estimate submitted by the city places the amount of revenue to be received from commercial and industrial users at \$30,000, a reduction of a little more than 25 per cent from such revenues for 1910.

Following is a summary of revenues from flat rate residence users based on the quarter ending Dec. 31, 1910, with a comparison of old and new rates:

No. of services	Old rate	New rate
645.....	\$1 20	\$1 00
352.....	1 45	1 00
305.....	1 70	1 00
140.....	1 90	1 00
68.....	2 10	1 00
21.....	2 30	1 00
9.....	2 50	1 00
7.....	2 90	1 00
Total under old rates		\$2,302.80
" new " 		1,547.00
Reduction per quarter		\$755.80
" year		3,023.20

The next table is an exhibit filed by the city, showing the effect of the new meter rates upon payments made by users who

were on a meter basis for the quarter from Oct. 1, 1910 to Jan. 1, 1911:

Number of consumers	Amount consumed by each, cu. ft.	Total consumed, cu. ft.	Amount under new rates
198.....	Under 500	71,500	\$148.00
178.....	500 to 1,000	130,000	181.00
211.....	1,000 " 2,000	277,700	409.00
100.....	2,000 " 3,000	233,500	333.00
54.....	3,000 " 4,000	184,500	254.00
28.....	4,000 " 5,000	123,800	160.00
10.....	5,000 " 6,000	54,600	70.00
11.....	6,000 " 7,000	69,300	85.00
6.....	7,000 " 8,000	45,100	52.00
11.....	8,000 " 9,000	92,900	104.00
9.....	9,000 " 10,000	83,600	91.00
6.....	10,000 " 11,000	63,600	63.00
50.....	11,000 and over	2,309,500	1,350.00
		3,739,600	\$3,300.00

Under old rates the total amount charged would be..... \$5,427.00
 Under new rates the total amount charged would be..... 3,300.00

Total reduction per quarter..... \$2,127.00
 Metered water reduction per year..... 8,508.00

For the year 1910-1911, the total number of commercial and industrial users as reported by the utility was as follows:

	Beginning of year	End of year	Average
Metered.....	774	1,031	902
Unmetered.....	1,695	1,754	1,724
Total.....	2,469	2,785	2,627

Total number covered by foregoing estimate of reduction of revenues 2,419

According to this statement the estimate of reduction in revenues does not take into consideration 366 users who were being supplied at the end of the year, of whom 159 are metered users and 207 are unmetered. 257 meters were added during the year and the policy of metering is being carried out still further than indicated by the last annual report.

Another basis of estimating revenues is obtained from testimony introduced at the hearing, which showed that charges for water had been as follows:

Under old rates:

Second quarter of 1910	\$11,121.99
Third " 1910	12,264.91
Fourth " 1910	9,118.33

Under new rates:

First quarter of 1911.....	6,405.02
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On Feb. 13, 1912, a report was filed with the Commission by the water department, showing the results of the first year's operation of the plant under the new rates. According to this report the total earnings of the plant were as follows:

For water used during 1911.....	\$27,955.28
Allowance for water used by city.....	21,000.00
Total	\$48,955.28

Testimony taken at the hearing related in large part to the value of the plant, or rather to the amount which the city had paid for it. An investigation by the Commission has shown that the cost of the property to the city of Eau Claire on June 30, 1911, had reached a total of \$314,986.80. In addition to a return upon the value of the water works property, counsel for the city maintained that about \$3,600 should be added to operating expenses to provide for interest at 4 per cent on the amount paid by the city to the Eau Claire Dells Improvement Company. This company built a dam across Chippewa river, after entering into a contract with the city by which the city transferred its right to build such a dam to that company. The city turned over to the company municipal bonds to the amount of \$95,000 and in return the company granted the city the right to use all water power from the dam necessary to pump water for the city of Eau Claire. If interest on this investment is computed at 4 per cent the total will be \$3,800.

No question as to the reasonableness of the investment was raised, and on behalf of the city it was shown that if water were to be pumped by steam power, large additions to the investment in the water works plant proper would have to be made. Testimony was introduced relative to the efficiency of the water department in making extensions, but so far as the available facts show, this testimony does not substantiate any charges of inefficiency or extravagance in connection with the construction of extensions.

As shown above, operating expenses for the past two fiscal years were \$9,240.67 and \$10,532.79. For the calendar year

1911 expenses were \$11,360.46, but this includes a few small amounts which should be treated as additions to plant. The extension of the meter system will undoubtedly add to the expenses of the utility and it is probable that some increase in operating expenses will result from extensions of the distribution system which are contemplated.

Total expenses as reported for the year ending June 30, 1911, appear reasonable, with perhaps some increase of commercial expenses to meet the increased cost resulting from the use of meters, and in finally fixing the rates for general use this should be borne in mind. For purposes of cost analysis we have used the reported expenses for the last fiscal year. Interest on the bonds issued to secure the construction of the dam seems to amount practically to a payment for hydraulic power purchased. With this modification of reported expenses the operating expenses, based on the last annual report to the Commission, are as follows:

OPERATING EXPENSES.

Pumping:

Steam Power		
Steam generated		\$126.24
Hydraulic Power		
Superintendence	550.00	
Hydraulic labor	1,320.00	
Misc. labor	198.50	
Hydraulic power purchased—int....	3,800.00	
Lubricants	61.64	
Misc. pumping sta. sup. & exp.....	339.51	
Maint. of dams, canals and flumes..	29.99	
“ turbines and water wheels	563.26	
“ hydraulic pr. pump. equip.	35.90	
“ pumping sta. aux. equip...	4.65	
“ “ bldgs. fix. etc.	.50	
Electric Power		
Superintendence	550.00	
Pump labor	440.00	
Misc. labor	6.80	
Electric current	13.87	
Lubricants .....	.25	
Misc. pumping sta. sup. & exp.....	148.70	
Maint. of elec. pr. pump equip.....	94.92	
“ pumping sta. aux. equip...	1.50	
“ ground source of supply...	28.00	
“ collecting aqueducts, etc..	8.25	
“ pump. sta. bldgs. fix. & grds.	583.48	
Total pumping		\$8,903.96

Brought forward		\$8,903.96
<i>Distribution:</i>		
Customers' premises expenses.....	\$24.42	
Street dept. sup. & exp.....	334.50	
Meter and fittings dept. labor.....	616.33	
Maint. of reservoirs, tanks and stand-		
pipe	15.10	
" distribution mains	82.05	
" services	159.76	
" hydrants	257.10	
" meters	212.38	
" fire-cisterns & basins.....	30.77	
" fountains and troughs....	34.80	
" distr. bldgs. fix. & grds....	5.69	
	<hr/>	
Total distribution		1,772.90
<i>Commercial:</i>		
Collection salaries and commissions..	\$2.74	
Reading meters and delivering bills	338.09	
Collection supplies and expenses....	206.21	
Promotion of business supplies and		
expenses	26.43	
	<hr/>	
Total commercial		1,073.47
<i>General:</i>		
Salaries of general officers.....	\$550.00	
Salaries of general office clerks.....	275.00	
General office rent.....	70.33	
Misc. general office sup. & exp.....	369.55	
Misc. general expenses.....	584.00	
	<hr/>	
Total general		1,848.58
<i>Undistributed:</i>		
Insurance	\$357.57	
Stationery and printing.....	4.50	
Maint. of stores dept. bldgs. fix. etc.	50.00	
Operation of utility equipment.....	166.42	
Maint. of utility equipment.....	165.83	
	<hr/>	
Total undistributed		724.32
		<hr/>
Total of foregoing.....		\$14,323.23

Rebates amounting to \$9.26 have been excluded from reported commercial expenses.

Of the total operating expenses of \$14,323.23, as so revised, the apportionment results as follows:

Capacity	\$7,802.56	54.5 per cent.
Output	3,654.27	25.5 "
Consumer	2,866.40	20.0 "

Capacity expenses are unusually high, due to the hydraulic power pumping and method of purchasing power. Although the principal point at issue in this case relates to charges for general service as distinct from all city uses, it will be necessary to separate expenses of fire service as accurately as pos-

sible from those of general service. This separation is made difficult by reason of the failure of the city to have records made of amount of water pumped. In the absence of reliable and accurate records this apportionment must be partly a matter of estimate. Estimates from such information as is available show that 40 per cent of capacity expenses should be apportioned to fire service and 60 per cent to general service. Output expenses may be, for practical purposes, apportioned entirely to general service. Of consumer expenses \$257.10, for maintenance of hydrants, is a direct fire expense. \$30.77 of capacity expenses are also due directly to the fire service. The result of this apportionment is shown below:

	Fire	General
Capacity.....	\$3,139 49	\$4,663 07
Output.....		3,654 27
Consumer.....	257 10	2,609 30
Total.....	\$3,396 59	\$10,926 64

The statement of operating expenses of each class of service includes no allowance for salaries of city officials. The report submitted for the first year of operation under the rates now in effect contains an estimate of \$500 for general supervision by the city commission. Testimony introduced at the hearing placed this amount at \$1,500. It appears that part of the records of the utility are kept by officials of the city who receive no direct compensation from the water department. Probably \$1,000 should be added to expenses heretofore apportioned to provide for general expenses not actually paid by the department, but which are a proper charge against it. Dividing these between fire and general service according to the apportionment of other expenses, we find that operating expenses of the two classes of service are:

Fire service	\$3,633.59
General service	11,689.64

The report for the calendar year 1911, submitted by the city to show the results of one year's operation under the present rate, lists under charges by city against the water department an amount of \$7,500 in lieu of taxes. The tax rate of the city, according to the testimony of the city clerk, was 2.48 per cent

for 1909 and 2.82 per cent for 1910. If the allowance in lieu of taxes is computed at 2.82 per cent of the total cost of the property, \$314,986.80, that allowance will be \$8,882.63. The most recent figures available with regard to real estate ratios in the city of Eau Claire, for the assessment season of 1909, shows that assessed value was 66.7 per cent of true value. If the same ratio were applied to the water works property it would indicate that a considerably smaller allowance than determined above is sufficient for taxes. The \$7,500 estimate submitted by the city may be higher than necessary and we have included an allowance of \$7,000 in the computations which follow.

For interest and depreciation, 5 per cent of the cost of the property, or \$15,749.34, appears reasonable, making the total allowance for taxes, interest, and depreciation, \$22,749.34. Dividing this amount between fire and general service according to the apportionment of the plant, or 48.5 per cent to fire service and 51.5 per cent to general service, the fire service is found to be chargeable with \$11,033.43 and general service with \$11,715.91. From these apportionments we find the total cost of fire service to be \$14,667.02 and of all other service, \$23,405.55.

Revenue from all service for the last calendar year, excluding the charge of \$21,000 against the city, was \$27,955.28. The \$21,000 constitutes the payment by the city for all service received by it, including water supplied to schools, police and fire stations, fountains and troughs, for sprinkling and flushing, and for fire protection.

As determined above, the cost of fire protection is \$14,667.02. This amount, however, does not meet the expense of other classes of service for which the city uses water but for which no payment is made independently of the general allowance of \$21,000 for city uses. The information available is not sufficient for an accurate estimate of the amount of water used for city purposes. The present method of allowing the water department \$21,000 for all water used by the city may well be discontinued. A more equitable and satisfactory method would be for the city to pay a definite amount for fire protection and for water used for flushing purposes, and to pay for all other water at regular rates. An allowance of \$15,000 per year appears to be reasonable for fire protection and flushing. If this allowance is made, a total expense of \$23,072.57 will remain

to be met from all other sources. During the year ending Dec. 31, 1911, revenues from private consumers were \$27,955.28. If schools, hospitals, police and fire stations, public fountains, and street sprinkling were charged for water on the same basis as other consumers, the total revenue would be considerably in excess of \$28,000.

The report for the last fiscal year shows that on June 30, 1911, the flat rate users were as follows:

Residences	1,748
Restaurants	6
Total private	<u>1,754</u>
Police and fire stations.....	6
Public fountains and troughs.....	19
Total public	<u>25</u>
Total unmetered users.....	<u>1,779</u>

This report appears to have been incorrectly made, however, as an examination of the consumers' ledger of the utility shows that there are a number of flat rate users, other than the classes listed above. The consumers' ledger, as kept by the water department, does not show to what class a consumer belongs, but there are a number of private users on flat rates other than residences and restaurants. Excluding a small number of users whose quarterly charge was not shown on the consumers' ledger, the following is a summary showing what annual revenues from consumers who were unmetered on Jan. 1, 1912, would be:

949 consumers at \$4.00 per year	\$3,796.00
4 " " 6.00 "	24.00
144 " " 8.00 "	1,152.00
2 " " 9.00 "	18.00
33 " " 10.00 "	330.00
19 " " 12.00 "	228.00
75 " " 14.00 "	1,050.00
1 consumer " 13.00 "	13.00
3 consumers " 15.00 "	45.00
9 " " 16.00 "	144.00
2 " " 17.00 "	34.00
1 consumer " 18.00 "	18.00
1 " " 20.00 "	20.00
1 " " 25.00 "	25.00
1 " " 50.00 "	50.00
1 " " 128.00 "	128.00
1 " " 90.00 "	90.00
1 " " 35.00 "	35.00
1 " " 550.00 "	550.00
Total	<u>\$7,750.00</u>

In addition to the above there were 276 lawns, at the rate of 10 cts. per foot. Most of these appear to be of about 66 feet frontage, and if we assume an average frontage of 66 feet the additional revenue from this source would be \$1,821.60, making a total revenue from flat rate users as of Jan. 1, 1912, of \$9,571.60.

On June 30, 1911, the number of meters in use was 1,055. The informal report for the calendar year 1911 shows the total number of meters in use Dec. 31, 1911, to have been 1,398, an increase of 343. There appears to have been an error in the report of flat rate users as of June 30, but it is believed that records as obtained for Dec. 31 are correct.

Revenue from metered water during 1911 was \$15,803.99. With 343 more users on a meter basis in December than were metered at the end of June, it is only reasonable to expect revenue from metered water to increase during the present year. Our information does not show to what class these 343 consumers belong, and the classification is not shown on the consumers' ledger, but it appears that they are made up mainly of residences, stores, etc. Most of the very large users appear to have been metered previously. Probably a fair average to use in estimating the use of water by such consumers as were metered between June 30 and Dec. 31, is 100 gallons per day per consumer at 15 cts. per 100 cu. ft. This would yield a revenue of practically \$2,500 per year in addition to the service charge of \$1 per year, or a total of about \$2,843 per year.

In estimating revenues with saturation as of Dec. 31, 1911, then, we find that probable revenues for the present year will be about as follows:

Metered	\$18,647
Unmetered	9,571
Total	\$28,218

The uncertainty regarding how much water will be used by consumers who have recently been metered makes it impossible to do more than estimate earnings for the present year. Furthermore, the extension of the meter system along the lines outlined by the superintendent, to include about half of the present flat rate users, or practically all except residence users who have a kitchen faucet without sewer or cess pool connection, introduces another element of uncertainty into the estimates of revenue.

It is noted that flat rate reductions as made by the schedule now in effect have not affected fixtures in residences, such as baths and closets. The purpose of the city appears to have been to encourage the metering of all such uses. The effect of placing meters will probably be to reduce the revenue from residence users who are paying much more than the minimum rate of \$4 per year under the flat rate schedule. It is impossible to state what effect the placing of meters will have on such users as a lumber company which now pays \$550 per year, and other large users. There is every reason to believe, however, that the extension of the meter plan, with rates as fixed at present, will somewhat reduce the total revenue, probably somewhat below the point reached in 1911, when these revenues were \$27,955.28.

Our investigation shows that the cost of all service, other than that furnished for fire protection and for flushing purposes, to be \$23,072.57. This includes the service furnished to six police and fire department stations, to nineteen fountains and troughs and to the city sprinkling wagons, all of which have heretofore been included with hydrant service in the general charge of \$21,000 to the city.

The superintendent stated that the sprinkling will be decreased during the current year, due to the use of oil on streets and that it is the intention of the department to replace all continuous flow troughs and fountains with others equipped with automatic shut off. Because of these conditions we are not in a position to estimate with any degree of accuracy what revenues from such uses may be expected.

The water department states that 15,358,000 cubic feet of water were sold through meters during 1911. If all users were metered, it is estimated that the amount of water used per year, exclusive of the use for street sprinkling and for public fountains and troughs, would be about 22,000,000 cubic feet. As there are a few very large users still to be metered, this estimate appears to be conservative.

It should be pointed out that although present rates will produce revenue considerably in excess of actual operating expenses, the utility is under the necessity of making a number of extensions and additions, besides installing a great many meters, and it does not appear best to cut rates too closely at such a time. Besides this, the extension of the meter system and consequent uncertainty concerning the amount of water used makes

it inadvisable to reduce rates to a point where estimated revenues would barely cover operating expenses.

If all consumers were metered, a reduction of 2 cts. per 100 cubic feet, based on estimated consumption of 22,000,000 cubic feet, would effect a total reduction of \$4,400, which would bring estimated revenues almost to the cost of general service. Under the circumstances we believe that a slight reduction in meter rates may be made, but that such reduction should not be as much as an average of 2 cts. per 100 cubic feet.

It should be understood that the decision in this case is not intended to be final. It may be that after the completion of the plan of metering which has been outlined an investigation will show that further changes are desirable. If this should be the case, the Commission will make such further investigation as may appear necessary at that time.

That portion of the existing schedule which relates to meter rents is unlawful, in that it discriminates between consumers who own their meters and those whose meters are the property of the water department. This has been remedied and instead of a meter rental, charged only where the department owns the meter, this charge is made in the form of a service charge to all metered users, regardless of the ownership of the meter.

With service charges as provided in the existing schedule, we believe a modification of the charges for water, as suggested below, will constitute the only change in the schedule which should be made at this time:

SUGGESTED SCHEDULE.

For 600 cu. ft. or less per quarter.....	\$0.75
For each additional 100 cu. ft. up to 2,000 .....	.12½
" " 100 " " 4,000 .....	.11
" " 100 " " 6,000 .....	.10

Over 6,000 cubic feet per quarter, rates to be as in existing schedule. Service charge to be as in present schedule.

The result of changes outlined above would be as follows:

Use of water at minimum rate increased 100 cubic feet per quarter, so that the average rate per 100 cubic feet for the full use would be reduced 2½ cts.

	Reduction
600 to 1,000 cubic feet per quarter	2½ cts.
1,000 " 2,000 " "	1½ "
2,000 " 3,000 " "	2 "
3,000 " 4,000 " "	1 "
4,000 " 5,000 " "	1 "

No changes above 5,000 cubic feet per quarter.

Until the plan of metering is fully carried out, we cannot state just what the total reduction in revenue will amount to, but the average reduction per 100 cubic feet on all sales will hardly be much more than 1 cent. That is, a total reduction may be expected of from \$2,200 to \$2,500 per year, which is as great a reduction as appears to us advisable at the present time.

No account has been taken here of revenues from street sprinkling and from public fountains, but when changes are made as outlined by the city, a rate can be fixed for these uses. All public buildings should be metered as soon as possible, and until such time as a rate can be finally fixed for sprinkling and for fountains, the city should make an allowance to the water department for these uses, in addition to the \$15,000 charge against the city for fire protection and flushing.

Attention should be called to the fact that the estimated pumpage for 1911 was 120,000,000 cubic feet. There is no means at present of measuring pumpage or even of estimating it closely. If the pumpage is anywhere nearly as great as the estimate, there must be a great deal of waste and leakage in connection with its distribution. Counters on the pumps will not give absolutely accurate results but we are of the opinion that the results which would be obtained make it important that counters be placed upon the pumps.

The decision in this case is made at this time with the understanding that the completion of the policy of metering and further records of operation may make it advisable to re-open the case at some time, but the rates as outlined above appear reasonable in the light of available facts.

The schedule differs in form from some established by the Commission in other cases, but it appears to be well adapted to the needs of the utility and to be substantially just and equitable.

IT IS THEREFORE ORDERED, 1. That the city of Eau Claire discontinue its present schedule of rates and charges for metered water and substitute therefor the following schedule:

<i>Service charge</i>		
$\frac{5}{8}$ inch meter	.....	\$0.25 per quarter
$\frac{3}{4}$ "	.....	.40 "
1 "	.....	.50 "
1 $\frac{1}{2}$ "	.....	1.00 "
2 "	.....	1.50 "
3 "	.....	2.50 "
4 "	.....	5.00 "
6 "	.....	10.00 "

Charge for Water.

For first	600 cu. ft. per quarter—minimum charge of.....	\$0.75
" next	1,400 " " —per 100 cu. ft. ....	.12½
" "	2,000 " " " 100 " .....	.11
" "	2,000 " " " 100 " .....	.10
" "	1,000 " " " 100 " .....	.09
" "	1,000 " " " 100 " .....	.08
" "	1,000 " " " 100 " .....	.07
" "	1,000 " " " 100 " .....	.06
" "	1,000 " " " 100 " .....	.05
" all over	11,000 cu. ft. per quarter " 100 " .....	.04

2. Rules relating to time of payment, penalties and charges for additional consumers shall remain as at present.
3. Flat rates shall remain as at present.
4. All public buildings shall be metered and water charged for at regular rates.
5. Counters shall be installed on pumps supplying water to the distribution system and a record of day and night pumpage kept in permanent record form.

ARTHUR J. THORNE

vs.

CHICAGO MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted March 13, 1912. Decided May 2, 1912.

Petitioner owns a parcel of land near Palmyra, Wis., largely composed of sand and gravel deposit. He has organized a corporation and desires to construct a plant on these premises for the manufacture of cement products. Because of the expense of hauling the sand and gravel three-quarters of a mile to Palmyra by team, it will be impossible to construct or operate the plant or ship the sand and gravel to market unless side track facilities are provided. Wherefore, petitioner prays that respondent be required to construct a spur track connecting with its main line at a point near the tract of land in question.

Held: The installation of a siding at the gravel pit site would be dangerous to trains controlled by a permissive block, which method of control is used at present. The danger, however, can be completely eliminated by operating trains between Palmyra and North Prairie controlled by positive block. All trains picking up or setting out cars at the gravel pit should be controlled by positive block between such stations. To protect trains against an open switch, an automatic switch protection against facing point switch should be installed and to provide against cars drifting on to the main line, the switch should be connected with a derail. The respondent is ordered to construct a spur track from a point on its main line to the sand and gravel pit in question. The petitioner is ordered to deposit the sum of \$1,339 with respondent to pay for the construction of the spur track, or, in lieu thereof, to give bond in accordance with the provisions of ch. 481, Laws of 1909. Upon agreement of the parties, this order may be modified by the Commission. Thirty days is deemed a reasonable time within which to comply with this order.

The petitioner resides at Jefferson, Wis. He alleges in substance that he is the owner of a valuable tract of land of about eight acres in area and composed of sand and gravel to a depth of from forty to fifty feet, which tract is situated about two-thirds of a mile east of the village of Palmyra; that said sand and gravel are excellent in quality and suitable for the manufacture of cement blocks, tile, brick, fence posts and other cement products, but to haul the same by team for a distance of three quarters of a mile for the purpose of manufacturing the same into cement products or for shipping the same is too ex-

pensive to enable the petitioner to utilize the same; that the petitioner desires to cause to be constructed a manufacturing cement plant on said premises for the purpose of using said sand and gravel in the manufacture of cement products; that, in order to be able to operate such plant profitably, it will be necessary for the petitioner to have a side or spur track connecting with the main line of the respondent railway company at a point near said tract of land; that the proposed point of connection of said spur with said main line is in plain sight of an approaching train in one direction for a distance of half a mile and in the other direction for a distance of thirty or forty rods; that it is impossible for the petitioner to utilize said sand and gravel either for manufacturing purposes or for shipping same to market without the facilities of a spur track. Wherefore, petitioner prays that the respondent be required, under and pursuant to the statute in such case made and provided, to construct such spur track.

The respondent railway company, answering the petition, states that it is willing to serve a private track for the petitioner, provided such track be connected with its main line at Palmyra and that the expense of constructing the same be borne by the petitioner; that said service track would be used solely for the business of petitioner and not open to use by or for the benefit of the general public; that it is unwilling to cut its main line for the purpose of establishing switch connections to such private track at a point between stations, and that to cut its main track at a point between stations and to establish thereon switch connections at such point with the private track of petitioner would add an unnecessary danger and menace to intrastate and interstate traffic passing over its line of railway at such point.

The matter came on for hearing on March 13, 1912. The petitioner was represented by *L. H. Smith*, his attorney, and the respondent by *W. J. Underwood*.

It appears that the petitioner owns a parcel of land near Palmyra, largely composed of sand and gravel deposit of an excellent quality. Examinations and tests thereof made in the laboratory of the University of Wisconsin show that the same is suitable for the manufacture of all kinds of cement products. The amount of sand and gravel available upon this tract is estimated at from five hundred thousand to one million yards.

The petitioner has organized a corporation for the purpose of manufacturing cement brick, tile, fence posts, building blocks, and other similar products. In order to successfully operate the proposed plant or to ship sand and gravel, it will be necessary to have a spur track connected with the main line of the respondent's railway near the tract of land in question upon which the proposed plant is to be constructed. Because of the expense of hauling the sand and gravel to Palmyra by team, it will be impossible to construct or operate the plant or ship the sand and gravel to market unless side track facilities are provided.

The respondent railway company objects to the connection of the spur track at the point of the site in question, for the reason that frog and switch connections are elements of danger and particularly so at points where trains are operated at high speed. It expresses its willingness to furnish the track, providing the same is taken from one of the present station side tracks at Palmyra. The general manager of the railway company says:

“There have been instances where we have cut the main track between stations and where the traffic is as great and speed as fast as on the Prairie du Chien division and other more important divisions; and we have protected the frog and switch connection with electric controlling signals at the expense of the beneficiary. Such protection, however, is very expensive, and there is considerable cost to maintain it, and such protection simply will indicate a misplaced switch or a broken frog.”

The engineers of the Commission who have investigated the matter report that an examination made on the ground showed that the installation of a siding at the gravel pit site would be dangerous to trains controlled by a permissive block, which method of control is used at present. The sources of danger at this point are, (1) the track is in a deep cut, (2) the track is on a curve, and (3) the engineer on a west-bound train could not see the proposed switch at a distance exceeding 800 feet. These dangers, however, can be completely eliminated by operating trains between Palmyra and North Prairie controlled by positive block. All trains picking up or setting out cars at the gravel pit should be controlled by positive block between said stations, and to protect trains against an open switch an automatic switch protection against facing point switch should

be installed; also to provide against cars drifting on to the main line the switch should be connected with a derail.

The petitioner testified that he would require about four rods of track, and that he would ship five cars of gravel a day. Five cars can not be stored on four rods of track. The estimate of the cost of constructing the track and installing the switch protection is therefore made to cover the cost of a track on which five cars can be stored, with a twelve foot clearance with the main line. The estimate is as follows:

Track	\$564.00
Switch protection	775.00
	<hr/>
Total	\$1,339.00

NOW, THEREFORE, IT IS ORDERED, That the Chicago, Milwaukee & St. Paul Railway Company construct a spur track from a point on its main line to the sand and gravel pit, hereinbefore mentioned, belonging to the petitioner.

IT IS FURTHER ORDERED, That the petitioner herein deposit with the Chicago, Milwaukee & St. Paul Railway Company the sum of \$1,339 to pay for the construction of said spur track, or, in lieu of such cash deposit, the petitioner shall give bond in accordance with the provisions of ch. 481 of the Laws of 1909.

If the parties agree upon any modification of this order, the same will be modified in accordance with such agreement upon application to the Commission.

Thirty days is deemed a reasonable period of time within which to comply with the provisions of this order.

WILLIAM A. PAFF

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Decided May 3, 1912.

Petitioner alleges that the switching charge of \$2 per car, in addition to the regular freight rate, exacted by respondent on sixteen carload shipments of lime from Grimms to Wausau, Wis., is unjust and unreasonable. Previous to the shipments respondent's tariff had provided for the absorption of these switching charges and this rule was subsequently re-established.

Held: The overcharge in question was due to an error in the publication of the tariffs. The charge exacted was unusual and exorbitant and, under the circumstances, no charge should have been made for the switching service rendered. Refund is ordered on this basis.

The petitioner resides at Wausau, Wis., and is engaged in buying and selling lime and cement and other building materials. He alleges that during the months of July, August, September and October, 1911, there were shipped to him sixteen carloads of lime from Grimms, Wis., which were switched by the respondent railway company upon arrival at Wausau to the line of the Chicago, Milwaukee & St. Paul Railway Company, and later switched by the latter company to the petitioner's warehouses; that the respondent collected from petitioner \$2 upon each and every carload of said material so shipped in addition to the regular freight rate from Grimms to Wausau, which sums were to be paid by the respondent to the Chicago, Milwaukee & St. Paul Railway Company for such switching services; that prior to June 30, 1911, the respondent under its tariff G. F. D. No. 8408-B absorbed the switching charges on similar freight traffic within the city of Wausau; that on said date the respondent issued supplement No. 14 to said tariff, limiting the payment by it of such connecting railroad switching charges to competitive traffic; that on Oct. 20, 1911, by supplement No. 15 to said tariff, the respondent declared that it would absorb said switching charges on both local and competitive freight; that the petitioner was not notified by the re-

spondent until Jan. 12, 1912, that he would be compelled to pay the aforesaid switching charges on said shipments; that, as a result, the petitioner suffered a loss of the aforesaid switching charges of \$2 per car on said sixteen carloads of material by reason of the failure on the part of respondent's agent at Wausau to promptly present bills for the switching charges, and if such bills had been presented promptly petitioner could have arranged the business transaction so that he would not have suffered such loss; that the charges for switching as aforesaid were unjust and unreasonable. Wherefore, petitioner prays that the respondent railway company be required and directed to refund to him the said switching charges so paid as aforesaid.

The respondent railway company, answering the petition, alleges that it is willing to make the reparation for the actual shipment upon presentation of the paid expense bills showing the payment by the complainant; that prior to June 30, 1911, by its tariff the switching charges were absorbed; that on said date it attempted to issue its supplement No. 14 to said tariff, limiting the absorption of switching to competitive car traffic, but that there were defects in the publication of such tariff which have heretofore been presented to the Commission; that by supplement No. 15 to said tariff the switching charges would be absorbed on all business, provided the revenues were such as are named in said supplement No. 15.

The matter was submitted upon the papers, pleadings, documents, and vouchers on file.

Prior to June 13, 1911, respondent's tariff G. F. D. No. 8408-B provided for absorption of switching charges under certain conditions upon all shipments. Supplement No. 14 to this tariff, published to take effect "on intrastate traffic in Nebraska June 1, 1911", and "on interstate traffic June 30, 1911", provided that the rule for the absorption of switching charges would apply only in connection with "traffic moving between two points both of which are reached by lines other than the C. & N. W. Ry." This charge, apparently, was intended to cover all traffic, but through an oversight was made to apply only on intrastate traffic in Nebraska and on interstate traffic. Furthermore, no application was made to this Commission for the approval of the change, and the approval was therefore not issued. Effective Oct. 20, 1911, supplement No. 15 to said tariff

restored the rule as in force previous to June 1, 1911, except for certain changes immaterial to the present case.

The freight bills which have been submitted in evidence show that the petitioner paid a switching charge of \$2 on each of sixteen cars of lime which had been shipped from Grimms to Wausau on and between July 10, 1911, and Oct. 12, 1911, inclusive.

It is very evident that the overcharge in question was due to an error in the publication of the tariffs. Under the circumstances we find and determine that the switching charge of \$2 per car, exacted of the petitioner upon the aforesaid shipments of lime from Grimms to Wausau, was unusual and exorbitant, and that no charge should have been made for the switching services rendered in connection with such shipments.

Now, THEREFORE, IT IS ORDERED, That the Chicago & North Western Railway Company be and the same is hereby required and directed to refund to the petitioner the sum of \$32.

GEORGE T. ROWLAND & SON

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Decided May 3, 1912.

Petitioner alleges exorbitant charges on three carload shipments of brick from Vesper to Grand Rapids, Wis., upon which respondent exacted a distance rate of 3 cts. per cwt. At the time the shipments moved the M. St. P. & S. S. M. Ry. Co. had in effect a distance rate of 2 cts. per cwt. for ten miles. This rate was subsequently established by respondent in accordance with an order of the Commission.

Held: The respondent could not have participated in the traffic upon its lawfully published rate in view of the fact that a competing line had in effect a lower rate. The rate charged was unusual under the circumstances, and the reasonable rate that should have been in effect and applicable to the shipments is 2 cts. per cwt. Refund is ordered on this basis.

The petitioners are engaged in the mercantile business at Grand Rapids, Wis. They allege that the rate charged them by the respondent on three carloads of brick shipped from Vesper to Grand Rapids, Wis., on and between June 27 and 28, 1911, was excessive and exorbitant; that previous to the shipments in question the petitioners had been transporting carloads of brick over the line of the Minneapolis, St. Paul & Sault Ste. Marie Railway Company between said points upon a rate of 2 cts. per cwt.; that at the solicitation of respondent's agent at Grand Rapids, who represented to petitioners that the rates on brick in carloads between said points were the same on respondent's line as those in effect on the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, the petitioners shipped the said three carloads of brick between said points, and were charged therefor a rate of 3 cts. per cwt.; that the charges as based upon a rate of 2 cts. per cwt. would have been \$19.61 less than was actually paid by petitioners, and that a rate of 3 cts. per cwt. on brick between said points is unusual and exorbitant. Wherefore, petitioners pray that the respondent railway company be authorized and directed to refund to them the said sum of \$19.61.

The respondent railway company, answering the petition, admits all the formal allegations thereof, and alleges that it has no knowledge as to any representations made by its agent to the petitioners respecting the rates in effect on brick from Vesper to Grand Rapids; that the agent had no authority or right to make any representations other than such as are contained in the tariffs published and on file as required by law; that at the time the shipments in question moved a distance rate for ten miles which was covered by respondent's tariff G. F. D. 11600-A was in effect; that subsequently this Commission ordered a distance tariff on brick which had the effect of making the rate for ten miles 2 cts. per cwt., which is shown in tariff G. F. D. 13945; that in view of the fact that at the time the shipments in question moved the Minneapolis, St. Paul & Sault Ste. Marie Railway Company had in effect a rate of 2 cts. per cwt., which rate has since been established over the respondent's line, the respondent is willing to make refund of all charges in excess of 2 cts. per cwt., collected on said shipments.

The claim was submitted upon the papers, pleadings, and documents on file.

It is conceded that the rate charged for the shipments here in question was unusual under the circumstances. The respondent could not have participated in the traffic upon its lawfully published rate in view of the fact that a competing line had in effect a lower rate.

We therefore find and determine that the rate of 3 cts. per cwt., exacted of the petitioner for the aforesaid shipments of brick from Vesper to Grand Rapids, Wis., was unusual, and that the reasonable rate that should have been in effect and applicable to such shipments is 2 cts. per cwt.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Chicago & North Western Railway Company, be and the same is hereby authorized and directed to refund to the petitioners the sum of \$19.61.

W. E. MORGAN

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

Decided May 3, 1912.

Petitioner complains of unusual and exorbitant switching charges, exacted by the respondent on four carload shipments of wood from Unity to Waukesha, Wis. In addition to the freight charges, respondent had charged \$4 per car for switching charges of the connecting line at Waukesha. Previous to the movement of the shipments in question, the respondent's tariff had provided for the absorption of connecting line switching charges on carload shipments on which the freight charges were \$15 or more per car, and this rule was subsequently re-established.

Held: The charges exacted were unusual and refund is ordered on the basis of the rule previously in effect and subsequently made effective.

The petitioner is a dealer in hardware, sash, doors, mouldings, etc., at Unity, Wis. He alleges that on and between Sep. 15 and 26, 1911, he shipped four carloads of wood from Unity to Waukesha and that the respondent railway company exacted of him, in addition to the freight charges, the sum of \$4 per car for switching charges of the connecting line at Waukesha; that such switching charges should have been absorbed by the respondent; that the switching charges thus exacted of the petitioner were unusual and exorbitant. Wherefore, petitioner prays that the respondent be authorized and directed to refund to it the said switching charges paid by him as aforesaid.

The respondent railway company admits the allegations of the petition and expresses itself as willing to make a refund upon said shipments in the sum of \$11.

The matter was submitted upon the pleadings, papers, and documents on file.

Previous to June 1, 1911, the respondent's tariff W. C. D.-2000 provided for the absorption of connecting line switching charges on carload shipments on which the freight charges were \$15 or more per car. This rule applied generally on the Chicago divi-

sion with the exception of a few stations, which exceptions, however, do not affect the present case. Effective June 1, 1911, supplement No. 10 to the tariff mentioned changed the rule, so that absorption of switching charges on shipments "received from or destined to competitive stations" only were included. The application of the rule to shipments from or to local stations was therefore excluded by the amendment. Effective Dec. 6, 1911, respondent's tariff G. F. D. No. 14135 re-instated the rule as in force prior to June 1, 1911. The latter tariff is still in effect. It thus appears that the change made on June 1, 1911, was in effect and applied to shipments during the period from June 1, 1911, to Dec. 6, 1911, during which time the shipments here in question were made. The charges on two of the shipments were not sufficiently in excess of \$15 each that the \$4 switching charge would have been absorbed previous to June 1, 1911, nor would it be absorbed under the existing rule. Such part, however, in excess of the \$15 per car received by the respondent railway company would have been absorbed previous to June 1, 1911, and is also absorbed under the rule as at present in force.

Billing references, charges exacted, and the excess charges made are as follows:

Date of shipment.	Car No.	Weight.	Rate.	Charges.	Switching charges.	Excessive charges.
1911						
Sept. 26	12436	48,400	4cts.	\$19 36	\$4 00	\$4 00
Sept. 26	189189	49,100	4	19 64	4 00	4 00
Sept. 16	84061	38,900	4	15 56	4 00	56
Sept. 15	87308	43,600	4	17 44	4 00	2 44
Total excessive charges						\$11 00

For the reasons stated, we find and determine that the charges exacted of the petitioner for switching the four cars of wood in question from the line of the respondent railway company to that of the Chicago, Milwaukee & St. Paul Railway Company at Waukesha were unusual, and that the excess of charges exacted of the petitioner by the respondent upon said shipments is the sum of \$11, as above shown.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, be and the same is hereby authorized and directed to refund to the petitioner, W. E. Morgan, the sum of \$11.

WAUKESHA LIME & STONE COMPANY

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

Decided May 3, 1912.

Complaint was made of overcharge on a shipment of three carloads of stone from Waukesha to Milwaukee, Wis. The rate of $1\frac{3}{4}$ cts. per cwt., contended for, was in effect upon competing lines and was subsequently established by respondent.

Held: The charge exacted was unusual and $1\frac{3}{4}$ cts. would have been a reasonable rate. Refund is ordered on this basis.

The petitioner is a corporation engaged in the lime and stone business at Racine, Wis. It alleges that on Aug. 31 and Sep. 11, 1911, it shipped three carloads of stone from Waukesha to Milwaukee over respondent's line, on which shipments the respondent assessed charges at the rate of $2\frac{1}{2}$ cts. per cwt., as per its tariff G. F. D. 13010; that such rate was excessive and unreasonable to the extent that it exceeds the rate of $1\frac{3}{4}$ cts. per cwt., in effect on other competing lines at the time the shipments moved, and later established by respondent in supplement No. 59 to its tariff W. C. 1303; that the excess charge on said shipments amounts to \$19.36; wherefore, petitioner prays that the respondent railway company be authorized and required to refund to it the said sum of \$19.36.

No answer was filed by the respondent railway company.

The claim was submitted upon the pleadings, papers, and documents on file.

The conditions as stated in the petition are correct according to the tariffs on file with the Commission. The rate of $1\frac{3}{4}$ cts. per cwt., in effect over the lines of the Chicago & North Western Railway Company and the Chicago, Milwaukee & St Paul Railway Company is for distances of twenty miles, which is the distance between Waukesha and Milwaukee over such lines. The distance over the respondent's line from Waukesha to Milwaukee is forty-eight miles. Prior to Nov. 20, 1911, the respondent's rate on crushed stone between said points was $2\frac{1}{2}$ cts. per

cwt., but effective on said date it established the same rate which was in effect on the other lines mentioned. The total weight of said three cars of crushed stone was 258,000 lbs., and the charge exacted thereon based on the rate of $2\frac{1}{2}$ cts. per cwt. was \$64.51, or \$19.36 in excess of what the charge would have been had the rate of $1\frac{3}{4}$ cts. per cwt. been applicable thereto.

The rate of $2\frac{1}{2}$ cts. per cwt. is unusual in the situation here presented. The respondent would have been unable to have participated in the traffic here involved between the points mentioned, since a less rate was and is in effect on two competing lines of railway.

We find and determine that the charge of $2\frac{1}{2}$ cts. per cwt., exacted of the petitioner on the aforesaid shipments of three carloads of crushed stone from Waukesha to Milwaukee, was unusual and that the reasonable rate that should have been in effect and applicable thereto is $1\frac{3}{4}$ cts. per cwt.

Now, THEREFORE, IT IS ORDERED, That the respondent, the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, be and the same is hereby required and directed to refund to the petitioner the said sum of \$19.36.

IN RE APPLICATION OF THE PLYMOUTH TELEPHONE EXCHANGE FOR AUTHORITY TO INCREASE ITS RATES, TOLLS AND CHARGES.

IN RE VALUATION OF THE PROPERTY OF THE PLYMOUTH TELEPHONE EXCHANGE.

Decided May 4, 1912.

Application was made by the Plymouth Telephone Exchange of Plymouth, Wis., for authority to increase its rates. A valuation of the physical property of the plant was made and the result of the financial operations examined. The records of the utility give little information as to the actual cost of operation. Accordingly, a summary was made of central office and total operating expenses for exchanges operating under substantially similar conditions. Applicant's operating expenses and probable revenues under present and proposed rate schedules were estimated on the basis of the installation of Jan. 1, 1912. The annual rates for the 18 Wisconsin Telephone Co's exchanges considered were compared with applicant's proposed rates.

A valuation of the property made by the Commission as of Nov. 1, 1911, showed a cost of reproduction new of \$18,831 and a present value of \$15,345.

Held: It is the duty of the utility to conform to the uniform classification of accounts prescribed by the Commission, and until this is done no increase in rates will be authorized. The reasonableness of the suggested schedule should be determined with reference to local conditions and actual cost of operation. Under the circumstances existing in this case, however, the only method of testing the reasonableness of the prospective increase in rates is to assume that expenses are about the same as normal expenses of other utilities under substantially similar operating conditions. While the utility is not in need of rates as high as those proposed, some increase seems to be needed. Applicant is ordered to make such changes in its methods of accounting as may be necessary to conform to the standards prescribed by the Commission. When such changes have been made, applicant may discontinue its present schedule of rates, tolls and charges and substitute therefor the schedule prescribed by the Commission.

This is an application of the Plymouth Telephone Exchange for authority to increase certain rates, tolls and charges. Application was filed with the Commission on Oct. 21, 1911, and shows that applicant is a corporation organized and doing business under the laws of the state of Wisconsin, with its principal place

of business at Plymouth, Wis., and that it is a public utility engaged in the management and operation of a local telephone exchange in said city.

Rates at present in effect are as follows:

	Per month
Business phones	\$1.75
Residence "	1.10
Business phones, each additional on same line, same office....	.55
Business and residence on same line.....	2.60
Toll lines, per drop.....	.50
Rural lines, switching.....	.25

Authority is asked to discontinue the present schedule and to substitute for it the following:

	Per month
Single party business phones.....	\$2.75
Two " "	2.50
Extension sets, business.....	.75
Single party residence phones.....	1.75
Two party " "	1.50
Extension sets, residence.....	.50
Extension bells .....	.15
Rural phones, switching.....	.25
Toll-drops .....	.50
Outside move	1.00
Inside move .....	.50
Change from wall to desk and vice versa.....	2.00

A discount of \$0.25 per month on main line telephones for payment of bills at company's office on or before the 16th of current month.

Hearing was held at Madison, March 18, 1912. Appearances were as follows: For the applicant, *Mr. Walter J. Gallon*; against the application, *Mr. Wm. Graef*.

The Plymouth Telephone Exchange appears to have been organized in 1901, with capital stock of \$1,100, which has since been increased to \$5,500. A manager was employed, who was to maintain the plant and pay the operators, and receive 50 per cent of the earnings. After a time the service became poor and a change in management was made during 1911. At this time it was found necessary to reconstruct a considerable portion of the plant. A new switchboard was installed in a building purchased by the company. A number of the heavy wire leads were replaced with cable and a portion of the equipment placed underground. Service appears to have been very much improved by the changes and improvements in plant and equipment.

Valuation of the property was made by the Commission as of Nov. 1, 1911. Following is a summary of the valuation, exclusive of such portions of property, as part of the land

and building, as were apportioned to other than the utility business.

VALUATION OF PROPERTY

As of Nov. 1, 1911.

CLASSIFICATION	Cost new	Present value
A. Land.....	\$400	\$400
B. Distribution system.....	12,482	9,747
C. Buildings and miscellaneous structures.....	1,414	1,131
D. Exchange equipment.....	1,672	1,653
E. General equipment.....	259	194
Total.....	\$16,227	\$13,125
*Add 12%.....	1,947	1,575
Total.....	\$18,174	\$14,700
F. Materials and supplies.....	657	645
Total.....	\$18,831	\$15,345

* Addition of 12% to cover engineering, superintendence, interest during construction, contingencies, etc.

No objection to the valuation was offered by either of the parties represented at the hearing. No records are available which would enable us to make a determination of the going value of the utility and no testimony relative to going value was introduced. The cost of the property as stated by representatives of the utility is somewhat lower than the value placed upon it by the Commission's staff. It was stated, however, that some of the work of construction had been done without charge by stockholders, especially during the earlier years of operation, so that the cost as shown by the books of the utility is lower than the fair value of the property. Further than this, records have been so kept that there is no means of determining the amount spent for new construction and additions, for reconstruction and replacements, and for maintenance, as distinct from each other.

Until June 1911 the plant seems to have been under the supervision of a manager who, as stated above, paid the operators and other employes and received 50 per cent of earnings. Reports of the utility on file are so incomplete and the distribution of expenses so imperfect that they are of little value for purposes of this case. The change in management during 1911 has also changed conditions to such an extent that conclusions based on reports for earlier periods are practically valueless. Following is a list of the subscribers as shown by the subscribers' ledger of the utility, on the dates indicated:

INSTALLATION AND SWITCHING SERVICE.

CLASSIFICATION	July, 1, 1911	Jan. 1, 1912
Single party business.....	88	96
Single party residence.....	191	233
Business and residence.....	8	7
Business with extension.....	6	6
Business and two residences.....	1	1
Residence with extension.....	5	5
Rural.....	4	4
Extension bells.....	.....	2
Switching.....	66	139
Toll-drops.....	3	3

According to this list the total number of phones on the system of the Plymouth exchange was 313 on July 1, 1911, and 361 on Jan. 1, 1912. This does not include extensions, toll-drops, or instruments for which only switching service was done. Apparently the number of phones for which the switching service was done increased from 66 to 139, but it seems to have been the practice for the former management to have only a portion of these rural lines listed in the subscribers' ledger, so that the actual increase in this class of service is less than the records show.

The increase, amounting to 48 phones, in the local subscribers' list during substantially the first six months under the present management, and the fact that portions of the plant are being rebuilt or replaced by a different type of equipment, makes it useless to attempt to estimate expenses for the future by examination of the records of past years. The manager and certain officers of the utility expressed the belief that a considerable number of new subscribers can still be added and that a subscribers' list of five hundred can be obtained within a comparatively short time.

For purposes of an analysis, therefore, the only available financial statement of any value is the statement of earnings and expenses as filed by the utility for the calendar year 1911. The unsatisfactory accounting methods of the utility make it impossible to accurately distribute expenditures, but the following is a summary of revenues and expenditures with a distribution such as seemed to be proper, judging in each case from the nature of the item:

OPERATING REVENUES	
Exchange telephone earnings.....	\$4,950.25
Earnings from connecting lines.....	239.20
Toll earnings	258.52
Total operating revenues.....	\$5,447.97
OPERATING EXPENSES	
Central office (traffic).....	\$2,679.87
Wire plant (transmission).....	894.72
Substation (terminal)	432.04
Commercial	73.74
General	247.58
Undistributed	113.49
Total of above items.....	\$4,441.44
Adjustment: Deduct \$207.75 labor sold...	207.75
	\$4,233.69
Taxes	374.89
Total operating expenses.....	4,608.58
Net operating revenue.....	\$839.39
Non-operating revenue	650 ⁰ .09
Gross income	\$1,489.48
Interest on real estate mortgages.....	298.50
Net income	\$1,190.98
Common stock dividends.....	275.00
Surplus at close of year.....	\$915.98
Construction during year.....	\$4,582.20

Because of the uncertainty concerning the nature of many expenditures, the foregoing summary cannot be accepted as a final indication of the results of the last year's operation. The construction, reconstruction and replacements, and maintenance costs have been so confused that the item of \$4,582.20, construction during year, is almost certainly incorrect, and is presented here merely because it is the only result indicated by the statement as filed by the utility.

One other method may be used for forming an estimate of expenses of operation and maintenance, as distinct from new construction and reconstruction or replacements. A considerable part of the work of replacements and extensions seems to have been done during the last six months of 1911, after the present management was placed in charge. Total expenditures during the first half of the year were \$4,167.86 and for the latter half the total was \$5,969.64. As the methods of conducting the business were materially changed at about the end of the first half year period, these amounts, of themselves, do not

show much about the extent or cost of replacements or new construction.

A list of extensions and replacements made during the six months period from July 1, 1911, to Jan. 1, 1912, was secured. According to the unit prices used in the valuation of the property by the Commission's staff, the cost new of all new construction and replacements made during this period is \$2,062 of which \$1,480 may be considered as adding to the value of the property and \$582 as replacements. Of the total disbursements for this period, \$174.75 was for interest. Deducting a total of \$2,236.75 from reported disbursements of \$5,969.64, we reach an estimated expense of operation and maintenance, exclusive of taxes, interest, and depreciation, of \$3,732.89 for the half year. The number of phones in use as shown by the table on an earlier page was as follows:

	July 1, 1911	Jan. 1, 1912
Excluding switching service.....	313	361
Including switching service.....	379	500

It is evident that little can be learned from the records of the utility as to the actual and normal cost of conducting the business. There seems to be no question but that the estimate made above, \$3,732.89 operating expenses for a half year, is very much higher than normal expenses for such a period. Some idea of normal expenses of operation may be gained from a summary of expenses for a number of exchanges in the state. Following is such a summary for exchanges of the Wisconsin Telephone Company and for class B independent utilities:

EXPENSES PER PHONE INSTALLED
NOT INCLUDING TAXES, INTEREST AND DEPRECIATION

	Wis. Tel. Co.		Independents	
	1910	1911	1910	1911
Minimum.....	\$4 46	\$4 38	\$3 81	\$5 26
Maximum.....	20 40	17 81	17 29	17 21
Average.....	10 85	9 73	9 31	9 89
Median.....	10 11	9 32	8 65	9 44

With the exception of the switching service and a very few instances in the city of Plymouth all service is single party.

This makes comparison with the greater number of independent utilities of little or no value for purposes of this decision. Probably the fairest comparative unit costs are the costs of exchanges of the Wisconsin Telephone Company of about the same size as the Plymouth exchange. The following is a summary of central office expenses per phone installed and of total operating expenses, excluding taxes, interest, and depreciation per phone installed for exchanges of from 250 to 600 phones, based on reports for 1910.

	Central office expense per phone	Total oper. expenses per phone
Minimum.....	\$1 69	\$6 85
Maximum.....	3 64	13 30
Average.....	2 87	9 41
Median.....	2 77	9 15

Under the circumstances existing in this case the only method of testing the reasonableness of the prospective increase in rates is to assume that expenses are about the same as normal expenses of other utilities under substantially similar operating conditions. It is probably fair to assume that there is some relation between number of phones to which switching service is supplied and central office expenses, and between the number of phones and part of the general and undistributed expenses. Owing to the fact that such phones are on rural lines, each of which lines has a rather large number of phones connected, the central office expense per phone will hardly be as high as the average expense per phone as shown by the summary of eighteen exchanges of the Wisconsin Telephone Company. The almost complete use of single party service in the city of Plymouth may also cause total expenses per phone to be somewhat higher than in the case of the Bell exchanges used for comparative purposes. For the purpose of this estimate of expenses it will probably be fair to assume that operating expenses will be as shown in the following table, based on the installation of Jan. 1, 1912:

No. of phones	Ave. exp. per phone	Total exp.
361.....	\$10 00	\$3,610 00
139.....	3 00	417 00
		\$4,027 00

Taxes for the past fiscal year amounted to \$197.51. With a cost new of \$18,831 and present value of \$15,345, interest and depreciation would require from \$2,171.58 to \$2,562.19, according to the point at which the value of the property is finally fixed. According to these computations the utility is in need of a total revenue of from \$6,397 to \$6,787.

The next table contains a statement of probable revenues under present and proposed rate schedules, based on the installation as of Jan. 1, 1912:

Number of subscribers.	Present rates		Proposed rates	
	Annual rate	Annual revenue	Annual net rate	Annual revenue
96.....	\$21 00	\$2,016 00	\$20 00	\$2,880 00
233.....	13 20	3,075 60	18 00	4,134 00
7.....	31 20	218 40	42 00	294 00
6.....	27 60	165 60	39 00	254 00
1.....	42 00	42 00	57 00	57 00
5.....	15 20	81 00	24 00	120 00
4.....	14 40	57 60	18 00	72 00
2.....	1 80	3 60	1 80	3 60
139.....	3 00	417 00	3 00	417 00
3.....	6 00	18 00	6 00	18 00
		\$6,094 80		\$8,269 60

According to this statement, revenues, as they would result from the proposed schedule, would be considerably in excess of the needs of the utility, although some increase should probably be made. Following is a table showing the annual rates for the principal classes of service, for the 18 exchanges of the Wisconsin Telephone Company which have been used in previous summary tables:

Exchange	Business		Residence	
	1 party	2 party	1 party	2 party
1.....	\$30 00	.....	\$18 00	.....
2.....	"	.....	"	.....
3.....	"	.....	"	.....
4.....	"	\$24 00	"	\$15 00
5.....	"	.....	"	.....
6.....	"	24 00	"	15 00
7.....	"	.....	"	.....
8.....	36 00	30 00	24 00	18 00
9.....	18 00	.....	18 00	.....
10.....	36 00	30 00	24 00	18 00
11.....	30 00	24 00	18 00	15 00
12.....	"	.....	"	.....
13.....	"	.....	"	15 00
14.....	"	.....	"	.....
15.....	"	24 00	"	12 00
16.....	42 00	30 00	24 00	18 00
17.....	30 00	24 00	18 00	15 00
18.....	"	24 00	"	15 00

As far as such a comparison can be accepted as indicative of the reasonableness of rates, the net rates of the proposed schedule do not seem to be unreasonable. The reasonableness of the suggested schedule, however, must be determined with reference to local conditions and actual cost of operation. As already stated, the records of the utility do not show what are the actual costs of operation, but it hardly seems that this fact should warrant the adoption of a schedule of rates, higher than a reasonable estimate of expenses shows to be necessary. In the absence of adequate records we are obliged to resort to estimates, and our estimates do not show that the utility is in need of rates as high as those proposed.

We have no means of knowing how many patrons will change from single party to two-party service, and what effect this will have upon total revenues, but it is only reasonable to assume that a number of patrons will choose two-party service at a lower rate in preference to single party service at a higher rate.

If net rates for single party business and single party residence are fixed at \$24 and \$15 per year, respectively, instead of at the amounts asked by the utility, total annual revenues will be \$1,275 less than under the proposed schedule, using as a basis of computation the installation as of Jan. 1, 1912. Total revenues would be \$6,994.60, somewhat above our estimate of necessary expenses. The use of two-party service, however, will undoubtedly somewhat decrease total revenues.

Another factor to be considered is the effect of additional business upon expenses and revenues. The business of the utility is growing rapidly and its officials estimate that about 500 local subscribers will be served within a year. Just what effect this will have upon rates which will be equitable after such growth of business has taken place, cannot now be stated, but for the purposes of this case it seems best to deal with the installation as of Jan. 1, 1912.

Where a business and a residence phone are on the same line, it seems that the two-party business and residence rates may be applied, rather than a special rate dealing with such service as a separate class. A schedule made up as outlined above, without consideration of additional two-party service, would yield revenues as follows:

Class of service	No. of phones	Annual rate	Revenue
1 party business.....	102	\$24 00	\$2,448 00
2 " ".....	8	21 00	168 00
1 " residence.....	238	15 00	3,570 00
2 " ".....	9	13 20	118 80
Rural.....	4	18 00	72 00
Business extensions.....	0	9 00	54 00
Residence.....	0	0 00	30 00
Extension bell.....	2	1 80	3 60
Rural switching.....	139	3 00	417 00
Toll-drops.....	3	6 00	18 00
Total revenue.....			\$6,899 40

If one-third of all business and residence users at present using single party service change to two-party service, total annual revenues will be reduced approximately \$350. It is not improbable that as many as a third of the patrons will choose the two-party service, which would reduce the estimated total revenues to about \$6,550 per year, or very nearly the estimated cost of the service.

There seems to be no doubt that some increase is needed. If records had been properly kept it would be possible to state just what the increase ought to be. It is the duty of the utility to conform to the uniform classification of accounts prescribed by the Commission. Until its accounting system is brought into conformity with the Commission's requirements, no increase in rates will be authorized. The Commission will offer its assistance in outlining and installing a proper accounting system, and when such a system is placed in effect advances in rates may be made as outlined in the last preceding table.

IT IS THEREFORE ORDERED, That the Plymouth Telephone Exchange make such changes in its methods of accounting as may be necessary to make such methods conform to the standards prescribed by this Commission.

That when such changes in accounting methods and procedure have been made, the Plymouth Telephone Exchange may discontinue its present schedule of rates, tolls and charges, and substitute therefor the following schedule:

Class of service	Monthly rate	
	Gross	Net
Business—1 party	\$2.25	\$2.00
Business—2 party	2.00	1.75
Residence—1 party	1.50	1.25
Residence—2 party	1.25	1.10
Rural	1.75	1.50
Business extensions .....	.75	.75
Residence extensions .....	.50	.50
Extension bells .....	.15	.15
Rural—switching .....	.25	.25
Toll-drops .....	.50	.50
Outside move	1.00	.....
Inside move .....	.50	.....
Change from wall to desk or vice versa	2.00	.....

Net rates to be applied where bills are paid on or before the 16th of current month at the office of the utility.

HIGGINS SPRING AND AXLE COMPANY

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Decided May 4, 1912.

Complaint was made of exorbitant charges on shipments of vehicle springs and axles in less than carload lots from Racine and Racine Junction to Green Bay and Oshkosh, Wis., on which respondent railway exacted the class rate applicable thereto. For several years previous, respondent had in effect a commodity rate of 16½ cts. per cwt. and subsequently this rate was re-established.

Held: The rate exacted was exorbitant and a reasonable rate would have been 16½ cts. per cwt. Refund is ordered on this basis.

The petitioner is engaged in the manufacture and shipping of vehicle springs and axles and various other iron and steel articles at Racine, Wis. It alleges that previous to Aug. 15, 1911, the respondent railway company had a rate in effect from Racine and Racine Junction to Green Bay and Oshkosh of 16½ cts. per cwt. on vehicle springs and axles in less than carload lots, which rate had been in effect for a number of years, but was canceled by respondent's tariff G. F. D. 8115-E on said date; that on and between Aug. 11, 1911, and Sep. 14, 1911, the respondent made a number of shipments of springs and axles in less than carload lots to Oshkosh, and was charged therefor the class rate applicable thereto; that at the rate of 16½ cts. per cwt. the charge would have been \$16.88 less than was actually paid by petitioner upon said shipments. Wherefore, petitioner prays that the respondent be authorized and directed to refund to it the said sum of \$16.88.

The respondent railway company, answering the petition, admits all the formal allegations thereof, and states that it has published a tariff, being No. 7 supplement to G. F. D. 8115-E, which became effective March 30, 1912, establishing a rate of 16½ cts. per cwt. on shipments of the character in question, but the respondent denies that the former charge was erroneous, illegal, unusual or exorbitant.

The claim was submitted upon the papers, pleadings, and documents on file.

This is one of a number of claims for reparation made by the petitioner against the respondent and also the Chicago, Milwaukee & St. Paul Railway Company because of the cancellation of the rate of 16½ cts. per cwt. on articles shipped by it from Racine to the points mentioned. For several years previous to Aug. 15, 1911, the respondent published a rate of 16½ cts. per cwt. on less than carload shipments from and to the points named. This rate was eliminated in tariff G. F. D. 8115-E, effective Aug. 15, 1911, but was again made effective March 30, 1912, in item No. 790 of supplement No. 7 to this tariff. The same was approved by the Commission on Feb. 15, 1912.

The class rate which was applied to the shipment in question was 25 cts. per cwt.

We find and determine that the rate of 25 cts. per cwt., exacted by the respondent railway company, was exorbitant and that the reasonable rate that should have been charged was 16½ cts. per cwt.

NOW, THEREFORE, IT IS ORDERED, That the Chicago & North Western Railway Company be and the same is hereby authorized and directed to refund to the petitioner, the Higgins Spring & Axle Company, the said sum of \$16.88.

MILWAUKEE BAG COMPANY

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY,
WAUPACA-GREEN BAY RAILWAY COMPANY.

Decided May 6, 1912.

Petitioner alleges excessive charges on carload shipments of burlap bags from Milwaukee to Stevens Point, Granite and Amherst, Wis., respectively, on which respondent railway exacted the fourth class rate. At the time the shipments moved respondent had in effect a rate of 15 cts. per cwt. on burlap bags from Chicago to the points named, while on other lines this rate was in effect from Milwaukee to those points. Later respondents established this rate from Milwaukee to the points in question. The rate exacted on the shipments in question was due to an error in the publication of respondent's tariff.

Held: Four of the cars in question arrived at their destination more than a year before the petition was filed, and as regards them the claim is barred by limitation of the statute. The class rate exacted of petitioner was unusual and exorbitant and the reasonable rate applicable to such shipments is 15 cts. per cwt., as subsequently made effective. Refund is ordered on this basis upon those items of the claim which have not been barred.

The petitioner is a corporation engaged in importing burlaps and manufacturing bags, at Milwaukee, Wis. It alleges that on and between Oct. 27, 1910, and Feb. 16, 1911, it shipped four cars of burlap bags from Milwaukee to Stevens Point, Wis., on which it was assessed charges at the rate of 21 cts. per cwt., which is the fourth class rate; that on and between Jan. 21 and April 12, 1911, it shipped four cars of burlap bags from Milwaukee to Granite, Wis., on which it was charged at the rate of 20 cts. per cwt., which is the fourth class rate; and that on Aug. 16, 1911, it shipped one car of burlap bags from Milwaukee to Amherst, Wis., on which it was assessed charges at the rate of 21 cts. per cwt., which is the fourth class rate; that at the time said shipments moved the respondents carried in their tariff G. F. D. 12200 a rate of 15 cts. per cwt. from Chicago to the aforesaid points, and that later they established said rate from Milwaukee to said points in supplement No. 19 to said tariff;

that said rate of 15 cts. per cwt. was in effect on other lines from Milwaukee to said points of destination at the time said shipments moved; that the charges assessed by the respondents were excessive and unreasonable to the extent that they exceeded the established rate provided in said supplement 19; that the total amount of the excess charge on said shipments is \$160.46, for which the petitioner asks reparation.

The respondents, answering the petition herein, admit all the formal allegations thereof and allege that the rates exacted from the petitioner for the shipments mentioned in the petition were due to an error in the publication of the tariff, and that upon discovering such error they immediately corrected the same. They deny that the rates exacted of the petitioner were excessive and unreasonable, and say they are willing to make reparation solely upon the ground that the publication of the higher rates from Milwaukee than contemporaneously maintained rates from Chicago was due to an error.

The claim was submitted upon the pleadings, papers, and documents on file.

From an examination of the records it appears that four of the cars in question arrived at destination more than a year prior to the filing of the claims for reparation and they are therefore excluded by the statute. These included the following shipments: P. M. car No. 53749, arrived at Granite Jan. 23, 1911; M. C. car No. 47723, arrived Stevens Point Oct. 29, 1910; E. L. car No. 64520, arrived Stevens Point Dec. 4, 1910; and A. C. L. car No. 27934, arrived Stevens Point Feb. 1, 1911.

The claim herein was filed with the Commission on Feb. 17, 1912, hence the four shipments reaching their destination more than a year prior to Feb. 17, 1912, must be excluded from consideration.

The remaining cars were billed one from Milwaukee to Amherst at 21 cents per cwt., three from Milwaukee to Granite at 20 cts. per cwt., and one from Milwaukee to Stevens Point at 21 cts. per cwt. The rates thus assessed were the fourth class rates as provided in the western classification, which applied from and to the points named as provided in tariff M. St. P. & S. S. M. G. F. D. No. 12200, which was in effect at the time the shipments in question moved. The same tariff, in item No. 15 thereof, named a commodity rate of 16 cts. per cwt. on burlap bags in carload lots from Chicago, Ill., to the points to which

the shipments in question moved. Such rate was made applicable from Milwaukee on Jan. 10, 1912, in supplement No. 19, as stated in the petition.

The following is a statement showing shipments on which refund may be lawfully authorized in this proceeding:

From	To	Date	Way bill No.	Car initial	Car No.	Weight	Rate, cts.	Charges	Rate as claimed, cts.	Charges	Claimed over-charge
Milwaukee.....	Amherst....	1911 8-16	3056	GH & BA	34534	39650	21	\$33.27	15	\$59.48	\$23.79
".....	Granite.....	2-21	F358	ML&T	32663	33594	20	67.20	15	50.39	16.81
".....	".....	3-22	F380	Soo	106678	30000	20	60.00	15	45.00	15.00
".....	".....	4-12	F215	WC	30726	30947	20	61.89	15	46.42	15.47
".....	Stevens Point.....	2-16	2510	BR&P	441	31134	21	65.38	15	46.70	18.68
Tot a ₁								\$337.74		\$247.99	\$89.75

We find and determine that the class rate exacted of the petitioner upon the aforesaid shipments was unusual and exorbitant, and that the reasonable rate that should have been in effect and applicable to such shipments is the rate of 15 cts. per cwt. The amount of the overcharge upon those items of the claim which have not been barred by the statute of limitations is \$89.75.

NOW, THEREFORE, IT IS ORDERED, That the Minneapolis, St. Paul & Sault Ste. Marie Railway Company and the Waupaca-Green Bay Railway Company be and the same are hereby authorized and directed to refund to the petitioner the said sum of \$89.75.

TORREY CEDAR COMPANY

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted March 12, 1912. Decided May 7, 1912.

Complaint was made of the rate of $5\frac{1}{2}$ cts. per cwt. exacted by respondent railway on four carload shipments of poles and posts from Elmhurst to Clintonville, Wis., for concentration and reshipment. Refund is asked of the excess overcharges based on a rate of 4 cts. per cwt. The western trunk line rules, which govern respondent's tariff, provide for an allowance of 500 lbs. per car for standards, strips and supports. This allowance was not made in the present case and petitioner asks for a further refund on this basis. At the time the shipments moved, respondent had in effect a rate of $4\frac{1}{2}$ cts. on poles and posts for concentration and reshipment from Pratt Junction to Clintonville, to which Elmhurst is intermediate.

Held: There appears to be no reason whatever why the Pratt-Clintonville rate of $4\frac{1}{2}$ cts. per cwt. should not be made the maximum at all intermediate points, including Elmhurst. Refund is ordered on this basis. An allowance of 500 lbs. on each car for stakes should have been made and a further refund is ordered to cover this allowance.

The petitioner is a corporation engaged in the lumber and timber business at Clintonville, Wis. It alleges that on and between Nov. 16, 1911, and Dec. 1, 1911, it shipped four carloads of poles and posts over the lines of the respondent railway company from Elmhurst, Wis., to Clintonville, Wis., to be reshipped over the lines of the respondent railway company to other points; that the total weight of said shipments was 162,900 lbs., on which the respondent exacted of the petitioner the sum of \$89.75, as per its tariff G. F. D. No. 11590-B; that such charge was based on a rate of $5\frac{1}{2}$ cts. per cwt., which was excessive, unreasonable and unjust insofar as the same exceeded 4 cts. per cwt., and an allowance of 500 lbs. on each car for stakes and extra equipment; that the fair and reasonable charge for such shipments would have been at the rate of 4 cts. per cwt., or \$25.49 less than was actually charged therefor and paid by the petitioner.

The respondent railway company, after admitting all the formal allegations of the complaint, denies that the rate of $5\frac{1}{2}$

cts. per cwt. was excessive, unreasonable or unjust. The respondent alleges that at the time said shipment moved, it published a rate in its tariff G. F. D. No. 11590-B of $4\frac{1}{2}$ cts. per cwt. from Pratt Junction to Clintonville on poles and posts, and that Elmhurst is an intermediate station; and that the respondent is willing to adjust the claim upon the basis of $4\frac{1}{2}$ cts. per cwt. if authorized thereto.

The matter came on for hearing on March 12, 1912. The petitioner was represented by *H. W. Anthes*, and the respondent by *C. A. Vilas*, its general attorney.

The complaint in this case is directed against the rate of $5\frac{1}{2}$ cts. per cwt. on posts and poles for concentration and reshipment over the respondent lines from Elmhurst to Clintonville. The petitioner asks for a refund of excessive charges on four shipments of posts and poles for concentration and reshipment covered by billing as follows:

Date of way bill	Waybill number	Car No.	Weight charged.	Rate charged, cts. per cwt.	Charges paid.
1911					
Nov. 16.....	6	14127	43,400 lbs.	5½	\$23 87
" 21.....	8	52433	46,500 "	5½	25 58
" 22.....	11	50305	32,000 "	5½	17 60
Dec. 1.....	1	37329	41,000 "	5½	22 70
Total.....			162,900 lbs.		\$89 75

Refund of 500 lbs. per car, making 2,000 lbs. for the four cars, is also asked on account of stakes used on the cars for which no allowance was made by the railroad.

The respondent, in its answer, denies that the rate complained of is excessive, unreasonable or unjust. It, however, admits that at the time the shipments complained of moved there was in effect a $4\frac{1}{2}$ ct. rate on posts and poles for concentration and reshipment via the Chicago & North Western Railway from Pratt Junction to Clintonville, and that Elmhurst is intermediate, and says that it is willing to adjust the complaint on the basis of $4\frac{1}{2}$ cts. per cwt., if permission shall be given therefor.

Examination of tariffs on file with the Commission shows that previous to Aug. 23, 1910, C. & N. W. G. F. D. No. 11590-B, named rates on posts, poles and piling, carloads, for concentration and reshipment via the C. & N. W. Ry. as follows: To

Clintonville from Hunting, Splitrock, Tigerton, Whitcomb and Wittenberg 4 cts. per cwt., Eland Junction $4\frac{1}{2}$ cts., Birnamwood 5 cts. and Aniwa to Pratt Junction, inclusive, including Elmhurst, $5\frac{1}{2}$ cts., and provided that "rates for intermediate stations not shown in the tariff will be the same as shown herein from the next more distant station from which rates are named". Effective Aug. 23, 1910, in supplement No. 3 to this tariff, the rates from Polar, Eleho and Pratt Junction, each of which is beyond Elmhurst, to Clintonville were changed to $4\frac{1}{2}$ cts. The intermediate clause quoted above was not changed. The effect of this reduction in the rate from Pratt Junction, etc., taken in connection with the intermediate provision, was to leave many intermediate stations named in the tariff, including Elmhurst, with higher rates, while the rates from all intermediate stations and sidings not named in the tariff were reduced or made subject to the Pratt Junction, etc., $4\frac{1}{2}$ ct. rate as a maximum. There appears to be no reason whatever why the Pratt Junction-Clintonville rate should not be made the maximum at all intermediate points. The tariff specifically names all the important intermediate shipping points between Pratt Junction and Clintonville while, no doubt, there are many sidings, etc., which are not named. The latter, under the intermediate clause as worded in the tariff, enjoy the advantage of the lowest rate while the important shipping points, including Elmhurst, are excluded.

The $4\frac{1}{2}$ ct. rate should be made effective and apply as a maximum rate from all intermediate points, including Elmhurst. The excessive charges on the four shipments complained of are as follows:

Charges paid 162,900 lbs. at $5\frac{1}{2}$ cts. amounting to.....	*\$89.75
Should be 162,900 lbs. at $4\frac{1}{2}$ cts. amounting to.....	73.31
Excessive charges	<u>\$16.44</u>

In regard to the allowance of 500 lbs. per car for stakes, it appears that the tariff referred to above, C. & N. W. G. F. D. No. 11590-B, is subject to western trunk line rules. These rules, rule No. 1930, in force when the shipments complained of moved, provide for an allowance of 500 lbs. per car for standards, strips and supports. This allowance was not made on the

* Includes an error in extension of 45 cts. on car No. 37329 which should be refunded.

shipments complained of. Under the conditions of the tariff the Chicago & North Western Railway Company should make this allowance and refund the excessive charges without an order. The amount is: 2,000 lbs. at $5\frac{1}{2}$ cts., \$1.10. This sum will be included in the order and when added to the excessive charges given above makes a total refund of \$17.54.

For the reasons stated, we find and determine that the rate of $5\frac{1}{2}$ cts. per cwt., exacted of the petitioner for the foregoing shipments of posts and poles from Elmhurst to Clintonville for concentration and reshipment, is unusual and exorbitant, and that the reasonable rate that should have been in effect and applicable to such shipments is $4\frac{1}{2}$ cts. per cwt. We also find and determine that an allowance of 500 lbs. on each car for stakes should have been made.

Now, THEREFORE, IT IS ORDERED, That the Chicago & North Western Railway Company be and the same is hereby authorized and directed to refund to the petitioner, the Torrey Cedar Company, the sum of \$17.54.

IN RE APPLICATION OF THE LINZY-BROOK TELEPHONE ASSOCIATION FOR PHYSICAL CONNECTION WITH THE CECIL-GREEN VALLEY TELEPHONE COMPANY.

Submitted Sep. 19, 1911. Decided May 8, 1912.

Applicant, the Linzy-Brook Telephone Association, alleges that public convenience and necessity require a physical connection of its system with the system of the Cecil-Green Valley Telephone Co. The applicant furnishes service in and about the villages of Suring, Hintz, Gillett, Moseley and Underhill in Oconto county, and the village of Cecil in Shawano county. The Cecil-Green Tel. Co. operates a system in and about the village of Cecil, Shawano county. Both parties desire the physical connection of their systems, but they refrain from making it without an order of the Commission, because they fear that the Wis. Tel. Co. will sever its connections with their lines. This right is reserved to the Wis. Tel. Co. by its contract with the applicant.

Held: Under the circumstances there seems to be no reason why the order asked for should not be issued. It is ordered that the desired physical connection be established. Sixty days is deemed a reasonable amount of time for compliance with this order.

Application in this matter was filed with the Commission on July 19, 1911. The application shows:

1. That the applicant is a corporation duly organized and existing under the laws of the state of Wisconsin, with its principal business office located at Underhill, Wis., and that it is engaged in the business of furnishing telephone service in and about the villages of Suring, Hintz, Gillett, Moseley and Underhill in Oconto county, and the village of Cecil in Shawano county.

2. That the applicant incorporated in January, 1911, and purchased a portion of the line of the Carter-Waubeno Telephone Company, which company had a physical connection with the toll system of the Wisconsin Telephone Company at Suring, and the applicant is under contract to maintain this connection with the lines of the Wisconsin Telephone Company.

3. That the Cecil-Green Valley Telephone Company operates a telephone system in and about the village of Cecil, Sha-

wano county, and that the applicant has constructed its lines within a short distance of that village.

4. That both the applicant and the Cecil-Green Valley Telephone Company desire to have physical connection of their lines, but that the Cecil-Green Valley Company refuses to enter into such a contract because the Wisconsin Telephone Company has threatened to sever its connection with the Cecil-Green Valley Company if such connection is made.

5. That the applicant has entered into a contract with the Wisconsin Telephone Company covering the connection at Suring, under the terms of which the Wisconsin Telephone Company reserves the right to cancel the contract in case physical connection is made with the Cecil-Green Valley Telephone Company, and that the Wisconsin Telephone Company threatens to cancel the contract if such connection is made.

6. That the applicant obtained proper authority for and has constructed a telephone system in the village of Gillett, in which village the Wisconsin Telephone Company also operates an exchange; that the Gillett Rural Telephone Company has recently been incorporated with its main office at Gillett and has constructed lines east of that village, which lines were not in operation on the date of the application; that the Wisconsin Telephone Company demands of the applicant that it transfer to the Gillett Rural Telephone Company its system in that village to a point about one mile east of the village of Hintz and that it refrain from furnishing telephone service in that territory.

7. That public convenience and necessity require that physical connection be made between the applicant's system and that of the Cecil-Green Valley Telephone Company; that such physical connection will not result in irreparable injury to the owners or other users of the facilities of either of the companies, or be any substantial detriment to the service rendered by those companies.

Hearing was held at Madison, Sep. 19, 1911. Appearances were: For the applicant, *H. H. Behn*, its president, and *Henry Dicke*, its secretary. The Cecil-Green Valley Telephone Company was not represented.

Section 6 of the application, as outlined above, appears to have little or no bearing upon this case. The testimony offered

at the hearing tended to substantiate the statements made in the other sections of the application.

It seems evident that, as stated in the application, both the Linzy-Brook Telephone Association and the Cecil-Green Valley Telephone Company desire to have their lines connected. The testimony shows that both parties would be prepared to make such a connection voluntarily and without waiting for an order from the Commission if it were not that they fear that the Wisconsin Telephone Company will sever its connections with their lines. The contract between the Linzy-Brook Company and the Wisconsin Telephone Company, as stated above, provides that the Wisconsin Telephone Company shall have this right. The Linzy-Brook Company, however, is under obligation to the Carter-Waubeno Company to furnish direct connection, through its Suring exchange, between the lines of the Carter-Waubeno Company and those of the Wisconsin Telephone Company. If the Wisconsin Telephone Company takes advantage of the provision of its contract mentioned above and disconnects from the system of the Linzy-Brook Telephone Association in case that company makes physical connection with the Cecil-Green Valley Company's lines, the applicant will be unable to fulfill its contract with the Carter-Waubeno company.

The hesitation of the Cecil-Green Valley Company is also due to uncertainty about the action which would be taken by the Wisconsin Telephone Company. If the Wisconsin Telephone Company should disconnect from its system, the Cecil-Green Valley Telephone Company would have no long distance connection, unless over the Wisconsin Telephone Company's lines at Suring via the Linzy-Brook lines. Of course, if connection was also broken at Suring the Cecil-Green Valley Company would be almost entirely without long distance service.

This seems to be a case where both parties directly interested in the physical connection are desirous of securing it and are only prevented from doing so because of the attitude of the Wisconsin Telephone Company. The belief was expressed by a representative of the applicant that if physical connection were ordered by the Commission, the Wisconsin Telephone Company would not sever its connections with the companies involved.

Under the circumstances there seems to be no reason why the order asked for should not be issued. If the Wisconsin

Telephone Company disconnects from the Linzy-Brook Telephone Association's lines and from those of the Cecil-Green Valley Telephone Company, following the establishment of physical connection as asked for in this case, those utilities may bring action before the Commission to compel physical connection between their lines and those of the Wisconsin Telephone Company, and the Commission will investigate the reasonableness of such an order.

IT IS THEREFORE ORDERED, That a physical connection be established between the lines of the Linzy-Brook Telephone Association and those of the Cecil-Green Valley Telephone Company.

Sixty days is deemed a reasonable amount of time for compliance with this order.

CITY OF MILWAUKEE

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.

Decided May 20, 1912.

Petitioner alleges that public safety requires the separation of the grades of the tracks of the C. M. & St. P. Ry. Co. and the C. & N. W. Ry. Co. from the grades of certain streets in Milwaukee, Wis., and prays for an order to that effect. Some of the streets are main arteries of travel between the various parts of the city, and the others are busy thoroughfares. All are crossed by two or more steam railway tracks. A portion of the tracks enumerated form freight yards, and in addition to the main line traffic there is a constant switching movement along the various tracks at all hours of the day and night. Blockades of the crossings, with consequent interruptions of street traffic, occur frequently and vary from a few seconds to many minutes. The crossings are often blockaded when the apparatus of the fire department is called into service.

Held: Besides being a great inconvenience, inimicable to the general welfare, the blockades are a direct source of danger. The large number of tracks involved, the many trains, the great amount of switching across the streets and the heavy traffic thereon, all unite to render a separation of grades imperative. In view of certain changes in track arrangement contemplated by the steam railways, the change of grades is confined for the present to the south side of the Milwaukee river. As both the steam railways and the city will profit from the proposed separation of grades, both should share in the expense thereof. Certain portions of the work and of the expense fall naturally to one or the other of the interested parties. The limits of the rights of way of the railways are natural lines of separation between the portions of the work to be laid upon the city and the respective steam railways. The precedent seems fairly well established of having the city assume the expense arising from damage suits. The part of the work falling naturally to the street railway company is the changing of its tracks and appurtenances where necessary and the reconstruction of that part of the roadway occupied by its tracks. If, on completion of the work, it appears that substantial justice has not been done under this apportionment, this matter will then be taken up again, and, if necessary, a new apportionment will be made. The C. & N. W. Ry. Co. and the C. M. & St. P. Ry. Co. are ordered to elevate the planes of their respective roadbeds and tracks as specified by the Commission and to construct subways beneath their tracks at certain crossings. If it becomes necessary to disturb any property belonging to any public util-

ity company, the interested company is to make the required changes within ten days after the receipt of notification from respondent steam railways. The T. M. E. R. & L. Co. is to make all necessary changes to its tracks, poles, overhead equipment and conduits, and do all necessary grading and paving on that part of the roadway included between the outside rail of its tracks and a strip one foot wide on each side thereof. The C. M. & St. P. Ry. Co. and the C. & N. W. Ry. Co. are to do that part of the work lying within the limits of their respective rights of way, and also that lying within the portions of the public thoroughfares included between the portals of the subways, or, where no subway is provided, between the boundary lines of the elevation work extended across such thoroughfares, except such work as is herein laid upon other companies. The city of Milwaukee is to do the remainder of the work and to assume responsibility for any alleged damages to adjacent property or business resulting from this order. Upon the completion of the work herein ordered, the parties shall submit separate, complete, itemized and sworn statements of the actual cost of the work. All the work within the portals of the subways, and all that in connection with the public streets is to be performed under the superintendence of the commissioner of public works, to whom plans and specifications thereof are to be submitted at least ten days prior to commencing the work. If found to be in accordance with the provisions of this order, or, in the absence of specific provisions, if satisfactory to the commissioner of public works, such plans are to be approved by him and the work outlined to be constructed in strict conformity therewith. The Railroad Commission will maintain general supervision over the work and reserves the right to decide any matters of difference between the parties. Any of the parties may at any time refer to the Commission for consideration questions that may arise during the progress of the work. The city is to pass appropriate ordinances to change the grade of all streets, avenues and alleys necessary, and as a condition precedent to the obligations of the railway companies or other parties under this order, to speedily vacate the portions of streets, avenues and alleys specified. Work is to commence upon the elevation of tracks on or before July 1, 1912, is to be continuous, and to be finally completed on or before Dec. 31, 1914. If the work be interrupted by the matters specified as outside the control of respondents, the time during which respondents are so interrupted is to be added to the time given for the completion of the work. When the roadbeds and tracks are elevated and ready for use, all the ordinances of Milwaukee relating to the protection of the public at grade crossings are to cease to be applicable within the limits of the tracks in question, except where grade crossings are still maintained within those limits. Nothing in this order is to be construed as a waiver or surrender by the city of Milwaukee of any of its police powers or of the right at any time hereafter to properly exercise such powers.

In a petition, dated Feb. 21, 1910, the city of Milwaukee, by its common council, prays this Commission for an order directing the Chicago, Milwaukee & St. Paul Railway Company and the Chicago & North Western Railway Company to

separate the grades of their tracks from the grades of the public thoroughfares at Greenfield avenue, Washington street, Mineral street, National avenue, Florida street, Clinton street, Oregon street, Lake street, South Water street, West Water street, Reed street and Hanover street, all lying within the corporate limits; alleging that public safety requires an alteration in said crossings and the separation of the grades of the several streets from the grades of the tracks.

Also a petition was filed with the Commission, by Lorenz & Lorenz and others, containing the same general allegations as those contained in the petition filed by the city.

Also there were filed with the Commission, copies of resolutions passed by the common council of the city of South Milwaukee, by the village boards of East Milwaukee and Whitefish Bay, and by the town supervisors of the town of Oak Creek, endorsing the action of the South Division Civic Association as embodied in the petition of Lorenz and Lorenz.

Due notice of the filing of the petition of the city of Milwaukee having been given to the parties in interest, a hearing was held in the city of Milwaukee on July 12, 1910, and succeeding days, and further hearings were held on July 29, 1910, and on Aug. 3, 1910. At these hearings the city of Milwaukee was represented by City Attorney *Daniel W. Hoan*, the Chicago, Milwaukee & St. Paul Railway Company by its attorney, *H. J. Killilea*, and the Chicago & North Western Railway Company by its attorney, *William G. Wheeler*. *Lorenz & Lorenz*, together with the representatives of various business interests, and a number of private individuals were present and all were given an opportunity to present facts and express their views. In addition to the hearings, there have been conferences between the parties in interest, that have been of material assistance in settling points upon which there were differences of opinion.

A tentative order was submitted to the parties in interest and on March 25, 1912, a hearing was held at Milwaukee at which this order was the subject of discussion. Suggestions were solicited from those interested and various points were argued at some length. As far as possible, the final order conforms to the suggestions that were there offered.

The following facts and statistics were submitted in evidence at the various hearings. It was shown that the city of Mil-

waukee is credited with a population of about \$75,000 people; that the traffic on the streets is correspondingly heavy; and that many freight and passenger trains enter the city each day over the two railways in question, which are the only steam roads serving the city. Some of the streets specified in the petition, namely, Reed street, Clinton street, and National avenue are main arteries of travel between the various parts of the city, and the other streets named are busy thoroughfares. All of the streets are crossed by two or more steam railway tracks as is shown in the tabulation below:

Name of highway	Number of tracks	
	C. & N. W. Ry.	C. M. & St. P. Ry.
1. Greenfield avenue.....	23 tracks	4 tracks
2. Washington street.....	5 "	3 "
3. Mineral street.....	9 "	3 "
4. National avenue.....	23 "	3 "
5. Florida street.....	13 "	4 "
6. Clinton street.....	1 "	4 "
7. Oregon street.....	None	3 "
8. Lake street.....	None	2 "
9. South Water street.....	13 tracks	4 "
10. West Water street.....	None	5 "
11. Reed street.....	1 track	3 "
12. Hanover street.....	None	5 "

A portion of the tracks enumerated form freight yards, and in addition to the main line traffic, there is a constant switching movement along the various tracks at all hours of the day and night, so that many times during the twenty-four hours there are blockades of the crossings with consequent interruptions of street traffic. These blockades vary in length of time from a few seconds to many minutes and at several of the crossings the total time during which street traffic is so interrupted each day runs into hours. Blockades at Reed street and Clinton street sometimes so disarrange the street railway service that the effect of the blockade is felt throughout the entire city. People who are compelled to use these two streets are said to allow from ten to twenty minutes for delays at the tracks, and instances were cited of persons being so delayed as to miss a train or be late to a business engagement, suffering thereby great inconvenience and financial loss.

Besides being a great inconvenience, inimicable to the general welfare, the blockades are a direct source of danger in at least

two ways. In the first place, persons who are in a hurry, are sometimes tempted to save time by climbing over or crawling under the cars, thereby jeopardizing both life and limb. Secondly, the crossings are often blockaded when the apparatus of the fire department is called into service. Forty instances were cited of delays to the department, varying in length from thirty seconds to twelve minutes, the major portion being delays from two to five minutes. There is no need for discussing the element of danger in such delays as it must be admitted generally that promptness is of prime importance in successful fire fighting.

Twenty-five personal accidents, occurring at the crossings or along the tracks in question, were reported to the police department from Feb. 1, 1904, to May 18, 1910. These have been tabulated as follows:

Name of crossing	C. M. & St. P. tracks		C. & N. W. tracks	
	Killed	Injured	Killed	Injured
1. Greenfield avenue.....	1			
2. Washington street.....		1		2
3. Mineral street.....				1
4. National avenue.....		3	1	4
5. Florida street.....		2		
6. Clinton street.....	1			
7. South Water street.....		1		1
8. Reed street.....		5	1	
9. Miscellaneous.....		1		
Total.....	2	13	2	8

To sum up, therefore, it is seen that the large number of tracks involved, the many trains, the great amount of switching across the streets and the heavy traffic along the streets, all unite to render a separation of grades imperative, and no other scheme of protection offers any prospect of a satisfactory solution of the problem of safeguarding the public. Under these conditions, bells, gates, and crossing watchmen are inadequate, and even though they were able to prevent accidents at the crossings, they could not prevent the lengthy blockades, which likewise are a source of public danger. Only a separation of the grades, permitting the two streams of traffic, that along the tracks and that along the streets, to flow safely and uninterruptedly will in any degree meet the situation.

The manner in which the separation of grades may best be accomplished will be determined by the local conditions. The low, flat ground in the vicinity of the contemplated change is unfavorable to track depression and to the construction of viaducts. The most feasible method is to elevate the roadbeds and tracks of the railways above the grades of the streets and partially depress the streets, carrying them under the tracks in subways.

Although the original petition of the city contemplated the elevation of the tracks of the steam railways north of the Milwaukee river as well as on the south side, it was decided after conferences with the parties in interest, that, in view of certain changes in track arrangement contemplated by the steam railways, it probably would be better if the change of grades was confined for the present to the south side. This arrangement will require, for the time being, grade crossings at West Water street and South Water street.

The reasoning followed in arriving at a distribution of the cost of the contemplated separation of grades is similar to that followed in the case of the Mill street crossing at La Crosse (*In re Mill St. Ry. Crossing*, 1912, 8 W. R. C. R. 422), concerning which an order of this Commission was recently issued. The steam railways on one hand and the city of Milwaukee on the other are of direct benefit to one another, the prosperity of the city depending upon good transportation facilities and the prosperity of the steam railways depending upon securing the transportation business of such cities. If no method of grade separation were possible, it is certain that the city would prefer present conditions to the entire removal of the tracks from the city, the existence of the grade crossings being a lesser evil than total lack of transportation facilities.

The benefits of the grade separation will accrue to both the steam railways and the city. Quoting from the introduction to "Track Elevation, City of Chicago": "After the first experiment of operating trains on an elevation was tried, it was but a short time before other railroad officials, recognizing the advantages of rapid movement of their trains within the city limits, the economy of operation, and the elimination of damage suits, came to realize that it would be to their advantage to follow the example and do likewise". The city of Milwaukee, as a whole, will feel the benefit of the separation in better train

and street railway service and in the freedom from delay and danger at the crossings. As both the steam railways and the city enjoy benefit from the existence of the tracks and will enjoy benefit from the separation of the grades as proposed, both should share in the expense.

The proportion of the expense to be borne by each of the interested parties is indicated with sufficient exactness by the natural lines of separation between the various parts of the expense. Certain portions of the work and of the expense appear to fall naturally to one or the other of the interested parties. The limits of the rights of way of the railways are natural lines of separation between the portions of the work to be laid upon them, and also serve to separate the portions of the work falling to the city from those laid upon the steam railways. In regard to the expense arising from damage suits, the precedent seems fairly well established of having the city assume that burden.

In the track elevation work in Chicago, the city assumes responsibility for all claims for alleged damages to adjoining property arising from the proper performance of the work ordered. Likewise, in section 5 of the ordinance passed by the common council of the city of Milwaukee, April 15, 1902, covering the depression of the tracks of the Chicago & North Western Railway, the city of Milwaukee assumes responsibility for "any damages to adjacent property or business caused by the passage or execution of this ordinance, or by the contemplated filling, elevation, depression or change of grade of any public avenue, street or alley, or of the tracks or roadbed of said railway company or by the vacation of any street or avenue." It is believed that the reason underlying such assumption of responsibility is that the city is able to secure a more equitable adjustment of claims for damages, real or fancied, than could be secured by the railway companies. Whether or not this be a fact, the arrangement apparently has been successful and may be expected to give satisfactory results in this case.

From the testimony introduced at the hearings, it is evident that the street railway company will benefit greatly by the proposed changes, since it will be relieved from the demoralization of the service that now, owing to delays at the crossings in question, is of frequent occurrence, and since it will further be

relieved from the danger that now exists of having cars struck by the trains. Such relief is believed to justify the apportionment of a portion of the work to the street railway company, and the part falling naturally to that company is the changing of its tracks and appurtenances where necessary and the reconstruction of that part of the roadway occupied by its tracks.

It has been strongly urged by the steam railways that the apportionment of the cost of the work herein ordered, as between the steam railways and the city of Milwaukee, be made upon a percentage basis, assigning a certain percentage of the entire cost to be borne by the railways and a certain percentage by the city. In this connection reference should be made to the able and exhaustive discussion of the subject contained in the brief of counsel for the Chicago, Milwaukee & St. Paul Railway Company. Except for extending this decision to an inappropriate length, such discussion would be here reproduced in full. With commendable diligence and perspicuity counsel has reviewed the apportionments made between municipalities and railways in a number of cities in various parts of the country where similar undertakings have been consummated. It appears that the general practice has been to apportion the cost on a percentage basis, which, according to the engineers quoted by counsel, is preferable to the plan here pursued. In such division of expenses the percentages borne by the municipalities have varied from 20 to 50 per cent; the average being about $33\frac{1}{3}$ per cent. At the present time the Commission prefers to make the apportionment as herein ordered, with the proviso that if, on completion of the work, it appears that substantial justice has not been done under this apportionment, this matter will then be taken up again and, if necessary, a new apportionment will be made.

IT IS THEREFORE ORDERED, That the Chicago, Milwaukee & St. Paul Railway Company and the Chicago & North Western Railway Company elevate the planes of their respective roadbeds and tracks within certain limits of the city of Milwaukee, in manner and upon the conditions hereinafter specified, that is to say:

SECTION 1. *Paragraph 1.* Upon and along what is known as the Wisconsin division of the Chicago & North Western Railway, the roadbed and tracks shall be elevated from a point at or near the north end of the Kinnickinnie river bridge to a point at or near the south end of the Milwaukee river bridge.

Upon and along what is known as the Madison division of the Chicago & North Western Railway, the roadbed and tracks shall be elevated from a point about 75 feet north of Kinnickinnic avenue, where the plane of the roadbed commences to descend to the north, to a point between Washington and Mineral streets, where the tracks of the Madison division connect with those of the Wisconsin division.

Upon and along that track belonging to the Chicago & North Western Railway that is known as the Florida street transfer track and that extends from a point near the Allis station building to a connection with a track belonging to the Chicago Milwaukee & St. Paul Railway, in Oregon street, the roadbed and track shall be elevated from Allis station to the south line of Oregon street. Provided that, if so desired, this track may be removed instead of elevated, in which case those provisions of this and other paragraphs in the present order that would be affected by such a change will be modified accordingly by further order.

Upon and along the tracks of the Chicago, Milwaukee & St. Paul Railway, the roadbed and tracks shall be elevated from a point at or near the north line of Maple street to a point at or near the north line of Fowler street.

Upon and along the tracks of the Chicago, Milwaukee & St. Paul Railway, the roadbed and tracks shall be elevated from a point near Florida street where the passenger tracks and the freight tracks unite, to the east line of First avenue.

The elevation of the roadbed and tracks shall be such that at the various streets, avenues and alleys intersected, the height of the crown of the roadway in the subways above the city datum and the clear head room, shall be in accordance with the specifications therefor contained in the schedule of subways that is a part of this order.

Paragraph 2. City datum, for the purposes of this order, shall be taken as being 54.83 feet below the permanent benchmark upon a stone monument located in the court house square, near the southeast corner thereof, same being the benchmark designated in section 1 of chapter 12 of general ordinances of the city of Milwaukee of 1896.

Paragraph 3. Upon their respective rights of way and within the limits of track elevation specified in paragraph 1 of this section, the steam railway companies may make such changes

in the number, location and alignment of their main tracks, side tracks and switch connections (when their respective roadbeds and tracks shall have been elevated and during such elevation) as may be necessary or desirable in order to comply with the terms of this order; and may carry additional tracks over all intersecting streets, avenues and alleys in the same manner as is herein provided for existing tracks.

SECTION 2. Wherever it may be necessary for the purpose of keeping the embankments supporting the elevated tracks entirely within the lines of the rights of way of the respective companies, suitable retaining walls shall be constructed, except that at certain points hereinafter specified the companies are permitted to construct and maintain their embankments and retaining walls upon certain parts and portions of certain streets. Whenever the retaining walls are of insufficient height to properly protect the right of way and to prevent trespassing thereon, they shall be surmounted with a suitable fence or railing, but whenever said retaining walls are not used at all, the right of way of said steam railway companies shall be fenced or in other wise properly enclosed.

SECTION 3. *Paragraph 1.* All tracks shall be carried across the intersecting streets, avenues and alleys, which by the terms of this order are to be provided with subways, on suitable bridges, and no tracks shall cross at grade any of said streets, avenues or alleys, except where special permission is herein granted for such grade crossings. Said bridges shall consist of one, two, three or four spans and the superstructure thereof shall consist of iron, steel, concrete, or a combination of the same and some suitable method shall be provided that will prevent water, dirt, oil or other substances from dripping from such elevated structure upon the subways beneath. Said bridges shall be supported either on abutments alone or on abutments together with rows of iron, steel or concrete columns where same may be necessary. The abutments shall be constructed within the lines of the railroad right of way and the rows of columns in the center and curb lines of the intersecting avenues and streets as provided in the schedule of subways herein contained. Provided, if it shall be found necessary to construct any retaining or side walls in connection with any approaches to subways, then such walls, of reasonable thickness, shall be constructed within the limits of the street, alley

or way upon which such approach is situated, and the abutments or side walls of the subway itself, reached by such approach, may be correspondingly advanced into the street so as to be in a continuous straight line with the approach wall, and in any such case the other details and dimensions of the subway given in the attached schedule of subways may be changed insofar as may be necessary. And further provided that the footings of retaining walls, abutments and piers may project a reasonable distance beyond the lines of the rights of way of the steam railway companies, under the surface of public thoroughfares.

Paragraph 2. Subways shall be constructed beneath the tracks of the Chicago, Milwaukee & St. Paul Railway Company, where said tracks are intersected and crossed by Greenfield avenue, Washington street, Walker street, National avenue, Florida street, the east and west alley in block 34, Clinton street, Oregon street, the east and west alley in block 10, Lake street, South Water street, Reed street, and the north and south alley in block 16.

Paragraph 3. Subways shall be constructed beneath the tracks of the Chicago & North Western Railway Company where said tracks are intersected and crossed by Greenfield avenue, Washington street, National avenue, Florida street, Clinton street, Reed street, and the north and south alley in block 16.

Paragraph 4. The several subways hereinbefore referred to shall be constructed in accordance with the following schedule:

Subway in Greenfield avenue under the Chicago, Milwaukee & St. Paul Railway and under the Madison division of the Chicago & North Western Railway. (Street 66 feet wide.)

The crown of the roadway in the subway shall be 6.0 feet above city datum. This level shall extend on the west to an intersection with the present surface of the street and on the east to the east portal of the subway. From this level the east approach shall continue by vertical curves and a grade of not to exceed 4.5 feet in 100 feet to an elevation of 13.82 feet above city datum, thence on a level grade across the right of way of the Wisconsin division of the Chicago & North Western Railway; thence by vertical curves and a descending grade of

not to exceed 3.0 feet in 100 feet to an intersection with the present surface of the street.

Width between walls of subway 66 feet.

Width of roadway 42 feet.

Width of sidewalks 12 feet.

The height of the sidewalks at the curb above city datum shall be the same as the height of the crown of the roadway in accordance with the standards of the city of Milwaukee.

Two lines of posts may be placed in the curb lines and inside thereof, and one line of posts in the center of the roadway to support the girders.

Clear headroom 12.0 feet.

Subway in Washington street under the Chicago, Milwaukee & St. Paul Railway and the Chicago & North Western Railway. (Street 76 feet wide.)

The crown of the roadway in the subway shall be 6.0 feet above city datum. This level shall extend to the portals of the subway and thence by vertical curves and grades of not to exceed 2.0 feet in 100 feet to an intersection with the present surface of the street.

Width between walls of subway 76 feet.

Width of roadway 46 feet.

Width of sidewalks 15 feet.

The height of the sidewalks at the curb above city datum shall be the same as the height of the crown of the roadway, in accordance with the standards of the city of Milwaukee.

Two lines of posts may be placed in the curb lines and inside thereof and one line of posts in the center of the roadway to support the girders.

Clear headroom 12.0 feet.

Subway in Walker street under the Chicago, Milwaukee & St. Paul Railway. (Street 76 feet wide.)

This subway is intended merely as an outlet for the few industries lying between the tracks of the two railways, and no attempt will be made to provide for the entire width of the street. The subway shall be located in the center of the street and the abutments and embankments shall be advanced into the street accordingly. The crown of the roadway in the subway shall be 6.0 feet above city datum. This level shall extend

to the portals of the subway and thence by vertical curves and grades of not to exceed 2.0 feet in 100 feet to an intersection with the present surface of the street.

Width between walls of subway 20 feet.
Clear headroom 12.0 feet.

Subway in National avenue under the Chicago Milwaukee & St. Paul Railway and the Chicago & North Western Railway. (Street 76 feet wide.)

The crown of the roadway in the subway shall be 5.0 feet above city datum. This level shall extend to the portals of the subway and thence by vertical curves and grades of not to exceed 2.0 feet in 100 feet to an intersection with the present surface of the street.

Width between walls of subway 76 feet.
Width of roadway 46 feet.
Width of sidewalks 15 feet.

The height of the sidewalks at the curb, above city datum, shall be the same as the height of the crown of the roadway, in accordance with the standards of the city of Milwaukee.

Two lines of posts may be placed in the curb lines and inside thereof and one line of posts in the center of the roadway to support the girders.

Clear headroom 12.0 feet.

Subway in Florida street between Clinton street and Barclay street under the Chicago, Milwaukee & St. Paul Railway and the Chicago & North Western Railway. (Street 75 feet wide.)

The crown of the roadway in the subway shall be 6.0 feet above city datum. This level shall extend at least to the portals of the subway and thence by vertical curves and grades of not to exceed 3.0 feet in 100 feet to an intersection with the present surface of the street.

Width between walls of subway 75 feet.
Width of roadway 45 feet.
Width of sidewalks 15 feet.

The height of the sidewalks at the curb, above city datum, shall be the same as the height of the crown of the roadway in accordance with the standards of the city of Milwaukee.

Two lines of posts may be placed in the curb line inside thereof and one line of posts in the center of the roadway to support the girders.

Clear headroom 12.0 feet.

Subway in the east and west alley of block 34, under the Chicago, Milwaukee & St. Paul Railway. (Width of alley 20 feet.)

The elevation of the roadway in the subway shall be 7.1 feet above city datum, it being understood that the pavement in all alleys in the city of Milwaukee has a 6 inch downward pitch toward the center and that the elevation above referred to is the high point of the roadway. This level shall extend on the west to the east line of Clinton street and on the east to the portal of the subway. Thence by vertical curves and a grade of not to exceed 3.0 feet in 100 feet to an intersection with the present surface of the alley.

Width between walls of subway 20 feet.

Clear headroom 12.0 feet.

Subway in Clinton street under the Chicago, Milwaukee & St. Paul Railway and the Chicago & North Western Railway. (Street 75 feet wide.)

The crown of the roadway in the subway shall be 7.1 feet above city datum. This level shall extend at least to the portals of the subway and thence by vertical curves and grades of not to exceed 3.0 feet in 100 feet to an intersection with the present surface of the street.

Width between walls of subway 75 feet.

Width of roadway 45 feet.

Width of sidewalks 15 feet.

The height of the sidewalks at the curb, above the city datum, shall be the same as the height of the crown of the roadway in accordance with the standards of the city of Milwaukee, except that the sidewalk adjacent to the R. A. Johnson Company may remain at its present elevation, in which case it shall be connected to the sidewalk in the subway by an easy incline, but not by a step or steps.

Two lines of posts may be placed in the curb lines and inside thereof and one line of posts in the center of the roadway to support the girders.

Clear headroom 13.5 feet.

Subway in Oregon street under the Chicago, Milwaukee & St. Paul Railway. (Width of street 75 feet.)

The crown of the roadway in the subway shall be 7.1 feet above city datum. This level shall extend at least to the portals of the subway and thence by vertical curves and grades of not to exceed 3.0 feet in 100 feet to an intersection with the present surface of the street.

Width between walls of subway 75 feet.

Width of roadway 45 feet.

Width of sidewalks 15 feet.

The height of the sidewalks at the curb, above city datum, shall be the same as the height of the crown of the roadway in accordance with the standards of the city of Milwaukee.

Two lines of posts may be placed in the curb lines and inside thereof and one line of posts in the center of the roadway to support the girders.

Clear headroom not less than 12.0 feet.

Subway in the east and west alley in block 10 under the Chicago Milwaukee & St. Paul Railway. (Width of alley 20 feet.)

The high point of the roadway in the subway (see schedule for subway in alley block 34) shall be 9.0 feet above city datum. This elevation is a temporary one adopted in view of the fact that the tracks at this point are not, at this time, being raised to what is intended shall be their final elevation. This elevation of 9.0 feet shall extend to the portals of the subway on each side and thence by vertical curves and grades of not to exceed 3.0 feet in 100 feet to an intersection with the present surface of the alley.

Width between walls of subway 20 feet.

Clear headroom 11 feet.

Subway in Lake Street under the Chicago Milwaukee & St. Paul Railway. (Width of street 75 feet.)

The crown of the roadway in the subway shall be 6.5 feet above city datum. This elevation is a temporary one, adopted in view of the fact that the tracks at this point are not at this time being raised to what is intended shall be their final elevation. This elevation of 6.5 feet shall extend at least to the portals of the subway and thence on the west approach by vertical curves and grades of not to exceed 3.0 feet in 100

feet to an intersection with the present surface of the street, and on the east approach by vertical curves and such grades as may be necessary to intersect the present surface of the street at the west line of Clinton street.

Width between walls of subway 75 feet.

Width between roadway 45 feet.

Width of sidewalks 15 feet.

The sidewalks shall not be depressed, but shall be retained by stone or concrete curbs and protected next to the curb line with iron posts and railings.

Two lines of posts may be placed in the curb lines and inside thereof and one line of posts in the center of the roadway to support the girders.

Clear headroom 12.0 feet.

Temporary subway in South Water street under the Chicago, Milwaukee & St. Paul Railway.

This subway, which is a temporary expedient to provide a passageway for pedestrians until such time as the railroad tracks shall be raised to their final elevation and a permanent subway constructed the entire width of the street, shall be located on the south side of the street, and may be constructed of temporary materials. The Chicago, Milwaukee & St. Paul Railway, at its own expense, shall maintain the subway and shall provide for lighting, draining and cleaning the same satisfactorily. The height of the sidewalk at the curb shall be 9.0 feet above city datum. This level shall extend at least to the portals of the subway and thence on grades of not to exceed 3.0 feet in 100 feet to an intersection with the present surface of the walk.

Width between walls of subway 15 feet.

Clear head room 8 feet.

*Subway in Reed street under the Chicago, Milwaukee & St. Paul Railway and the Chicago & North Western Railway.
(Width of street 75 feet.)*

The crown of the roadway in the subway shall be 7.1 feet above city datum. This level shall extend at least to the portals of the subway and thence by vertical curves and grades of not to exceed 3.0 feet in 100 feet to an intersection with the present surface of the street.

Width between walls of subway 75 feet.

Width of roadway 45 feet.

Width of sidewalks 15 feet.

The sidewalks shall not be depressed but shall be retained by stone or concrete curbs and protected next to the curb line with iron posts and railing.

Two lines of posts may be placed in the curb lines and inside thereof and one line of posts in the center of the roadway to support the girders.

Clear headroom 13.5 feet.

Subway in north and south alley in block 16, under the Chicago, Milwaukee & St. Paul Railway, and the Chicago & North Western Railway. (Width of alley 20 feet.)

The high point of the roadway in the subway (see schedule for subway in alley block 34) shall be 8.1 feet above city datum. This level shall extend at least to the portals of the subway and thence by vertical curves and such grades as may be necessary to an intersection with the present surface of the alley. The approaches are not to extend beyond the south line of Oregon street nor beyond the north line of Florida street.

Width between walls of subway 20 feet.

Clear headroom 11 feet.

SECTION 4. *Paragraph 1.* The Chicago, Milwaukee & St. Paul Railway Company is hereby permitted to elevate its tracks over and across Hanover street, South Water street, West Water street, and Fowler street, without providing subways therein (except the subway for pedestrians in South Water street) and in accordance with the following provisions:

At Hanover street, neither the embankment nor the retaining walls shall extend beyond the limits fixed by extending the lines of the company's right of way in the west half of block 16 across said street. The north track across Hanover street between Florida and Oregon streets may be at grade.

At South Water street, neither the embankment nor the retaining walls shall extend beyond the limits fixed by extending the west boundary line of lot 14, in block 5, and the east line of the north and south alley in block 5 across said street. A subway for pedestrians shall be constructed, maintained, and lighted, as specified in the schedule of subways herein contained.

At West Water street and Fowler street, grade crossings shall be provided for street traffic, and the elevation of the tracks of the Chicago, Milwaukee & St. Paul Railway Company above established street grade shall be not more than 2½ feet

at West Water street and not more than 2 feet at Fowler street. The Chicago, Milwaukee & St. Paul Railway shall raise its freight tracks where they cross West Water street to the same elevation as its passenger tracks.

This permission shall not prejudice the rights of the city of Milwaukee to insist upon the opening of said streets and providing subways for same if at any time in the future the tracks of the railway company shall be fully elevated at or removed from said streets.

Paragraph 2. The Chicago & North Western Railway Company is hereby permitted to elevate its tracks over and across Greenfield avenue, Davidson street and South Water street without providing subways therein, and in accordance with the following provisions:

At Greenfield avenue this permission shall apply only to the tracks of the Wisconsin division of said railway. A grade crossing for street traffic shall be provided, the Chicago & North Western Railway supplying the material required for constructing the fill for the necessary approaches in Greenfield avenue on either side of the crossing.

At South Water street a grade crossing shall be provided for the street traffic.

This permission shall not prejudice the rights of the city of Milwaukee to insist upon the opening of said streets and avenue and providing subways for same if at any time in the future the tracks of the railway company shall be fully elevated at or removed from said streets and avenue.

Paragraph 3. The Chicago & North Western Railway Company will not be required to elevate any of its existing tracks where the same cross Florida street, east of Barclay street; nor where they cross or lie in South Water street; nor where they cross or lie in those portions of Virginia street and Park street lying east of Davidson street; nor where they cross or lie in the alleys in blocks 60 and 61; nor where they lie in Walker street, east of Davidson street; nor where they cross or lie in Davidson street between Virginia street and the north line of Washington street; nor where they cross or lie in Barclay street, between its intersection with Madison street and its southerly end just south of Lapham street; nor where they cross or lie in Maple street, east of Kinnickinnic avenue.

SECTION 5. *Paragraph 1.* At the various streets, avenues and alleys mentioned in this order, where grades are to be changed, the grades shall be connected by vertical curves wherever the difference in the rate of grade exceeds 0.5 feet in 100 feet. The vertical curves shall have a total length of not less than 40 feet, extending at least 20 feet on each side of the point of intersection of said grades.

Paragraph 2. The subways, grade crossings and approaches thereto shall be excavated or raised to the grade established by this order and shall in all other respects be restored as nearly as may be to their condition before being disturbed. Where the streets are already paved or provided with sidewalks, such paving and sidewalks may be restored with the present material if the same is in good condition and suitable for use in the subway and on the approaches thereto; otherwise the roadways shall be paved with a single course of vitrified brick of standard quality, set upon a foundation of hydraulic cement concrete. The curb shall be of sound hard limestone or concrete masonry. The sidewalks shall extend from curb to building line and shall be paved with Portland cement concrete. The curbing, roadway paving, and sidewalks shall be made, finished, and put in place in accordance with the standards of the city of Milwaukee.

Paragraph 3. Provision shall be made for the drainage of the several depressed subways provided for in this ordinance, by the construction of catch basins properly located in or immediately adjacent to said subways, which catch basins shall be connected with and discharge their contents into the adjacent city sewers. Provided that if the lowest point of the surface of any of said subways shall be below the grade of the adjacent sewers, some other adequate means of drainage satisfactory to the commissioner of public works of the city of Milwaukee must be devised and provided by said companies, at their own expense. And further provided that if no city sewer exists on any street, avenue or alley in which a subway is to be built, as herein provided, the city of Milwaukee shall cause a suitable sewer to be constructed and the cost thereof shall be provided for as is customary in the construction of sewers in the city of Milwaukee.

SECTION 6. All water pipes, conduits, sewers, wires and similar structures belonging to the city of Milwaukee, that may

be disturbed, or which it may be necessary to remove or deflect from the position in which they are found, shall be replaced or suitable expedients and arrangements devised and provided to restore them as fully as may be to their former state of usefulness, but the gradient of the sewers shall not be reduced in any event.

All such work as shall lie within the portals of the subway structures of the steam railway companies across the public thoroughfares shall be done by said steam railway companies at their sole expense, but under the immediate supervision and to the satisfaction of the commissioner of public works of the city of Milwaukee; and all such work not so put upon the steam railway companies shall be done by the city of Milwaukee, and at its expense, excepting as such work or its cost may lawfully be put upon third persons or companies.

If it shall become necessary to disturb, move, or deflect any of the conduits, pipes, poles, wires, tracks or other property belonging to the Milwaukee Gas Light Company, the Wisconsin Telephone Company, The Milwaukee Electric Railway and Light Company, or other public utility company, the interested company shall be notified to that effect by the steam railway companies, or either of them, and within ten days after the receipt of such notice, and at its own expense, shall proceed to make the required changes.

SECTION 7. The steam railway companies may, whenever the same shall be necessary in the prosecution of the work which they are herein authorized or required to perform, obstruct temporarily any public street, avenue or alley to such extent and for such length of time as may be approved by the commissioner of public works of the city of Milwaukee, but Reed and Clinton streets shall not be closed both at the same time and neither street shall be closed until twenty-four hours after due notice of such closure has been served upon the street railway company. And they may, whenever the same shall be necessary, erect and maintain temporary structures and false work in any of said streets, avenues and alleys, subject to like approval of said commissioner of public works. And they may, whenever it shall be necessary in the prosecution of the work hereby ordered and during the time that the work is being performed, erect and maintain on their respective rights of way, within the limits of the city of Milwaukee, temporary

offices, temporary sheds for the storage of tools and materials, and temporary outhouses for the convenience of the workmen, such offices, sheds and outhouses to be constructed of wood or of such other material as may be convenient and practicable for said companies.

SECTION 8. *Paragraph 1.* The grade of all streets, avenues and alleys that must be changed in order to comply with the provisions of this order shall be so changed and the city shall pass appropriate ordinances therefor.

Paragraph 2. As a condition precedent to the obligations of the railway companies or other parties under this order, the city of Milwaukee, by appropriate action of its common council and by all other proceedings necessary to that end, shall speedily vacate the following portions of the following named streets, avenues and alleys in said city:

All that portion still unvacated of the east and west alley in block 81, lying between the west line of Davidson street and the west line of lot 1 of said block, extended south across said alley.

All that portion of Mineral street lying between the west line of Davidson street and the west line of lot 2, block 81, extended north across said street.

All that portion of the east and west alley in blocks 94 and 95, lying between the west line of Davidson street and the west line of lot 11, block 94, extended north across said alley.

All that portion of Walker street lying between the west line of Davidson street and the east line of the right of way of the Chicago, Milwaukee & St. Paul Railway.

All of the east and west, and north and south alleys in block 96.

All of the east and west alley in block 97, lying between the east line of said block and a line at right angles to and extending across said alley in a northerly direction from the point where the south line of said alley intersects the west line of the right of way of the Chicago, Milwaukee & St. Paul Railway in lot 10 of said block 97.

All of the east and west, and north and south alleys in block 111.

All that portion of Pierce street lying between the west line of Davidson street and that portion of said street that was vacated in 1899,

All of the east and west alley in block 59.

All that portion of Park street lying between the west line of Davidson street and that portion of said street that has already been vacated.

All of the east and west alley in block 58.

All that portion of Virginia street lying between the west line of Davidson street and that portion of said Virginia street that has already been vacated.

All of the east and west alley in blocks 57 and 62.

The east half of that portion of the unnamed street between Walker street and National avenue, lying between blocks 96 and 97.

All that portion of the unnamed street between National avenue and Pierce street, lying between blocks 110 and 111.

All that portion of the street or alley between Pierce street and Florida street, lying between blocks 59 and 118, 58 and 117, 57 and 37.

All of the north and south alley east of the unnamed street lying between Walker street and Pierce street, and between said unnamed street and blocks 96 and 111.

All that portion of the north and south alley between Hanover street and Greenbush street, in block 15, lying between the south line of Oregon street and the south line of lot 4, of said block, extended west across said alley.

All that portion of Greenbush street lying between the south line of Oregon street and the south line of lot 9, block 15, extended west across said street.

All of the east and west alley in block 17.

All of the north and south alley in block 5.

The east 20 feet of the east and west alley in block 5.

All that portion of the north and south alley 12 feet wide in lot 14, block 5.

SECTION 9. *Paragraph 1.* When the steam railways shall have elevated their respective roadbeds and tracks in accordance with this order so that the same shall be ready for use, then and thereupon all the provisions of the ordinances of the city of Milwaukee relating to the speed and the length of trains, the number of cars in a train, and the maintenance of gates, flagmen, watchmen, signals and signal towers, and the ringing of bells, shall cease to be applicable to said railways within the limits of the tracks that are elevated by this order, except where

grade crossings are still maintained within said limits. Provided, however, that nothing in this order contained shall be construed as a waiver or surrender by the city of Milwaukee of any of its police powers or of the right at any time hereafter to properly exercise such powers.

SECTION 10. All the work in this order required or authorized to be done upon or in connection with the public avenues and streets of the city, shall be done and performed under the superintendence and subject to the inspection and approval of the commissioner of public works of said city. At least ten days prior to the commencement of any part of such work, the plans and specifications therefor shall be submitted to said commissioner of public works for his examination, and if found to be in accordance with the provision of this order, insofar as this order contains specific provisions, and in the absence of such specific provisions if they shall be satisfactory to the commissioner of public works in regard to matters and details which by this order are left to his discretion and judgment, such plans shall be approved by him and after such approval all of the work outlined and included therein shall be constructed in strict conformity therewith. The Wisconsin Railroad Commission will maintain general supervision over the work and reserves the right to decide any matters about which there may be difference of opinion between the city and the railways, and any of the parties affected by this order may at any time refer to this Commission for its consideration any questions that may arise during the progress of the work.

SECTION 11. The changes herein ordered shall be made by the respondent steam and electric railway companies and the city of Milwaukee as follows:

Paragraph 1. The Milwaukee Electric Railway & Light Company shall, at its own expense, make all necessary changes to its tracks, poles, overhead equipment and conduits, and do all necessary grading and paving on that part of the streets occupied by its tracks, to-wit: all that part of the roadway included between the outside rails of its tracks and a strip one foot wide on each side thereof.

Paragraph 2. The Chicago, Milwaukee & St. Paul Railway Company and the Chicago & North Western Railway Company shall, at their own expense, do all that part of the work lying within the limits of their respective rights of way, and also

all that part of the work lying within those portions of the public thoroughfares that are included between the portals of the subways, or in places where no subway is provided, between the boundary lines of the elevation work extended across said thoroughfares, except such work as is herein laid upon The Milwaukee Electric Railway & Light Company, or other companies.

Paragraph 3. The city of Milwaukee shall, at its own expense, do all that part of the work which has not been laid upon the steam railway companies, The Milwaukee Electric Railway & Light Company, or other companies as herein provided, and shall assume responsibility for any alleged damages to adjacent property or business, caused by the issuance or enforcement of this order or by the proper prosecution of the work herein ordered.

Paragraph 4. Upon the completion of the work herein ordered, the Chicago, Milwaukee & St. Paul Railway Company, the Chicago & North Western Railway Company, The Milwaukee Electric Railway and Light Company, and the city of Milwaukee, shall submit separate, complete, itemized and sworn statements wherein is shown what the actual cost of said work has been to the company submitting the statements.

SECTION 12. The steam railway companies mentioned in section 1 of this order and which are hereby required to elevate their tracks, shall commence the work of such elevation on or before July 1, 1912. And after such work has been commenced the same shall be prosecuted continuously and with all practical diligence and shall be fully and finally completed, on or before Dec. 31, 1914; unless prevented by strikes or riots, or restrained by injunction or other order or process of a court of competent jurisdiction, and the time which said railway companies shall be so prevented as aforesaid shall be added to the time hereby given for the completion of said work, provided said railway companies give notice in writing to this Commission and to the corporation counsel of the city of Milwaukee of the institution of said legal proceedings. The city of Milwaukee shall thereupon have the right to intervene in any suit or proceeding brought by any person or persons seeking to enjoin or restrain or in any manner interfere with the prosecution of said work, and move for a dissolution of such injunction of restraining order, and for any other proper order in such suit.

And it is further distinctly understood that if said companies shall be delayed in the prosecution of said work required to be done under the provisions of this order by reason of the obstruction of pipes, conduits, wires, or other property of private corporations or individuals, as mentioned in section 6 of this order, or by reason of any delay on the part of the city of Milwaukee or of any of its officers in the performance of the duties imposed upon the city and its officers by this order in respect to the work herein required to be done by said railway companies, then and in that case the time which said railway companies shall be so delayed shall be added to the time allowed by this order for the completion of said work.

TOWN OF WESTPORT

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted March 12, 1912. Decided May 21, 1912.

Petitioner alleges that the crossing of the C. & N. W. Ry. in the Town of Westport, a quarter of a mile north of the station at Mendota, Wis., is unsafe and dangerous to human life. At the crossing in question, the railway tracks extend through a rock cut. The overhead bridge for team traffic is constructed at an angle with the highway and as a result the highway makes a very short curve at the east end of the bridge. There is a steep grade on the east approach to the bridge. The sharp turn and steep grade cause heavy loads to tip over; one traveling upon the highway cannot see a train approaching from the north, and horses are often frightened by approaching trains.

Held: The conditions of the crossing should be improved. A larger span can be put in on the correct line of the highway, thus avoiding curves in the roadway; or the approaches and roadway can be widened and graded so as to make the approach on an easy curve instead of a sharp one as at present. The former is the more permanent and desirable method, and appears warranted on account of the importance of the highway. However, such structure is not absolutely necessary to render the highway safe for public travel, and it is left to the town authorities and the railway company to determine which plan shall be adopted. If no agreement can be reached between the parties, the Commission will then decide the question. The C. & N. W. Ry. Co. is ordered to render the crossing under consideration safe and suitable for public travel, to submit to the Commission for approval plans and specifications for the changes required in this crossing as it may agree upon with the town authorities of Westport, and to report to the Commission forthwith in the case of failure to enter into such an agreement. The C. & N. W. Ry. Co. is ordered to furnish all material and labor and perform all of the work necessary in making the changes required. The town of Westport is to pay 20 per cent of the actual cost of labor and material and the C. & N. W. Ry. Co. the remainder. Sixty days is deemed a reasonable time within which changes in the crossing shall be made and the highway opened to the use of the public.

The petitioner is a duly organized township in the county of Dane, and state of Wisconsin. It alleges that the respondent railway company maintains an overhead crossing in said town about forty rods north of Mendota station, being the first crossing of the highway by the railway track north of said station;

that by reason of the overhead bridge at said crossing not being constructed in line with the highway, causing sharp turns at either end of same, and on account of the steep grade on the east approach to said bridge, such crossing is unsafe and dangerous to human life. Wherefore, petitioner prays that such crossing be so altered as to make the highway safe for public travel.

The respondent railway company, answering the petition, denies that the crossing mentioned therein is unsafe or dangerous to human life, and asks that the petition be dismissed.

The hearing was held on March 12, 1912. The town of Westport was represented by *Michael Filbern*, town chairman, and the respondent railway company by *C. A. Vilas*, its general attorney.

The highway in question is located about a quarter of a mile north of Mendota station on the double track line of the respondent railway company. At the point of crossing of the highway the railway tracks extend through a rock cut. The team traffic is carried over the tracks on a steel span with pile approaches. This overhead bridge is not on the center line of the highway, but is constructed at an angle with the roadway in order to more nearly span the tracks at a right angle and thus shorten the length of the span. As a result, there is a very short curve in the highway at the east end of the bridge, and because of the grade in the highway on the approach the condition for teams and automobiles using the highway is dangerous. The sharp curve and heavy grade of the highway approaching the east end of the bridge are the objectionable features of the crossing. It appears that the highway is heavily traveled, that the sharp turn and heavy grade at the east end of the bridge cause heavy loads to tip over; that one traveling upon the highway can not see a train approaching from the north, and that horses are often frightened by approaching trains.

From the testimony taken at the hearing, it appears that the conditions should be improved. This can be done in one of two ways: First, the ends of the present pile approaches can be widened, and the roadway approach on the east can be graded to an easy grade and the roadway widened, making the approach on an easy curve instead of a sharp one as at present. This allows the present bridge to remain in its present

position, and would relieve the objectionable features by improving the approaches. Second, a new and necessarily larger span can be put in, on the correct line of the highway, thus avoiding curves in the roadway on the approaches. This seems to be a more desirable form of improvement, especially as the highway is about to be improved for a distance of one mile on either side of the crossing. The cost of placing a new bridge on the correct line of the highway would be considerable in excess of the cost of making the improvement to the approaches of the present bridge, but the former is the more permanent and desirable method, and appears warranted on account of the importance of the highway.

The estimated cost of erecting a new bridge on the center line of the highway, consisting of an 80-foot span, truss, and 105 lineal feet of pile approach, ought not to exceed \$3,000. This is considering the truss as resting on pile piers at either end. If concrete abutments were erected, their additional cost would be about \$2,800. Added to this would be the cost of removing the present bridge (about \$100), while the timber from the present approach and the two 50-foot plate girders now in use would have a value to the railway company.

The question arises, is it necessary to build a new bridge on the center line of the highway in order to eliminate the dangerous conditions at this crossing? It appears that all objectional features can be eliminated by improving the present bridge as above indicated, although a new structure would be more desirable and more economical in the long run, yet such structure is not absolutely necessary to render the highway safe for public travel. We shall therefore leave the town authorities and the railway company to determine which plan shall be adopted. If no agreement can be reached between the parties, the Commission will then decide the question.

In this connection, we may call attention to the fact that the railway company has neglected to keep its right-of-way fences in repair, and there is nothing to prevent a person from driving over the edge of the deep rock cut on a dark night.

This proceeding is instituted under sec. 1797—12e, which provides that when a petition is lodged with the Commission by the town board of any town to the effect that public safety requires an alteration in the crossing of a highway by a railroad, or its approaches, the closing of a highway crossing and

the substitution of another therefor, the Commission shall determine what alteration in such crossing, approaches, etc., shall be made and by whom made, and shall fix the proportion of cost and expense of such alteration, removal and new crossing, including the damages to any person whose land is taken, to be paid by the railroad company and the municipality in interest.

Now, THEREFORE, IT IS ORDERED:

1. That the Chicago & North Western Railway Company render the crossing of its tracks by the highway in the town of Westport, at the point about one-fourth of a mile north of Mendota station, safe and suitable for public travel upon the highway; that it submit to the Commission for approval plans and specifications for the changes required in said crossing as may be agreed upon by it and the town authorities of the town of Westport, and in case of failure to enter into such an agreement that it report to the Commission forthwith notice of such failure.

2. That the said Chicago & North Western Railway Company furnish all material and labor and perform all of the work necessary in making the changes required in said crossing and the approaches thereto.

3. That the actual cost of said labor and material be and the same is hereby apportioned as follows: The town of Westport to pay 20 per centum thereof, and the Chicago & North Western Railway Company to pay 80 per centum thereof.

Sixty days is deemed a reasonable time within which said changes in said crossing shall be made and the highway opened to the use of the public.

J. H. WENZEL ET AL.

vs.

CLIFTON LIGHT AND POWER COMPANY.

Submitted March 19, 1912. Decided May 24, 1912.

Complaint was made that the electric service of the Clifton Light & Power Co. at Prescott, Wis., is inadequate. Respondent furnishes light and power to its consumers from the auxiliary steam station in Prescott, since its hydro-electric station on the Kinnickinnic river was recently swept away by a flood. Only two-thirds of the customers are on a meter basis; part of these meters are burned out, and the company is without new meters. As the company is without a test meter, it is impossible to ascertain the accuracy of the meters installed. Furthermore, it is impossible for the one man on duty to operate the plant and also test meters on consumers' premises. The generator is badly in need of repair. The superintendent of the plant has been rarely in Prescott or even in communication with the plant. No check has been made of collections nor have any records of plant operation been kept. Protective apparatus is needed on outside lines subject to lightning. While the commercial lighting has been reasonably satisfactory, almost every street lamp is in need of repair.

Held: The inefficient service has been due to a lack of proper supervision. Under the circumstances, too much can not be demanded of the operating company, but it is entirely reasonable that those in charge of the property should be compelled to give more attention to the service rendered than has been the practice in the past. There is enough accumulated work at the present time to make it necessary to have another man to look after the line work, house wiring, meters and collecting, and the services of two men will probably be required until the system is again in first class operating condition. The Clifton Light and Power Co. is ordered to repair and supplement its plant and equipment in the manner specified by the Commission; to install meters on all services and test the same as required by law and the rules of the Commission; to furnish efficient street lamps and keep the same in good operating condition; to keep records of operation; and to comply with all the rules and regulations of the Commission relating to the standard and quality of service. Sixty days is deemed a reasonable time within which to comply with the terms of this order.

The petitioners are residents of the city of Prescott, Wis., and complain that the Clifton Light and Power Company fails to furnish reasonable electric light service for municipal and private purposes in said city, and that it fails to employ a competent electrician to manage its plant.

Hearing was held on March 19, 1912. The petitioners appeared by *J. H. Wenzel*, and the respondent by *B. W. Utman*, its president.

An investigation of the conditions of operation and the service rendered by the Clifton Light and Power Company in Prescott was made by an engineer of the Commission on May 8 to 10, inclusive. At that time the company was furnishing light and power to its consumers from the auxiliary steam station in Prescott, the water power plant on the Kinnickinnic river having been swept away by a flood in the fall of 1911. Before the hydro-electric station was swept away, current was sent to Prescott at 6,600 volts and transformed at that point in the new substation for local distribution at approximately 110 and 220 volts. After a delay of several months following the flood and destruction of the water power station, the auxiliary steam station at Prescott was put in operation. The new equipment installed consisted of the following appliances: Engine, boiler, boiler feed-pump, feed water heater, necessary piping, 6,600 volts three-phase generator, and exciter. The generator and exciter which were carried down the river in the flood were put back into service in the station. The exciter was dried and placed in fairly good condition, but the generator was never satisfactorily overhauled. As a result, trouble was experienced by frequent burn-outs of the armature coils of the generator. Evidently at the time of the last burn-out there were no coils on hand, for the repairs were made by cutting out the defective coil and putting a jumper around it, and in consequence the voltage on the three phases was unbalanced, as was shown by the switchboard volt meter readings, which on the three phases were 112, 118 and 120, respectively.

While it is true that the machine has run for some time without interrupting the service by burn-outs, there can be no assurance that the coils now in the machine will not break down almost any time. The only way to be assured of continuous service is to have the generator completely rewound. For the temporary service it may be that the company should not be compelled to replace the whole set of coils, but nevertheless there should be coils on hand in case of emergencies. From an operating standpoint, it would be unwise to close down the plant to rewind the generator at present, as, under quite favorable conditions, the machine may operate without additional

burn-outs until the hydro-electric plant is put into service. At such time the generator should be overhauled and rewound, if it is to be used in either regular or emergency service. To provide for emergencies in case a burn-out occurs at an earlier date, coils should be on hand and arrangements made for speedy repair in order that the interruption of the service may be as limited as possible.

For the size of the plant, an automatic voltage regulator would be an undue hardship, but with a careful operator at the station good regulation could be obtained. This conclusion applies only to the steam auxiliary station, as it will, of course, be necessary in the hydro-electric station to have an automatic regulator for the different conditions arising in the distribution. The three-phase line from the steam auxiliary station to the distributing substation delivers the 6,600 volt energy to the step-down transformers. This substation is, however, 850 feet or approximately two blocks distant from the auxiliary steam station. At the time of the inspection there was one man to care for the entire system. His duties were varied and numerous, and some of them are enumerated as follows: fireman, engineer, switchboard operator at two stations situated two blocks apart, repair man at station and on the line, lineman, meter-reader, meter-tester, accountant and collector. A dusk to midnight service was being given, and the operator was, of course, required, to be at the plant during such time. All the repair work and outside work had to be done by this one man when the plant was not rendering service.

In the distributing substation are located the step-down transformers and switchboards for control of the circuits. In order to put on the street lights each night or to replace a blown fuse, or to operate any of the switches, the engineer is obliged to be at the substation, and while there the steam station is without any protection or attention.

The distribution system is in fair condition. There are, however, no lightning arresters on any of the lines, the only protective device of any kind in use being inclosed fuses. There is also no lightning arrester on the 6,600 volt leads which extend from the steam auxiliary station to the substation. The only protection on these leads are three 2,500 volt primary cut-outs, such as are in use on distributing transformers. These cut-outs would prove more dangerous than satisfactory in case of a short

circuit or heavy overload on the 6,600 volt leads. An automatic oil circuit breaker would be much more desirable on the generator panel. This is especially true since there are no automatic switches between the generator and the load and since the step-down transformers are located at a station some distance away. The 6,600 volt leads connecting the generator with the switchboard are not in safe condition, because but one man is at the plant during the time of operation. There should be installed three short pieces of 6,600 volt cable connecting the generator with the switchboard.

The auxiliary steam station equipment is located in an old building which was formerly used for similar purposes. The roof of the building is dilapidated, and during hard storms the rain beats into the building, flooding the floor and damaging the electrical equipment and belts. The roof should be repaired in order to obviate any danger that might result from water getting on the floor and equipment.

It appears that the commercial lighting has been reasonably satisfactory during the past few weeks, but the greatest dissatisfaction with the service relates to the street lighting. On two of the three nights that the engineer of the Commission was in Prescott all of the street lights were out of service. On the third night there were fifteen of the fifty lamps out of service. Almost every lamp in service, in addition to the fifteen which are entirely out of service, are in need of repair.

About one-third of the consumers are on a flat rate basis. This is due to the fact that the one man in charge of the plant has not had time to perform his duties as operator and engineer and at the same time to install the meters. As the company is without a test meter, it was impossible to ascertain the accuracy of those meters which had been installed upon the various services. Furthermore, with only one man on duty it would be impossible for him to operate the plant and test meters on the consumers' premises at the same time. An investigation showed that there are seventeen burned out meters and the company is without new meters to put on the services which are now without meters.

As to the management of the plant, it may be said that the inefficient service has been due to a lack of proper supervision. The superintendent of the plant has been rarely in Prescott or even in communication with the plant. No check has been made of collections nor have any records of plant operation been kept.

The demand for power and light in Prescott probably does not exceed 30 or 35 kilowatts under any conditions arising at the present time, and the average gross income per month is only about \$225. Under the circumstances, too much can not be demanded of the operating company, but it is entirely reasonable that those in charge of the property should be compelled to give more attention to the service rendered than has been the practice in the past. The management has not been in touch with the patrons and the only representative of the company in Prescott has no authority to do anything except to operate the plant to the best of his ability. At present, the management promises that the difficulties, both financial and other, under which it has labored will be remedied, and that it is preparing to undertake at once the construction of the hydro-electric plant on the Kin-nickinnic river on the site of the old plant. As evidence of its good faith in the matter, the company has exhibited a contract with a certain interurban company which requires it to construct a 500 kilowatt hydro-electric plant and deliver power to the interurban company within 120 days from April 19, 1912. The contract provides a penalty of \$25 per day for failure to deliver power after the date therein provided.

There is also a provision in the contract imposing a forfeiture on the interurban company in case it is not ready to take the power on the date on which it is agreed to be delivered.

From the investigation and study of the situation, we have reached the following conclusions:

1. While the size of the plant at Prescott might not necessitate keeping two men on the system continually, there is enough accumulated work at the present time to make it necessary to have another man to look after the line work, house wiring, meters, and collecting. The services of two men will probably be required until the system is again in first class operating condition.
2. Meters should be installed on all services.
3. A standard testing meter should be purchased by the company and all meters tested as required by law.
4. Some accurate records of operation should be kept.
5. A new roof should be put on the steam auxiliary station.
6. New cables insulated for 6,600 volts should be installed between generator and switchboard.
7. All street lamps should be overhauled and put in good condition.

8. Suitable protective apparatus should be installed on outside lines subject to lightning.

9. New coils for a. c. generator should be in stock ready for emergencies.

10. Satisfactory regulation can be obtained with careful station operator, and automatic voltage regulator is not necessary.

NOW, THEREFORE, IT IS ORDERED, That the Clifton Light and Power Company be and the same is hereby required:

1. To make such improvements of its plant and distribution system in the city of Prescott as hereinbefore indicated.

2. To install meters on all services and test the same as required by law and the rules of this Commission.

3. To furnish efficient street lamps and keep the same in good operating condition.

4. To keep records of operation.

5. To comply with all the rules and regulations of the Commission relating to the standard and quality of service required of public utilities engaged in furnishing electric current for light and power to the public in this state; a copy of which is hereto attached.

Sixty days is deemed a reasonable time within which the terms of this order shall be complied with by the respondent.

STANDARD LIME & STONE COMPANY

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY,
CHICAGO AND NORTH WESTERN RAILWAY COMPANY,
MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

Submitted Sep. 13, 1912. Decided May 24, 1912.

Petitioner, a manufacturer of lime, etc., at Fond du Lac, Wis., complains of overcharge on a large number of carload shipments of kilnwood, due to the fact that respondents' tariff and classification provide minimum weights per car on wood for fuel that are much higher than the actual weight of such fuel wood than can be loaded. Petitioner subsequently admits that the minimum weight of 36,000 lbs., charged by the C. & N. W. R. and the M. St. P. & S. S. M. R. can be loaded and as regards these respondents the complaint is dismissed. The complaint against the C. M. & St. P. R. is only in reference to cars measuring 34 ft. in length which are not of sufficient cubical capacity to permit the loading of kilnwood to the required minimum weight of 40,000 lbs. An analysis of the box and stock car equipment of the C. M. & St. P. R. shows that the maximum space capacity of the cars complained of cannot exceed 1,800 cu. ft. Inspection of the loading of kilnwood at shipping points shows excess charges due to insufficient space in the cars to load the minimum weight. The maximum dimensions of respondents' cars 34 ft. and under in length, having a space capacity of less than 1,860 cu. ft., are 8 ft. in width, 7 ft. 2½ in. in height.

Held: The minimum weight rule should represent as closely as possible the actual minimum weight that can be loaded in a car. A minimum based on the length of the car only, as provided by the C. M. & St. P. R. Co's tariff, where the other dimensions of cars vary greatly, allows discrimination in the distribution of the various sized cars, as the small capacity cars are loaded only when the larger size cannot be obtained. A minimum weight based on the cubic capacity instead of on the length only of the cars complained of should result in a more equitable distribution of the cars between shippers. It is impossible to load the minimum weight of 40,000 lbs. required by the C. M. & St. P. R. Co. in certain cars having a length of 34 feet and under. The company is ordered to provide a minimum weight of 36,000 lbs. in cars having a length not exceeding 34 ft. when the other dimensions do not exceed 8 ft. in width and 7 ft. 2½ in. in height. Refund is ordered on the basis of the new minimum weight including an excess charge on one of the shipments due to an error in the rate.

The petitioner is a manufacturer of lime, crushed stone, brick and drain tile at Fond du Lac, Wis. The petition sets forth that the above named railway companies are common carriers

engaged in the transportation of persons and property by railroad between points in the state of Wisconsin, and that as such common carriers said railway companies are subject to the provisions of ch. 87 of the Wisconsin Statutes of 1898 and acts amendatory thereto, and are likewise subject to the provisions of ch. 362 of the Laws of 1905 and acts amendatory thereto; and that the tariff and classifications in effect on the lines of the above named respondents provide minimum weights per car on wood for fuel that are unreasonable and are much higher than the actual weight of such fuel wood that can be loaded.

The Minneapolis, St. Paul & Sault Ste. Marie Ry. Co., one of the respondents, answering the petition, says that it has no knowledge or information sufficient to form a belief as to petitioner's occupation and place of business; admits that it is a common carrier engaged in the transportation of persons and property by railroad between points in the state of Wisconsin, and that as such common carrier it is subject to the laws of Wisconsin applying to common carriers; and denies that the tariff and classifications in effect on its line are unreasonable. Wherefore, it requests that the said petition be dismissed.

The Chicago & North Western Ry. Co., in answering the petition, admits that the petitioner is a manufacturer of lime, crushed stone, brick and drain tile in Fond du Lac, Wis.; admits that it is a common carrier engaged in the transportation of persons and property by railroad between points in the state of Wisconsin and that as such common carrier is subject to the laws of Wisconsin; and denies that the tariff and classification in effect on its lines are unreasonable. Wherefore, this respondent prays that said petition be dismissed.

The Chicago, Milwaukee & St. Paul Ry. Co., in answering the petition, states that it has neither knowledge nor information sufficient to form a belief as to the petitioner's occupation and place of business; admits being a common carrier engaged in the transportation of persons and property by railroad between points in the state of Wisconsin; and that, as such common carrier, it is subject to the laws applying to common carriers insofar as same relates to the respondent; and denies that the tariffs and classifications in effect on its lines providing minimum weights per car on wood for fuel are unreasonable or unjust. Further answering the petition, this respondent denies each and every allegation in the complaint not admitted, denied or otherwise

answered. Wherefore, this respondent prays that the petition be dismissed.

The hearing was held at the office of the Railroad Commission on Sep. 13, 1911. The petitioner was represented by *E. H. Lyons*; the Chicago & North Western Ry. Co. by *H. C. Cheyney*; the Chicago, Milwaukee & St. Paul Ry. Co. by *F. G. Wright*, and the Minneapolis, St. Paul & Sault Ste. Marie Ry. Co. by *A. H. Bright*.

The president of the Standard Lime and Stone Company stated that his company had no complaint to make against the C. & N. W. Ry. or the M. St. P. & S. S. M. Ry., as the minimum weights charged by those railroads were reasonable and could be loaded, therefore the complaint, as far as these two companies are concerned, is dismissed.

Witness testified that the complaint against the C. M. & St. P. Ry. Co. was only with reference to certain sized cars measuring 34 feet in length and under, which were not of sufficient cubical capacity to permit the loading of kilnwood to the required minimum weight of 40,000 lbs. He filed a statement covering a number of cars of kilnwood shipped to his company from Oct. 1, 1910, to Sep. 1, 1911, on which he claimed an overcharge of \$90.61, due to the inability of shippers to load the minimum provided by the tariff. He stated that the minimum weights on kilnwood shipments varied with the length of the car, but averred that none of the cars shipped to him over respondent's line could be loaded to their full capacity and that his company was compelled to pay the minimum charge instead of the charges based on actual weights. He named Chippewa Falls, Romadka, Gleason, Irma, Arpin, and Doering as stations on the C. M. & St. P. Ry. from which his shipments were chiefly made, and testified that the wood in question was refuse material and used only as kilnwood. The shipments covered by the complaint were consigned to his company at Knowles, in Dodge county, on the line of the C. M. & St. P. Ry. He stated that the weight per cord varied considerably, due to whether it was shipped green or dry, but estimated that a cord of dry kilnwood, loaded in dry weather, would weigh from 2,500 to 2,700 lbs. Two witnesses who shipped kilnwood to petitioner testified that they were often unable to load their shipments to the minimum weight required by the railway company. They said that the car which was called standard and which was 33 feet long with

a box capacity of 8 feet high and 8½ feet wide could be loaded to the minimum weight of 40,000 lbs., but that a car of the same length, having a box height of 6 feet and a width of 7 feet 10 inches could not be loaded to that weight. They stated that a 36 foot standard car having a box width of 8½ feet and a height of 8 feet can be loaded to its minimum weight of 50,000 lbs., but denied that it was possible at all times to load this weight in a stock car 36 feet long with a box width of 8 feet and a height of 7 feet, on account of the tracks in the corners of the car which prevented its being loaded to its full capacity. They made objections to the use of stock cars for kilnwood loading, claiming that such cars frequently contained considerable manure which was not included in the tare of the car. Witnesses stated that they could not always obtain the size of cars ordered for their shipments and were thus compelled to load such cars as were sent in for them by the railway company which, however, were always loaded to their full capacity. One of these witnesses estimated dry kilnwood to weigh from 2,800 to 3,100 lbs. per cord and regarded 3,000 lbs. as a fair average weight per cord. The witnesses explained their manner of loading kilnwood in the various sized cars and said that every effort was made to load the cars to their visible capacity.

The assistant general freight agent of the C. M. & St. P. Ry. Co. testified that his company had not seen its way clear to adopt the minimum weights established by the C. & N. W. Ry. and M. St. P. & S. S. M. Ry. on kilnwood and said that he did not believe there was any real necessity for it. He stated that his company provided two classes of rates on kilnwood, with three minimums which increased with the length of the car in each class of rates; the higher class of rates carried a low minimum and the lower class a high minimum. The choice of these alternate rates, he claimed, was an advantage to shippers. The minimums given are as follows:

Car length,	High rate minimum.	Low rate minimum.
Under 34 feet.....	24,000 lbs.	40,000 lbs.
34 feet to 40 feet.....	30,000 ..	50,000 ..
40 feet and over.....	36,000 ..	60,000 ..

Witness said that he could not see how shippers were more advantageously served by the C. & N. W. Ry. with a 36,000 lbs.

minimum as compared with the three minimums given above, and he expressed the opinion that shippers did not load the cars to their capacity in a majority of cases; he believed that the remedy rested with the shippers and not with the railway company. Respondent's counsel read a letter addressed to him by J. G. Love, assistant general freight agent of the C. M. & St. P. Ry. at Chicago, in which the statement was made that the smallest cars had a cubical capacity of 1,600 feet and would hold ten cords of wood or 1,280 cu. ft., which, at 3,000 lbs. per cord, would weigh 30,000 lbs., being 6,000 lbs. in excess of the lowest minimum; and that the car would contain 320 cubic feet more room than the cubical measurement of ten cords of wood. The letter also stated that the freight earnings did not materially differ under either class of rates and minimums. Petitioner's witnesses disputed respondent's statements as to the ability to load the established minimums and as to there being but little difference in using either of the grouped rates and minimums, and stated that every car shipped to petitioner was loaded with all the kilnwood that could be placed in it and that it was absolutely impossible to load small lumber line and stock cars to the required minimum weights. Counsel for respondent averred that there were but 143 of such cars in service, but this statement was also disputed by petitioner.

The testimony shows that the complaint lies against the small sized cars furnished petitioner by the respondent for kilnwood shipments and in which it is claimed that the minimum weight provided by the tariff cannot be loaded. Inasmuch as the cubical capacity of the car is of the greatest importance in the case under consideration, a careful analysis of the box and stock car equipment of the Chicago, Milwaukee & St. Paul Ry., as published in the Official Equipment Register, has been made, from which it appears that the respondent has 1,023 cars measuring 30 feet and under in length, 17,335 other cars classified as 34 feet and under in length, 6,612 cars over 34 feet and under 40 feet in length, and 7,320 cars measuring 40 feet and over in length. The width and height of the cars 30 feet and under is not given, the cars classified 34 feet and under vary from 7 feet 10 inches in width by 6 feet in height, to 8½ feet in width by 8 feet in height; the length of this class of cars is, with few exceptions, 33 feet. These cars give a space capacity varying from 1,400 cubic feet to 2,244 cubic feet. Taking into consideration

the larger number of the latter size, about one-half of the whole number of this class of cars gives an average space capacity of about 2,000 cubic feet. Out of a total of 18,358 cars measuring 34 feet and under in length, 7,615 cars have a space capacity of 1,700 cubic feet or less. This latter number does not include the 1,023 cars measuring 30 feet and under in length, the width and height of which are unknown, but whose cubic capacity is probably less than the 34 feet cars. The maximum space capacity of the cars complained of by petitioner cannot, therefore, exceed 1,800 cubic feet. The following statement represents the claims for overcharge in freight presented by petitioner at the hearing:

TABLE I.
SHIPMENTS OF KILWOOD TO KNOWLES LISTED IN PETITIONER'S EXHIBIT A.

Date of shipment 1911	Car initials.	Car No.	Point of shipment.	Actual weight	Min. weight charged.	Rate, cents per 100 lbs.	Charges paid.	Excess charges shown on shipper's exhibit A.	Dimensions of car and capacity in cubic feet.				No. of cords loaded.	Average weight in pounds per cord of shipment.	
									Length	Width	Height	Cubic feet.			
Jan. 15...	C.M. & St. P.	35122	Harris Springs	36,300	40,000	3.5	\$14.00	\$1.29	33'2"	7'10"	6'2"	1,602	11	3,300	
" 20...	"	45214	" "	38,900	50,000	3.5	17.50	3.88	33'6"	8'1"	6'5"	1,738	11½	3,382	
" 22...	"	46420	" "	36,100	40,000	3.5	14.00	1.36	33'	7'10"	6'2"	1,594	11½	3,135	
Mar. 17...	"	1057	" "	46,500	50,000	3.5	17.50	1.32	36'1"	8'6"	7'2"	2,580	13	3,577	
" 27...	"	33814	" "	33,200	40,000	3.5	14.00	2.38	33'2"	7'10"	6'2"	1,602	11	3,018	
" 27...	"	19956	" "	30,900	40,000	3.5	14.00	3.18	33'2"	7'10"	6'2"	1,602	11	2,809	
Apr. 1...	"	32240	" "	32,600	40,000	3.5	14.00	2.59	33'2"	7'11"	6'2"	1,619	11½	2,835	
" 1...	"	11041	" "	40,800	50,000	3.5	17.50	3.22	36'2"	8'7"	7'2"	2,600	15½	2,632	
" 3...	"	8687	" "	40,000	50,000	3.5	17.50	3.50	36'2"	8'7"	7'5"	2,500	15½	2,580	
" 12...	"	18578	" "	29,800	40,000	3.5	14.00	3.92	33'2"	7'10"	6'2"	1,602	11½	2,591	
" 12...	"	19712	" "	34,200	40,000	3.5	14.00	2.03	33'2"	7'10"	6'2"	1,602	11	3,100	
" 12...	"	46190	" "	28,800	40,000	3.5	14.00	3.92	33'	7'10"	6'2"	1,594	11½	2,505	
" 12...	C. M. & P. S.	101340	Port Edwards	42,700	50,000	3.5	17.50	2.55	36'1"	8'6"	7'5"	2,600	11½	3,713	
" 12...	C. M. & St. P.	8649	" "	45,700	50,000	3.5	17.50	1.59	36'2"	8'7"	7'5"	2,600	13½	3,385	
" 21...	"	33828	" "	33,400	40,000	3.5	14.00	2.31	33'2"	7'10"	6'2"	1,602	9½	3,516	
May 4...	"	8349	" "	45,100	50,000	3.5	17.50	1.71	36'2"	8'7"	7'5"	2,600	12½	3,537	
June 2...	"	26047	" "	48,100	50,000	3.5	17.50	.66	34'2"	8'6"	(Open car)		12	4,008	
July 20...	"	38210	Kingsley	37,350	40,000	4	16.00	1.06	33'2"	7'10"	6,2"	1,602	10½	3,557	
Aug. 1...	"	21300	" "	37,300	40,000	4	16.00	1.08	33'2"	7'11"	6'1"	1,597	10½	3,552	
" 24...	"	44566	" "	32,200	40,000	4	16.00	3.12	33'	7'10"	6'2"	1,594	12	2,683	
" 25...	"	33198	" "	38,200	40,000	5.5	22.00	2.99	33'2"	7'10"	6'2"	1,602	11	3,473	
Mar. 25...	C. M. & P. S.	101870	Arpin	43,800	50,000	3.5	17.50	2.17	36'1"	8'6"	7'5"	2,600	16	2,777	
" 30...	"	101232	" "	43,100	50,000	3.5	17.50	2.42	36'1"	8'6"	7'5"	2,600	15	2,873	
Apr. 17...	"	102161	" "	41,000	50,000	3.5	17.50	3.15	36'1"	8'6"	7'5"	2,600	15½	2,645	
Aug. 7...	C.M. & St. P.	47696	Lindsey	31,700	40,000	3.5	14.00	2.90	33'	8'6"	7'2"	2,016	14½	2,186	
" 16...	"	49916	" "	33,200	40,000	3.5	14.00	2.38	33'	8'6"	7'2"	2,016	14	2,371	
" 18...	"	76310	" "	47,200	50,000	3.5	17.50	1.28	46'	8'6"	8'	2,720	20	2,360	
July 21...	"	44524	Crandall	34,400	40,000	4	16.00	2.24	33'	7'10"	6'2"	1,594	10½	3,275	
" 21...	"	44382	" "	33,900	40,000	4	16.00	2.44	33'	7'10"	6'2"	1,607	11	3,081	
Feb. 1...	"	1345	Amelia	45,600	50,000	3.5	17.50	1.54	36'1"	8'6"	7'2"	2,600	14½	3,144	
Apr. 11...	"	37360	Gleason	38,000	40,000	4	16.00	.80	33'2"	7'10"	6'2"	1,602	10½	3,620	
" 17...	"	2123	Dotter's Spring...	37,900	50,000	4	20.00	4.84	36'1"	8'6"	7'2"	2,600	12	3,158	
" 18...	"	47212	Vachreau	37,900	40,000	4	16.00	.34	33'	7'10"	6'2"	1,594	11	3,445	
July 20...	"	30066	Peterson	30,100	40,000	4	16.00	3.96	33'2"	7'11"	6'2"	1,619	10	3,010	
" 25...	"	18016	Quinn's	36,500	40,000	4	16.00	1.40	33'2"	7'10"	6'2"	1,602	11	3,318	
Aug. 2...	"	51400	Progress	37,300	40,000	3.5	14.00	.94	33'	8'6"	7'2"	2,016	12	3,108	
Oct. 29...	C. B. & Q.	92216	Nekoosa	51,000	60,000	3.5	21.00	3.15	41'	8'6"	8'	2,788	18	2,833	
									\$4.01						

¹ Stock cars. Space capacity estimated.

² Overcharge in rate on this shipment \$6, making to total excessive charges \$90.01, excl. overcharge of \$1.60 on car 63778 for which no freight bill was filed.

The weight per cord set forth in the above table varies considerably and may be accounted for by the shape, quality or condition of the wood shipped. Some cars contained more kilnwood than those of a larger cubical capacity. This is probably due to the fact that either the latter cars were not fully loaded, or that deductions were made from the full measurement of the loads to offset the spaces caused by the irregular shape of the wood. Two inspections of the loading of kilnwood were made at the shipping point, the result of which is shown in the following table:

TABLE II.
SHIPMENTS OF KILNWOOD FROM ROMADKA TO GERMANTOWN, MAYVILLE, AND KNOWLES AND COMPUTATIONS BASED THEREON COMPILED BY THE COMMISSION.

These Cars Were Inspected by a Representative of the Commission and Reported Fully Loaded.

Date of shipment.	Car initials.	Car No.	Point of shipment.	Actual weight.	Weight charged.	Rate cts. per 100 lbs.	Charges paid.	Estimate of excess charges due to insufficient space in car to load minimum weight.	DIMENSIONS OF CAR AND CAPACITY IN CU. FT.				No. of cords loaded.	Average weight in pounds per cord of shipment.
									Length.	Width.	Height.	Cu. ft.		
1911 Sept. 20...	C. M. & St. P.	45182	Germantown	34,500	40,000	4	\$16 00	\$2 20	33' 6"	8' 1"	6' 5"	1,738	12	2,875
1912 Jan. 5.....	"	38636	"	36,200	40,000	4	16 00	1 52	33' 2"	7' 10"	6' "	1,602	11½	3,139
Jan. 5.....	"	19416	"	40,400	40,400	4	16 16	none	33' 2"	7' 10"	6' 2"	1,602	11½	3,513
Jan. 5.....	"	48706	"	50,900	50,900	4	20 36	none	33' 2"	8' 6"	7' 2"	2,016	15	3,333
Jan. 5.....	"	31478	Mayville.....	33,300	40,000	3.5	14 00	59	33' 2"	7' 11"	6' 2"	1,619	11½	3,330
Jan. 5.....	"	45266	"	41,900	41,900	3.5	14 67	none	33' 6"	8' 1"	6' 5"	1,738	12	3,491
Jan. 5.....	"	33562	Knowles.....	41,700	41,700	3.5	14 60	none	33' 2"	7' 10"	6' 2"	1,602	11½	3,626
Jan. 5.....	"	21876	"	37,800	40,000	3.5	14 00	77	33' 2"	7' 11"	6' 1"	1,597	11½	3,287
Total.....								\$5 08						

An examination of tables I and II shows that there is a great variation in the weight per cord of kilnwood and that it is impracticable to establish a minimum weight that will suit each individual shipment. The contention of the railway company, that the shipper has the option of using another class of rates with a lower minimum weight, does not eliminate the objectionable features of a minimum weight that is inequitable and rarely possible of accomplishment. We believe that the minimum weight rule should represent as closely as possible the actual minimum weight that can be loaded in a car. From the testimony of witnesses at the hearing and from a close inspection of the loading of other cars of kilnwood at shipping points by one of the Commission's staff, we are of the opinion that the small cars complained of cannot generally be loaded to the required minimum weight. For the purpose of establishing an equitable minimum weight on kilnwood, it is evident that the variations in space capacity of the sized cars complained of in this case should be taken into consideration, as the length of the car only, as provided by respondent's tariff, does not appear to be a proper basis. A minimum based on the length of the car only, where the other dimensions of cars vary greatly, allows discrimination in the distribution of the various sized cars as the small cubic capacity cars are loaded only when the larger size cannot be obtained. A minimum weight based on the cubic capacity instead of on the length only of the cars complained of should result in a more equitable distribution of the cars between shippers and a more satisfactory condition to both the shippers and the railway. The respondent maintained that the lower minimum basis, 24,000 lbs. on cars 34 feet in length and under, at higher rates, takes care of shipments which do not weigh enough to come within the higher basis, 40,000 lbs. at lower rates, and that the charges did not materially differ on either basis. This contention does not seem to agree with the facts in the case, as there is a difference, practically uniform throughout the tariff, of $1\frac{1}{2}$ cts. per 100 lbs. between the high and low minimum rates. Under these rates the charges on a shipment of 40,000 lbs. at the $3\frac{1}{2}$ ct. rate would be \$14, while the charges on a shipment of but 28,000 lbs. at the 5 ct. rate would be \$14. This is a difference of 12,000 lbs. in the weight that would be carried for the same charges at the different rates. It would seem that a more equitable separation of the different

minimums can and should be made, insofar as the cars under consideration are concerned, in connection with shipments of kilnwood. The Official Equipment Register shows that the maximum dimensions of respondent's cars 34 feet and under in length, having a space capacity of less than 1860 cubic feet, are 8 feet in width and 7 feet 2½ inches in height. These, we believe, should be the dimensions at which to make a separation in the minimum weight of this length of car for shipments of kilnwood. The average cubic space in the series of cars 34 feet and under in length is about 2,000 cubic feet, which is 20 lbs. of weight to one cubic foot of space. This basis would result in a minimum weight of about 36,000 lbs. on cars of the above mentioned maximum dimensions. This minimum of 36,000 lbs. agrees with that now in effect on the Chicago & North Western Railway, with which petitioner is satisfied.

From an examination of all the facts in this case we find that it is not possible for shippers of kilnwood to load the minimum weight of 40,000 lbs., required by the respondent, in certain cars having a length of 34 feet and under, and that a reasonable minimum weight for this class of cars would be 36,000 lbs. On the basis of 36,000 lbs. minimum weight, we find that the petitioner is entitled to a refund of \$16.20 on the cars included in table I which come within the dimensions described above. There is also an excessive charge of \$4 on shipment in car No. 33198, due to error in rate. This makes the total excessive charges \$20.20, as shown in the following statement:

Car No.	Actual weight.	Rate.	Charges paid.	Excessive charges on the basis of minimum weight of 36000 lbs.
33814.....	33,200	3.5 cts.	\$14 00	\$1 40
19956.....	30,000	3.5 "	14 00	1 40
32240.....	32,600	3.5 "	14 00	1 40
18578.....	29,800	3.5 "	14 00	1 40
19712.....	34,200	3.5 "	14 00	1 40
46190.....	28,800	3.5 "	14 00	1 40
33828.....	33,400	3.5 "	14 00	1 40
33828.....	32,200	4 "	16 00	1 60
44656.....	34,400	4 "	16 00	1 60
44524.....	33,910	4 "	16 00	1 60
44382.....	30,100	4 "	16 00	1 60
30066.....	38,200	5.5 "	22 00	1 60
33198.....				
	Should	be 4.5 "	18,00	\$16 20
	Am't.	of excess	ive charges	4 00
				\$20 20

¹Tariff authority for rate of 4 cts., claimed by respondent, and applied on other shipments from same point, included in table No. I, cannot be found. 4.5 cts. appears to be the correct rate.

NOW, THEREFORE, IT IS ORDERED, That the respondent Chicago, Milwaukee & St. Paul Railway Company readjust its minimum weights on kilnwood so as to provide a minimum weight of 36,000 lbs. on cars having a length not exceeding 34 feet, where the other dimensions do not exceed 8 feet in width and 7 feet 2½ inches in height.

IT IS FURTHER ORDERED, That the respondent refund to the petitioner the sum of \$20.20, being the amount of freight charges found to be excessive on the shipments complained of in this case.

GEORGE ELLMAN

vs.

ILLINOIS CENTRAL RAILROAD COMPANY.

Submitted March 12, 1912. Decided May 27, 1912.

Petitioner alleges that the I. C. R. Co. refuses to accept perishable goods for shipment from Madison to Belleville, Monticello and Monroe, Wis., except at owner's risk. Refrigerator cars, iced in warm weather and heated in cold weather, are received at Madison and are available for shipments out of Madison at least four days per week. A rule of the Railroad Refrigerator Service Association, effective on respondent's line, provides that agents must not accept less than carload shipments of perishable freight (except subject to tariff rules as to minimum weights), when such freight is liable to be damaged by heat or cold on days when scheduled refrigerator cars are not run, nor on any days for points to which no scheduled refrigerator service is provided, unless shippers make written demand to forward the property in cars without special protection in transit. Respondent's tariff provides that the carrier will furnish ice for the protection of certain products in less than carload lots, when charges are paid on a minimum weight of 10,000 lbs., but there is no provision showing under what conditions ice is furnished for less than carload shipments of fruit and vegetables nor for any perishable freight in less than carload lots other than those named. In order to get an iced car for freight not provided for by this provision of the tariff, shippers must pay carload rate and minimum weight except where there is a regular scheduled service. Another rule of the American Refrigerator Service Association provides that artificial heat, if necessary, should be given at any point when available, governed by rules herein, but subject to the rules and regulations of and charges, if any, published by the individual carriers. There is nothing in the tariff or on file with the Commission that would indicate that there is any charge to shippers for heated car service furnished by carriers.

Held: It is incumbent upon common carriers of property to receive and carry all goods which may be tendered to them for the purpose and which they hold themselves out to carry and undertake to carry, notwithstanding special equipment may be required for the safe transportation thereof. Having undertaken to carry a particular kind of property which requires an unusual service, they must receive the same when offered for carriage, provided, of course, reasonable notice has been given to them so that they may be prepared to furnish the necessary equipment and that there is sufficient traffic of the character to warrant the service, but they cannot impose upon the shipper a contract exempting themselves from their legal liabilities as common carriers. The carrier may charge for

the special service rendered compensatory rates which cover both the cost of the service and the risk incurred on account of the nature of the goods carried. In the absence of any published provision in the western classification or in the uniform bill of lading providing for exemption of its liability as an insurer in any case, the respondent could not lawfully impose such stipulation upon a shipper. Any such provision, if duly published in a schedule, should be an alternative to the right of the shipper to have his goods shipped at the risk of the carrier. Respondent's service in transporting fruit and perishable freight from Madison to the points in question is inadequate. The I. C. R. Co. is ordered to provide iced car service during summer months and heated car service during winter months, when weather conditions require it, for the transportation of fruit and other like perishable commodities from Madison to Belleville, Monticello and Monroe.

The petitioner is engaged in the wholesale fruit business at the city of Madison, Wis. He alleges that the respondent railway company refuses to accept perishable goods for shipment from Madison to Belleville, Monticello and Monroe except at owner's risk.

The respondent railway company, answering the petition, alleges that there is practically no perishable freight to be shipped from Madison to Belleville, Monticello and Monroe on its line, and that the perishable freight that is to be shipped is not enough to warrant the expense of operating a refrigerator car. It denies that it has refused to carry shipments of the petitioner, but alleges that in the extreme cold weather, the condition existing during the period prior to the filing of the petition, it refused to receive such shipments except at the shipper's risk, when it had no heated refrigerator car available, and that this qualified refusal was reasonable and warranted, as it would be unreasonable under the circumstances to require it to provide a heated refrigerator car for shipments offered by the petitioner unless it be permitted to charge greatly increased tariff for such shipments and special service.

The hearing was held on March 12, 1912. The petitioner appeared in his own behalf and the respondent by *Jones & Schu-bring*, its attorneys.

The essential facts brought out at the hearing in the case are substantially as follows: The respondent receives at Madison one or more iced refrigerator cars daily, except Sunday, during the summer and one or more heated refrigerator cars daily, except Sunday, during cold weather, coming from Chicago, but there is a standing order for three of these cars per week, Mordays, Wednesdays and Fridays, to be sent to Monticello

for loading with cheese. In addition to these refrigerator cars received daily, there is a scheduled refrigerator car twice a week, Wednesdays and Fridays, from Freeport to Madison, but these cars very seldom come through to Madison for the reason that there is no perishable freight in the car destined to Madison. There is no scheduled refrigerator or heated car out of Madison, but these empty cars are used to take care of Madison shipments whenever it is possible to do so without interference with the prompt sending of them to Monticello for the regular schedule out of that point and for filling orders for them at that and other points. The refrigerator service out of Madison is somewhat irregular, although the agent for the carrier testified that such service is given practically four days a week during the summer. It seems that there is no heated car service whatever out of Madison and that during cold weather shipments of perishable freight are accepted only at the owner's risk. A considerable part of the hearing was taken up in an attempt to show the cost of operating iced cars and heated cars, and the inability of the company to meet the demand for them because of the limited number available. It was stated that the initial icing of a refrigerator car costs about ten dollars. A car heater, for use in cold weather, costs about twenty dollars, and the charcoal, for fuel, costs about one cent per hour of service. Statements showing the amount of perishable freight shipped out of Madison daily during the year 1911, including shipments by the petitioner, were offered in evidence by the respondent. From these it appears that the total amount of charges on petitioner's shipments during this period was \$156.70. Attorney for the respondents, partially by direct statements and partially by examination of witnesses, attempted to show that the charges on petitioner's shipments during the year 1911 averaged less than 60 cts. per shipment and that out of 262 shipments there were only about 30 on which the charges exceeded \$1, only one or two on which it amounted to \$2, and but one shipment on which it amounted to \$3. Petitioner stated that he had not examined into this, but that there were other shippers besides him. He introduced letters from J. R. Ellis & Sons of Madison and Hoesly & Grinnell and C. L. Chambers of Monroe, in which complaint was made against the service given to perishable goods during cold weather by the respondent. Petitioner, upon the hearing,

stated that he asks for refrigerator service, that is, iced cars in warm weather and heated cars in cold weather, but two days a week, that such cars are received daily at Madison and necessarily must be returned daily and pass through the points to which he wishes service in them, that the iced cars would seldom need re-icing at Madison for the service to Monroe and that the only expense such service would be to the respondent would amount to about 5 cts. per trip for fuel, interest on investment in, and depreciation of heaters. This includes the substance of the matters introduced at the hearing. A representative of the Commission made some further investigation in order to clear up some of the points involved. This investigation brought out the fact that there is no complaint against the summer schedule. This service, it seems, is satisfactory to the petitioner and to all parties interested, the complaint, therefore, is against the service during cold weather only. This was intimated at the hearing, but not clearly expressed.

An examination of tariffs on file with the Commission shows that the rule governing the acceptance of shipments of perishable freight on days when the scheduled refrigerator car is not run, or on any days to points where there is no scheduled refrigerator service, reads as follows:

(Railroad Refrigerator Service Association, Circular No. 27 B, effective July 15, 1911.)

“Rule No. 34, Item No. 117.—WHEN NO SERVICE.—Agents must not accept less than carload shipments of perishable freight (except subject to tariff rules as to minimum weights), when such freight is liable to be damaged by heat or cold on days when scheduled refrigerator cars are not run, nor on any days for points to which no scheduled refrigerator service is provided, unless shippers make written demand to forward the property in cars without special protection in transit. In all such cases, one of the following notations, using the one which is appropriate, must be made on the bill of lading, and such notation must be duly signed both by the shipper and the agent:

“ ‘To be forwarded at owner’s risk of damage by heat or cold.’

“ ‘No refrigerator car protection beyond———’ (showing in blank space the station at which freight will be taken out of scheduled refrigerator cars).

“ ‘No refrigerator car service until arrival at———’ (showing in blank space station at which freight will be transferred into scheduled refrigerator car.)

“The notation employed must be repeated on regular waybill. Agents must not sign ordinary shipping receipts in such

cases, but must issue a bill of lading showing the proper notation as above, signed by both the shipper and the agent.

"Agents must use their best judgment as to whether the weather conditions will permit perishable freight to be moved from loading station to ultimate destination without damage when loaded in box cars or other equipment without special protection.

"In cold weather agents must not undertake to give special protection against frost for only part of the trip, risking damage to the property beyond the point to which such service extends.

"When in doubt agent will report such cases to the official in charge of refrigerator service and ask for instructions before shipments are accepted."

This rule applies on many lines including the Chicago, Milwaukee & St. Paul, Chicago & North Western, Chicago, St. Paul Minneapolis & Omaha, and the respondent line, the Illinois Central Railroad. There is nothing in the files of the Commission to show under what conditions refrigerator cars are operated, or what the considerations are that induce carriers to operate regular refrigerator and heated car service for less than carload shipments of perishable freight. Neither is there anything on file with the Commission to show where such services are maintained. It was shown at the hearing that there is such service daily from Chicago to Madison and twice a week from Freeport to Madison. Nothing was introduced to show why these schedules are maintained. It is presumed that the amount of perishable goods moving between these points is sufficient to warrant the carrier in giving the service. There is a rule, rule No. 7, I. C. R. R. tariff 1723—C, which provides that the carrier will furnish ice for the protection of dairy products, butter, butterine, eggs, cheese, dressed poultry, meats, fish and game, in straight or mixed lots, in less than carloads, when charges are paid at less than carload rates on a minimum weight of 10,000 lbs. There is nothing, however, to show under what condition ice will be furnished for less than carload shipments of fruit and vegetables in less than carload lots, nor of any perishable freight in less than carload lots other than those named. It seems that in order to get an iced car for freight not provided for in the rule referred to it is necessary for shippers to pay carload rate and minimum weight, except where there is a regular scheduled service. In regard to heated cars, the tariff referred to above, American Refrigerator Serv-

ice Association circular No. 27—B, rule 29, items 102 and 103 read as follows:

“RULE 29. Item 102.—Refrigerator or other insulated cars can usually be supplied for the transportation of perishable freight, thus practically obviating the necessity for use of heated box cars. Where special protection or artificial heat is desired, special arrangements must be made with the initial and intermediate carriers by owner or his representative, subject to the rules, regulations and charges to the individual carrier or carriers with whom they are made, unless latter is a direct party thereto.

“Item 103.—Regardless of condition of equipment artificial heat, if necessary, should be given at any point when available, governed by rules herein, but subject to the rules and regulations of and charges (if any) published by the individual carriers.”

Item No. 103 seems to fit the conditions surrounding the present case. It has been shown that refrigerator cars, iced in warm weather and heated in cold weather, are received at Madison and that these cars are available for shipments out of Madison at least four days per week. There is nothing in the tariff or on file with the Commission that would indicate that there is any charge to shippers for heated car service furnished by carriers. It was shown at the hearing in this case that, outside of furnishing heaters, the expense of operating them is very small, probably about 5 cts. per hour of service. This can hardly be considered seriously as a reasonable objection to the furnishing of heated car service from Madison to Monroe and intermediate points, twice a week, when the condition of the weather requires it. The Madison agent of the respondent company informed a representative of the Commission that he had orders to return heaters promptly by express to Chicago, whenever received in cars at Madison, and that no heater was assigned to Madison for service out of that station. This condition can, of course, be remedied by assigning one or two heaters for use between Madison and Monroe.

In regard to the amount of perishable freight moving out of Madison and the earnings on same, respondent's statements show that during the year 1911 there were less than carload shipments of fruit, vegetables and beer from Madison to Belleville, Monroe, Monticello and Fitchburg amounting to 445,644 lbs., with charges of \$638.85. For the months of January, February, November, and December, the months in which heated

cars are generally necessary, the weight amounted to 128,780 lbs. with charges of \$176.38. The earnings per trip per week for the heated car service would therefore average somewhere around \$5. The respondent intimated that, with heated car service on which shippers could rely, the amount of shipments would increase. It would seem as though the respondent, for its own interest, would inaugurate heated car service out of Madison, and it is not quite clear from the tariffs filed with this Commission that carriers are not obliged to accept freight under the conditions of the classification and the uniform bill of lading without requiring owners to assume any risk not therein provided for. The conditions of the classification and of the uniform bill of lading, which seem to apply to these shipments of perishable goods the same as to all other shipments, do not indicate that carriers have attempted to reserve the right to refuse shipments at any time or to require owners to assume any risk not therein provided for. If carriers have the right of refusal, except at owner's risk, it would seem to be necessary, under the law, so to indicate in the classification and in the uniform bill of lading. We are unable to find that this has been done.

We sincerely question the right of a carrier to refuse to carry any specific class of goods which it holds itself out to carry and which it customarily carries, unless the owner, or shipper, agrees to exempt the carrier of its common law liability as an insurer. As a general rule a carrier is not obliged to make provision for carrying property which requires special cars or appliances. However, if it holds itself out as a carrier of such property and customarily carries the same, it must provide itself with necessary cars and facilities for such transportation, although they are of a peculiar or unusual construction, nor can it limit its liability to transport such goods safely except by stipulation based upon a valid consideration.

In 4 Elliott on Railroads, sec. 1504, it is said:

"It is frequently stated in general terms that a common carrier may by contract, limit its common law liability as an insurer. But, as we have already said, the contract must be reasonable and must have some consideration to support it. The carrier has no right to force such a contract upon the shipper, and the latter must usually have the option of having his goods carried without any such restriction upon the liability of the carrier at a higher rate of freight proportioned to the

risk. If he is given such an option, however, a decrease in the rate as an inducement for the special contract reasonably limiting the common law liability of the carrier will be a sufficient consideration to support such contract."

Commenting upon the duty of the railway companies to provide special equipment, PROFESSOR WYMAN, in his treatise on public service corporations, vol. 1, sec. 796, says:

"In a diversified business such as common carriage a special equipment of various sorts must often be provided. In the case of the railroads very different cars, of course, are requisite for the transfer of passengers and of freight. And although many kinds of freight may be transported in open cars with safety, more kinds require box cars. But in the conduct of modern railroad far more facilities than these simpler forms have been found to be necessary. Thus for the transportation of many perishable food stuffs, such as butter and fruit, refrigerator cars have been found to be indispensable; and it is generally held in modern cases that these improved cars are imperatively demanded for the proper transportation of perishable articles. The same law by reason of the same necessity, applies to the provisions of ventilator cars for those commodities which would be encouraged by transportation in closed cars. As long as the railways begin the transportation of live stock upon a large scale, as part of their regular business, the provision of special stock cars becomes necessary. And so where a railway runs through a district shipping large quantities of oil it should, it seems, equip itself with tank cars to meet the commercial necessity of shipment in bulk. These cases would seem to justify the generalization that wherever the territory served by the railroad produces in sufficient quantities commodities which require special equipment for their proper shipment, such equipment should be provided."

As it is incumbent upon common carriers of property to receive and carry all goods which may be tendered to them for the purpose and which they hold themselves out to carry and undertake to carry, notwithstanding special equipment may be required for the safe transportation thereof, such carriers may not prescribe rules and regulations to the effect that they will not accept such goods for transportation except at owner's risk. Having undertaken to carry a particular kind of property which requires an unusual service, they must receive the same when offered for carriage, provided, of course, reasonable notice has been given to them so that they may be prepared to furnish the necessary equipment and that there is sufficient traffic of the character to warrant the service, but they cannot

impose upon the shipper a contract exempting themselves from their legal liabilities as common carriers. This rule can work no hardship upon a carrier, for it may charge for the special service rendered in transporting goods which require unusual facilities and equipment, compensatory rates which cover both the cost of the service and the risk incurred in the service growing out of the nature of the goods carried.

By a contract based upon a valuable consideration a carrier may limit its liability for damages resulting from causes other than its own negligence, but the owner has nevertheless the right to determine whether he will enter into such contract whereby his goods are transported at his own risk, or whether he will have his goods transported at the risk of the carrier as insurer.

Refrigerator car service, being a special service and requiring special equipment and facilities, is of necessity a limited service. The carrier may make reasonable regulations as to the time when the same may be granted and also restrict the service to such lines and between such termini as the traffic conditions warrant. Unless there is sufficient traffic of the kind upon any line requiring the said service to pay the expense thereof when rates are assessed which are not prohibited, the carrier could probably be justified in refusing to install the service. Each case must be determined upon all the facts and circumstances surrounding it. Under the conditions of the instant case above set forth, it would seem that the respondent should be required to furnish iced and heated car service between Madison and the stations mentioned. In the absence of any published provision in the western classification or in the uniform bill of lading providing for exemption of its liability as an insurer in any case, the respondent could not lawfully impose such stipulation upon a shipper. Any such provision, if duly published in a schedule, should be an alternative to the right of the shipper to have his goods shipped at the risk of the carrier.

For the reasons stated, it is the judgment of the Commission that the respondent's service in transporting fruit and perishable freight from Madison to Belleville, Monticello and Monroe is inadequate and to render said service adequate the respondent should provide iced car service at least twice a week during the summer season, when required by weather conditions, for shipments of fruit and perishable goods from Madison to Belle-

ville, Monticello and Monroe, and should furnish heated car service at least twice a week during the winter season, when weather conditions require it, from Madison to said stations.

NOW, THEREFORE, IT IS ORDERED, That the Illinois Central Railroad Company be and the same is hereby required to provide iced car service during the summer months, when the weather conditions require it, twice weekly for the transportation of fruit and other like perishable commodities from Madison to Belleville, Monticello and Monroe, and that it provide heated car service twice a week during the winter months, when the weather conditions require it, for the transportation of such commodities from Madison to Belleville, Monticello and Monroe.

BELOIT WATER, GAS AND ELECTRIC COMPANY.

vs.

CITY OF BELOIT.

Submitted Dec. 11, 1911. Decided May 29, 1912.

Complaint was made by the Beloit W. G. & El. Co. that certain ordinances of the city of Beloit, Wis., ordering the extension of certain water mains, were unreasonable for the reason that such extensions are not necessary for fire protection; that the number of prospective consumers is not large enough to make the same reasonably remunerative; that the time set for completing the work is unreasonably short; and that the penalties prescribed are unreasonable and excessive. The terms of the ordinances are contrary to the regularly established rules of the company for the extension of mains.

The passage of the ordinances and the terms of the same seem to imply a belief in the right of a city council to lawfully and justly order and require an extension of water mains to be made for domestic service alone.

Held: To be just and effective, such an order should be made with due regard for the magnitude of both the investment necessary and the probable additional earnings to be gained thereby, including the return on the additional investment. Whether or not the laying of small pipe, inadequate to give both domestic service and fire protection, is wise or not, must be decided on the basis of a forecast of the future growth and demands along that line, and in this the judgment of the owners or management of a utility must, in general at least, be permitted to govern.

In the instant case, there is a dissimilarity of treatment of two individuals by the terms of the ordinances in question, without any substantial difference in the circumstances of the two cases.

Held: This discrimination alone would vitiate such ordinances. In performing its public function, a public utility is obliged, by the common law as well as by express statutory enactments, to treat all patrons with impartiality. Any rule or regulation in violation of this principle would be subversive of natural justice as well as of a wise policy. In the matter of extending the mains of a water system, uniform regulations should be enforced. The persons desiring extensions should be subjected to like terms and conditions.

The company's rules in reference to the making of extensions to its water system, including the practice of fixing the rate of \$1.25 per foot for the excess of length over 50 feet per consumer on any extension as the basis of determining the sum to be advanced by the applicant to the company, are believed to be reasonable and should be approved. This practice, however, should be established by amendment to the rules so that no departure therefrom will be permissible and that the public

will at all times be advised of its scope. The extensions ordered in the ordinances under consideration can therefore be made only in accordance with such rules and practice. While it is true that a public utility is under some obligation to furnish its service to all inhabitants of a community, it is also true that the patrons are under equal obligations to meet the operating expense and provide a return upon the capital necessarily invested in the property of the utility. No utility can extend its mains or other service lines indefinitely to reach a single new consumer or a small number of new consumers and at the same time furnish service to all at the same average unit cost. It is therefore necessary either to establish some rule or rules fixing equitable terms under which extensions of its pipe or other lines will be made for new consumers beyond the limits of its system, or to make frequent readjustments of rates to all consumers to fit the changed conditions. There seems to be little if any ground on which to adopt the latter in preference to the former plan. Since there must be rules governing the making of extensions of mains or other supply lines of a utility for the reasons indicated, it follows that orders of a city council for extensions made without due regard for existing reasonable and valid rules cannot be justly upheld. The ordinance in question, requiring the Beloit W. G. & El. Co. to extend its mains to Central avenue and White avenue, respectively, in the city of Beloit, are unreasonable, and the same are hereby declared null and void.

The Beloit Water, Gas and Electric Company has filed two petitions against the city of Beloit, challenging the reasonableness of certain ordinances of the city, requiring it to make certain extensions of its water system. The two cases will be considered together.

The first petition alleges that on Nov. 6, 1911, the common council of the city of Beloit passed and enacted a certain ordinance, known as "Ordinance 116;" that said ordinance was passed summarily and under suspension of the rules of said common council, at the instance and request of one John M. Hughes, of Cedar Rapids, Iowa, who owns certain property fronting on Central avenue, in the city of Beloit, upon which he is constructing two double houses, neither of which is furnished or ready for occupancy, and the purpose thereof is to compel the petitioner to lay a water main on Central avenue, for the purpose of supplying said houses with water at its own cost and expense and without any cost or expense to the said John M. Hughes; that there are no houses along the line of the main so ordered to be laid, except the house of one Hammill which has a frontage on Chapin street and which is already supplied with water from a main on said street, and the said partly completed houses of the said Hughes, and that no houses

will be supplied from the said mains so ordered to be laid, except the houses of said Hughes, for whose sole and individual benefit the said ordinance was passed; that prior to the passage of said ordinance the petitioner, pursuant to its reasonable rule, adopted and applied by it in such cases, made an offer to said Hughes that it would lay said main on Central avenue, substantially 238 feet in length, if the said Hughes would deposit with it \$297.50, and it further agreed to refund to said Hughes \$62.50 for each consumer attaching to said main, so that when the four consumers eventually occupying said house should become customers of the petitioner, that the petitioner would refund to said Hughes the sum of \$250 of the said sum of \$297.50, so deposited, and it further agreed and offered that if another consumer should attach to said main, that it would refund to said Hughes the balance of said deposit, or \$47.50; that the said offer so made was fair and reasonable and if accepted by said Hughes would have resulted in supplying said houses with water under just, reasonable, and fair conditions; that notwithstanding said just and reasonable offer so made, the ordinance was passed and enacted as aforesaid; that the said water main is not necessary for the purpose of furnishing fire protection, and that no fire hydrant has been ordered thereon; that the said ordinance is unreasonable and void, for the reasons hereinbefore stated, and for the further reason that said extension is not needed by the public, but is solely for the use and convenience of the said Hughes, and for the further reasons that the amount of business which the petitioner will secure by reason of the laying of said main, will be insufficient to pay a fair return for the expense of laying the same, and that the cost of laying said main will be clear loss to the petitioner and of no substantial benefit to said Hughes, and for the further reason that the time limit set in said ordinance for completing said work is unreasonably short, taking into consideration the time of year and the frozen condition of the ground, and that the penalty prescribed in said ordinance is harsh, unjust unreasonable, and excessive. Wherefore, the petitioner prays for an order declaring said ordinance null and void.

The second petition alleges that on Nov. 6, 1911, the common council of the city of Beloit passed and enacted an ordinance designated as "Ordinance No. 117;" that the said ordinance was passed summarily and under suspension of the rules of

said common council, at the special instance and request of one W. R. Munger, who owns two houses on White avenue in said city, located on the north side of said street between Park and Harrison avenues, for the purpose of compelling petitioner to furnish water service for said houses; that there is no water main on said White avenue between said two streets; that the petitioner has plans for future additions and extensions to its water distribution system and proposes, when water mains are extended along said White avenue at the point mentioned in said ordinance, to lay 12" mains thereon; that a smaller main in that location would be a detriment of the service ultimately as petitioner verily believes, and that to lay a smaller main for the service of said Munger would be an ultimate waste and loss to petitioner; that to lay said main, in that locality, in unfrozen ground would cost petitioner approximately \$1.88 a running foot, and to lay it in frozen ground would cost about \$2.03 a running foot; that it will only require about 222 feet of such main to reach and serve the premises of said Munger, and that petitioner, pursuant to its just and reasonable rule, prior to the enactment of said ordinance, proposed to said Munger to lay said main upon a deposit being made by him of the amount of \$152.50, and that it would refund to him \$62.50 for each additional consumer connecting therewith, until the whole of said sum, \$152.50, so to be deposited, had been returned; that the sole purpose of ordering said main is to furnish water to said two Munger houses, and that no other service or revenue will result to petitioner therefrom, as it verily believes; that, notwithstanding the just and fair offer of petitioner to said Munger, the said ordinance was passed, as hereinbefore stated, and the said Munger refuses to comply with the proposal of said petitioner; that if said 240 feet of main shall be laid by petitioner, as ordered in said ordinance, it will cost petitioner \$487, or \$437 if the \$50 mentioned in said ordinance as the sum to be deposited by said Munger, shall be turned over to petitioner; that the revenue from said two houses on a meter basis will not exceed \$16 a year, as petitioner verily believes, and that the revenue derived from said two services will not furnish a just and adequate return on the cost of laying said main; that the said ordinance is unreasonable and void, for the reasons herein stated, and for the reason that said extension is not needed by the public nor for fire protection, no fire

hydrant being ordered thereon, but that it was passed for the purpose of compelling petitioner to furnish water service to said two Munger houses and to relieve said Munger of making a deposit, as aforesaid, to partly cover his just proportion of furnishing said service; that the said ordinance is unreasonable and void, because the revenue derived from said extension will be insufficient to pay a fair return on the cost of laying the said main, for the reason that the time limit set for laying said main is unreasonably short, and for the further reason that the penalties prescribed in said ordinance are harsh, unjust, unreasonable, and excessive. Wherefore, petitioner prays for an order declaring said ordinance null and void.

The matter came on for hearing on Dec. 11, 1911. The petitioner was represented by *Olin & Butler*, its attorneys, and the respondent by *H. W. Adams*, its city attorney.

This proceeding arises upon the appeal of the petitioner from the ordinances of the city council of the city of Beloit, known as No. 116 and No. 117, each of which instructs the petitioner to make an extension of its water mains to give only domestic service, at least for the present. Ordinance No. 116, passed at the instance and for the benefit of John M. Hughes, calls for the laying of, approximately, 238 feet of main on Central avenue, to give water service to two double houses then under construction, and in which there may later be four tenants or water consumers. This ordinance does not require the beneficiary to make any deposit to the company, and thereby share temporarily in the necessary investment until other consumers are obtained on the same pipe line to assist, by the earnings from them, in supporting the additional investment therein.

Ordinance No. 117 calls for the laying of, approximately, 240 feet of main on White avenue, to provide service to two single houses which are already occupied by parties desiring water service. This ordinance requires the beneficiary, William Munger, to deposit \$50 with the petitioner through the city clerk, and share to that extent in the necessary additional investment until a third consumer is obtained by the company on the same extension, when the deposit is to be returned to him by the petitioner.

Since July 1, 1907, the company has had in effect certain rules governing the making of extensions of its water mains for domestic service. These rules are as follows:

"RULE 1. Water mains will be extended for any applicant for water service, from any existing water main, for a distance not in excess of 50 feet for each and every consumer along such line of extension, at the company's expense.

"RULE 2. Where any extension desired is more than an average of 50 feet per consumer, for the number of consumers along the extension, then such extension will be made by the company after the applicant or applicants for the water main extension advance to the company the cost of such extensions in excess of the sum of the cost of the 50 foot extension for each of the number of original applicants, the company to refund to the party making the advance the cost of a 50 foot extension for each additional consumer tapping said line until said full sum previously paid to the company has been refunded, without interest.

"Example of the above: If the consumer is located 90 feet from any existing water main, and wishes water service, and there are no other consumers between him and the existing water main, then he advances to the company the entire cost of the 90 feet, less the cost of the 50 feet, and whenever another consumer taps the same 90 feet of main, then the original consumer making the payment to the company is rebated, without interest, the balance of the money he has advanced to the company. If three consumers are located within 50 feet of each other, but 500 feet away from any existing water main, then the three consumers may arrange to advance the entire cost of the 500 feet of main, less the 150 feet, and the company will pay back to them the cost of the 350 feet of main so advanced by them, without interest, as fast as seven additional consumers tap the aforesaid length of main.

"Repayment will be made as soon as each additional consumer is connected at the rate of the cost of 50 feet for each one of the seven until the entire amount advanced is returned, without interest, to the party making the advance.

"RULE 3. In case a consumer does deposit money for laying mains upon any street where the city has designated a fire service main shall be laid, and the city shall order a hydrant or hydrants upon such street, in such location that the main previously laid for the consumer can supply the hydrant, then it will be considered that the conditions of the consumer's contract have, to that extent, been fulfilled, and to such extent the money so deposited will be repaid, without interest, by the company to the consumer.

"RULE 4. Each applicant for water service shall, at the time of making application for such service, execute and deliver to said company a contract for such water service, agreeing to put in the service pipe from the curb line to the premises where such water is desired at the expense of such applicant and to commence the payment for such water service at some time within one month

from the laying of such main in front of the premises named in such application, and shall also at the time of delivery of such contract pay to said company the sum of \$15. Said company shall, on the receipt of such contract and of said sum above mentioned, put in the lead service from the street main to the curb line of said premises, including the stop cock and box, which lead service, stop cock and box shall be and remain the property of said company.

“RULE 5. No main extensions will be made during that period of the year when the weather is unseasonable, and suitable notice must be given the company when water main extensions are desired.”

It will be noted that the rules do not specify any particular size of main whose cost for every contract in excess of 50 feet for each immediate consumer thereon shall be advanced by the applicant to the company and retained by it until more consumers are connected thereto. This, without a supplementary rule, would obviously result in some applicants having to advance considerably more money for a given excess length than others, owing to differences in size and in costs per foot. It appears, however, from the testimony given in the hearing before the Commission, that the company is applying a supplementary rule and averages the costs of extensions at \$1.25 per foot. The advances for costs of excess lengths of all extensions are based on this rate per foot, the result being that no applicant for an extension suffers or provides more than others due to the size of pipe considered by the company as the proper one to use in making the extension, and this is as it should be. In this connection it has been found, by computations, that during the last four years the average value per foot of all mains in petitioner's water main system has varied from 99 cts. to \$1.03, when based on the unit prices used in the engineer's tentative valuation, made as of Jan. 1, 1909, and from \$1.13 to \$1.17, when based on the unit prices derived from the company from its records of cost of all mains laid during the years 1907-11, inclusive.

It does not seem probable that the mains laid in the future as extensions to the present system will necessarily average as large as those in the existing system, which must have a larger proportion of feeder mains in order to serve the extensions as well as existing distribution pipes intervening. It would therefore appear, from this consideration alone, that the rate of \$1.25 per foot, on which is based the advance to be made by

an applicant for a main extension for the excess over 50 feet per consumer on such extension, might properly be reduced somewhat. It is, however, necessary to consider also, in this connection, the necessary investment in the 50 feet of extension per consumer which is made by the company without any advance, and the earnings thereon.

It is found that during the past four years there has been an average of from about 75 to 79 feet of mains of all sizes for each commercial consumer. The investment in all cast-iron mains, 4" and larger, was apportioned when determining the new water rate schedule prescribed by the Commission in its order of July 19, 1911, 60 per cent to fire protection and 40 per cent to commercial or private service. All of the investment in mains, smaller than 4", was charged to private service, so that 42½ per cent of the value of all mains was charged to the latter division. The cost of furnishing private or commercial service included the return only on 42½ per cent of all mains, or on 42½ per cent of, say, 77 feet of mains per consumer, which is about 33 feet for each.

It appears from the foregoing that the company under its existing rules lays a liberal amount of new water pipe for each new consumer to be obtained thereon. If it be supposed that the rate on which is based the consumer's advance to the company for that part of the investment, in a new extension in excess of 50 feet per consumer, should be reduced from \$1.25 to \$1 per foot, it would seem proper to also reduce the number of feet of the extension to be made by the company, free of charge, for each new consumer to be reached thereby. The practical effect of such changes is indicated by the figures in the table following, wherein the first column shows the amount of pipe line for each new consumer; the second shows the sum to be advanced by the applicant under the company's existing rules; and the third shows the advance which should be required if the rate be reduced to \$1 per foot of excess, and the length laid free by the company reduced to 33 feet.

Length	Deposit under company's rules	Deposit under other rule
50.....	\$0.00	\$17.00
60.....	12.50	27.00
70.....	25.00	37.00
80.....	37.50	47.00
90.....	50.00	57.00
100.....	62.50	67.00
110.....	75.00	77.00
120.....	87.50	87.00
130.....	100.00	97.00
140.....	112.50	107.00
150.....	125.00	117.00

It therefore seems that the company's rules are amply liberal toward the prospective consumer applying for an extension of mains and water service therefrom.

While it is true that a public utility is under some obligation to furnish its service to all inhabitants of a community, it is also true that the patrons are under equal obligations to meet the operating expense and provide a return upon the capital necessarily invested in the property of the utility. No utility can extend its mains or other service lines indefinitely to reach a single new consumer or a small number of new consumers and at the same time furnish service to all at the same average unit cost. It is therefore necessary either to establish some rule or rules fixing equitable terms under which extensions of its pipe or other lines will be made for new consumers beyond the limits of its system, or to make frequent readjustments of rates to all consumers to fit the changed conditions. There seems to be little if any ground on which to adopt the latter in preference to the former plan.

The passage of the ordinances hereinbefore mentioned and the terms of the same seem to imply a belief in the right of a city council to lawfully and justly order and require an extension of water mains to be made for domestic service alone, but to be just and effective such order should be made with due regard for the magnitude of both the investment necessary and the probable additional earnings to be gained thereby, including the return on the additional investment.

It may be contended that in either of the cases covered by these ordinances the additional investment necessary is the cost of laying a small wrought pipe amounting to perhaps 40 or 50 cts. per foot or, say, \$100 in each case, since no fire service is to be furnished by the extension. It is well known that

practically all public water works systems contain more or less small wrought pipe in extensions, each serving a few residences or other private premises. The Beloit system already has some such pipe, but very little of this has been laid by the present owners' or management of the property, probably owing to a belief on their part in a rapid growth of the city which will very soon overreach the capacity of small pipe lines and cause their early abandonment and waste of investment. As soon as a newly served territory becomes fairly well settled or developed, fire service is likely, if not certain, to be demanded, requiring the replacement of small lines with larger pipe. If such development occurs within five years, requiring the laying of larger pipe within that time, the rate of depreciation alone on at least the greater part of the investment in the abandoned small main will be 20 per cent or more annually. Whether or not the laying of small pipe, inadequate to give both domestic service and fire protection, is wise or not, must be decided on the basis of a forecast of the future growth and demands along that line and in this the judgment of the owners or management of a utility must, in general at least, be permitted to govern.

Since there must be rules governing the making of extensions of mains or other supply lines of a utility for reasons hereinbefore indicated, it follows that orders of a city council for extensions made without due regard for existing reasonable and valid rules cannot be justly upheld. The company's rules in reference to the making of extensions to its water system, including the practice of fixing the rate of \$1.25 per foot for the excess of length over 50 feet per consumer on any extension as the basis of determining the sum to be advanced by the applicant to the company, are believed to be reasonable and should be approved. This practice, however, should be established by amendment to the rules so that no departure therefrom will be permissible and that the public will at all times be advised of its scope. The extensions ordered in the ordinances hereinbefore mentioned can, therefore, be made only in accordance with such rules and practice.

There is another plan for providing for the making of water main extensions which is perhaps worthy of consideration. This plan has already been adopted at places in other states. Under it the charge for fire protection is divided between the

cost of service exclusive of hydrants, plus the expense due to hydrants, and is determined by a stated sum per mile of mains and another small sum per hydrant. One advantage of the plan is that the investment made for and chargeable to fire protection, in property exclusive of hydrants, is supported whether the municipality orders an adequate number of hydrants from which to take service from the mains or not. The charge due to hydrants is a small sum per hydrant, amounting to \$5 or \$8 annually, to cover the maintenance cost and the return on the investment therein. By this plan the city council, in ordering a main extension without hydrants thereon, is obliged to assume an additional expense for fire protection to support a portion of the investment in such extension, and the new consumers reached by it are not burdened with the support of all of an investment made large enough in the first instance to provide for their future fire protection when the city orders hydrants installed.

This plan, as detailed for some specific case, was described in the Engineering News issue of June 15, 1911, vol. 65, page 737. Under this plan, if applied in the present Beloit case, the additional charge for fire protection to be incurred by the city in ordering a main extension without hydrants might fairly be measured as the maintenance and return on at least 60 per cent of the investment in an average size of extension, or the total return on an investment of, say, 60 cts. per foot, plus 60 per cent of the cost of maintenance of the pipe line. The total additional charge for fire protection to be paid by the city on account of a main extension may fairly be placed at from $4\frac{1}{4}$ to $4\frac{1}{2}$ cts. per foot or \$4.25 to \$4.50 per hundred feet, equivalent to \$224 to \$238 per mile. There may be another advantage in the application of this plan to the Beloit situation. It would eliminate possible future controversies over the increments to the fire protection charge as fixed by the Commission in the rate case, which increments were left to the determination of the city and the company.

In performing its public function, a public utility is obliged by the common law, as well as by express statutory enactments, to treat all patrons with impartiality. Any rule or regulation in violation of this principle would be subversive of natural justice as well as of a wise public policy. Yet, in the instant case, we find dissimilarity of treatment of two individuals by

the terms of the ordinances in question, without any substantial difference in the circumstances of the two cases. This alone would vitiate such ordinances.

In the matter of extending the mains of a water system, a uniform regulation should be enforced. The persons desiring the extension of a main should be subjected to like terms and conditions.

For the reasons hereinbefore stated, we find and determine that the ordinances above set forth, requiring the Beloit Water, Gas and Electric Company to extend its mains in Central avenue and White avenue, respectively, in said city of Beloit, are unreasonable.

NOW, THEREFORE, IT IS ORDERED, That the ordinances above set forth, known as ordinance No. 116 and ordinance No. 117 of the city of Beloit, requiring the Beloit Water, Gas and Electric Company to make extensions of its water mains on Central avenue and White avenue, in said city of Beloit, as therein specifically described, be and the same are hereby declared null and void.

TOWN OF WAUWATOSA

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted Nov. 13, 1911. Decided May 29, 1912.

Respondent complains of the Commission's order (*Town of Wauwatosa v. C. & N. W. R. Co.* 1911, 7 W. R. C. R. 709) requiring the construction of a bridge at the intersection of respondent's tracks with North avenue about 475 feet west of the north and south section line road. Respondent alleges that the 6 per cent grade of the approaches required in the order necessitates the raising of the section line highway 14.9 feet at the intersection with North avenue. In respondent's opinion the change involves such large expenditures as to be inadvisable. Other witnesses testified that the highway should be widened. Investigation proves it practicable to reduce the distance from the top of the bridge floor to the bottom of the low steel of the girders by a redesign of the floor system, and also to reduce the amount of clearance above the top of the rail.

Held: The bridge should be reset so as to place the entire structure on the grade ascending toward the west. The floor should be redesigned and the clearance above the rail reduced. The grade on the bridge is not to exceed 6 per cent and the approaches are not to exceed a grade of 6.85 per cent. The roadway is to be widened to not less than 32 feet, and is to be protected where necessary as specified by the Commission.

Following a decision in the above entitled matter (7 W. R. C. R. 709) the respondent petitioned the Commission for a rehearing.

Hearing was held on Nov. 13, 1911, at the town hall in the city of Wauwatosa. The petitioner was represented by *G. J. Davelaar*, and the respondent by *W. G. Wheeler*.

The petition sets forth that the railroad crosses North avenue about 475 feet west of the north and south highway referred to as a section line road, and this crossing made necessary certain changes in North avenue. According to its plans and specifications the respondent railway had graded the highway from its crossing in an easterly direction to an 8 per cent grade to where North avenue intersects with the section line highway. At the former hearing such proceedings were had that the respondent was ordered to construct and maintain a

bridge at this crossing according to plans and specifications submitted to the Commission. Respondent was also ordered to so grade and maintain its approaches to the bridge as not to exceed a grade of 6 per cent at any point, to preserve the natural and artificial drainage of the highways and adjoining property, to fill in the adjoining property in the southeast angle of the intersection of North avenue and the section line road to a level with the new approach, and to provide a passage way from the approach on North avenue to the school grounds at the southeast corner of the school property.

Pursuant to these orders the respondent made surveys, plans and specifications for the necessary changes. It then found that should these changes be made according to the Commission's orders, the north and south highway, at the point where it intersects North avenue, would be raised 14.9 feet from its present elevation. From the intersection of the two highways this section line highway would descend to the north a distance of about 150 feet on a 6 per cent grade and to the south about 320 feet on the same grade, and the North avenue road would descend about 400 feet to the east on a 6 per cent grade to their present levels. It would have been necessary to extend driveways into the adjoining property on the south a distance of 110 feet. Respondent would have had to acquire property to the north and south of the present lines of North avenue to provide for the slopes of the embankments and for the purpose of constructing extensive ditches and drains. The property owners on both sides of North avenue would not permit the filling or taking of their land without full compensation for the land taken, and reparation for damages to the remainder of their property. Respondent emphasized the fact that the damage to this property would be serious and extensive if the highway were reconstructed according to the order of the Commission.

The petition of respondent further sets forth that if the highway were reconstructed according to its plans as originally proposed the approaches would not be longer or steeper than those on many other main traveled highways in the town of Wauwatosa, that its former plans provide the most practicable and convenient method of restoring the highway, and that the change ordered by the Commission involves the ex-

penditure of such large sums as to render the change inadvisable.

The testimony offered by the railway company tended to substantiate the allegations of the petition and to indicate further that the fill would be greatest at the intersection of the two highways, about 17.6 feet above the level of the land in the northeast corner of the intersection, about 15 feet above one owner's land and 12 feet above the school house land. A wall would be formed around this owner's land and a driveway 150 feet long and 40 feet wide would have to be built to the property. The approach of a $3\frac{1}{4}$ per cent grade to the school house grounds would be carried to the school building. The increased cost of complying with the order of the Commission was estimated at \$60,000 to \$70,000.

Several farmers testified that the present highway was satisfactory excepting that it should be widened to enable loaded wagons, especially those loaded with hay, to pass automobiles. They requested an increase in width from eight to fifteen feet. The general testimony of these witnesses was to the effect that the present roadway was not a more difficult road for teams to travel than the old one which had two hills, and that a short steep grade was better than a long gradual one. Admissions were made, however, that the present grade is steeper than the old one and more difficult for teams with heavy loads.

Engineers for the town submitted plans for lowering the bridge ten feet four inches and depressing the track eleven feet at the bridge so as to give a clearance of twenty three feet from the rails to the bottom of the bridge. They claimed this plan would permit of a 6 per cent grade on North avenue without injuring adjoining property. This was not considered a feasible plan by the respondent's engineers who, after the hearing, submitted a detailed estimate of the cost of grade revision of respondent's tracks. The estimate gives a total of \$178,000 for construction, engineering and superintendence, in addition to which there would be damage claims on account of change of drainage that might vary from \$20,000 to \$50,000.

The respondent also submitted a detailed estimate of the cost of changing the present 8 per cent grade at the North avenue viaduct approaches to a 6 per cent grade, which amounted to \$19,500, with an additional allowance of \$70,000 for damages to abutting property owners.

The Commission's engineers after a thorough investigation report that it is possible and practicable to reduce the distance from the top of bridge floor to the bottom of the low steel girders by a redesign of floor system, and to reduce the amount of clearance above top of rail. These two adjustments, together with a resetting of the bridge so as to place the entire structure on a grade ascending toward the west would have the effect of very materially increasing the distance available to negotiate the total rise necessary as indicated by the original profile of this section of the highway. This plan would also permit of a comparatively easy grade on the east approach, which would run out within reasonable distance of its intersection with the section line highway, and would make the amount of fill necessary at the intersection somewhere between three and five feet. The clearance between the rails and the floor of the structure would be reduced to about 20 feet 6 inches, but this lessened height, it was claimed, would not interfere with the safe operation of trains, provided tell-tales were installed as required by law.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Chicago & North Western Railway Company, so reconstruct its present bridge at the intersection of its Milwaukee-Sparta extension with North avenue in the town of Wauwatosa, that the elevation of top of floor carrying the roadway of North avenue at a point directly above the most easterly rail of the most easterly track of the railway company shall not exceed 22 feet in distance above elevation of base of this rail as at present established, or elevation of 177.86 feet according to datum of levels established by the railway company on its so-called belt line around the city of Milwaukee, and that the grade established on this bridge and its steel or timber approaches shall not exceed a rate of 6 per cent, and that the railway company shall otherwise construct and maintain the bridge and its steel or timber approaches in accordance with plans and specifications submitted to this Commission.

IT IS FURTHER ORDERED, That the railway company so grade, surface and maintain the approaches, or those portions of the highways of which the bridge forms a part, that they shall not in any instance exceed a grade of 6.85 per cent, and that there be provided thereon a roadway width of not less than 32 feet with approved design of guard rail or

fence along each edge of the roadway where the surface of the latter is in excess of 3 feet in height above the original or natural ground level, in order that the approaches may be as safe and convenient for public travel as they were prior to their raising and may preserve the natural and artificial drainage of the highways and adjoining property.

IT IS FURTHER ORDERED, That the railway company provide a passageway from the approach on North avenue to the school grounds located to the north of North avenue and immediately east of and adjacent to the respondent's right of way, and that this approach shall be constructed and maintained with due regard to the safety and accommodation of the public.

Three months is deemed a reasonable time within which to comply with these orders.

TOWN OF WAUWATOSA

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted Dec. 21, 1911. Decided June 1, 1912.

Respondent complains against that part of the Commission's order in *Town of Wauwatosa v. C. & N. W. R. Co.* 1911, 7 W. R. C. R. 455, which provides that the approaches to the overhead bridge carrying the North Town Line highway across respondent's tracks in the town of Wauwatosa, Wis., shall not exceed a 5 per cent grade. If the western approach were constructed in accordance with the order the North Town Line road would cross a north and south highway 13½ feet above the present elevation. Investigation shows that if the bridge were moved to a point about 332 feet east of the east line of the north and south highway, a 6 per cent grade for the western approach would be at an elevation hardly noticeable at the intersection of the roads.

Held: The bridge should be moved as specified and the western approach constructed at a 6 per cent grade. There is no necessity for changing the grade of the eastern approach.

Following a decision in the above entitled matter (7 W. R. C. R. 455) the respondent petitioned the Commission for a rehearing.

The hearing was held on Dec. 21, 1911, at the city hall in the city of Milwaukee, Wis. *G. J. Davelaar* represented the petitioner and the town of Granville, and *W. G. Wheeler* represented the respondent.

In its petition for a rehearing the respondent railway company sets forth that upon the petition of the town of Wauwatosa the Commission ordered respondent to construct and maintain an overhead crossing at the intersection of its railroad with the North Town Line road in the town of Wauwatosa. The approaches were not to exceed a 5 per cent grade. Pursuant to this order the respondent made surveys, plans and specifications necessary for the changes as ordered. It was then learned that if the overhead crossing were constructed as ordered, the west approach would extend over one of the main public crossings of the town of New Butler, and would ren-

der an adjacent three story brick building, which was under construction, practically valueless.

Respondent asks that the previous order be so amended as to authorize the construction of the overhead crossing with an approach on each side not exceeding 6 per cent in grade.

The testimony offered by the railway company through its assistant chief engineer tended to substantiate the matters set forth in the petition, and was in substantial agreement with the results of a further inspection of the Commission's engineers as reported below.

A portion of the North Town Line road is maintained by the town of Granville, whose officials, together with those of the town of Wauwatosa, raised objections to increasing the grade.

The engineers of the Commission made inspections of the situation, examined in more detail additional maps and profiles, and verified them in the field. It appears from their report that if the western approach to the overhead bridge were made on a 5 per cent grade, the embankment would meet the existing surface of the North Town Line road at a point approximately 290 feet west of the north and south highway. The embankment would cross this highway at an elevation $131\frac{1}{2}$ feet higher than the present elevation of the highway at the intersection of the two roads. To meet this condition it would be necessary to build an embankment along the north and south highway, starting at a point approximately 295 feet north of the North Town Line road, and ending at a point approximately 235 feet south of this road. The result would be serious damage of a permanent nature to surrounding property, and great inconvenience to the public. Such an embankment would be detrimental to the business and residential improvements, and would retard the growth of the rising village.

It was suggested at the hearing that the bridge could be moved east and thus avoid the crossing of the north and south highway on an embankment. If this were done and a 5 per cent grade established for the west approach, the north and south highway would then be crossed at an elevation four feet higher than the present surface. If the bridge structure were moved 185.47 feet east or to about 332 feet east of the east line of the north and south highway, a 6 per cent grade for the western approach would terminate about 30 feet beyond the north and south highway, and at the intersection of the two

highways would be at an elevation of one foot above the present surface. This elevation would be hardly noticeable and therefore would result in no injury to surrounding property.

There appears to be no necessity for changing the grade of the east approach.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Chicago & North Western Railway Company, so construct and maintain an overhead crossing at the intersection of its Milwaukee-Sparta extension with the North Town Line road in the town of Wauwatosa that the western end of the structure will begin at a point about 332 feet east of the east line of the north and south highway, from which point the west approach to the bridge shall not exceed a 6 per cent grade, and the east approach shall not exceed a 5 per cent grade.

Six months is deemed a reasonable time within which to comply with this order.

TOWN OF GREENFIELD

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted Nov. 15, 1911. Decided June 4, 1912.

Petitioner complains against the order of the Commission in *Town of Wauwatosa v. C. & N. W. R. Co.* 1911, 7 W. R. C. R. 737, which provides that respondent lower the South Town Line road, the boundary between the towns of Greenfield and Wauwatosa, Wis., to a further depth of two feet, under the overhead crossing of respondent's Milwaukee-Sparta extension. An excavation of several feet had been made here to procure a thirteen foot headway, and petitioner alleges that further depression of the highway will greatly increase objectionable conditions of drainage. Petitioner prays that respondent be required to construct a passageway for foot travelers and to submit plans for draining the roadway to the Commission.

Held: The order complained of is vacated and the C. & N. W. R. Co. is ordered to so depress the highway at the intersection mentioned as to provide an overhead clearance of fourteen feet. It is further ordered that the roadway be graded and maintained as set forth in plans submitted by respondent, that the natural and artificial drainage be restored and maintained in its original condition according to these plans, and that a sidewalk be constructed as specified by the Commission.

This proceeding is the result of a petition by the town of Greenfield for a rehearing on matters contained in *Town of Wauwatosa v. Chicago & North Western Railway Co.* 1911, 7 W. R. C. R. 737.

The town of Greenfield, in its petition, alleges that it is a municipal corporation of the county of Milwaukee, Wis., and is situated directly south of the town of Wauwatosa. The center line of an east and west highway, sixty-six feet in width, is the dividing line of these two towns. This joint highway is divided into sections by orders properly made and each town keeps in repair certain of these sections. The second mile of this highway east of the west boundary line of the town of Greenfield is kept in repair by the petitioner and has been under the jurisdiction of its officers for many years.

The petition states that the respondent's railway crosses this section of the highway on an overhead structure and leaves a subway about twenty-four feet wide with a headway of about thirteen feet at the deepest part. To gain this headway it was necessary to excavate the highway to a depth of several feet which renders it most undesirable for public use at this point.

The petitioner further states that it had no notice of the filing of the previous petition by the town of Wauwatosa, of the hearing before the Commission, or of any acts of the Commission upon that petition. The petitioner has just learned of the order, bearing date of Aug. 29, 1911, which directed the respondent to lower the highway under the crossing a further depth of two feet. It is claimed by the petitioner that this lowering of the highway will greatly increase the depression and the objectionable conditions at the crossing, and that the drainage of water coming upon the highway in the vicinity of the crossing will make a waterhole of the subway during wet weather. It will be necessary that an extensive drainage system be constructed on lands adjacent to the track and highway to prevent the subway from becoming impassible. As the bridge is now constructed, pedestrians are required to go under the tracks at much risk of being struck by automobiles or teams passing along the highway. The expense of caring for the highway at this point, which devolves upon the petitioner, will be greatly increased over the cost of maintenance prior to the construction of the railway.

The petitioner requests that the Commission require the respondent to construct a suitable passageway for pedestrians south of the southerly line of its subway on the Greenfield side of the highway, and that the railway company be required to submit a detailed plan, approved by the Commission, for draining the roadway, the plan to provide sufficient drainage for winter and summer passageway of waters which may collect on the highway near the crossing. A further request is made that this drainage be effected without expense to the town of Greenfield or to any of its tax payers.

The respondent, in its answer, denies any knowledge that the highway in question is joint between the towns of Greenfield and Wauwatosa, or that it has been divided into sections, worked or kept in repair as set forth in the petition. Respondent alleges that the subway was constructed in accordance with the

order of the Commission, that it is reasonable, safe and sufficient, and cannot now be changed without great expense. The respondent states that the Commission is familiar with the material facts relating to the subway and the proceedings connected with the order heretofore entered, and for further answer refers to those records.

Hearings were held in the school board room in the city hall of Milwaukee, Wis., on Nov. 15 and Dec. 21, 1911. *Perry, Morton & Kroesing* by *Charles B. Perry* appeared for the petitioner, *C. A. Vilas* for the respondent, and *G. J. Davelaar* for the town of Wauwatosa.

The testimony tends to show that the town of Greenfield rightfully exercises jurisdiction over the section of the highway involved herein; that there is much traffic through the subway, especially by automobiles which endanger pedestrians, as no separate subway or sidewalk is provided for them, and that at times considerable water collects. It was suggested that a sidewalk protected by an iron railing be constructed in the subway, of sufficient elevation to provide a dry passage for pedestrians. The testimony further indicated that a fourteen foot headway would be adequate clearance for all vehicles, but that a further depression would interfere with the drainage.

At the second hearing counsel for petitioner stated that respondent had submitted a blue print of the plan for drainage and construction of a sidewalk which was generally satisfactory to the town of Greenfield. The plan provided a sidewalk four feet wide, elevated about three feet above the roadway, protected by pipe hand rail under the subway, and carried out on each side to meet the pathway used by pedestrians. The plan provided for carrying the water under the sidewalk and for taking care of the drainage from south to north by a ditch on the south side. It also provided a fourteen foot clearance in the subway. The officials of the petitioner and the county highway commissioner stated that if the details of the plan were carried out as shown by the blue print, with a slight change of grade on the east approach so as to make the grade more gradual, it would result in satisfactory conditions. The officials of the town of Wauwatosa contended that the subway should have a clearance of fifteen feet and that there should be a culvert and catch basins in the subway to properly take care of the drainage of the highway.

The Commission's engineers, after an inspection of the plans submitted by the respondent and an examination on the ground, reported that the subway conditions should be altered so as to provide a fourteen foot clearance below low steel. A four-foot sidewalk elevated at least eighteen inches above the road, with pipe hand rail should be constructed alongside of the abutment located in the town of Greenfield with proper approaches to paths, or walks, previously existing along the road. The roadway should be graded so as to provide even and uniform grades and the natural and artificial drainage should be restored to its original condition as near as may be physically possible, as shown by plans submitted by the respondent.

After fully considering the report made by our engineers and reviewing all the testimony offered in this case, and previously submitted, the order issued on Aug. 29, 1911 (7 W. R. C. R. 737), under proceedings instituted by the town of Wauwatosa, is hereby vacated.

IT IS NOW ORDERED, That the respondent, the Chicago & North Western Railway Company, at the intersection of its Milwaukee-Sparta extension with the South Town Line road, forming the boundary line of the towns of Greenfield and Wauwatosa, so depress the highway as to provide an overhead clearance of fourteen feet at the crossing, and that the roadway be graded and maintained so as to provide even and uniform grades as in the manner set forth in plans submitted by respondent and marked "Exhibit A."

IT IS FURTHER ORDERED, That the natural and artificial drainage be restored to and maintained in its original condition as nearly as may be physically possible according to the plans submitted by respondent and marked "Exhibit A."

IT IS FURTHER ORDERED, That a sidewalk, elevated at least eighteen inches above the roadway, four feet wide, protected with pipe hand rail, be constructed alongside of the abutment located in the town of Greenfield with proper approaches to paths or walks previously existing along the roadway.

Sixty days is deemed a reasonable time within which to comply with this order.

C. W. CROTY ET AL.

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted Dec. 12, 1911. Decided June 5, 1912.

Petitioner alleges that the C. M. & St. P. R. Co. does not provide adequate station facilities at Tomah, Wis., and prays for an order requiring an adequate overhead protection on the north or west-bound platform at the station.

Held: Public necessity requires provision for adequate shelter, and the passenger earnings at Tomah justify the expenditure necessary for the erection of a suitable shed. Respondent is ordered to erect and maintain a suitable and adequate overhead covering on its north or west-bound platform according to the specifications of the Commission. Three months is deemed a reasonable time within which to comply with this order.

The petition, which is signed by forty-three residents of the city of Tomah, Wis., alleges the necessity of a storm shed over the respondent's waiting platform opposite its depot in the city of Tomah, for the protection of its patrons who alight from or depart on west-bound passenger trains.

In answer the respondent states that it has investigated the matter complained of by the petitioners and avers that there is no reasonable necessity for the installation of a storm shed over its north waiting platform opposite the depot at Tomah, as reasonable shelter is furnished at this station.

The hearing was held at the office of the Commission in Madison, Wis., on Dec. 12, 1911. *W. B. Naylor* appeared for the petitioners and *F. G. Wright* for the respondent.

Witness for petitioners testified that passengers taking respondent's west-bound trains were instructed by respondent's station employes to leave the depot and cross over the tracks to the north waiting platform, a distance of sixty-four feet; that they were obliged to remain on this platform for a period of five to ten minutes awaiting the arrival of west-bound trains, and from five to eight minutes after the train had stopped, and that during all of this time passengers were unprotected from in-

clement weather. Witness claimed that east of the depot, a distance of 180 feet from the board crossing of the north and south platform, was Superior avenue, often so blocked by long west-bound trains that passengers alighting from these trains and desiring to reach the depot were compelled to wait until the train pulled out or walk a distance of 180 feet along the north platform, 100 feet across Superior avenue, which was muddy in wet weather, then around the train for about 50 feet, and westward to the depot a distance of 280 feet. According to the testimony the delay of trains from five to eight minutes at the station was occasioned by the unloading and re-loading of baggage and mail and by the movement of passengers to and from the cars.

Witness stated that there were 3,500 inhabitants of Tomah and that the passenger business of the station was heavy. Estimate was made that thirty to thirty-five passengers got on or off each day-train. Witness said that respondent's officials had been urged to erect a shed on the northern platform. The mayor of the city testified that he had received complaints from the citizens in regard to the need of a shelter shed and had several times spoken about it to the railway company's agent, who informed him that it was the intention of the company to place a shed over the platform at some time. He stated that about seven-eighths of the population resided on the depot side of the tracks.

The division superintendent of the respondent testified that the erection of an overhead covering would necessitate a rearrangement of tracks, the probable removal of a water tank at the west end of the platform, and the widening of the platform by two feet. Witness estimated the station passenger earnings at about \$2,400 a month, and expressed the opinion that the amount of business did not warrant the erection of an umbrella shed when compared with the earnings of other stations equipped with sheds. He admitted that trains carrying ten cars extended beyond Superior avenue and that nine-car trains would partly block the street, but he did not think that trains were held at the station for the length of time stated by petitioners' witnesses. He did not dispute the estimated number of passengers which it was stated boarded and left the cars at Tomah. The general superintendent of the railway company stated that he supervised the building of the platform and that he had fre-

quently been there since and on no occasion had he seen a resident of Tomah who came around the train and then to the depot, but that it was customary for such persons to walk to the east end of the platform and after going round the train to go home on Superior avenue.

Since the hearing respondent has furnished the Commission with a statement showing the time of arrival and departure of two west-bound passenger trains, Nos. 55 and 5, and one east-bound train, No. 6, for the months of October and November, 1911. An analysis of the statement shows the following stops in excess of three minutes: In October, train No. 55, two, maximum ten minutes; train No. 5, nine, maximum nine minutes; train No. 6, four, maximum six minutes. In November, train No. 55, six, maximum twenty-eight minutes; train No. 5, seven, maximum nine minutes; train No. 6, four, maximum four minutes.

Respondent has also furnished the following statement of ticket sales at Tomah for five months in 1910 and 1911:

	Local tickets.	Through tickets.	Total ticket sales.
1910			
July.....	\$2,096 39	\$323 73	\$2,420 12
August.....	2,522 39	590 94	3,113 33
September.....	2,627 17	482 29	3,109 46
October.....	1,751 10	289 99	2,041 09
November.....	1,701 70	344 75	2,046 45
5 months.....	\$10,698 75	\$2,031 70	\$12,730 45
Monthly average.....	\$2,139 75	\$406 34	\$2,546 09
1911			
July.....	\$2,365 83	\$235 03	\$2,600 86
August.....	2,593 75	433 43	3,027 18
September.....	3,837 66	524 60	4,362 26
October.....	2,569 10	241 57	2,810 67
November.....	2,345 49	404 90	2,750 39
5 months.....	\$13,711 83	\$1,839 53	\$15,551 36

One of the engineers of the Commission made an examination of the physical conditions surrounding the depot at Tomah and reports that an umbrella shed can be erected at that place for the accommodation of passengers using west-bound trains by shifting one sidetrack about five feet from its present location. His report is as follows:

“Opposite the depot are two main tracks, and three yard tracks or side tracks. The distance between the centers of the

main tracks is 13 feet, and from the center of the west-bound main track to the center of the first side track is 21 feet 3 inches. At present there is a concrete platform 12 feet 9 inches wide between these tracks. The distance between the first and second side tracks is 17 feet 11 inches, center to center, and between the second and third side tracks 13 feet. By shifting the first side track so that it is 13 feet from the second side track, the distance between the first side track and the west-bound main track would be 26 feet, 2 inches, which allows for a waiting platform 17 feet, 6 inches wide, and a width of umbrella shed of 9 feet, 6 inches, clearing the near rails by 6 feet.

“The shifting of track and erection of umbrella shed is entirely feasible and the total cost of same ought not to exceed \$500.”

The testimony clearly shows that passengers using the north platform at Tomah are exposed to the inclemency of the weather, as they must wait from ten to twenty minutes for west-bound trains. The ticket sales of the station bear out the statement of witnesses that the passenger traffic from Tomah is quite heavy and that a large number of persons are greatly discommoded and suffer much discomfort by having no place of shelter on the west-bound platform. The statement of passenger revenue shows that the local traffic is increasing. Comparison of the station earnings with the ticket sales of other stations on respondent's line where shelter sheds have been erected warrants the construction of a similar structure at Tomah, but without such comparison the passenger revenue at Tomah justifies the expenditure of the amount estimated by our engineer in the above report. We find that public necessity requires the erection of a shelter shed on the north or west-bound platform of respondent's line at Tomah.

Now, THEREFORE, IT IS ORDERED, That the respondent, the Chicago, Milwaukee and St. Paul Railway Company, erect and maintain on its north or west-bound platform at Tomah a suitable and adequate overhead covering, same to have a width of nine feet and six inches, and a length of not less than one hundred fifty feet.

Three months is deemed a reasonable time within which to comply with this order.

KIEL WOODEN WARE COMPANY

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted May 14, 1912. Decided June 7, 1912.

Petitioner alleges overcharges on a shipment of cheese boxes from Kiel to Fredonia, Wis., for which respondent was unable to furnish the car ordered. Instead it furnished two smaller capacity cars and charged the petitioner upon the minimum weight of 20,000 lbs. for each car, whereas the total weight of the shipment did not exceed 15,700 lbs. The tariff applicable to the shipment provided that, in case of the carrier's inability to supply the car asked for, two cars might be furnished, charge to be assessed on the basis of lowest rate and highest minimum weight for the one car ordered. At the time the shipment moved this rule did not apply where the combined length of the two cars exceeded 80 feet. Later the rule was changed, so that it now applies where the combined length of the cars does not exceed 83 feet. The combined length of the cars used for the petitioner's shipment was 81 feet.

Held: The overcharge in question was a result of respondent's inability to furnish the car ordered, coupled with the accidental circumstance that the cars actually furnished exceeded in combined length the limit which was soon after abandoned by the carrier. Under the circumstances the charge based upon minimum weights of 20,000 lbs. each, for two cars, was exorbitant, and a reasonable charge would have been based upon that weight for one car. Refund is ordered on this basis.

The petitioner is a corporation engaged in the manufacture of cheese boxes and other wooden ware at Kiel, Wis. In May, 1911, it made a shipment of cheese boxes from Kiel to Fredonia, Wis., over the respondent's line, and for this purpose ordered a carriage car 49 ft. 6 in. in length. The respondent company was unable to furnish such car, and instead it furnished two cars 40 and 41 feet, respectively, in length, and charged the petitioner upon the minimum weight of 20,000 lbs. for each car. The total weight of the shipment, according to the complaint, did not exceed 15,700 lbs. As the rate on cheese boxes from Kiel to Fredonia is 7.5 cts. per 100 lbs., the charge collected was \$30.00, whereas the charge based on the single minimum of 20,000 lbs. would have been only \$15.00 had the carrier furnished the car ordered.

At the time the shipment moved, the tariff applicable thereto was subject to W. T. L. circular No. 1-F, which carried a rule reading in part as follows:

“Light and Bulky Articles; Use of Two Cars for One. When one car cannot be furnished to accommodate the minimum weight of light and bulky articles, on which carload ratings are provided in tariffs, two cars may be furnished, charge to be assessed on basis of lowest rate and highest minimum weight for the one car ordered. Any excess above the minimum weight to be charged on basis of carload rate.

“This rule will not apply unless size of the car ordered is one that is in general service.

“This rule will not apply where the combined length of the two cars furnished is in excess of 80 feet.”

Since the combined length of the cars used for the petitioner's shipment was over 80 feet, the above rule could not be applied. Effective July 1, 1911, however, the rule was changed, as to the respondent company, so that it now applies where the combined length of the cars does not exceed 83 feet. Thus the petitioner's shipment, if made after July 1, 1911, would have been subject to the rule.

At the hearing, which was held at the office of the Commission May 14, 1912, there was no appearance for the petitioner. The respondent company was represented by *O. W. Dynes*, who expressed the willingness of the respondent to make refund on the basis of the rule as amended July 1, 1911.

Under the circumstances of this case, it seems that the petitioner is entitled to the refund asked for. The inability of the railway company to furnish the car asked for, coupled with the accidental circumstance that the cars actually furnished by the carrier exceeded in combined length the limit which was soon after abandoned by the carrier, resulted in the assessment of the rate for 40,000 lbs. upon a shipment weighing less than 16,000 lbs. The resulting charge of \$30.00 seems clearly exorbitant.

We therefore find and determine that the charge of \$30.00, exacted of the petitioner by the respondent upon its shipment of cheese boxes from Kiel to Fredonia, based upon minimum weights of 20,000 lbs. each for two cars, was exorbitant, and that a reasonable charge for the services rendered would have been

\$15.00, based upon a minimum weight of 20,000 lbs. for one car.

Now, THEREFORE, IT IS ORDERED, That the respondent, the Chicago, Milwaukee & St. Paul Railway Company, be and the same is hereby authorized and directed to refund to the petitioner, the Kiel Wooden Ware Company, the sum of \$15.00, being the amount herein found to have been exacted in excess of the reasonable charge upon the shipment involved.

HEINEMAN LUMBER COMPANY

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted May 14, 1912. Decided June 7, 1912.

Petitioner alleges overcharges upon a large number of shipments of logs from Heineman, Cotter, Addleman, Doering, Russian, and Bellemeyer, to Wausau, Wis. As the respondent could not furnish petitioner sufficient cars to make up trainloads of 20 cars or more, the latter was unable to take advantage of the trainload rate. A majority of the claims are already barred by limitation of the statute. These include all of the shipments from Addleman and Bellemeyer, and all but two of the cars from Russian.

Held: The present case is one of a class in which the Commission is reluctant to grant relief. When the rights of the public in general are considered it is plain that circumstances such as those here involved present much opportunity for unfair practices between shipper and carrier. Trainload rates are at best a form of discrimination in favor of the large shipper and against the small shipper. Their use has often been discouraged by the Commission. In such a case as the present, there is ample opportunity for collusion between the shipper and the carrier when the former alleges and the latter admits that the shipper's failure to comply with the conditions imposed on the use of the trainload rate was the fault of the carrier. In the instant case, however, there is nothing in the situation to indicate that the claim is not made in good faith and that the petitioner is not entitled to a refund. Taken by itself, the failure of the carrier to furnish the kind of equipment which enables the shipper to take advantage of a rate should not operate to the prejudice of the shipper. The Commission has in several cases granted refunds because of the inability of the shipper to load the cars furnished to the minimum weight specified in the tariff, and the principle here involved is similar. Under the facts appearing in the present case the total charge collected of the petitioner on the shipments in question is unreasonable and exorbitant, and a reasonable charge would have been based upon the trainload rate. Refund is ordered on this basis.

The petitioner, a corporation engaged in the lumber and logging business, with its principal office at Merrill, Wis., complains of overcharges and asks for a refund upon a large number of shipments of logs from various points on the respondent's line in Wisconsin to Wausau, Wis. The basis of the claim is that the petitioner ordered sufficient cars of the respondent company to make up trainload lots of twenty cars or more, but that the respondent was unable to furnish sufficient cars for this

purpose, and the petitioner was therefore compelled to move its logs in lots of less than twenty cars and was unable to take advantage of a trainload rate provided for shipments of twenty cars or more. The shipments in question moved from Heineman, Cotter, Addleman, Doering, Russian, and Bellemeyer, Wis., on rates of 1.5, 1.5, 1.6, 1.7, 1.8, and 1.8 cts. per 100 lbs., respectively, whereas the trainload rate from all these points to Wausau was 1.2 cts. per 100 lbs.

The answer of the respondent company admits the allegations of the petition and submits the case to the Commission upon the pleadings.

At the hearing, which was held at the office of the Commission May 14, 1912, there was no appearance for the petitioner. The respondent company, appearing by *O. W. Dynes*, consented to the granting of the refund.

As to the large majority of the shipments herein involved, an insuperable obstacle to the granting of the refund consists in the fact that the statute of limitations had already expired before the claims were filed with this Commission. The complaint in this proceeding reached the office of the Commission April 2, 1912, and so far as the Commission's records disclose, the filing of the complaint was the first presentation of these claims to the attention of the Commission. Of the 370 cars shipped, the expense bills filed with the complaint indicate that 295 cars moved prior to April 2, 1911. The claims thus barred by the statute include all of the shipments from Addleman and Bellemeyer, and all but two of the 209 cars shipped from Russian.

The claims which remain to be considered are as follows:

From	Date, 1911.	No. cars.	Total weight.	Rate, cents.	Charges collected.
Heineman.....	April 12	4	221,600	1.5	\$33 24
Heineman.....	April 18	4	215,800	1.5	32 37
Heineman.....	April 24	4	251,000	1.5	37 66
Heineman.....	May 8	7	460,400	1.5	69 09
Cotter.....	April 12	7	407,700	1.5	61 18
Cotter.....	April 12	8	487,100	1.5	73 09
Cotter.....	April 18	2	113,000	1.5	16 95
Doering.....	April 6	8	489,100	1.7	83 15
Doering.....	April 6	4	245,800	1.7	41 79
Doering.....	April 12	9	546,700	1.7	92 94
Doering.....	April 12	8	525,200	1.7	89 29
Doering.....	April 12	8	483,000	1.7	82 11
Russian.....	April 12	1	61,600	1.8	11 09
Russian.....	April 18	1	58,500	1.8	10 53
Total.....	.....	75	4,566,500	.....	\$734 48

As to the merits of the petitioner's claim for relief upon the shipments not barred by the statute, the present case is one of a class in which the Commission is reluctant to grant relief. The petition is based upon the existence of trainload rates which, because of the inability of the carrier to furnish sufficient cars, the shipper was unable to use. Every allegation of the petition is admitted by the carrier, and as between the immediate parties to the proceeding, this admission is conclusive of the existence of the facts alleged. When the rights of the public in general are considered, however, it is plain that circumstances such as those involved in the present case present much opportunity for unfair practices between shipper and carrier. Trainload rates are at best a form of discrimination in favor of the large shipper and against the small shipper. Their use has often been discouraged by this Commission. And in such a case as the present there is ample opportunity for collusion between the shipper and the carrier when the former alleges and the latter admits that the shipper's failure to comply with the conditions imposed on the use of the trainload rate was the fault of the carrier. These observations are made without any intent to impugn the good faith of the parties to the present proceeding, but their purpose is merely to point out an evil whose possibilities are so great that claims like the present are not always to be looked upon with favor.

In the instant case, however, there is nothing in the situation to indicate that the claim is not made in good faith and that the petitioner is not entitled to a refund. Taken by itself, the failure of the carrier to furnish the kind of equipment which enables the shipper to take advantage of a rate, should not operate to the prejudice of the shipper. The Commission has in several cases granted refunds because of the inability of the shipper to load the cars furnished to the minimum weight specified in the tariff, and the principle in the present case is similar. Under the facts and conditions as appearing in this record, therefore, the refund will be allowed. The charges on a total weight of 4,566,500 lbs. at the trainload rate of 1.2 cts. per 100 lbs., would amount to \$547.98, and the difference between this amount and \$734.48, the sum actually collected, will be refunded to the petitioner.

We therefore find and determine that the total charge of \$734.48 collected of the petitioner on the shipments set forth

in the above table, is, under the circumstances of this case, unreasonable and exorbitant, and that a reasonable charge for the services rendered would have been \$547.98, based upon a rate of 1.2 cts. per 100 lbs.

IT IS THEREFORE ORDERED, That the respondent, the Chicago, Milwaukee & St. Paul Railway Company, be and the same is hereby authorized and directed to refund to the petitioner, the Heineman Lumber Company, the sum of \$186.50, the amount collected of the petitioner by the respondent company upon the shipments aforesaid in excess of the amount herein found to be reasonable.

IN RE APPLICATION OF THE MINERAL POINT TELEPHONE COMPANY FOR AUTHORITY TO INCREASE ITS RATES, TOLLS, AND CHARGES.

Submitted March 21, 1912. Decided June 7, 1912.

Application is made by the Mineral Point Telephone Co. of Mineral Point, Wis., for authority to increase rates charged subscribers of connecting rural lines for switching service. Applicant alleges that beyond the limits to which it gives subscribers free service over connecting lines, patrons of other telephone companies are able to secure connection with its subscribers over the rural lines without charge, and complains that because of failure to charge for such service as toll business, it is obliged to handle a disproportionately large number of incoming calls. Applicant refuses to reconnect the rural line of the New Union Telephone Co. with its own Mineral Point exchange and to furnish switching service to additional rural lines unless such lines are full metallic. Applicant proposes to build metallic circuits for rural subscribers with not more than ten parties on a line, furnish the instruments, keep everything in repair and charge a yearly rate of \$18 per subscriber. Applicant also asks permission to render bills for switching service directly to the rural companies concerned, instead of to the subscribers of those companies, as at present.

Applicant is giving switchboard connections to nineteen rural lines, each owned by the subscribers served, for an annual switching fee of \$1.50 per subscriber. Since this rate was made the service has increased from 350 to over 800 telephones to each subscriber. The connecting rural lines are grounded, overloaded and not properly maintained. Owing to their poor condition more time of operation is required in handling rural business. A valuation was made of applicant's plant and the portion used and useful for furnishing rural service was ascertained. Expenses were apportioned between city and toll and rural service and the revenue derived from rural business determined.

Inspection and analysis of traffic conditions shows that rural lines are used for calls from the city to rural lines almost as much as for calls in the other direction, that the total amount of business with subscribers of connecting lines beyond applicant's free service zone is small and unimportant, and that this business shows a balance not very unfavorable to the applicant.

Up to the time that the rural line of the New Union Tel. Co. was discontinued from the Mineral Point switchboard a great deal of toll business which should have been handled over the metallic toll line of the New Union Tel. Co. was sent over the rural grounded line and thus escaped payment of the toll rate and increased the amount of business which had to be handled without charge by the applicant. Since the disconnection, subscribers of the rural line can call Mineral Point only through

the Dodgeville central and all messages between the two exchanges are subject to the 15 ct. toll rate.

Held: A rate of \$2 per year will not yield revenue sufficiently above the cost of service to be unreasonable. Applicant is authorized to substitute this annual rate for the present rate for switching service.

No action seems necessary with regard to the free service which subscribers of connecting lines, outside applicant's free service zone, are able to secure.

Applicant should receive payment for service furnished the rural line of the New Union Tel. Co. on the same basis that it receives payment for services furnished other rural lines. When the line of the New Union Tel. Co. between Dodgeville and Mineral Point is made full metallic, the Mineral Point Tel. Co., upon application of the patrons of that line, is to connect it to the Mineral Point switchboard and furnish service under the same conditions that service is furnished to other connected rural lines. No toll service is to be furnished over this line except where the regular toll charge is imposed.

For practical purposes rural and local lines constitute one system. If any part is defective or antiquated, it has its effect upon the system as a whole. It is hardly possible to furnish reasonably adequate service over grounded lines, especially when these lines are overloaded and poorly maintained, as they are almost certain to be unless controlled by the regulations of the switching company. The proposed regulation that the Mineral Point Tel. Co. will not extend its switching service to other rural lines unless the lines are full metallic and with not more than ten parties on a line appears to be no more than a reasonable requirement in the interest of good service. Applicant is authorized to refuse connection to its switchboard to rural lines not now connected, except upon compliance with this regulation.

As long as the proposed rate of \$18 per phone per year for rural lines of full metallic construction, limited to ten parties per line is not prima facie unreasonable, its promulgation is left, in the first instance, to the utility itself, subject to review by the Commission in case of complaints.

The applicant is authorized to render bills for switching service directly to the companies for whom the service is performed, instead of to their patrons. This is a reasonable regulation inasmuch as the applicant has not the means of compelling payment by individual subscribers of rural lines because it cannot disconnect them as in the case of local subscribers.

Application in this matter was filed with the Commission on Jan. 27, 1912. The applicant, the Mineral Point Telephone Company, is a corporation organized and doing business under the laws of the state of Wisconsin, with its principal place of business in the city of Mineral Point and is engaged in the management and operation of a telephone exchange in that city. The application relates only to the rates charged the subscribers of connecting rural lines for switching service. The present rate for this service is \$1.50 per year for each patron of such rural lines and the applicant asks for authority to increase this

rate to \$6 per year. In its application the Mineral Point Telephone Company states that it is giving switchboard connections to nineteen rural lines, each owned by the subscribers served, for an annual switching fee of \$1.50 per subscriber. These lines were built from seven to ten years ago and the application states that at that time the city exchange subscribers did not exceed 200 in number and that there were about 150 subscribers on the rural lines, so that the service did not exceed 350 telephones to each subscriber when the rate was made. Since that time the city exchange has grown to 500 subscribers, all on full metallic circuits, and the number of subscribers on the grounded rural lines has increased to about 300, without any new lines or circuits, so that the total number of telephones is now over 800. Applicant states that lines are overloaded and not properly maintained, that it is impossible to furnish good service for \$1.50 per year, that there is no prospect of the lines being improved until rebuilding becomes necessary, and that there is no prospect of rebuilding as long as the lines will carry the service at all. Because of these conditions the Mineral Point Telephone Company estimates that a rate of \$6 per year per subscriber on rural lines is needed in order to cover the cost of the service, including the proper share of taxes, interest, and depreciation.

The company also states in its application that it has made an offer to a number of farmers to build good metallic circuits to their homes, with not more than ten subscribers on a line, at a yearly rate of \$18 per subscriber, the company to build, equip and maintain the lines.

In addition to the matters involved in the formal application, there was brought to the attention of the Commission another matter which may be handled in connection with this case. This relates to service between Mineral Point and Dodgeville. For a number of years the exchanges at Dodgeville and Mineral Point were connected by two lines of the New Union Telephone Company, one a metallic toll line over which a toll of 15 cts. was charged, and the other a grounded rural line serving a number of farmers along its route. These farmers paid a rate of \$12 per year per phone to the New Union Telephone Company and received unlimited service through both switchboards. It appears to have been the practice for subscrib-

ers of the New Union Telephone Company and the Mineral Point Telephone Company, other than those immediately connected to the line in question, to make use of this rural line instead of the metallic toll line. Because of this condition the New Union Telephone Company had this line disconnected from the Mineral Point switchboard. As a result the subscribers connected to this line can now call Mineral Point only through the Dodgeville central and all messages between the two exchanges are subject to the 15 ct. toll rate. A number of these patrons wish to have their lines connected with both switchboards and to receive the same unlimited service as they formerly received.

Another matter involved in this case is the question of the right of the Mineral Point Telephone Company to refuse to do switching for any rural lines which may hereafter wish to connect with its switchboard, unless such lines are full metallic.

Hearing on all matters of the formal application was held at Madison, March 21, 1912. Appearances were as follows: For the Mineral Point Telephone Company, *N. H. Snow*, president; and *W. S. Pedley*, manager. In opposition: *Mr. Peter Steffes*, *Mr. M. F. Schaff*, *Mr. I. H. Bennett*, *Mr. N. J. Kieffer*, *Mr. W. J. Clark*, *Mr. M. W. May*, *Mr. J. D. Parkinson*, *Mr. S. W. Salmon*, *Mr. G. H. Jones*. *Mr. E. D. Parkinson*, a disinterested party, was also present.

Matters discussed at the hearing related generally to the character of the service on rural lines, to the cost of furnishing such service, and to the volume of traffic over rural lines. Other matters under discussion related to the reasonableness of the utility's proposal to furnish service to additional rural lines only in cases where lines are full metallic, and to the plan of a number of farmers living between Mineral Point and Dodgeville to build a line connecting with both switchboards and receive unlimited service in both exchange areas. All portions of the testimony have been carefully considered in connection with the findings in this case and it is not necessary to include any detailed review of it at this point.

Following is a statement of earnings and expenses as reported by the utility for the years ending as indicated:

	YEAR ENDING.	
	Jan. 17, 1910.	June 30, 1911.
EARNINGS.		
Exchange telephone earnings.....	\$5,780 75	\$6,484 80
Toll and earnings from connecting lines.....	1,054 12	1,325 87
Total earnings.....	\$6,834 87	\$7,810 67
EXPENSES.		
Central office (traffic).....	\$2,020 71	\$2,621 24
Wire plant (transmission).....	2,109 97	1,750 27
Substation (terminal).....	168 63	482 49
General.....	902 45	874 45
Undistributed.....	12 00	12 00
Taxes.....	165 83	183 94
Total operating expenses.....	\$5,379 59	\$5,924 39

Under the head of "Toll and earnings from connecting lines" the following have been included:

	YEAR ENDING.		
	Jan. 17, 1910.	June 30, 1911.	Jan. 31, 1912.
Rural line switching.....	\$394 75	\$436 65	\$426 15
Wis. Tel. Co.—15%.....	264 87	311 22	307 49
New Union Co.—toll.....	217 05	230 35	219 75
Rural lines—toll.....	177 45	157 65	176 05
Wis. Tel. Co.—checking toll.....		190 00	120 00
Total.....	\$1,054 12	\$1,325 87	\$1,249 44

The toll line of the New Union Telephone Company connects the cities of Mineral Point and Dodgeville. The Mineral Point Company receives the total amount of originating message fees. From the Wisconsin Telephone Company the Mineral Point Exchange receives 15 per cent of the revenues from messages originating at Mineral Point. The amounts listed above as toll earnings from rural lines are made up of the earnings from such outgoing messages to rural lines as are charged for by the Mineral Point office. According to the statements of officials of the company it is the practice to give any subscriber listed in its directory free service to all lines connecting to the Mineral Point switchboard and to all lines to which these may be connected. For example, a subscriber in Mineral Point may call a subscriber on the line from Mineral Point to Waldwick without charge. He may also call free of charge any subscriber of the Dukess-Prairie Company who is connected directly with the Waldwick

central, even though the party called is not paying the annual rate of \$1.50 to the Mineral Point Company and is not connected directly to the Mineral Point switchboard. Only when the call has to be handled by a third exchange, as in the case of a call for a subscriber of the Jackson or Fayette exchange, is a charge made to the local subscriber. When a call from one of these exchanges comes to Mineral Point the Mineral Point company gets nothing for handling the call. So far the situation is not unlike that regarding messages over the lines of the New Union Telephone Company between Mineral Point and Dodgeville. The complaint of the Mineral Point company with regard to this business, however, seems to arise from the failure of exchanges, such as those at Jackson and Fayette, to make any charge for messages to the Mineral Point exchange which they originate. The applicant argues that because of this failure to charge for such business as toll business, it is obliged to handle a disproportionately large number of incoming calls. It does not contend that the cost of handling this business should be borne by subscribers on rural lines directly connected to the Mineral Point switchboard, but that the originating exchange should charge for such calls and the applicant would consider its revenue from messages originated at its exchange as fair payment for its work in handling both incoming and outgoing calls; that is, the situation would be the same as in the case of the New Union line.

It was contended that the applicant is handling a large amount of business from which it secures no revenue. In order to ascertain as nearly as practicable to what extent this condition really prevails, an inspection and traffic analysis was made by representatives of the Commission. For the sake of convenience in presenting the results of this traffic analysis, subscribers on rural lines who pay the annual \$1.50 rate for switching are referred to as "class A" subscribers. All parties not listed in the Mineral Point directory who are able to secure service through that exchange are referred to as "class B" subscribers, that is, this class includes subscribers of other telephone companies who can talk through the Mineral Point exchange, over rural lines, but who pay nothing to the Mineral Point Telephone Company. This class includes a large number of telephone users whom subscribers of the Mineral Point Telephone Company can reach without extra charge, and all parties who

can be reached over rural lines upon payment of a toll charge, but who, in turn, pay nothing beyond regular exchange rates for the privilege of calling parties through the Mineral Point exchange.

A record was kept of all calls handled at the Mineral Point switchboard, from 8 a. m. May 10, 1912, to 8 a. m. May 12, 1912. Following is a summary showing, by hours, the number of calls from each class of service to each other class for the average of the two days. It is believed that this record represents fairly normal conditions, with the possible exception that the average number of calls between 6 and 8 a. m. is low, because of the light business on Sunday morning.

MINERAL POINT TELEPHONE COMPANY

Summary of Calls—Average of 2 Days.

Time.	A to city	A to A	A to B	City to A	City to B	City to city	B to A	B to city	B to B	Misc. Dodgeville	Total.	Toll.
8-9...	15.5	10	.5	7.5	.5	215	1.5	2	.....	.....	252.5	.....
9-10...	6.	6.	.5	10.	.5	108.5	.5	3.5	.....	.....	225.5	.....
10-11...	7.	2.5	.5	9.	1.	145.5	.5	2.	.....	.....	168.	.....
11-12...	5.	3.	.....	9.	.....	123.	2.5	1.	.....	.....	143.5	.....
12-1...	8.5	4.5	.....	15.5	2.	102.	.....	2.	.....	.....	134.5	.....
1-2...	7.	3.5	1.5	10.	.5	144.	.....	2.	.....	.....	168.5	.....
2-3...	6.	3.5	.5	5.	1.	123.5	3.	1.5	.....	.....	144.	.....
3-4...	5.	3.5	.5	8.	.....	149.5	.....	3.	.....	.....	169.5	.....
4-5...	6.5	3.	.....	9.5	1.	154.5	.....	3.5	.....	.....	178.	.....
5-6...	6.5	6.5	.....	8.	.5	153.5	.5	1.5	.....	.5	177.5	.....
6-7...	8.	1.	.....	11.	.....	116.	.....	1.5	.....	.....	136.5	.....
7-8...	7.5	4.5	.....	7.	.5	106.	1.5	3.5	.....	1.	131.5	.....
8-9...	3.	3.	.....	6.5	.....	34.	1.5	1.	.....	.....	49.	.....
9-10...	2.	.5	.....	1.5	.....	15.5	.....	.....	.....	.5	20.	.....
10-5...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5-6...	.....	.....	.5	.....	.....	.5	.....	.....	.....	.....	1.	.....
6-7...	2.	3.	.....	.....	.....	14.	.....	.....	.....	.....	19.	.....
7-8...	7.	3.	1.	4.5	.5	72.	.....	2.5	.....	.....	90.5	.....
Total	102.5	61.	5.5	122.	8.	1866.	11.5	30.5	.....	2.	2209.	58

The next two tables contain an analysis of the business, by hours, first according to the class calling, and second according to the class called.

MINERAL POINT TELEPHONE COMPANY

Summary of Calls, by Class Calling

Time	5-10-12-8 a. m. to 5-11-12-8 a. m.					5-11-12-8 a. m. to 5-12-12-8 a. m.					Average				
	City		Rural		Total	City		Rural		Total	City		Rural		Total
	No.	Per cent	No.	Per cent		No.	Per cent	No.	Per cent		No.	Per cent	No.	Per cent	
8-9	202	86.3	32	13.7	234	244	90.0	27	10.0	271	223	88.3	29.5	11.7	252.5
9-10	206	94.5	12	5.5	218	212	91.0	21	9.0	233	209	92.7	16.5	7.3	225.5
10-11	111	87.4	16	12.6	127	200	95.7	9	4.3	209	155.5	92.6	12.5	7.4	168
11-12	131	92.9	10	7.1	141	133	91.1	13	8.9	146	132	92.0	11.5	8.0	143.5
12-1	93	80.8	22	19.2	115	146	94.8	8	5.2	154	119.5	88.9	15	11.1	134.5
1-2	150	90.4	16	9.6	166	159	93.0	12	7.0	171	154.5	91.7	14	8.3	168.5
2-3	120	86.3	19	13.7	139	139	93.3	10	6.7	149	129.5	89.9	14.5	10.1	144
3-4	158	91.9	14	8.1	172	157	94.0	10	6.0	167	157.5	92.9	12	7.1	169.5
4-5	145	92.9	11	7.1	156	185	92.5	15	7.5	200	165	92.7	13	7.3	178
5-6	133	89.3	16	10.7	149	191	92.7	15	7.3	206	162	91.3	15.5	8.7	177.5
6-7	109	94.0	7	6.0	116	143	91.0	14	9.0	157	126	92.3	10.5	7.7	136.5
7-8	127	82.9	22	17.1	129	120	89.5	14	10.5	134	123.5	87.3	18	12.7	141.5
8-9	53	82.8	11	17.2	64	28	82.3	6	17.7	34	40	82.7	8.5	17.3	49
9-10	14	73.7	5	26.3	19	20	95.2	1	4.8	21	17	85.0	3	15.0	20
10-5	.....				.....	.....				.....	.....				.....
5-6	1	50.0	1	50.0	2	.....				.....	.5	50.0	.5	50.0	1
6-7	26	78.8	7	21.2	33	2	40.0	3	60.0	5	14	73.7	5	26.3	19
7-8	130	92.2	11	7.8	141	24	60.0	16	40.0	40	77	85.1	13.5	14.9	90.5

MINERAL POINT TELEPHONE COMPANY.

Summary of Calls, by Class Called.

Time	5-10-12-8 a. m. to 5-11-12-8 a. m.					5-11-12-8 a. m. to 5-12-12-8 a. m.					Average				
	City		Rural		Total	City		Rural		Total	City		Rural		Total
	No.	Per cent.	No.	Per cent.		No.	Per cent.	No.	Per cent.		No.	Per cent.	No.	Per cent.	
8-9	214	91.4	20	8.6	234	251	92.7	20	7.3	271	232.5	92.1	20	7.9	252.5
9-10	208	95.4	10	4.6	218	208	89.3	25	10.7	233	208	92.2	17.5	7.8	225.5
10-11	115	90.6	12	9.4	127	194	92.8	15	7.2	209	154.5	92.0	13.5	8.0	168
11-12	129	91.5	12	8.5	141	129	88.4	17	11.6	146	129	89.9	14.5	10.1	143.5
12-1	88	76.5	27	23.5	115	137	89.0	17	11.0	154	112.5	83.6	22	16.4	134.5
1-2	152	91.6	14	8.4	166	154	90.1	17	9.9	171	153	90.8	15.5	9.2	168.5
2-3	127	91.3	12	8.7	139	135	90.6	14	9.4	149	131	91.0	13	9.0	144
3-4	157	91.3	15	8.7	172	158	94.6	9	5.4	167	157.5	92.9	12	7.1	169.5
4-5	137	87.8	19	12.2	156	192	96.0	8	4.0	200	164.5	92.4	13.5	7.6	178
5-6	139	93.3	10	6.7	149	184	89.4	22	10.6	206	161.5	91.0	16	9.0	177.5
6-7	105	90.5	11	9.5	116	144	91.7	13	8.3	157	124.5	91.2	12	8.8	136.5
7-8	110	85.3	19	14.7	129	124	92.5	10	7.5	134	117	89.0	14.5	11.0	131.5
8-9	48	75.0	16	25.0	64	28	82.3	6	17.7	34	38	77.5	11	22.5	49
9-10	14	73.7	5	26.3	19	21	100.0	0	0.0	21	17.5	87.5	2.5	12.5	20
10-5	.....				.....	.....				.....	.....				.....
5-6	1	50.0	1	50.0	2	.....				.....	.5	50.0	.5	50.0	1
6-7	29	88.0	4	12.0	33	3	60.0	2	40.0	5	16	84.2	3	15.8	19
7-8	133	94.5	8	5.5	141	30	75.0	10	25.0	40	81.5	90.1	9	9.9	90.5

From the table included above, showing a summary of all calls for the average of two days, we obtain the following more condensed statement of the nature of the business:

Nature and Number of Calls.

	City to rural.	Rural to city.
8-9.....	8	17.5
9-10.....	10.5	9.5
10-11.....	10.	9.
11-12.....	9.	6.
12-1.....	17.5	10.5
1-2.....	10.5	9.
2-3.....	6.	7.5
3-4.....	8.	8.
4-5.....	10.5	10.
5-6.....	8.5	8.
6-7.....	11.	9.5
7-8.....	7.5	11.
8-9.....	6.5	4.
9-10.....	1.5	2.
10-5.....		
5-6.....		
6-7.....		2.
7-8.....	5.	9.5
Total.....	130.	133.

According to this table the rural lines are used for calls from the city to rural lines almost as much as for calls in the other direction. In addition to those shown in the last table there were an average of 78 calls per day, originating on one rural line and terminating on another, which had to be handled at the Mineral Point central.

It has not been feasible to ascertain just what ratio exists between incoming calls from such class B lines as are beyond the limits to which local subscribers are given free service and outgoing calls to these lines, as the Mineral Point company has no means of distinguishing such incoming calls from incoming calls from other class B lines. At the hearing it was stated by representatives of the applicant that this ratio was as great as twenty to one, but our inspection does not substantiate this contention. The next two tables contain the total number of calls of each class, for each of the two days and for the average of the two:

MINERAL POINT TELEPHONE TRAFFIC STUDY

Incoming Calls.

Class of service	Calls incoming 5-10-12 8 a. m.— 8 a. m.	Calls incoming 5-11-12 8 a. m.— 8 a. m.	Average for two days	Per cent of incoming calls by class	Per cent of total incoming calls
A to city.....	119	86	102.5	60.5	.....
A to A.....	71	51	61	36.0	.....
A to B.....	3	8	5.5	3.5	.....
Total A incoming....	193	145	169	100	7.5
B to A.....	9	14	11.5	27.0	.....
B to B.....	0	0	0	0	.....
B to city.....	26	35	30.5	73.0	.....
Total B incoming....	35	49	42	100	1.9
City to A.....	116	128	122	6.1	.....
City to B.....	12	4	8	0.4	.....
City to city.....	1,761	1,971	1,866	93.5	.....
Total city incoming..	1,889	2,103	1,996	100	88.0
Miscellaneous.....	4	0	2	.....	.....
Toll calls.....	50	66	58	.....	2.6
Total incoming calls.	2,167	2,363	2,265	.....	100

MINERAL POINT TELEPHONE TRAFFIC STUDY

Outgoing Calls.

Class of service	Calls outgoing 5-10-12 8 a. m.— 8 a. m.	Calls outgoing 5-11-12 8 a. m.— 8 a. m.	Average for two days	Per cent of outgoing calls by class	Per cent of total outgoing calls
City to A.....	116	128	122	62.6	.....
A to A.....	71	51	61	31.4	.....
B to A.....	9	14	11.5	6.0	.....
Total A outgoing....	196	193	194.5	100	8.6
A to B.....	3	8	5.5	40.7	.....
B to B.....	0	0	0	0	.....
City to B.....	12	4	8	59.3	.....
Total B outgoing....	15	12	13.5	100	.6
A to city.....	119	86	102.5	5.1	.....
B to city.....	26	35	30.5	1.5	.....
City to city.....	1,761	1,971	1,866	93.4	.....
Total city outgoing..	1,906	2,092	1,999	100	88.2
Miscellaneous.....	4	0	2	.....	.....
Toll calls.....	50	66	58	.....	2.6
Total outgoing calls..	2,167	2,363	2,265	.....	100

According to the first of these tables the average number of calls from class B lines was 42. The second table shows the average number of outgoing calls to class B lines to have been 13.5. In addition there were an average of 2.5 toll calls which went

to class B, bringing the total up to 16. Considering only calls between city subscribers and class B lines, we find the average number of incoming class B calls to have been 30.5 and of outgoing, 10.5.

According to the testimony offered at the hearing the class A rural phones are a little over 300 in number, and class B rural phones with which there is free exchange of service are over 600. The average of 42 incoming calls is the number of calls through Mineral Point, originated by these 600 phones and by all others beyond which are able to secure connection with Mineral Point over rural lines. The applicant does not appear to object to the volume of business coming from class B phones to which it gives its own subscribers free connection, and the only objection in regard to this business arises from the calls originating beyond these lines. With an average of 2.5 calls from Mineral Point to phones beyond the free service limits, in order to have the ratio of incoming to outgoing calls which was mentioned at the hearing, there would have to be an average of 50 calls per day originating beyond the free exchange limits. As the total number of calls from all class B lines, including the 600 or more with free exchange, averaged only 42 per day, it is evident that the importance of calls originating beyond the free exchange limits is not nearly as great as indicated by the testimony. By comparison with the total amount of business of the exchange, the number of such calls is so small as not to necessitate consideration as a separate class. If the rural lines would make a toll charge for originating messages, the number to be handled by the Mineral Point company would be cut down to some extent, but this is relatively of little importance. The rate of 42 to 16 between all incoming class B calls and all outgoing class B calls indicates that a relatively large part of the work involved in handling these calls is due to calls originating on class B lines, but it does not necessarily follow that the cost of handling should be divided on the basis of originating calls.

The next table shows something concerning the number of phones of each class connected to each of the rural lines. The applicant was unable to give very accurate information relative to the number of rural phones, but it is believed that the table is substantially correct.

Line number.	Phones at \$1.50.	B phones in free service limits.	B phones beyond.
1.....	6	106	Mifflin—215 phones.
3.....	20	13	Not known.
4.....	16	15	
5.....	20	Entire Linden exch. can	connect over this line.
6.....	14	96	Fayette & Jackson.
7.....	17	0	0
8.....	10	See line 6.....	0
9.....	14	See line 6.....	0
10.....	17	0	0
11.....	11	0	0
12.....	20	0	0
13.....	13	0	0
14.....	18	26	0
15.....	20	232	0
16.....	26	126	?
			Not known.
17.....	14	See line 6.....	0
18.....	15	0	0
19.....	12	0	0
23.....	12	15 and all coming over	line No. 5.
Total.....	305	629 and Linden exchange.	No means of knowing.

Before proceeding to the determination of a reasonable rate for switching service it may be well to call attention to certain features of the situation which have a bearing upon the conclusions to be reached.

Those rural lines which are directly connected to the switchboard are virtually a part of the Mineral Point system, at least so far as the work of the central office is concerned. If the lines were owned by the Mineral Point company there seems to be no doubt that, in accordance with well established policies of the telephone business, they would be regarded as an integral part of the exchange system, and the rates made accordingly, with due regard, of course, to differences in cost of service between rural and city lines. In this case the same general principles seem to hold. The fact that rural lines are owned by patrons who have connection with those lines does not alter their status as a working part of the Mineral Point system. As far, then, as what we have termed class A rural lines are concerned, the patrons of such lines occupy the same relation with reference to the Mineral Point company as would be held by rural patrons on similar lines owned by that company, with the possible exception of a difference in methods of paying and collecting bills. What, then, is the relation between the Mineral Point company and rural subscribers on class B lines? How is this relationship affected by the fact that the Mineral Point

exchange gives its local subscribers free service to part of the class B lines and charges toll for calls to the remainder? It can hardly be contended that rural subscribers situated on lines reaching the Mineral Point switchboard should bear the expense of messages coming into Mineral Point from class B lines. Neither does there seem to be any reason why the Mineral Point Telephone Company should switch these calls without charge, unless it is compensated in some way other than by actual payment.

It is not an uncommon practice for telephone utilities to exchange service free of charge, where such free exchange is of value to patrons of both. Without attempting, at this point, to discuss the advisability of such a custom, we have to deal with a situation where it exists. No proposal has been made by the Mineral Point company of a charge for incoming or outgoing class B calls within the present free service limits.

Considerable dissatisfaction was, however, expressed over the fact that beyond the limits to which the applicant gives its subscribers free service patrons of other telephone companies are able to secure connection with subscribers of the Mineral Point company, over the rural lines, without charge. As pointed out earlier in this decision, the importance of this part of the business seems to have been very much overestimated. It may be that incoming calls from such lines exceed the toll calls from Mineral Point to such lines, but the total amount of this business is small and relatively unimportant. If the class B lines or the utilities owning these lines, on which such incoming messages originate, were to make a charge for this service, the balance would probably be less unfavorable to the applicant, but the facts which are available do not indicate that this balance is at present very unfavorable, and no action with regard to this portion of the business seems to be necessary. There remains, then, the question of what constitutes a reasonable rate to subscribers on rural lines who are at present paying the annual rate of \$1.50 to the Mineral Point Telephone Company. This service should meet a portion of central office expenses, a small part of wire plant expenses, a part of general and undistributed expenses, and of interest, depreciation and taxes.

The report of the utility for the year ending June 30, 1911, shows the cost of the plant at the close of the year to have been \$18,000. Although it was admitted by officers of the company

that construction records had not been so kept as to be altogether reliable, there is no reason to believe that the value of the property is any less than the book value. If the book value is in error, it is probably because of being too low. A rather large amount of new work was done during the year 1911 and it is not likely that the value of the property at the beginning of the current year was less than \$20,000.

From an inspection by members of our staff it seems fair to include that property which is used and useful for furnishing rural service at about \$600. The cost new is somewhat above this amount. A reasonable allowance for interest and depreciation would be about 14 per cent of \$600, or \$84 per year. Taxes may be divided on the basis of the value of the property, which results in charging \$5.88 to the switching service, using taxes paid in February, 1912, as the normal amount.

Expenses, exclusive of taxes, interest, and depreciation, as reported to the Commission, vary considerably for the different periods for which reports have been made. In general, however, the expenses as reported for the year ending Jan. 31, 1912, appear reasonable. These were as follows:

CENTRAL OFFICE		
Operating labor	\$1,501.05	
Supplies and expenses.....	393.27	
Maintenance	276.40	
	<hr/>	
Total central office.....		\$2,170.72
WIRE PLANT		
Operation	\$236.00	
Maintenance	614.36	
	<hr/>	
Total wire plant.....		850.36
SUBSTATION		
Operation	\$208.95	
Maintenance	192.83	
	<hr/>	
Total substation		401.78
COMMERCIAL		
Collection	\$6.00	
	<hr/>	
Total commercial		6.00
GENERAL	\$1,419.40	
	<hr/>	
Total general		1,419.40
UNDISTRIBUTED		
Stationery and printing.....	\$46.10	
Insurance	81.08	
	<hr/>	
Total undistributed		127.18
	<hr/>	
Total of foregoing.....		\$4,975.44

These expenses may be accepted as normal with the exception of central office operating labor, which should be increased to about \$1,700 per year.

For purposes of this case there seem to be two bases of apportionment upon which the various groups of expenses may be distributed. Part of the expenses, such as central office operating labor, are, under the conditions existing at Mineral Point, primarily a function of the number of calls and the time required to handle each class of calls. Other expenses bear a more or less intimate relation to the value of the property used for each class of service.

Owing to the poor condition of the rural lines more of the time of operators is required in answering calls from rural lines than would be required to answer the same number of calls from city lines. To a somewhat less extent it is true, also, that calls for patrons on rural lines require more time for handling than do purely local calls. Another feature of the situation which increases the amount of time required for handling the rural business is the fact that owing to the bridging construction made necessary by the use of grounded lines the drop at the central office gets all the signals which go over the lines. The operator must keep track of all the signals over each rural line in order to pick out her own signal. If several drops fall at one time she must "plug in" to learn whether or not rings were for the central office. This is especially true of the busier portions of the day, since at such times it is not possible for the operator to watch all signals over rural lines in order to pick out the signal for central.

Taking into consideration these conditions with reference to the rural business, the results of our investigation indicate that calls to or from rural lines require about twice as much of an operator's time per call as is required for purely local business.

About 10 per cent of total operators' salaries may be apportioned to the toll business, leaving 90 per cent to be divided between local and rural.

The following table shows the relative importance of each class of calls, exclusive of toll, for the period covered by our investigation:

	Aver. No. of calls,	Factor.	No. times factor.	Percentage.
Entirely rural	78	2	156	6.1
Rural and local	265.5	2	531	20.8
Entirely local.....	1,866	1	1,866	73.1

With an equal division between local and rural business of the cost of calls from city to rural lines and vice versa, the share which should be borne by rural subscribers, of such expenses as may be apportioned on the basis of the work involved in handling calls, is 16.5 per cent of the 90 per cent apportioned to exchange business.

During most of the past year there have really been twenty rural lines connected to the board, instead of nineteen as mentioned in the proceedings in this case. One of these is a line connecting a number of stations of the Mineral Point & Northern Railroad, but from which the applicant has never received switching fees. One of these lines is cut off at present. The average number of all lines connected to the switchboard during the past year was 500. On this basis 4 per cent of such expenses as are proportional to central office investment should be borne by rural lines.

Of the total investment in wire plant it appears that between 4 and 5 per cent is used for rural business, and this percentage of wire plant expenses may be apportioned to that class.

As a result of apportioning operating expenses along the lines outlined, we secure the following results:

	Total.	City and toll.	Rural.
Central office.....	\$2,369.67	\$2,090.43	\$279.24
Wire plant.....	850.36	807.84	42.52
Substation.....	401.78	401.78	.....
Commercial.....	6.00	3.75	2.25
General.....	1,419.40	1,293.07	126.33
Undistributed.....	127.18	115.86	11.32
Interest and depreciation.....	.....	.....	84.00
Taxes.....	.....	.....	5.88
Total rural.....	.....	.....	\$551.54

Subscribers' rentals on these rural lines, for the year ending Jan. 31, 1912, aggregated \$426.15. With 305 phones earning the annual \$1.50 rate, revenues from this service would be

\$457.50. As the average number of toll calls to rural lines at the time of our inspection was only $1\frac{1}{2}$ per day, it may be said that the cost of all rural business, as determined above, is the cost of such service as is furnished for the \$1.50 annual rate. At \$2 per year, revenues would be \$610, assuming, of course, that the utility charges for service on line 19, which is now free to the twelve Mineral Point and Northern Railroad connections.

The testimony showed that although the agreements between rural lines and the Mineral Point Telephone Company do not require the applicant to maintain rural lines, as a matter of fact it has had to make repairs on such lines in several instances in order to furnish any service at all. This, together with the fact that at the time of our inspection conditions were unfavorable for the very general use of rural lines, indicates that a rate of \$2 per year will not yield revenue sufficiently above the cost of service to be unreasonable.

The Mineral Point Telephone Company asks for a ruling with regard to the reconnection to its board of the rural grounded line of the New Union Telephone Company which is connected to the Dodgeville board at one end. Up to the time that this line was disconnected from the Mineral Point switchboard, the Mineral Point Telephone Company received no revenue from it, although the subscribers along this line paid the Dodgeville exchange the regular annual rate for service rendered. The chief objection of the Mineral Point company to the reconnection of this line appears to arise from the fact that when it was connected a great deal of toll business which should have been handled over the metallic toll line of the New Union company was sent over the rural grounded line and thus escaped payment of the toll rate and increased the amount of business which had to be handled by the applicant. If a reconnection of this line is to be ordered, it should be with the distinct understanding that neither the New Union Telephone Company nor the Mineral Point Telephone Company should use this line for toll purposes. Its sole purpose should be to furnish exchange service and all toll business should be sent over the toll line between Mineral Point and Dodgeville. Also, it does not appear reasonable to order the Mineral Point exchange to furnish service to patrons on this line without securing some revenue from such service. There seems to be no reason why a distinction should

be made between rural patrons on lines from which the Mineral Point company is already deriving a revenue and those upon this line in question. The fact that these patrons are already paying the Dodgeville exchange for service rendered has nothing to do with the justice of a payment for service furnished by the Mineral Point exchange. The Mineral Point company should receive payment for service furnished to this line on the same basis that it receives payment for service furnished to other rural lines. In a portion of this decision which follows, the matter of connection of additional grounded lines to the Mineral Point switchboard is discussed. The conclusions reached there with regard to the general situation apply with equal force to this particular line. We do not believe that an order should be issued requiring the Mineral Point exchange to reconnect this line to its switchboard unless the line is made full metallic and the number of subscribers served over it limited to a reasonable number. If these suggestions are followed, that is, if both the New Union company and the Mineral Point company discontinue the practice of using this line for toll purposes, if the patrons on the line pay the Mineral Point exchange the same rental as do the other rural subscribers, and if the line is made full metallic throughout as in the case of lines which may be connected at other times in the future, we do not believe that any of the parties to this case will suffer any injustice from an order directing the Mineral Point exchange to connect this line to its switchboard and furnish service to subscribers connected with the line.

Another matter to be considered is the request of the Mineral Point company for authority to refuse to connect any more grounded rural lines to its switchboard. It may be contended that the Mineral Point company has no interest in the nature of the lines connected, and that its only concern is financial in nature. If the applicant merely switched calls between rural lines this might be true. But, as it is, the applicant is conducting a utility business of its own. It is not merely an agent of the rural lines. For practical purposes rural and local lines constitute one system. If any part is defective or antiquated, it has its effect upon the system as a whole. In practice, the company which does the switching is blamed for poor service by rural patrons, and by city patrons who use rural lines and to whom the utility owes the duty of furnishing service of a

reasonably good grade. Existing conditions at Mineral Point are sufficient to show that the company cannot give good service over grounded rural lines, especially where lines are maintained by rural patrons and where there is virtually no limit to the number of phones which may be connected.

It hardly seems fair to order the company to extend its switching service to include more rural grounded lines, when it is almost certain that the service rendered will be unsatisfactory to all parties concerned, even though the company doing the switching is not at fault. To quote from a report of our engineering staff regarding existing lines:

“When the plant was new the construction may have been good, but when it is older it becomes so poor that it is surprising that any conversation can be satisfactorily carried on. However, the hardest thing to do is to get the party on the line because it is very difficult to ring through 16 bells and is almost impossible when a receiver is down. The ringing current divides at every bell, at every receiver, at every limb of a tree which touches the wire, at every point where the wire has any contact. Where the wires are tied together loosely more resistance is offered to the current than the addition of several miles of wire. The leakage of current through the bells and to ground because of poor insulation, the increased resistance due to unsoldered joints and the induction which cannot be avoided in a grounded line, all tend to decrease the efficiency of the telephone and make it very disagreeable for all concerned.”

Progress in telephony has been such that the grounded line is no longer regarded as a properly constructed line for efficient service. In order to keep reasonably well abreast of the development of the telephone business and improvement of methods, telephone utilities are finding it necessary to put in metallic lines to take the place of the grounded ones. At the present state of development it is hardly possible to furnish reasonably adequate service over grounded lines, especially when these lines are overloaded and poorly maintained, as they are almost certain to be unless controlled by the regulations of the switching company. The proposed regulation, that the Mineral Point Telephone Company will not extend its switching service to other rural lines unless the lines are full metallic and with not more than ten parties on a line, appears to be no more than a reasonable requirement in the interests of good service, very much as the same is true in the case of the installation of me-

talic lines in local exchange areas. One other matter brought up by the applicant relates to a proposition that the utility itself would build rural lines of full metallic construction, with not more than ten parties on a line, furnish the instruments, and keep everything in repair, for \$18 per phone per year. This is a class of service not furnished at present. As long as the proposed rate is not prima facie unreasonable, its promulgation may be left, in the first instance, to the utility itself, subject to review by the Commission in case of complaints.

The applicant also asks that it be permitted to render bills for switching service directly to the rural companies concerned, instead of to the subscribers of those companies as at present. Inasmuch as the applicant has not the means of compelling payment by individual subscribers of rural lines because it cannot disconnect them as in the case of local subscribers, and as no injustice would appear to result from the proposed change, it is believed to be a reasonable regulation.

IT IS THEREFORE ORDERED:

1. That the applicant, the Mineral Point Telephone Company, be authorized to discontinue its present rate of \$1.50 per year for switching service and substitute therefor an annual rate of \$2.
2. That the applicant may render bills for such service directly to the companies for whom the service is performed, instead of to the patrons of those utilities.
3. That the applicant may refuse to furnish connection to its switchboard to rural lines not now connected, except when lines are full metallic and with not more than ten subscribers on a line.
4. That when the rural line of the New Union Telephone Company between Dodgeville and Mineral Point is made full metallic, the Mineral Point Telephone Company shall, upon application of the patrons of that line, connect that line to the Mineral Point switchboard and furnish service under the same conditions that service is furnished to other rural lines which are at present connected. No toll service shall be furnished over this line except in cases where the regular toll charge is imposed.

IN RE APPLICATION OF THE CHIPPEWA VALLEY RAILWAY,
LIGHT AND POWER COMPANY FOR AUTHORITY TO IN-
CREASE ITS RATES, TOLLS AND CHARGES.

Submitted April 26, 1912. Decided June 7, 1912.

Application is made by the Chippewa Valley Ry. Lt. & P. Co. for authority to put all its consumers of electricity in Elk Mound, Wis., on a meter basis. At present commercial consumers alone are allowed a meter rate. As no financial report has ever been made for this village, no data are available on which to base an estimate of the reasonableness of the proposed rates.

Held: When compared with schedules the company has in force in other cities, the proposed schedule does not seem to be unreasonable. As petitioner is not endeavoring to increase its revenue, but is merely seeking to level out certain inequalities in the present rate and to establish a meter rate for all consumers, there seems to be no reason why the petition should not be granted. Petitioner is authorized to substitute the proposed schedule for its present system of rates.

The petition in the above entitled matter was filed by the Chippewa Valley Railway, Light and Power Company, of Eau Claire, requesting authority to substitute for the existing electric lighting and power rates in the village of Elk Mound, certain other rates as outlined in the petition.

The legal rates in effect at the time of the filing of the application were as follows:

FLAT RATES.

Residences: Three 16 c. p. lights or less \$1.00 per month; four 16 c. p. lights \$1.20 per month; five 16 c. p. lights \$1.50 per month; the next five 16 c. p. lights at 15 cts. each, all over ten lights at 10 cts. each. Flat irons at \$1.60 per month.

Churches: 10 cts. per light per month for the first five 50 watt equivalents and 5 cts. per light per month for each additional 50 watt equivalent.

Commercial Lighting: 50 cts. for each 16 c. p. light per month except that in livery stables using five lights or more there shall be a rate of 30 cts. for each 16 c. p. light connected.

METER RATES.

The company may at its option install a meter for any commercial customer using five lights or more at the following rates: a minimum of 20 cts. for each 50 watt equivalent per month which shall include a maximum consumption of $1\frac{1}{3}$ kw. hrs. per month per lamp. For all current used in excess of $1\frac{1}{3}$ kw. hrs. per month for each connected 50 watt equivalent, the rate shall be 4 cts. per kw. hr.

POWER RATES.

Flat Rates: For each meat chopper using 2 h. p. or less \$2.50 per month; for each coffee grinder using 1 h. p. or less \$1.50 per month; for each shoemaker using 2 h. p. or less \$5.00 per month; for each feed barn or livery stable using motor for cutting hay only \$5.00 per month; for each bakery using 2 h. p. or less \$5.00 per month; for each church organ using 2 h. p. or less \$3.00 per month; for each consumer not in the above rating and using 3 h. p. or less \$5.00 per month per h. p., based on motor capacity.

Meter Rates: The rate for power to customers demanding 5 h. p. or more shall be 75 cts. per month per h. p. demanded to be based on rated motor capacity, and 2 cts. per kw. hr. for all current consumed. The company shall be authorized to charge a minimum of \$1.00 per month for each motor installed.

MISCELLANEOUS.

In the above schedule of rates all places not occupied as residences shall be considered as commercial customers and subject to the above commercial rates, unless otherwise specified.

In the above schedule of rates every lamp connected shall be figured either in units of 16 c. p. or 50 watt equivalents, according to the classification used above.

In the above schedule the minimum charge in each case shall be \$1.00 per month.

The reason given in the petition for desiring to substitute rates at Elk Mound is that its customers at that place have petitioned for a meter rate.

The rates which the petition desires to put into effect are as follows:

The company may at its option and at its own expense install meters, in which case the following schedule of rates for light and power shall apply:

LIGHTING RATES.

$12\frac{1}{2}$ cts. per kw. hr. for the first 50 hours' use of the active connected load, 8 cts. per kw. hr. for the next 50 hours' use and $4\frac{1}{2}$ cts. per kw. hr. for the balance.

ACTIVE LOAD.

Class A. Where the total connected load is equal to or less than 500 watts nominal rated capacity, 60% of such total connected load shall be termed active. Where the installation exceeds 500 watts nominal rated capacity, 33 $\frac{1}{3}$ % of such part of the total connected load over and above 500 watts shall also be termed active.

Class B. In this class 80% of the total connected load shall be termed active, except sign and window lighting, 33 $\frac{1}{3}$ % of which are active.

Class C. In this class 55% of the total connected load shall be termed active.

Minimum Bill. The minimum lighting bill will be \$1.00 per month.

POWER RATES.

75 cts. per h. p. per month and 2 cts. per kw. hr. used for installations of 20 h. p. or over.

6 cts. per kw. hr. for the first 30 hours' use of maximum demand and 3 cts. per kw. hr. for all in excess, for installations less than 20 h. p.

The term maximum demand is herein used to mean the rated capacity of motors or motor in horse power multiplied by 746 watts.

Minimum Power Bill. The minimum power bill will be 75 cts. per h. p. per month as above determined where more than 1 h. p. is installed. On installations of 1 h. p. or less the minimum bill will be \$1.00 per month.

Whenever motors and lights shall be connected upon the same meter, a minimum charge will be made as above for both motors and lights.

MUNICIPAL LIGHTING RATES.

60 c. p. Tungsten incandescent street lights. The rate shall be \$24.00 per annum per lamp for a service of approximately 4000 hours.

RENEWALS.

No free incandescent lamp renewals excepting street lights will be furnished by the company. The company will, however, sell the same at its office at a price which will simply cover the actual cost of such incandescent renewals.

The company will trim and maintain street service lamps without additional charge.

Pursuant to notice of the Commission, hearing in this matter was held at Madison on April 26, 1912, *George B. Wheeler*,

appeared in behalf of the applicant. No appearances were entered in opposition to the change.

The testimony dealt primarily with the reason for the proposed change. It was brought out that the present rates for Elk Mound consist of a flat rate for residences and commercial customers and a meter rate for commercial customers alone, and that for some time the consumers have been asking for a meter rate that would cover all classes of business. A petition signed by twenty-four of the twenty-seven customers at Elk Mound was presented asking for the proposed change.

Considerable emphasis was laid on the fact that the proposed rate is an exact duplicate of the rate this company has in effect in Altoona, and that there ought to be a unanimity of charges for the suburban villages adjacent to Eau Claire, so that there would be no charge of discrimination.

No financial and statistical report has ever been made for this village, hence no data are available on which to base an estimate of the reasonableness of the proposed rates. The existing meter rate which covers only commercial consumers was, however, compared with the rate for the same class (classes B and C) of consumers under the proposed schedule. The result of this comparison for class B seems to show that the proposed rate is a decrease when the daily use of the active connected load is less than about one hour and twenty-five minutes, and an increase when the daily use is more than that. For class C the proposed rate is a decrease when the active connected load is used less than about two hours and thirty minutes daily and an increase when more than that is used. Such being the case, the increases in rates would be very slight and probably would affect but very few of the consumers, most of them getting a reduced rate. At all events, the prospect of these increases does not seem vital enough to warrant refusal of the request for readjustment when supported by a petition signed by nearly all the customers.

No comparison could be made between the rate for residences of the proposed schedule and the existing rate for that class of consumers, the latter being a flat rate per lamp.

The proposed schedule, when compared with schedules this company has in force in other cities, does not seem to be unreasonable.

MENOMONIE.

Lighting rate—12 cts. per kw. hr. for the first 30 hrs. use per month of active connected load, 7 cts. for the next 60 hrs., and 4 cts. for all excess.

Power rate—6 cts. per kw. hr. for the first 30 hrs. use of maximum demand and 3 cts. per kw. hr. for all excess.

ALTOONA.

(Same as proposed schedule.)

CHIPPEWA FALLS.

Lighting rate—13 cts. per kw. hr. for the first 30 hrs. use per month of active connected load, 8 cts. per kw. hr. for the next 60 hrs., and 5 cts. per kw. hr. for all excess.

Power rate—Installations of 5 h. p. or more, 75 cts. per month per h. p. and 2 cts. per kw. hr. consumed.

In view of the fact that the petitioner is not endeavoring to increase its revenue, but is merely seeking to level out certain inequalities in the present rate and to establish a meter rate for all consumers, there seems to be no reason why the petition should not be granted.

IT IS THEREFORE ORDERED, That the applicant, the Chippewa Valley Railway Light and Power Company, be and the same is hereby authorized to discontinue its present system of rates at Elk Mound and to substitute therefor the rates prayed for in the petition, subject, however, to suspension and investigation in case complaint is made.

IN RE JOINT APPLICATION OF THE WAUPACA ELECTRIC LIGHT AND RAILWAY COMPANY AND THE CITY OF WAUPACA TO THE EFFECT THAT THE RAILROAD COMMISSION ACT AS ARBITRATOR IN CERTAIN MATTERS PERTAINING TO STREET LIGHTING IN THE CITY OF WAUPACA.

Submitted April 11, 1912. Decided June 7, 1912.

Application was made by the city of Waupaca, Wis., for a rehearing of the case, *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 8 W. R. C. R. 586, on the ground that the decision rendered is without the Commission's authority under the stipulation by which this matter was submitted to the Commission. The question was whether the company had substantially performed its contract by substituting 6.6 ampere a. c. enclosed arcs for the 9.6 ampere d. c. open arcs provided for in the contract. The matter was submitted to the Commission upon stipulation of the parties which provided that it be decided "as in the opinion of the said Railroad Commission would be deemed just and legal in view of all the facts and circumstances and within the terms of said contract, and in accordance with the principles of law applicable thereto." The Commission did not confine itself to the rules of evidence applicable to the trial of causes in courts, but made its investigation along its customary lines. It held that the city is not entitled to any refund or reduction of the contract price on the ground that the applicant company would not be earning a fair return on its investment if such refund or reduction were made. Applicant claims that upon the Commission's findings in regard to the relative value of the open 9.6 ampere d. c. and the enclosed 6.6 ampere a. c. arcs, on the contract under which these services were performed, and under the law it is entitled to a refund on past payments and a reduction of the contract price.

Held: Both parties to the controversy must have appreciated in transferring the matters at issue in a case pending in a court of record to the Commission as a board of arbitration for determination that the Commission would use all the instrumentalities available for ascertaining every fact bearing directly or indirectly upon the issues and the equities involved in the case. The valuation, cost of operation, etc., ascertained by the Commission, were in no wise fundamental in reaching a conclusion. They were side lights which enabled the Commission to determine the justice of the city's contention. The 6.6 ampere a. c. enclosed arc is fairly equivalent, if not superior, to the older type of arc lamps and no definite damage has resulted from the substitution. The company has substantially performed the contract. Whatever damage the city may have sustained by reason of the failure of the company to fully comply with the contract according to its express terms is covered by the interest that would now be due the company

on unpaid installments of the contract price, if full performance of such contract had been made. Under the circumstances, the application of the company for the allowance of interest will be denied. Each party will pay its own costs and disbursements incurred. The application for a rehearing is denied.

This is an application on the part of the city of Waupaca for a rehearing of the matters at issue in the above entitled proceeding. The particular points on which the rehearing is desired are stated in the petition as follows:

“That said Railroad Commission finds as a finding of fact that the lights as operated since the introduction of the new lights in the month of August, 1904, up to March 1, 1910, were from 18 to 20 per cent deficient in commercial value as a light as compared with the old 9.6 ampere open arc lights prescribed by the contract, and that said lights as operated from March 1, 1910, up to the present time, and as the company proposes to operate the same up to the completion of this contract on April 1, 1913, are and will be 10 per cent deficient as compared with the lights prescribed by the original contract; that this Commission further finds that the applicant herein has earned, according to the report for expenses for the year ending June 30, 1910, from 6.4 to 8 per cent on its total investment in the entire plant, and from somewhat less than 4 per cent to somewhat less than 6 per cent on the total investment for street lighting alone, thus determining that the applicant has not received any more for its street lights than the same were reasonably worth on account of the cost of operation of said lighting plant, and that for this reason it is decided that the city of Waupaca is not entitled to any refund for past payments or any reduction in the future from the contract price of said lights.

“The city of Waupaca specifically objects to the valuation of the company's plant by the Commission, and to the determination of the cost of operation of the company's plant by the Commission in this matter in any form whatever, for the reason that the same was not contemplated by the parties when same was referred to the Railroad Commission, and is not included in or covered by the stipulation under which said matter was referred to the Commission, and for the further reason that said valuation and said operating expenses were taken by the Commission and determined without notice to the city of Waupaca or without giving the city of Waupaca a chance to be heard upon such items. The city of Waupaca further objects to the conclusion drawn by the Commission from the evidence and facts in this case wherein and whereby they decide that the city of Waupaca is not entitled to any refund on past payments or reduction of the contract price in the future, on the

ground that the applicant company would not be earning a fair return on its investment if such refund or reduction were made, for the reason that such decision is not embraced in the scope of their authority under the stipulation by which this matter was submitted to the Commission; that the said city has at all times insisted on standing upon, and has in all ways endeavored to preserve, all of its legal rights and remedies in this matter as fully as possible, and that said stipulation upon which this matter was submitted to the Commission specifically provided that the same shall be decided 'as in the opinion of said Railroad Commission would be deemed just and legal in view of all the facts and circumstances and within the terms of said contract, and in accordance with the principles of law applicable thereto.'

"The city of Waupaca further specifically claims that upon the findings of fact made by the Commission in regard to the relative value of said lights and on the contract under which these services were performed, and the law applicable to said matters, the city of Waupaca is entitled to a refund on the amount paid to the Waupaca Electric Light and Railway Company since the month of August, 1904, up to the 1st day of March, 1910, of 20 per cent of said sums so paid, to-wit: 20 per cent of the sum of \$12,593.35, or the sum of \$2,518.67 refund, and that it is entitled to a deduction from said lighting bills of the sum of 10 percent of the contract price from the 1st day of March, 1911, until the completion of said contract on the 1st day of April, 1913, or until said contract is changed or abrogated as provided by law. Wherefore, the city of Waupaca prays that an order be made reopening said case, and that it be allowed the sum of \$2,518.67 refund, being 20 per cent of the sum of \$12,593.35 paid by it to the applicant company under said contract between the dates of the month of August, 1904, and the first day of March, 1910, and the further sum of 10 per cent of the monthly lighting bills submitted by said company to the city after the 1st day of March, 1910, up to the termination of said contract or until the same is modified or abrogated as provided by law."

The matter came on for hearing on April 11, 1912. The Waupaca Electric Light and Railway Company was represented by *Irving P. Lord*, and the respondent by *W. E. Fisher*.

The conclusions drawn by the city of Waupaca from the discussion contained in the decision of the Commission relative to the valuation, cost of operation, operating expenses, and returns upon the investment are not warranted. The Commission upon assuming jurisdiction of the case thoroughly investigated all matters which might have any bearing on the equities involved in the case. It did not deem itself confined to the rules of evi-

dence applicable to the trial of causes in courts, but assumed that its investigation should be made along the lines customarily pursued in cases brought before the Commission in the manner provided by statute. Both parties to the controversy must have appreciated in transferring the matters at issue in a case pending in a court of record to the Commission as a board of arbitration for determination that the Commission would use all the instrumentalities available for ascertaining every fact bearing directly or indirectly upon the issues and the equities involved in the case. The valuation, cost of operation, etc., which were ascertained and determined by the Commission, were in no wise fundamental in reaching a conclusion. They were side lights which enabled the Commission to determine the justice of the city's contention in the premises.

Respecting the proposed finding relative to the quality of service of the 6.6 ampere a. c. enclosed arcs as compared with that of the 9.6 ampere d. c. open arcs, it was not the purpose of the Commission to attempt the impossible task of fixing a precise money value upon any difference that might result from the difference in quality of the service furnished by the different lamps. The science and art of street illumination is in a transitory state and has not yet developed to such a stage where it is possible to measure and express in numerical units the value of the street illuminating service. The original direct current open arc lamp in common use fifteen years ago has given way almost completely to other types of lamps, the most prominent of which is the enclosed alternating current arc. The 9.6 ampere open arc lamp provided for in the contract between the city and the company has become practically obsolete and comparatively few are now in use throughout the country. Probably not more than one per cent of the existing street lamps are of the old open arc type, and such open arcs as are still in use are threatened with replacement. The inquiry before the Commission was whether the service rendered by the 6.6 ampere a. c. enclosed arc is a fair equivalent of that furnished by the 9.6 ampere d. c. open arc, or, in other words, whether the company had substantially performed its contract after substituting the modern lamp for the obsolete one provided in the contract. It is a fact universally conceded by those connected with the development of the street illuminating art that the development of the enclosed type of alternating current arc has

involved a sacrifice of efficiency of conversion of electrical energy into light energy. The enclosed alternating arc has a notable advantage over an open arc in that the trimming or replacing of the carbons is necessary only once a week instead of once a day, and this advantage has undoubtedly had much to do with the adoption and increased use of the enclosed arc. The enclosed type of arc lamp has certain advantages which have been specially emphasized as a result of the more recent investigations on illumination matters.

Through the use of the portable photometric equipment recently invented and available for street use and for the measurement of street illumination, it has been brought out with striking emphasis that the usefulness of a system of street illumination is not capable of exact measurement by means of such equipment. This is due to the fact that there are certain qualities of illumination which cannot be determined by photometric means, and these qualities have a marked influence on the light furnished. The efficiency of a telephone receiver or that of a phonograph cannot be measured in terms of loudness, since the qualities of clearness and distinctness are of equal or greater importance. In like manner, the usefulness of street lighting service is not dependent only on the intensity of the light, but upon certain other qualities as well. While the intensity can be measured directly, the other qualities can only be approximated. Among the factors other than intensity which go to make up the usefulness of street lighting are steadiness and absence of flicker, uniformity of distribution, glare and color.

The enclosed alternating arc is superior to the open arc as to the steadiness of the light emitted. The open arc is subject to the influence of air current, snow, rain, insects, etc. The carbons burning away more rapidly make more frequent demand upon the feeding mechanism, thus involving variations in the arc. A lag in the adjustment causes hissing periods during which the light is abnormally low. The wandering of the arc between the carbons causes variations in light distribution, the light being thrown down on one side of the lamp and later on the other. The wandering of the arc is more pronounced in the open arc than in the enclosed, since in the latter there is freedom from the effect of external influences; the carbon does not wear away nearly so rapidly, and the effects of

impurities are less marked; and more especially the small globe enclosing the arc serves as a distributor of the light and balances to some extent the wandering of the arc.

From observations made by inspectors of the Commission it is shown that there is more unsteadiness in open than in enclosed arcs. While no exact quantitative measurement was made of this factor, some data are given from which an approximate estimate may be derived as to fluctuations. The light given out by an arc is dependent upon the energy expended in the arc. In making tests upon 48 lamps of the 6.6 ampere a. c. enclosed type the average fluctuation expressed in per cent of minimum energy is 10.05 per cent. On testing 31 arcs of the 9.6 ampere open d. c. type, the average energy fluctuation was found to be 63.2 per cent, thus indicating a very marked difference in this respect.

An unsteady light is annoying to one who uses it. This annoyance is dependent upon the physiological influence of light of varying intensity. It throws a strain upon the mechanism of the eye which attempts to adapt itself to the varying intensities of illumination. As the adaptation cannot take place instantaneously in passing from a light period to a period of lower intensity, there appears to be a greater contrast of illumination than an actual photometric measurement would show. A steady light may therefore be of greater actual service than an unsteady one of even greater average illuminating power.

It is generally understood that the enclosed arc is superior to the open as regards uniformity of distribution of the light given out by the arcs. This is evidenced by the data presented by the inspectors' report in showing less variation.

The following figures show the results of tests on 48 6.6 ampere a. c. and 31 9.6 ampere d. c.:

	Candle feet at various distances from arc.				
	50'	100'	150'	200'	250
6.6 amp. a. c. enclosed.....	.0729	.0252	.0103	.00554	.00353
9.6 amp. d. c. open.....	.1917	.0435	.0197	.0102	.00677

Illumination at various distances expressed in terms of percentage of illumination at distance of 50 feet taken as standard:

	50'	100'	150'	200'	250'
6.6 amp. a. c. enclosed.....	100%	34.5%	14.1%	7.6%	4.85%
9.6 amp. d. c. open	100%	22.9%	10.3%	5.34	3.54

The above figures show that there is about twenty times as much luminous intensity 50 feet from the enclosed arc as there is 250 feet, while with the open arc the ratio is nearly thirty.

Uniformity of distribution is of importance, but its exact value is difficult to measure. It is dependent upon the adaptability of the eye to various degrees of luminous intensity. The human eye has an enormous range of adaptability, as evidenced by the fact that it can accommodate itself to luminous intensities of from 2000 to 800 foot-candles, common values between 8 a. m. and 4 p. m., and then adapt itself to moonlight intensities of one one-hundred-thousandth of the daylight value. Although the intensity of bright moonlight is only about .014 foot-candle, the eye accommodates itself to this light in such a manner as to convey the impression of satisfactory illumination, while when exposed to the same intensity of light from an arc lamp the impression is decidedly less satisfactory because of the less uniform distribution.

It is a well known phenomenon that light falling directly upon the eye from a brilliant source interferes materially with the ability of the eye to make use of the reflected light from objects illuminated. This effect may be almost blinding, as when facing an electric searchlight, or it may be annoying, as when one is facing a light and peering into the darkness beyond. In reading from a paper having a glazed finish it is necessary to avoid holding it in such a position with reference to the source of light that there is a glare. These are illustrations of an undesirable property of illumination designated as "glare". Glare depends upon the intrinsic brilliancy of the source of light, and the manner in which the light waves fall upon the eye, which in turn is dependent upon the location of the light. Glare is more pronounced in the 9.6 ampere open arc than in the 6.6 ampere enclosed arc, this being due to the greater intrinsic brilliancy of the arc, the unobstructed passage of the light from the arc, and the form of the light distribution. The small globe of frosted or opalescent glass used on the enclosed arc serves to diffuse the light, producing in effect a compara-

tively large surface from which the light emanates, rather than from an intensely light spot as with the open arc.

Theoretically there should be no difference between the two types of lamps as far as interruptions of service are concerned, but practical experience has shown that the series arc, the direct current type of lamp, has a larger record of "outages" than has the enclosed type arc lamp. The open arc requires a daily trimming of the carbon with a careful polishing of the feeding rod and any neglect will likely result in defective service from that lamp. Since the enclosed type of lamp requires far less attention there is less tendency for defects due to the human factor.

In making a judgment as between the two types of arc lamps from the public point of view, it appears that the enclosed type is inferior to the open as regards the total amount of light given out per lamp, this inferiority being to an extent of about 50 per cent. On the other hand, the enclosed type is superior as regards uniformity of distribution, as regards steadiness of light, as to glare, and as regards interruptions of service.

Whether these advantages of the enclosed arc type fail to compensate for the disadvantage of low efficiency, or whether they more than compensate cannot be determined numerically by any measurements which are now available. Expert opinion is found supporting either assertion, and it resolves itself at best into a matter of judgment. It can scarcely be denied that the public in making judgment as to service has the opinion that the service which is given today is not inferior to that given twenty years ago.

A most important factor which may be considered is that the direct current open arc light has become practically obsolete in this country. While economy and simplicity of operation have much to do with the introduction of the new types of lamps, it is almost inconceivable that the interests of the public would or could have been sacrificed, in view of the fact that the science of illumination was developing and that fraud would soon be detected. As results of litigation and of various publications relative to the merits of street lighting systems the public has been informed on this subject, but that information does not appear to have retarded the change from the older type of arc lamp.

In conformity with the concensus of opinion of those who employ street illumination, and with the facts as far as they have been determined by the engineering staff of the Railroad Commission, it appears that the street illumination service of today, involving as it does the general use of the enclosed 6.6 ampere a. c. arc lamp, is a fair equivalent if indeed not superior to the illumination furnished by the older types of arc lamp. This being the case, no definite or measurable damage has resulted through this development.

That the company has substantially performed the contract, although it has not fully complied therewith because of the change in the lamps, seems indisputable. Whatever damage therefore the city may have sustained by reason of the failure of the company to fully comply with the contract according to its express terms is covered by the interest that would now be due the company on unpaid installments of the contract price if full performance of such contract had been made. Under the circumstances, the application of the company for the allowance of interest will be denied. Each party will pay its own costs and disbursements incurred.

For the reasons hereinbefore assigned, the application for a rehearing is denied.

ALFRED C. BURRILL

vs.

ILLINOIS CENTRAL RAILROAD COMPANY.

Submitted Dec. 12, 1911. Decided June 15, 1912.

Petitioner demands reparation for expenses, caused by the late arrival of respondent's train at Dodgeville, Wis., which made it impossible for him to make connections with a C. & N. W. Ry. train for Madison. Complaint is also made of the habitual lateness of the train in question. Recently the service has been much improved; the delays average only one hour, and have not prevented passengers from connecting with the C. & N. W. train at Dodgeville.

Held: As this is a mixed train, delays cannot always be avoided. Since the objections complained of have been overcome and since the Commission has no authority under the law to order respondent to make reparation for expenses incurred by failure to make connections, the petition is dismissed.

The petitioner is a deputy nursery and orchard inspector for the state of Wisconsin and an instructor in economic entomology in the University of Wisconsin. The respondent is a common carrier in Wisconsin and as such is subject to the laws of the state relative thereto.

Petitioner alleges that respondent's mixed or way freight train No. 253, due to leave Freeport, Ill., at 6:45 a. m., and to arrive at Dodgeville, Wis., at 12:10 p. m., is frequently five or six hours behind schedule, and thereby misses connections at Dodgeville with east-bound train No. 120 of the Lancaster branch of the Chicago & North Western Railway, due to leave Dodgeville at 4:05 p. m.; that this failure to connect with the North Western train prevents passengers from various stations of the Illinois Central from traveling to Madison and Milwaukee in a reasonable length of time, except by circuitous and expensive routes; and that the delay caused by failure to make connections on Oct. 5, 1911, cost the agricultural college of the University of Wisconsin the loss of one day's work of its salaried instructor and \$3.69 expenses. Reparation is asked for the \$3.69 expenses.

The respondent in answer admits that train No. 253 is sometimes late, but alleges that this lateness is due to unavoidable delays incident to the operation of the trains. Respondent denies any knowledge as to the loss sustained by the agricultural college and leaves petitioner to his proof thereof, and denies that the Railroad Commission has any jurisdiction to order payment as claimed in this proceeding. Wherefore, respondent prays that the petition be dismissed.

The hearing was held Dec. 12, 1911, at the office of the Railroad Commission in the city of Madison. The petitioner appeared in his own behalf; *Jones & Schubring*, by *E. J. B. Schubring*, appeared for respondent.

Petitioner testified that on Oct. 5, 1911, he boarded respondent's train No. 253 at Blanchardville, Wis., a station south of Dodgeville, and that, as this train was about five hours late, it did not reach Dodgeville until about 4.30 p. m., thus failing to connect with train No. 120 on the North Western railway. Witness stated that because of this delay he was unable to reach Madison that night, that he was forced to stop over night at Dodgeville, and that the delay and circuitous route pursued caused expense to the agricultural college.

The superintendent of the Wisconsin division of the Illinois Central Railroad testified that train No. 253 was late on Oct. 5, 1911, because it waited at Freeport, Ill., for connections with the Chicago freight train, destined to points along the Dodgeville branch. Witness further testified that the above mentioned causes for delay are now eliminated, since instructions have been given to the yardmaster at Freeport to start the Dodgeville train on time, regardless of the Chicago freight, which, if late, is left until the next day and is then set out in cars at the stations instead of being unloaded while the train waits. In consequence of these changes witness affirmed that no complaints have been made as to the present service.

As evidence of the improvement in service respondent, on Dec. 18, 1911, submitted a statement showing the movements of train No. 253 from Nov. 22, 1911, to Dec. 11, 1911. This statement shows that during this period the train left Freeport on time every day, but arrived at Dodgeville only once on time. For the remainder of the period it averaged one hour late. Since this is a mixed train, delays cannot always be avoided, and such delays as have occurred since the new ar-

angement was put into effect have not prevented passengers from connecting with train No. 120 on the North Western.

In view of the fact that the service rendered by train No. 253 has been improved so as to overcome the objections stated in the petition, and since the Commission has no authority under the law to order the respondent to make reparation to petitioner of the expenses incurred by him in failing to make connections with the Chicago & North Western train at Dodgeville, the petition is dismissed.

21—R. D.

IN RE APPLICATION OF WISCONSIN AND NORTHERN RAILROAD COMPANY FOR APPROVAL OF PLANS AND SPECIFICATIONS OF ITS PROPOSED EXTENSION FROM WESTERN SIDING TO ANTIGO AND FROM SHAWANO TO MENASHA.

Submitted Oct. 3, 1911. Decided June 15, 1912.

Applicant, the W. & N. R. Co., submitted plans and specifications for the proposed extensions to its line of railroad from Western Siding to Antigo, and Shawano to Menasha, Wis., authorized by a certificate of public convenience and necessity. The C. & N. W. Ry. Co. opposes applicant's plan of crossing its tracks at North Kaukauna and East Appleton at grade, and submitted plans for the elimination of these grade crossings. A depression of the C. & N. W. Ry. tracks to allow an overhead crossing of applicant's line at East Appleton would also permit of a separation of grade at two highway crossings.

Held: In view of all the matters involved, overhead crossings at the intersections of applicant's line with the streets mentioned and with the C. N. W. Ry. at East Appleton are necessary for public safety. There is no necessity of a change in the method of crossing the C. & N. W. Ry. at North Kaukauna. With the exception of the plan for a grade crossing at East Appleton, the applicant's plans and specifications are approved. Whenever applicant constructs its proposed line, it is ordered to construct overhead crossings at East Appleton at its intersections with the highways in question and with the C. & N. W. Ry.

A certificate of convenience and necessity having been granted to the Wisconsin & Northern Railroad Company on Aug. 12, 1911, authorizing the construction of extensions of its line of railroad from Western Siding to the city of Antigo, all in Langlade county, Wisconsin, and from the city of Shawano, Shawano county, Wis., in a generally southerly direction to the city of Menasha, Winnebago county, Wis., and such railroad company having submitted plans and specifications of its proposed construction, hearings were had and testimony taken in regard to the mode and manner of crossing the tracks of other steam railroads and electric lines and of public streets and highways.

Hearings were held Oct. 3, 1911, and May 9, 1912, in the city of Appleton, and Nov. 6, 1911, in the city of Milwaukee. *M. J. Wallrich* appeared for the Wisconsin & Northern Rail-

road Company, *W. G. Wheeler* for the Chicago & North Western Railway Company, *F. B. Seymour* for Green Bay & Western Railroad Company, *C. M. Rosecrantz* for Wisconsin Traction, Light, Heat & Power Company, and *H. D. Ryan* for the city of Appleton.

The plans and specifications as submitted by the applicant provide for grade crossings with the Chicago & North Western Railway at Antigo, Shawano, Kaukauna (north side), Kimberly, and Appleton (east side), with the Green Bay and Western Railroad at Black Creek, and with the Wisconsin Traction Light, Heat and Power Company at Appleton (south side). The Chicago & North Western Railway Company opposed applicant's plan of crossing its tracks at North Kaukauna and East Appleton in the manner proposed, urging the necessity of a separation of grades at these two points. No objection was made by any interested line to the other grade crossings enumerated, therefore the testimony taken at the hearings was with reference to the question of grade separation at North Kaukauna and East Appleton. The assistant chief engineer of the Chicago & North Western Railway Company submitted plans, specifications, and estimates for the elimination of grade on the located line of the Wisconsin & Northern Railroad by going under the Chicago & North Western Railway at North Kaukauna. He testified that it is more desirable to separate the grades of railroad crossings when it can be accomplished at a reasonable cost, than to install an interlocking plant; that an interlocking plant does not provide absolute safeguards against accidents, and that there are numerous objections to the manner in which they are operated. He stated that the suggested underground crossing of the Wisconsin & Northern Railroad would necessarily carry applicant's line under the interurban road instead of over it as originally planned. Witness also submitted plans and estimates for a separation of grades at East Appleton by raising the grade of the Wisconsin and Northern Railroad and depressing the tracks of the Chicago & North Western Railway about six feet. He testified that an overhead crossing there would not only eliminate the railroad grade crossing, but also two highway crossings in its immediate vicinity. The located line of the Wisconsin & Northern Railroad crosses certain streets in the Fourth ward of the city of Appleton; therefore, testimony was taken as to the amount of traffic on

such streets and whether the safety of the public would be seriously menaced by the crossing of applicant's line at grade. The city engineer of Appleton testified that the proposed route crossed Newberry street and Walter avenue, which are heavily traveled by teams and automobiles. Walter avenue connects with Newberry street, which witness stated was the main artery of travel from Appleton to Kimberly, Kaukauna, and Combined Locks. He stated that if Walter avenue were diverted south of the contemplated line, the change would be a desirable one and that 95 per cent of the danger of the grade crossings over that street and Newberry street would be eliminated; that he believed if the suggested changes were made the city would vacate the abandoned part of Walter avenue, if it had a right to do so. A witness employed by the city engineer to keep count of the traffic along the present thoroughfare of Walter avenue and Newberry street testified that on May 8, 1912, there were 90 teams, 17 automobiles, and 154 foot passengers that passed the intersection of those streets from 8:30 a. m. until 6:00 p. m., and on the following day from 6:30 a. m. until 11 a. m., there were 40 teams, 9 automobiles, and 72 foot passengers. The city engineer said that these figures were below the average for the year. He testified that the Fourth ward had a population of about 2,200 to 2,300, a voting population of between 450 and 475; that the last school census showed 759 children of school age; that about 60 per cent of the ward population lies to the north and west of the located line and about 40 per cent south thereof, who would necessarily have to cross the tracks; that about 359 children of school age live south and east of the proposed line; that one school building is likewise east and south of the located line, and that about 40 per cent of the school children would be compelled to cross the tracks four times a day during the school year. The city engineer stated that the Fourth ward district of the city was growing, although not as fast as other parts of the city, but he estimated an annual growth of about 5 per cent. He said that there was an agitation for the construction of a viaduct across the river for street railway purposes, which, if built, would have a tendency to increase the growth of that district more than any other section, as it is closer to town, but at present is disadvantageously situated for residential purposes. He stated that if the Wisconsin & Northern Railroad crosses the

streets at grade there would probably be two crossings where flagmen should be stationed. The general superintendent of the street railway company testified that he thought his president was favorably disposed to the construction of the proposed viaduct and witness believed that it would be built within five years. He stated that if a viaduct were constructed, property in the Fourth ward would increase materially in value and that the district would be a very much more desirable location to live in than it is now, for the reason that one could then get to the heart of the city in five or six minutes.

After reviewing the testimony and the briefs of counsel involving the separation of grades at North Kaukauna and East Appleton, we find that an overhead crossing of the Chicago & North Western Railway by applicant's line would eliminate not only the Chicago & North Western Railway's grade crossing, but also the grade crossing at Newberry street which is a heavily traveled thoroughfare and the principal highway between Appleton and Kaukauna. A depression of the Chicago & North Western Railway to a depth of six feet and the embankment of the Wisconsin & Northern Railroad would require Newberry street crossing over the Chicago & North Western Railway Company's tracks to be changed to an overhead highway structure. While the proposed diversion of Walter avenue would eliminate a large part of the danger of a grade crossing over that road, we have no assurance that the abandoned part of the street would be vacated. Unless this were done, the crossing would always be a menace to street traffic. An overhead crossing with the Chicago & North Western Railway would also enable a separation of grade to be effected at Walter avenue. A depression of the Chicago & North Western Railway Company's tracks at the intersection of the Wisconsin & Northern Railroad would also make feasible the separation of grades at Newberry street nearer the river, by carrying the Chicago & North Western Railway Company's main track and an industry spur under the highway. We believe that the increased expenditure in the cost of construction of an overhead crossing above the estimated cost of construction at grade and the maintenance of grade crossing protection will eventually benefit the company as well as afford absolute safety to the public on the principal highway from Appleton to the northern towns on the east side of the Fox river. Present rather than future conditions ap-

pear to be best suited for this change in the plans as outlined by applicant. The section of the city of Appleton now under consideration, while having a slow growth and being but sparsely built up in the vicinity of applicant's proposed line, is shown to be contiguous to the heart of the city and to be a good residential district, but at present retarded by lack of street car facilities. The testimony of the city engineer and of the general manager of the street railway company shows that a viaduct across the river and railroad tracks is under consideration by the city and the street railway company and is likely to be built within five years, which will largely benefit that part of the city and considerably increase its population. Having taken all of these matters into consideration, we believe that overhead crossings at the intersections of the streets mentioned and at the crossing of the Chicago & North Western Railway are necessary for public safety. We see no necessity of a change in applicant's method of crossing the Chicago & North Western Railway Company's tracks at North Kaukauna. An undercrossing with the Chicago & North Western Railway on located line would practically force a crossing at grade with the interurban railway and with the highway on Draper street, or Appleton road, or entail an unusual expense in separating these grades which does not seem to be warranted under existing conditions. By this plan the Kaukauna depot grounds of the Wisconsin & Northern Railroad Company would probably be located in a cut just south of Appleton road (Draper street) with maximum gradients of 0.8 per cent against north-bound traffic and 0.6 per cent against south-bound traffic. These grades would impose a severe operating hardship on trains finding it necessary to stop at the station. A lower crossing of the Fox river would have to be taken, necessitating in all probability a draw span. The river bridge with draw span would be located on the 0.8 per cent maximum grade.

With the exception of the plan for a grade crossing at East Appleton, the plans and specifications submitted by applicant for the crossing of other railroad companies' tracks are hereby approved. The plans and specifications submitted by applicant as to the mode and manner of crossing certain highways are hereby approved (except as herein ordered) subject to further investigation by the Commission as to the feasibility of avoid-

ing grade crossings where the plans do not show the grade of highway and railroad separated.

Now, THEREFORE, IT IS ORDERED, That the applicant, the Wisconsin & Northern Railroad Co., cross the Chicago & North Western Railway at East Appleton by an overhead crossing whenever it constructs the extension of its located line in accordance with the certificate of public convenience and necessity issued to it under date of Aug. 12, 1911. It is further ordered that the applicant construct overhead crossings at Newberry street and Walter avenue in the city of Appleton where its located line intersects with such highways, in accordance with plans and specifications to be submitted to this Commission for approval.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF A
HIGHWAY CROSSING WITH THE CHICAGO, MILWAUKEE
AND ST. PAUL RAILWAY COMPANY'S TRACKS, TWO MILES
EAST OF CAMP DOUGLAS.

Decided June 15, 1912.

The Commission, on its own motion, investigated a highway crossing of the C. M. & St. P. Ry. two miles east of Camp Douglas, Wis. The highway in question is the main road from New Lisbon to Camp Douglas.

Held: The crossing should be improved and given adequate protection. The C. M. & St. P. Ry. Co. is ordered to install an automatic alarm with illuminated signal for night indication. It is further ordered to establish a 4 per cent grade on the approaches; to give the roadway a width of 32 feet, and to protect it by a fence as specified by the Commission. Sixty days is deemed a reasonable time within which to comply with this order.

After the engineering staff of the Commission had inspected the above named crossing and reported upon the physical conditions surrounding it, a hearing was ordered to determine whether the crossing is dangerous to public travel.

The hearing was held on Nov. 21, 1911, at the village hall in Camp Douglas. *F. G. Wright* appeared for the Chicago, Milwaukee and St. Paul Railway Company.

The crossing in question, known locally as Orange crossing, is located about two miles southeast of Camp Douglas, and is formed by the intersection of the main road between New Lisbon and Camp Douglas with the tracks of the Chicago, Milwaukee and St. Paul Railway Company. At this point the railroad runs northwest and southeast. The highway runs parallel to the railroad for a short distance on the south side and then crosses the tracks at an acute angle. Trees and brush growing on both sides of the track near the highway obstruct the view, so that it is impossible to see approaching trains. Witnesses testified that the approaches are very short and steep, and that the southwest approach, which is only about fifteen feet wide, has a river on one side and a fence on the other. It is estimated that about twenty vehicles and fifteen or sixteen children pass

this crossing each way daily. Minor accidents and narrow escapes have occurred at this crossing. The testimony shows that another crossing, which is located about twenty or thirty rods up the track to the northwest, connects with the highway south of the track, and that efforts were at one time made by the town officials to carry the highway on the north side of the track in order to eliminate the crossing complained of, but the land necessary for the right of way could not be obtained. The highway was later greatly improved, and a change would now be very expensive. As a means of improving the crossing, witnesses for both the town and the railway company suggested cutting away the trees and underbrush and filling in the approaches.

An engineer of the Commission inspected the crossing and reports that a separation of grades at this point is impracticable at the present time. Relocating the highway and merging the two crossings would create a condition almost, if not quite, as dangerous as now exists. The main objections to the change are: (1) the view at the south approach is more or less obstructed by scattered buildings and brush on the lots adjacent; (2) the road would be parallel to the track and immediately to the north of the right of way for some distance before reaching the merged crossing, and therefore persons coming from the direction of New Lisbon would have to turn completely around in order to see a train approaching from the east.

The present crossing has short stretches of 8, 10 and even 12 per cent grades on its approaches. The engineer recommends that the crossing be improved by filling the highway approaches to an even 4 per cent grade in either direction and grading the roadway to a width of thirty-two feet, that the approaches be protected by a standard rail fence for about two hundred feet to the southwest and one hundred and fifty feet to the northeast, and that an automatic, audible and visual signal device be installed.

IT IS THEREFORE ORDERED, That the Chicago, Milwaukee and St. Paul Railway Company install, operate and maintain at Orange crossing, situated about two miles east of Camp Douglas, an automatic, audible alarm with an illuminated sign in addition to the usual audible alarm.

IT IS FURTHER ORDERED, That the railway company improve the approaches to the crossing by establishing an even 4 per cent grade, thirty-two feet wide, in either direction, protected by a

standard rail fence for a distance of approximately two hundred feet to the southwest and one hundred and fifty feet to the northeast of the crossing.

Sixty days is deemed a reasonable time within which to comply with this order.

IN RE REQUEST OF THE PARAMOUNT POWER & REALTY COMPANY FOR AN OPINION AS TO THE NECESSITY FOR MAKING REPAIRS TO ITS DAM AT BEAVER DAM.

Decided June 15, 1912.

The Paramount Power and Realty Co. requests an opinion as to the necessity of repairs to its dam at Beaver Dam, Wis., and suggestions as to the procedure in making repairs. Inspection shows that there is very little seepage either through or under the dam, that the sea wall with which the dam is faced has deteriorated so as to be almost worthless, and that parts of the spillway and flume need rebuilding. Below the dam the river passes through the business section of the city, all of which lies several feet below the lake level. Several buildings project over the stream in such manner that any unusually large flow will be obstructed so as to force the water over the streets and flood the lower portion of the city. Residents of Beaver Dam object to any considerable lowering of the level of the lake, such as applicant deems necessary in order that repairs may be made.

Held: The condition of the dam, spillway, and flume is such that an unusual strain might cause a break which would result in great damage to property. A new concrete sea wall should be built along the entire face of the dam and the spillway should be rebuilt according to specifications prescribed by the Commission. The present flume leading to the wheelhouse should be strengthened and it would be best to rebuild it entirely of concrete. Five feet will probably be the maximum lowering of the lake's level which repairs will necessitate. Sixty days would seem to be ample time to complete the work and it should be finished in good season if begun by July 15.

The Paramount Power & Realty Company recently purchased the dam and water power at Beaver Dam. After looking over the situation along the Beaver Dam river immediately below the dam, taken in connection with the condition of the dam, the officers requested the Commission to give an opinion as to the necessity for making repairs to the dam, as to the extent of the repairs necessary, and to make some suggestions as to the procedure in case repairs were thought necessary.

HISTORICAL.

Investigations of records and inquiries from citizens and company officers developed the following facts:

A dam was constructed on this site in 1842 and 1843, being completed in June 1843. It was built of logs and timber and was about the height of the present dam which gives a head of some 10 or 11 feet. By autumn of 1843 some 18" or 20" of water was wasting over the spillway. In the spring of 1848 the dam was washed away, with the exception of perhaps two feet. It was at once reconstructed of boulders and earth to about its present height and has not been changed to any great extent since.

There is some evidence that at times water has found its way through the dam and given considerable trouble, but at present it appears to be in good condition. There is very little seepage either through or under the dam at this time, though the level of the lake has been held almost up to high water mark all spring. While an excavation was being made recently in the dam, no water entered until a depth of 9 feet was reached, which was 7½ feet below the water level. Then only a very little seeped in during the remaining two feet that were excavated.

On August 5, 1884, after considerable litigation, the court established a high water limit and had a square iron pin placed in the masonry near the flume, marking the limit above which the company might not raise the lake level. The company caused a round iron pin to be placed 2.3 inches below the square one and kept the water below the round one. The round pin is considered as high water mark, and is about 3½ feet above the floor of the spillway of the dam.

It is not known how wide the spillway originally was, but in 1882 the width was increased about 6 feet, bringing it to its present size.

Some two or three years ago the water began running over one end of the dam, but prompt filling in at that point prevented any damage being done. It is said that at that time the company had kept the level of the lake as high as possible all spring in order to conserve the power, and that a sudden rise in the lake came unexpectedly, with the above result.

THE DAM.

The dam is constructed of boulders, gravel and earth. The boulders were hauled in when the old dam failed and were thrown in at random, with earth and gravel to finish. An excavation made into the dam revealed little except earth and gravel with a few boulders, for a depth of some 11 feet from the top. However, it is probable that the point of excavation was somewhat too near the down-stream side of the dam to encounter the boulders, as there is evidence of boulder construction along the face. There is also a boulder pavement filled with gravel some 20 feet wide in front of this dam. This is about $3\frac{1}{2}$ to 4 feet below high water level at the face of the dam and slopes down to 6 or $6\frac{1}{2}$ feet below at the far edge. Beyond this pavement is very soft mud for an unknown depth. The top of the dam is about 50 feet in width at the widest points and narrows to about 30 feet near the spillway. It is faced with a rubble stone masonry sea wall 4 or 5 feet high, which rests on the boulder fill and extends about one foot above high water level. This wall was built about 1895 at a time when the stage of the water was some $6\frac{1}{2}$ feet below its present level. That year was the driest known in Wisconsin since records have been kept. This wall has deteriorated to such an extent as to be almost worthless at this time.

SPILLWAY AND FLUME.

The spillway, or waste weir, consists of two sections 15 feet wide and having the floor about $3\frac{1}{2}$ feet below the high water mark. Flash boards are used to regulate the height of water in the lake. The floor and walls are built of rubble stone masonry. While this is in fairly good condition, still it shows some signs of deterioration. The masonry does not sufficiently protect the foot of the dam, especially on each side of the spillway, from wash when a considerable amount of water is wasting through the spillway. The floor appears to rest on boulders and earth, but it is impossible from inquiry among old residents or from examination of the structure to determine just how the foundation is constructed. This can be done only after the present

floor has been removed or the foundation exposed sufficiently for a close examination to be made.

The flume is also in such condition that parts need rebuilding.

SITUATION BELOW DAM.

Below the dam the river passes through the business section of the city, all of which lies several feet below the lake level. A few feet upstream from Center street bridge, a number of two story wooden buildings project well over the stream and are built so low that the water is now (June 1912) in contact with their floor beams. Just below Center street a brick building, known as the Stock Exchange, extends nearly across the stream and the water is now within about 12 inches of the steel girders. This building rests on concrete piers and some cast iron columns and extends from the bank on one side to within 4 or 5 feet of a wooden building on the other side of the stream which rests so low that the water is in contact with the beams under the floor.

Immediately upstream from the Center street bridge the Masonic Temple has been built within the last two or three years. This is an expensive brick and concrete building extending entirely across the river. It rests on concrete piers some 3 feet in diameter and spaced about 4 feet in the clear. These piers occupy nearly one half the available waterway of the river. The building is placed so low that there is a space of only about 20" between the water and the girders. The entire flow has to pass under this building. From inquiry made on the subject it appears that the piers under this building do not go down to a great depth and any large amount of under-scour might readily undermine them, which would at once allow the building to settle into the stream. If this should happen the waterway would be completely obstructed as the street is some 5 or 6 feet above the water and solid concrete retaining walls are built on both sides of it, in both directions from the building.

Between the dam and this Masonic Temple are a great many small wooden buildings very near the river. These would be picked up and carried down stream at once in case of break in the dam. These buildings would bring up against the piers of the Temple and either shut off the waterway entirely or create

a heavy underscour which would probably destroy the building. In either case the waterway would be obstructed and the water would be forced over the streets, flooding the lower portion of the city which includes nearly the entire business section.

The danger of great destruction of property due to the obstructions to the waterway in the vicinity of Center street, is a serious matter. Great damage would undoubtedly result in case of a large volume of water being released from the lake, such as would follow a break in the dam. Any break would be sure to occur at a time when the lake level would be at its highest stage.

While the bridges over the river have been properly constructed to permit the passage of a large amount of water, the buildings have been placed in such a position that any unusually large flow will be obstructed by them.

The dam at Fox Lake is not especially strong and any exceptional rain fall might cause a break there. In such an emergency the water from Fox Lake would be added to the water in Beaver Dam Lake at a time when the latter would be at its highest stage. This would increase the danger of a break in the dam at Beaver Dam.

IMPROVEMENT PROPOSED BY COMPANY.

The Paramount Power and Realty Company recognizes the gravity of the situation as relates to the damage which would follow a break in the dam, and is very willing to do all that is necessary to make the latter entirely safe, if this can be done at a reasonable cost. To this end the company has had several prominent engineers report on the situation and they agree that though it is not in a very dangerous condition, still in view of the conditions near Center street below the dam, it is advisable to repair the dam by rebuilding the facing, the spillway and the flume.

The company declines, however, to make any repairs whatever if the cost will be great. It is not possible to develop more than about 150 horse power at this dam when conditions are favorable and much less or even no power at all during dry seasons. Rather than spend a large amount of money, the company will abandon the dam and develop its power with a steam engine. The present needs of the company are only about 50 horse power.

The improvements which the company proposes making are: The building of an entire new concrete sea wall or facing for the dam; raising the dam by means of a cobble stone pavement; rebuilding the spillway with concrete and extending the side-walls of same well out to protect the toe of the dam; and rebuilding the flume with concrete.

These improvements can not be carried out, in the opinion of the company's engineer, without first lowering the head of water in the lake sufficiently to allow the work to be done without interference and to insure control of the situation in case of an unexpected increase in the stream flow. It is claimed that it is impossible to construct a coffer-dam that will insure control of the water at its high level because of the boulder pavement in front of the dam, and that it may be necessary to lower the head as much as five feet during the time that construction is in progress.

OPINIONS OF RESIDENTS.

A representative of the Commission interviewed a number of the city officials and other prominent residents of Beaver Dam with a view to getting an expression of public opinion on the subject of lowering the level of the lake at this time. Most of those seen expressed themselves as opposed to lowering the lake to any great extent.

Some of the objections offered by the persons interviewed were as follows: That the lake is used during the summer for boating, fishing, and other such purposes, and if the lake were lowered to any appreciable extent its use for these purposes would be impaired. That the lake is shallow and a lowering of the level five feet would reduce the area to something like one-third of its present area and that whenever the lake is down a very disagreeable and unhealthful smell arises due to the decaying vegetable matter on the bottom. That evaporation on this shallow lake is heavy during the warm months and that if the water be drawn down at this time, the heavy evaporation will lower it a foot or two more. That if it be lowered now, the probability is that it will not fill again this fall, and may not fill again even next spring. That the citizens have spent many years stocking the lake with fish and there would be great danger of losing a large portion of them. That during at least one

dry season in the past, many tons of dead fish were removed during low water.

The opinion appeared to be quite general that the dam was not in need of repairs. That it has stood for sixty years and will continue to stand as long again. There were few of them that had given much thought to the seriousness of the situation in the vicinity of Center street, mentioned above, but after having their attention especially called to it, most of them admitted that a break in the dam would probably result disastrously, but thought there was little likelihood of such a thing happening. Some insisted that the company should be required to do the work without lowering the lake and take chances on a sudden rise of water, since the season of heavy rains is now passed. Others would require the company to build coffer-dams, regardless of expense.

However, since all features of the matter have now been laid before the citizens and the engineering difficulties explained, it is believed that the opinions of most of them have been changed to considerable extent and that they now realize the necessity of considerable personal sacrifices in the interests of public safety.

CONCLUSION.

It is the opinion of the Commission that public safety requires that some repairs be made on the dam at Beaver Dam. While there appears not to be any cause of alarm, the condition of the dam and the spillway, as well as of the flume, is such that an unusual strain might cause a break which would be sure to result in a large amount of damage to property in the business section of the city. It is believed that a new concrete sea wall should be built along the entire face of the dam; that it should have its base as low as it can be placed without disturbing the dam to any great extent.

The spillway should be rebuilt and increased in area either by making it wider or by lowering the floor. In this case it would appear that the latter plan would be preferable as the dam appears to be very stable, and to disturb it for the purpose of widening out the spillway may unsettle this condition. It is probable that the floor will have to be removed when the present spillway is taken out, and the new floor can probably be placed some six inches or eight inches lower without serious difficulty.

Raising the dam as proposed by the company has the effect of giving more spillway area than needed when the water rises, but as the head of water increases it subjects the dam to a correspondingly greater pressure, which is unnecessary so far as development of power is concerned. It is therefore considered that the lowering of the floor, as suggested above, is advisable. The spillway walls should be constructed in such a position as to protect the down stream side of the dam from wash.

The present flume leading to the wheelhouse should be strengthened and it would probably be best to rebuild it entirely of concrete.

In order to undertake the work of repairs and improvements above mentioned, it is believed it would be inadvisable to begin operations without first lowering the level of the lake, which at present is very near the high water mark. It is not practicable to build a coffer-dam around the spillway because of the fact that the bottom of the lake for a distance of 20 or 25 feet out from the face of the dam is covered with large boulders, and it is impossible to drive piling. A coffer-dam built across the entire distance above the dam would involve a cost so great as to be unwarranted by the value of the improvement when completed.

It is believed that during the preliminary stages of the work the water can be controlled through the flume if the level can be lowered between three feet and four feet, as a puddle wall can be constructed on the boulder floor in front of the dam which will hold for such a low head of water. As the foundations of the spillway are opened up, if it then appears necessary to go down deep for a firm footing, then the head of water should be drawn down as much as is necessary. It is believed that a lowering of five feet would be the maximum, however, as there will then be little difficulty in keeping control with a puddle wall. In improving the flume the work can be done without regard to the level of the lake, as there will be little difficulty in controlling the water for this part of the work.

Because of the uncertainty concerning the foundation of the spillway, it is difficult to estimate the time that will be required to carry out the above improvements. The work should be started soon enough to allow of its certain completion before fall rains begin. It is believed, however, that sixty days is ample time in which to do the work and that if it is begun by July 15, it can be completed in good season.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF THE CROSSING ON THE LINE OF THE MILWAUKEE ST. PAUL AND SAULT STE. MARIE RAILWAY COMPANY, ONE MILE SOUTHEAST OF DRESSER JUNCTION.

Decided June 22, 1912.

Complaint was made that the construction of a siding to a gravel pit in the town of Osceola, one mile southeast of Dresser Jct., Wis., by the M. St. P. & S. S. M. Ry. Co. rendered a highway crossing at the east end of the pit unsafe and interfered with the grade of the highway. Subsequently, an agreement was entered into by the town board and the railroad company for the elimination of the causes of complaint.

Held: In accordance with the request of the parties, the agreement should be approved. The M. St. P. & S. S. M. Ry. Co. is ordered to change the location of the crossing in the manner specified by the Commission, to pay the town board of the town of Osceola \$300 and furnish 100 cubic yard of gravel, if required. The town board is ordered to legally close and abandon part of the present highway, to furnish the right of way, and to do the grading for the new highway in accordance with the Commission's specification. Thirty days is deemed a reasonable time within which to comply with this order.

An informal complaint having been made to the Commission by the town board of supervisors of the town of Osceola, Polk county, Wis., to the effect that the highway crossing at the east end of the gravel pit one mile southeast of Dresser Jct. was rendered dangerous and unsafe by the construction and operation of a siding to the gravel pit, and also that the grade of the highway had been interfered with by the construction of the siding, a hearing was held, upon motion of the Commission, on Dec. 29, 1911, at the office of the Commission in the city of Madison. *C. N. Kalk* appeared in behalf of the Minneapolis, St. Paul & Sault Ste. Marie Railway Company.

The only witness, one of the members of the engineering staff of the Commission, submitted a blue print showing two possible propositions for remedying the defect complained of: (1) an overhead highway crossing east of the existing crossing and the switch of the gravel pit track; (2) connecting a highway to the east of the present crossing and south of the railroad

right of way with a highway to the north, this being along what is now a private road which crosses the tracks about 900 feet east of the existing public highway crossing. He testified that the overhead crossing is possible, although it would require a considerable fill to the north of the right of way, and would also require a change in the roadway to the south, throwing it out into a field and making a detour in the highway; that the present crossing is unfavorable because the highway crosses both the main track and gravel pit track, and for the further reason that there is a very steep approach between the gravel pit track and the main track on the existing crossing; that there is high ground in the northwest angle of the crossing and a cut of about 10 feet in maximum depth east of the crossing; that the view from the south approach is very fair in either direction; that the gravel pit is being used extensively, and the excavation will be continued farther to the east, making the crossing more obscured; that there is considerable travel over this highway, but that he had heard of no accidents.

On April 11, 1912, a conference was held at the crossing, the town board, a representative of the railroad company, and a member of the Commission's engineering staff being present. An agreement was then entered into by the town board and the representative of the railway company whereby the town board is to legally close the present highway, furnish the necessary right of way, and do the grading for the new highway along the route suggested at the hearing, the railway company to pay the town board the sum of \$300 and furnish 100 cubic yards of gravel if required. Both the railway company and the town board have notified the Commission in writing of this agreement and request that the necessary confirming order be issued by the Commission.

The Commission's engineer reports that the plan agreed to provides for carrying the highway north over the present private crossing, above referred to, to the present highway, a distance of approximately 600 feet. He states that the portion of the present highway extending from the present crossing north and east to the point where the proposed road would enter, about 1,100 feet, could then be abandoned as no houses are located there and the land on each side of the road is owned by the same person. In order to make such a change in the highway, the present private crossing and road would have to

be improved by putting the roadway on a 5 per cent grade from the level of the track to a point about 260 feet to the north, thence along present level grade for 50 feet, from which point the roadway should be carried on a 7 per cent grade to an intersection with the present highway.

NOW, THEREFORE, IT IS ORDERED, That the Minneapolis, St. Paul & Sault Ste. Marie Railway Company change the location of the highway crossing at the east end of the gravel pit one mile southeast of Dresser Junction to a point about 900 feet east of the present location by extending the present highway north over the present private crossing a distance of approximately 600 feet to an intersection with the present highway.

IT IS FURTHER ORDERED, That the Minneapolis, St. Paul and Sault Ste. Marie Railway Company pay to the town board of the town of Osceola the sum of \$300 and furnish 100 cubic yards of gravel, if required, as its apportionment of the expense of such improvement.

IT IS FURTHER ORDERED, That the town board of the town of Osceola shall legally close the abandoned part of the present highway, furnish the necessary right of way and do the necessary grading on the new highway, which shall have a grade of 5 per cent from the level of the track to a point about 260 feet to the north, thence along present level grade for 50 feet, from which point the grade shall be 7 per cent to an intersection with the present highway.

Thirty days is deemed a reasonable time within which to comply with this order.

M. S. MCKEE ET AL.

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY,
STANLEY, MERRILL AND PHILLIPS RAILWAY COMPANY.

Submitted Jan. 9, 1912. Decided June 22, 1912.

Petitioners allege that the M. St. P. & S. S. M. Ry. Co. and the S. M. & P. Ry. Co. do not furnish adequate station facilities in the village of Polley, Wis. The M. St. P. & S. S. M. Ry. Co. has no building for housing freight or accommodating passengers, while the caboose car, which is used by the S. M. & P. Ry. Co. as a shelter for passengers, is in a dilapidated condition and has no caretaker.

Held: Present passenger and freight facilities of respondent railroads at Polley are inadequate. The amount of business justifies the small expense necessary to provide and maintain adequate shelter. It is ordered that respondents each provide, or, at their option, jointly provide, a proper and sufficient waiting room for passengers and an adequate storeroom for freight, and that they place such station in charge of a caretaker who will heat and light the waiting room and keep it in a sanitary condition. Sixty days is deemed a sufficient time within which to comply with this order.

Petitioners are residents of Polley or Lusk, Taylor county, Wis. The respondents are common carriers of this state, subject to the laws relative thereto, and operate separate lines of railroad running directly through the village of Polley or Lusk. The village is comprised of about fifty families and is surrounded by a partially settled farming country, which is being rapidly developed. Complaint is made that the Minneapolis, St. Paul & Sault Ste. Marie Railway Company has not provided a station or proper shelter for passengers, and that the absence of a station agent results in freight being carried to the adjacent station of Gilman, causing inconvenience and delay, or, if freight is left at Polley, it remains on respondent's cinder platform without shelter or protection. Complaint is also made that the Stanley, Merrill & Phillips Railway Company is not maintaining a suitable depot for the accommodation of the traveling public and the housing of freight.

In its answer, the "Soo" company admits that it maintains no depot or station agent at Polley or Lusk but enters a general denial of the other allegations contained in the petition.

The Stanley, Merrill & Phillips Railway Company, in answering the complaint, states that two years ago it fitted up the body of a caboose for the use of its patrons as a depot, but that it had been completely wrecked by rowdies. It avers that the population and business importance of Polley or Lusk do not warrant the erection of a new station, especially since it already maintains one at Gilman, within one mile of Polley.

A hearing was held June 9, 1912, at the office of the Railroad Commission at Madison. *M. S. McKee* appeared in behalf of the petitioners, *M. W. Hodge* for the Stanley, Merrill & Phillips Railway Company, and *Kenneth Taylor* for the Minneapolis, St. Paul & Sault Ste. Marie Railway Company.

It appears that the village is termed Polley by the postal authorities and Lusk by the railway companies. For convenience the village will hereafter be referred to as Polley, the Minneapolis, St. Paul & Sault Ste. Marie Railway Company as the "Soo" line, and the Stanley, Merrill & Phillips Railway Company as the Stanley & Merrill line.

The witness for the petitioner testified that Polley is an unincorporated village of two hundred inhabitants, that its principal industry is lumbering, and that the surrounding country is rapidly developing into a good farming district. Witness further testifies that freight is not properly handled and protected by the "Soo" line, owing to the absence of a depot and a station agent at this place. The "Soo" line maintains an interlocking tower house with telephone connections to Gilman, but it is seldom possible, according to testimony, to obtain information there concerning the arrival of trains. Passenger trains on the "Soo" road are often late, and it is alleged that persons occasionally are forced to wait for two hours beyond the scheduled time of train arrivals without shelter of any kind. During inclement weather, women are compelled to wait in a saloon, 400 to 500 feet distant from the platform, and it is not possible for women and children to reach the platform in time to board trains after hearing the whistle for the station.

Assertion was made that the Stanley & Merrill line did not employ an agent for the proper care of its caboose used for station purposes, and that during cold weather the caboose was not

heated. Notwithstanding the fact that a telephone was located in the car, it was not accessible to the public as it was under lock and key. Statement was made that freight of a perishable nature often remains on the platform for several days.

A sworn statement was submitted by John Tio of Polley, showing that from Dec. 22, 1911, to Jan. 8, 1912, inclusive, 271 passengers arrived and left the Stanley & Merrill trains, and 61 on the "Soo" trains at Polley.

The traffic manager of the Stanley & Merrill line testified that patrons who were vitally interested in train service had not made any complaint. As an example of such patrons, reference was made to the Aurora Land and Lumber Co., the heaviest shipper at Polley. Statements covering freight and passenger business at Polley were submitted, showing that for one year, ending November 1911, 257 cars of freight were handled, and that for five months ending November 1911, 159,161 lbs. of less than carload freight were handled, of which the Aurora Land and Lumber Company shipped and received 55,291 lbs. Data covering passenger business show that 2,472 passengers were carried to and from Polley from June 1, 1911, to Nov. 30, 1911, inclusive.

Witness testified that the village depended entirely for its support on the sawmill of the Aurora Land and Lumber Company, which he did not believe would continue in business for more than seven or eight years. There are no other industries at Polley and no farm produce is shipped out.

The traffic manager of the Stanley & Merrill line stated that the company could not even afford to keep an agent at Gilman, although there was more business there than at Polley. He claimed it would be unreasonable to be required to furnish station facilities at Polley, only a mile or a mile and a half from the station at Gilman. Witness admitted that the location of a joint station at the crossing of the two roads was feasible, but that the amount of business did not justify the expense.

Counsel for the "Soo" line submitted a statement showing the earnings from carload and less than carload shipments at Polley for the year ending Oct. 31, 1911, as \$1,134.44. The revenue derived from 269 cash fares for the year ending Nov. 30, 1911, was \$107.70, and a letter from the company's ticket auditor which accompanied the statement explained that these earnings shown out of Polley did not all originate at that point,

as some conductors did not report Polley business separately, but grouped it with sales out of Lublin or Gilman. Counsel contended that as the "Soo" line had voluntarily stopped its passenger trains every day each way at Polley; had built a station and installed an agent as near as Gilman; and was maintaining an interlocking tower at Polley, adequate service was rendered there.

Investigation of conditions at Polley was made by a representative of the Commission. He reported that the majority of the people in the community depend upon lumbering for employment, and that, judging by the extensive repairs which the mills are undergoing and the supply of timber for future use, there seemed no reason to expect the removal of that industry from Polley within the next fifteen years. Many families have purchased homes and intend to remain there permanently. The platform used by the Stanley & Merrill line for unloading freight was full of household goods awaiting shipment, and in bad weather these goods would have been damaged.

In view of the facts set forth in the testimony and from the report of our engineer, we find that the present passenger and freight facilities of both respondent railroads at Polley are inadequate for the requirements of the community. A study of the freight tonnage and of the number of passengers carried by the Stanley & Merrill line appears to justify the small expense necessary to maintain in proper condition the caboose now used as a shelter shed, while the revenue of the "Soo" line at Polley seems sufficient to permit of maintaining a building to provide the accommodation needed by passengers using its trains.

We believe that if respondents should erect and maintain a joint building or waiting room, it could be taken care of by the towerman without interfering with his duties. Many interlocking plants in the state which take care of more traffic than exists at Polley are located in the station and the attendant performs the duties of a station agent as well as those of a towerman. If the duties of the towerman at Polley are such as to prevent his taking care of a waiting room or shelter shed, a caretaker for the latter can be employed at a reasonable expense to look after the heating and lighting of a joint building or separate structures.

NOW, THEREFORE, IT IS ORDERED, That the respondents, the Minneapolis, St. Paul & Sault Ste. Marie Railway Company

and the Stanley, Merrill & Phillips Railway Company, each provide, or, at their option, jointly provide, a proper and sufficient waiting room for passengers and an adequate storeroom for freight at the village of Polley or Lusk, and that respondents place this station in charge of a caretaker who will heat and light the waiting room and keep it in a sanitary condition.

Sixty days is deemed a sufficient period of time within which to comply with this order.

WAUKESHA LIME AND STONE COMPANY

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY,
CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted June 4, 1912. Decided June 24, 1912.

Respondent carriers complain that the distance tariff rates established by the Commission on gravel, crushed stone and lime, to be applied from Waukesha, Wis. (*Waukesha Lime & Stone Co. v. C. M. St. P. R. Co. et al.* 1912, 9 W. R. C. R. 87) are unreasonably low and discriminatory. At their request the Commission discontinued the tariffs named in its order pending the rehearing. At the rehearing petitioner claimed that the original petition was intended to cover rates on sand as well as gravel and crushed stone. The lime rate situation is so complicated as to necessitate an extended investigation and will not be determined in this proceeding. Respondents maintain that discrimination against other shipping points will result if the Commission's gravel and crushed stone rates are made effective to any one point such as Waukesha and that an unreasonable reduction will result if the Commission's rates are put into effect at all points. A shipper at Lannon, Wis., alleges unjust discrimination unless his rate on gravel and crushed stone be reduced to the level of the new Waukesha rates. Request is also made that the rates on the C. M. & St. P. Ry. from Lannon to all points within the city of Milwaukee be made equal, instead of varying with the length of the haul inside of the city. The C. M. & St. P. Ry. Co. calculates the actual distance to its particular stations in Milwaukee, while the C. & N. W. Ry. bills its shipments only to Milwaukee proper, without differentiating between its various unloading points.

Held: The low value of gravel and crushed stone, the heavy loading per car, the ease of handling and the practical immunity from damage in transit are factors conducive to a very low cost of transportation. It is ordered that respondents reestablish the rates complained of on shipments from Waukesha to points on respondents' lines within the state of Wisconsin, so far as such rates apply to gravel and crushed stone. There appears to be no valid objection to the inclusion of sand in the tariff fixed by the Commission; its value, loading per car, and conditions of shipment are very similar to those of gravel, and the application of these rates is extended to include sand. The distance rates herein ordered are not intended to supersede lower commodity rates.

No reason has been suggested why the rates at other gravel pits and stone quarries should not be the same as at Waukesha. The Commission's investigation in the previous proceeding covered conditions for the state as a whole as well as for Waukesha,

While there is every reason to believe that the facts are such as to have justified the Commission in making the order general, it is thought best under the circumstances to confine further action at this time to a recommendation that the rates herein ordered for Waukesha be made effective generally on the respondents' intrastate traffic. This leaves the matter open to further proceedings on complaint of shippers or on motion of the Commission in case the railway companies do not see fit to comply with the Commission's present recommendation.

So strict an application of the distance principle as has been made by the St. Paul road would seem to be inadvisable. The real receiving point is the city of Milwaukee and not the particular street within that city where the haul happens to end. The power of the Commission in fixing rates is not restricted to a strict distance basis in a case where all of the points grouped together are within one city and the maximum variation in distance is so small as in the present case. In fact, the Commission's distance rates themselves are made in five-mile groups, and it has never been suggested that this method of fixing distance rates is improper because the Commission has no authority to make groups of that size. It would seem fair, therefore, to designate the station of Milwaukee, as named in the distance tables of the respondent companies, as the point to which all rates for hauls terminating within the city limits of Milwaukee should be computed and it is ordered that in the application of the above named tariff upon shipments to points within the limits of the city of Milwaukee, the rates be governed by the distances from the points of origin to the station of Milwaukee as named in the respondents' tables of distances.

An order of the Commission in the above entitled case, establishing distance tariffs to be applied from Waukesha, Wis., on gravel, crushed stone, and lime was entered on April 25, 1912 (*Waukesha Lime & Stone Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 87). Soon afterward, the respondent companies filed a petition for rehearing, on the grounds that the rates fixed by the Commission are unreasonably low, that such rates are discriminatory and will result in an undue advantage to Waukesha shippers as against their competitors, that shippers of gravel, crushed stone, and lime at other points in Wisconsin had no opportunity to be heard before the Commission's order was made, and have made strong protests to the respondent companies against the discontinuance of the former tariffs and the application of the new distance tariffs from Waukesha; and that the facts upon which the Commission based its order were in some respects incomplete. In response to the prayer of the respondents in their petition for rehearing, the tariffs named in the Commission's order were suspended by the Commission until the matter could be heard.

Since the present case involves two very different classes of commodities, which are not necessarily produced by the same manufacturers or in any way connected with each other commercially, it was considered advisable at the rehearing to deal with the situation as to lime rates separately from that as to gravel and crushed stone rates. The commercial situation involved in the lime rate case is so complicated as to necessitate a somewhat extended investigation, and for this reason the crushed stone and gravel rates will be disposed of by themselves. The present report, therefore, relates only to the rates on crushed stone and gravel.

The rehearing was held at the office of the Commission on June 4, 1912. The petitioner was represented by *Merton, Newberry & Jacobson*, and *F. L. Gilbert*; and the respondent railway companies by *C. C. Wright*. Other parties appeared as interveners in the lime rate case, but had no interest in the matter of crushed stone and gravel rates. A brief on the subject of crushed stone and gravel rates has been filed by the attorney for the respondent companies.

The only evidence relating to the rates on gravel and crushed stone which was introduced at the rehearing, was that of a shipper of these commodities located at Lannon, Wis., a point on the Chicago, Milwaukee & St. Paul line 23 miles from Milwaukee. This shipper requested that he be placed upon the same distance tariff as was ordered for Waukesha, stating that he was a competitor of the Waukesha Lime & Stone Company in the city of Milwaukee and would be subjected to unjust discrimination if his rates were not reduced to the level of the new Waukesha rates. This shipper also asked that the rates from Lannon to all points within the city of Milwaukee be made equal, instead of varying with the length of the haul inside of the city. It seems that the Chicago, Milwaukee & St. Paul Railway Company maintains a number of stations within the city, and in applying distance rates to these various stations it calculates the actual distance to the particular terminal point, while the Chicago & North Western Railway Company bills its shipments only to Milwaukee proper, without differentiating between its various unloading points. As a result, the Lannon shipper, located on the St. Paul line, is subject to rates depending upon the following distances:

Lannon to	Miles
North avenue	17.5
Grand avenue	19.5
Chestnut street	20.9
Milwaukee	22.7
Allis	23.8
Stowell	24.9
Bay View	25.7

The position of the railway companies with respect to the gravel and crushed stone rates fixed by the Commission's order, is that the order should not be made effective as to any one point such as Waukesha, because the result is a discrimination against other shipping points. At the same time, the railway companies do not now feel prepared to put the Commission's distance tariff into effect at all points because of the substantial reduction that would in some cases result from such a course. The respondents therefore desire the effectiveness of the Commission's rates to be postponed until the entire situation with respect to the shipping of crushed stone and gravel within Wisconsin can be investigated and an order covering the entire state can be made.

No facts were presented at the hearing tending to show that the distance tariff of rates on gravel and crushed stone as fixed by the Commission are unreasonably low or are not as fairly applicable from other shipping points as from Waukesha. In fact, all the circumstances surrounding this tariff are of the kind that ordinarily make for the establishment of very low rates. The value of these commodities is so low that only a short haul, under the most favorable circumstances, can be had before the transportation cost exceeds the intrinsic value of the shipment. The loading per car is exceedingly heavy, averaging about 44 tons, and thus the amount of weight in the car paying a revenue to the railway company is much greater in proportion to the weight of the car itself than is the case with light loading commodities. The traffic is handled with a minimum of difficulty and the commodities are practically immune from liability to damage in transit. All of these factors conduce to a very low cost of transportation, and no reason has been suggested why the situation in these respects at other gravel pits and stone quarries should not be the same as that at Waukesha. A statement submitted by the respondent Chicago & North Western Railway Company when the Commission's original investigation in this proceeding was being made, shows the average loading of gravel and crushed stone for all shipments within Wis-

consin on the North Western line during August, 1911, as follows:

Origin of shipment.	No. cars.	Tons.	Tons per car.
<i>Gravel:</i>			
Janesville	53	2,321	44
Necedah	7	210	40
Berryville	2	68	34
Ashland	2	67	34
All other points.....	28	1,345	48
Total.....	92	4,081	44
<i>Crushed and broken stone:</i>			
Sheboygan Falls.....	22	1,151	52
Ablemans	85	3,235	38
Neshkoro	24	1,057	44
Brillion	27	1,195	44
Green Bay	12	476	40
Racine.....	102	4,980	49
Eden.....	65	2,930	45
Oshkosh	17	755	44
Waukesha	120	5,488	46
All other points.....	211	9,559	45
Total.....	685	30,826	45

It will be seen from the above figures that the heavy loading of these commodities is by no means peculiar to shipments from Waukesha, and that 44 tons per car is a very fair average figure. Based upon this average loading, the rates on gravel and crushed stone, as fixed by this Commission, are high enough to cover actual expenses of operation and yield to the railway company in addition, as a return upon its investment, fully as much as low grade commodities of this nature can fairly be expected to pay. In the absence of any indication that there are special conditions making shipments from Lannon or other points more expensive to the carrier than from Waukesha, it would seem reasonable that these rates should also be applied from Lannon and other gravel and crushed stone shipping points.

The present proceeding grew out of the complaint of a single shipper of gravel and crushed stone. The investigation of the Commission, however, was general. It covered the conditions for the state as a whole as well as for Waukesha. The rates at issue herein are also based on the facts which obtain for the intrastate traffic in general. At the rehearing other shippers besides those who are interested in the Waukesha traffic were also present and offered testimony. While there is every reason to believe that the facts are such as to have justified the Commission in making the order general, it is thought best, under the

circumstances, to confine further action at this time to a recommendation that the rates herein ordered for Waukesha be made effective generally on the respondents' intrastate traffic. This leaves the matter open to further proceedings on complaint of shippers or on motion of the Commission in case the railway companies do not see fit to comply with the Commission's present recommendation.

As to the request of the Lannon shipper of crushed stone and gravel that the unloading points within Milwaukee on the Chicago, Milwaukee & St. Paul line be grouped together under one rate instead of being subject to rates varying with the length of the haul inside the city, this would seem to be a reasonable adjustment. The Chicago & North Western Railway Company does not differentiate between its unloading points within the city of Milwaukee and so strict an application of the distance principle as has been made by the St. Paul road would seem to be inadvisable. The real receiving point is the city of Milwaukee and not the particular street within that city where the haul happens to end. It is suggested by counsel for the respondents that the Commission cannot fix rates on any other than a strict distance basis and is therefore without power to group the Milwaukee receiving points under a single rate. But whatever may be the merits of this contention as to the establishment of group rates in general, we do not believe that the power of the Commission is so circumscribed in a case where all of the points grouped together are within one city and the maximum variation in distance is as small as in the present case. In fact, the Commission's distance rates themselves are made in five-mile groups, and it has never been suggested that this method of fixing distance rates is improper because the Commission has no authority to make groups of that size. It would seem fair, therefore, to designate the station of Milwaukee, as named in the distance tables of the respondent companies, as the point to which all rates for hauls terminating within the city limits of Milwaukee should be computed.

It is claimed at the rehearing by the petitioner that the original petition was intended to cover rates on sand as well as gravel and crushed stone. Only gravel, crushed stone and lime are mentioned in the prayer for relief, however, and the principal emphasis at the first hearing was laid on these commodities. But there appears to be no valid objection to the inclu-

sion of sand with gravel and crushed stone in the tariff fixed by the Commission. Its value, loading per car, and conditions of shipment are very similar to those of gravel, and the two commodities are often placed together in commodity tariffs. Nothing was said by the representative of the respondent companies at the rehearing in opposition to the inclusion of sand in the Commission's tariff, and it will therefore be made a part of that tariff.

As was stipulated in the original opinion of the Commission in this case, the distance rates herein ordered by the Commission are not intended to supersede such commodity rates within this state, if any, as are lower than said distance rates.

IT IS THEREFORE ORDERED, That the rates named in the order of this Commission dated April 25, 1912, in the present case, be made effective on shipments from Waukesha to points on the lines of the respondents, the Chicago, Milwaukee & St. Paul Railway Company and the Chicago & North Western Railway Company, within the state of Wisconsin, insofar as such rates apply to gravel and crushed stone, and that the application of such rates be extended to include sand.

IT IS FURTHER ORDERED, That in the application of the above-named tariff upon shipments to points within the limits of the city of Milwaukee, the rates be governed by the distances from the points of origin to the station of Milwaukee as named in the respondents' tables of distances.

It is recommended, that the above named respondent companies establish the aforesaid tariff of rates on sand, gravel and crushed stone between all points on their respective lines within the state of Wisconsin where lower rates are not now in effect.

CITY OF RACINE

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted Nov. 17, 1911. Decided June 28, 1912.

Petitioner alleges that the grade crossing of the C. & N. W. Ry. tracks with the Rapids road in the city of Racine, Wis., is unsafe and dangerous to public travel and prays that respondent be ordered to provide a subway.

Held: The crossing in question is a dangerous one, but until the city decides upon permanent pavement for the Rapids road, or street cars are operated on the road, or the traffic largely increases, grade separation would not be warranted. Under present conditions, crossing gates giving continuous protection should eliminate the present dangerous condition. Respondent is ordered to maintain continuous gate protection at the crossing in question.

The petitioner is a municipal corporation located in the county of Racine, Wis., and the respondent is a common carrier of Wisconsin, subject to the laws relative thereto. The petition alleges that the crossing at the intersection of respondent's tracks with the Rapids road in Racine is rendered dangerous by the presence of the high board fence and grandstand of a ball park immediately east of respondent's right of way, which obstructs the view of south-bound trains for travelers approaching the crossing from the east. The tracks of the respondent at this point are much higher than the highway, rendering passage of heavily loaded wagons difficult. The petition states that there are two sets of tracks constituting a part of the through line of the railway company, with the result that there are many trains crossing the highway from both directions each day. The petitioner further alleges that the Rapids road is much traveled both by teams and pedestrians, as it is one of the most important highways leading into the city from the northwest. On account of the elevation of respondent's right of way, petitioner believes that it would not be difficult to construct a subway and is of the opinion that the dangerous conditions set forth in this petition justify that remedy.

In answering the petition, respondent alleges that the crossing is amply protected with gates and flagmen, and that a separation of grades is unnecessary and impracticable. It prays that the petition be dismissed.

The matter came up for hearing Nov. 17, 1911, at the city hall, Racine, Wis. The petitioner was represented by *E. R. Burgess*, city attorney, and the respondent by *C. A. Vilas*.

It appears from the testimony that at the crossing in question there are three tracks: a switching track and two main line tracks. These tracks run north and south while the intersecting highway runs northwest and southeast. It also appears that additional danger arises because the respondent allows cars to stand on the switching track so close to the crossing as to obstruct the view of approaching trains. Statement is made that about thirty-one passenger trains and two regular and several extra freight trains pass this crossing daily, some at a rate of speed of fifty-five miles an hour. Many accidents are reported as having occurred here, five of which were fatal, and the testimony also shows that narrow escapes are not infrequent. It is further alleged that at present flagmen who operate the gates are stationed at this crossing from 7 a. m. to 8 p. m. daily, and that none of the fatal accidents occurred during the time flagmen were on duty.

The general manager of the railway company stated that it would not be unreasonable to require continuous flag service at this crossing, which he believed would give adequate protection.

Upon the request of the Commission the respondent submitted a statement estimating the cost of constructing a subway within the respondent's right of way to be \$33,600, and outside the right of way as \$17,400; making a total of \$51,000, not taking into consideration any items for the drainage of the subway or for the cost of depression or diversion of sewers, water pipes, or conduits now in place under the tracks, or for damages to abutting property. The engineers of the Commission estimate the cost of subway, exclusive of damage to property and the cost of lowering the sewer, to be \$51,708, of which \$32,366 represents the cost within respondent's right of way. If, however, the subsoil would sustain the load without the use of piling, it was estimated that the cost would be \$49,840, of which \$30,425 represents costs within the respondent's right of way.

From the reports of the Commission's engineers it appears that although grade separation at this crossing is practicable, it would result in heavy damage to adjoining property. Approximately 955 feet of property fronting on the Rapids road and 200 feet fronting on Chestnut street would be damaged. It would also be necessary to lower the sewer and perhaps enlarge it to provide for draining the subway. Neither would the separation of grades eliminate the steep approaches, as the grades to the subway would be approximately 6 per cent and would be much longer than the approaches to the present crossing. The crossing in question is a dangerous one, but present traffic and general conditions do not warrant grade separation. If street cars were run on the Rapids road, it would be advisable to separate grades because of the danger of a car stopping upon the railroad tracks due to the slipping of trolley pole, or of the car jumping the track at the crossing frogs. On account of the rapid growth of the city in the vicinity, grade separation will undoubtedly be necessary in the future, but under present conditions crossing gates, giving continuous protection, should eliminate the existing dangers.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Chicago and North Western Railway Company, maintain continuous gate protection at the Rapids road crossing in the city of Racine.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, AS TO
THE SAFETY OF THE WEST ALGOMA STREET BRIDGE OVER
THE FOX RIVER IN THE CITY OF OSHKOSH, USED BY THE
WISCONSIN ELECTRIC RAILWAY COMPANY.

Decided July 1, 1912.

On motion of the Commission a rehearing was held of its order requiring the reconstruction of the West Algoma Street bridge in Oshkosh, Wis. (*In re West Algoma Street Bridge in Oshkosh*, 1912, 8 W. R. C. R. 441). The determination of the type of draw was left to the Commission after the city had submitted plans, specifications and bids for both the bascule and swing types. Owing to the requirement by the federal authorities that but one design shall be submitted for approval with respect to navigation requirements, and to other unforeseen circumstances, a considerable delay must ensue if the original program is followed out. The city also expressed a desire to have the roadway on the bridge made wider than provided in the order. The city's consulting engineers have prepared plans for a swing draw-span, single-leaf bascule draw-span and a double-leaf bascule draw-span bridge. The cost of construction and of operation are practically equal for the three arrangements.

Held: The former order is so modified as not to require the city of Oshkosh to call for bids on the swing type of draw-span. The double-leaf bascule bridge is preferable under present conditions of equal initial cost and equal cost of operation, chiefly because it effectually closes both ends of the draw-span when the draw is open, thus affording greater protection to the street traffic than either of the other types. The double-leaf bascule type of draw-span is ordered adopted for the bridge, the draw-span to be arranged for one man operation. It is only just that the city be prepared to meet the increased cost due to its request of increase in width of roadway on the bridge. Seven per cent of the cost of the structure contemplated in the original order, or approximately \$12,000, is a reasonable and fair proportion to lay upon the street railway, and the company is ordered to contribute that amount. It is ordered that the roadway have a clear width of 28 feet, with a 6 foot sidewalk on each side, protected on the outside by a hand rail, as provided in the original order. Complete plans for the structure are to be submitted to the Commission by Sep. 5, 1912; actual construction is to commence within sixty days after the approval thereof and the bridge is to be completed and ready for service within one year from the same date. The provisions of the former order are to hold except as herein modified.

Rehearing on motion of the Commission. Modification of order requiring the reconstruction of the West Algoma street bridge.

A decision was filed in the above entitled proceeding on Jan. 5, 1912. The original order did not specify the type of draw-span to be used, but left that matter to be decided by this Commission after a study of comparative plans, specifications and bids. Owing to the requirement by the federal authorities that but one design shall be submitted for approval with respect to navigation requirements, and to other unforeseen circumstances, a considerable delay must ensue if the original program is followed out. A rehearing was held at the city hall in Oshkosh at 2:00 p. m., June 19, 1912.

The statement is made, in the former order, that "The element of cost seems to be the only one * * * in which the swing draw has the advantage, and unless the advantage in that respect is a substantial one, the Commission would favor and recommend the use of the bascule type because of the greater safety it provides for the street traffic."

The situation then is, that the swing type must show sufficient economy both in first cost and operation to make it plain that the increased safety provided by the bascule type would be purchased at an exorbitant price. It is difficult to fix a satisfactory limit to the price of safety, and it may even be argued that there should be no such limit. We believe, however, that in a case like this there is a practical limit. For example, a saving of \$10,000 in favor of the swing type not only would provide safety gates at each end of the draw-span, but if properly invested would provide largely for the maintenance of the structure. If, in addition to a substantial saving in first cost, the swing type could be operated with but half the expense of the bascule type, this Commission would feel that the interests of the city demanded the adoption of the swing type. The question is, does the swing type promise such economy either in first cost or in operation.

It was hoped that, in making this decision, the comparison of first costs could be based upon figures furnished by actual bids. As it is, no detail plans have been made as yet, and the comparison must be based upon estimates. The Scherzer Rolling Lift Bridge Company, which has entered into an agreement with the city of Oshkosh to act as the city's consulting en-

gineer for the construction of this bridge, has prepared general plans for three different arrangements of spans as follows:

- (a) Swing draw-span.
- (b) Single-leaf bascule draw-span.
- (c) Double-leaf bascule draw-span.

Comparative estimates for the superstructures, based upon a knowledge of the cost of similar spans, were furnished by the Scherzer Company as follows:

Total length of bridge 614 feet.
 One 28 foot roadway.
 Two 8 foot sidewalks.
 Specifications—Cooper's Highway & Electric Railway.
 Loading—40 ton car on each track and 100 lbs. per square foot.

SWING TYPE OF DRAW-SPAN

Superstructure Estimate for One 234 Foot Swing Span

Structural steel	650,000 lbs. at	\$.045	\$29,250
Cast steel track plates and pedestals	10,000 " "	.08	800
Machinery	25,000 " "	.11	2,750
Flooring	28 M ft. BM "	50.00	1,400
Railing	470 lin. ft. "	1.50	705
Power equipment, signals, and house (electrical operation)			2,500
Creosote block pavement.....	730 sq. yds. "	2.00	1,460
			\$38,865
Total for draw-span.....			\$38,865

Superstructure Estimate for Four 95 Foot Approach Spans

Structural steel	800,000 lbs. at	\$.04	\$32,000
Flooring	44 M ft. BM "	50.00	2,200
Railing	760 lin. ft. "	1.50	1,140
Block pavement	1,180 sq. yds. "	2.00	2,360
			\$37,700
Total for approach spans.....			\$37,700
Total for entire superstructure.....			\$76,565

SINGLE-LEAF BASCULE TYPE OF DRAW-SPAN

Superstructure Estimate for Lift Span and 80 Foot Track Girder (about 186 feet)

Structural steel lift span	320,000 lbs.	} 550,000 lbs. at	\$.045	\$24,750
Structural steel track girders	230,000 lbs.			
Cast steel track plates and pedestals	6,000 " "		.08	480
Machinery	32,000 " "		.11	3,520
Counterweight	220 cu. yds. "		10.00	2,200
Flooring	23 M ft. BM "		50.00	1,150
Railing	380 lin. ft. "		1.50	2,570
Power equipment, signals and house (electrical operation)				2,500
Creosote block paving—3½".....	580 sq. yds. "		2.00	1,160
				\$36,330
Total for lift span and track girder.....				\$36,330

Superstructure Estimate for Five 80 Foot Approach Spans

Structural steel	800,000 lbs. at	\$.04	\$32,000
Flooring	48 M ft. BM "	50.00	2,400
Railing	800 lin. ft. "	1.50	1,200
Block pavement	1,250 sq. yds. "	2.00	2,500
Total for approach spans.....			\$38,000
Total for entire superstructure.....			\$74,430

DOUBLE-LEAF BASCULE TYPE OF DRAW-SPAN

Superstructure Estimate for Lift Span (about 135 feet)

Structural steel movable 250,000)	350,000 lbs. at	\$.045	\$15,750
Structural steel fixed 110,000 }			
Cast steel track plates and pedestals	4,000 " "	.08	320
Machinery	23,000 " "	.11	2,530
Counterweight	135 cu. yds. "	32.00	4,320
Flooring	17 M ft. BM "	50.00	850
Railing	270 lin. ft. "	1.50	405
Power equipment, signals and house (electrical operation)			2,500
Creosote block paving—3½".....	420 sq. yds. "	2.00	840
Total for lift span.....			\$27,515

Superstructure Estimate for Six 80 Foot Approach Spans

Structural steel	960,000 lbs. at	\$.04	\$38,400
Flooring	60 M ft. BM "	50.00	3,000
Railing	1,000 lin. ft. "	1.50	1,500
Block pavement	1,500 sq. yds. "	2.00	3,000
Total for approach span.....			\$45,900
Total for entire superstructure.....			\$73,415

SUMMARY

Swing type (cost of entire superstructure).....	\$76,565
Single-leaf bascule type (cost of entire superstructure).....	74,430
Double-leaf bascule type (cost of entire superstructure).....	73,415

No estimates have been prepared for the substructure, due to conflicting information at hand in regard to the depth of good foundation. However, a study of the general plans indicates that the cost of the substructure will be practically the same for all three of the arrangements above mentioned.

While the above estimates are only approximations to what the actual cost will be, they are sufficient to indicate that, not taking into account the matter of patent rights, which, in this case, has been eliminated by the city's choice of consulting engineers, the cost of the three arrangements are practically equal. It may be well to explain that in stating that patent rights have been eliminated, we refer merely to the effect such patent rights

might have upon a comparison of the various types of bridge. The fee which the Scherzer company is to receive as consulting engineer will, of course, include the value of the patent rights. This fee, however, is a fixed sum and is to be paid by the city regardless of the type finally chosen, so that practically the Scherzer company would receive their royalty on whatever type of draw-span may be chosen by this Commission. In this particular case then, so far as first cost goes, neither type has any great advantage.

Coming to the matter of operation, the swing type and the single-leaf bascule are on an equal footing, each being operated by one man. In regard to the double-leaf bascule there is a difference of opinion, the Scherzer company claiming that it can be operated by one man, whereas it is customary in the cities of Milwaukee and Chicago, where there are numerous examples of the bascule type of draw-span, to employ one operator for each leaf, or two men for each double-leaf bridge. This requires an expenditure for operation, double that required for a swing span or for a single-leaf bascule, and the extra cost of operation may easily amount to \$1,000 per year, or the interest on \$20,000. There are no serious mechanical difficulties to be overcome in arranging the double-leaf bascule so that one man can operate both leaves; the question, therefore, is whether one man can operate both leaves without danger to the traffic. In support of their claim the Scherzer company has submitted the following list of double-leaf bascule bridges operated by one man:

No	Location.	Street.	Year built.	Length.	Width.	No. of tracks.
1	New York City.....	Hamilton ave.....	1905	60'-0"	48'-0"	2
2	" " ".....	Union ave.....	1905	58'-0"	48'-0"	2
3	" " ".....	Third st.....	1905	56'-0"	48'-0"	2
4	" " ".....	Ninth st.....	1905	56'-0"	48'-0"	2
5	Saginaw, Mich.....	Genessee ave.....	1908	108'-0"	56'-0"	2
6	Boston, Mass.....	.....	1906	56'-0"	37'-0"	0
7	.....	.....	1906	58'-0"	33'-0"	0
8	New York City.....	Jackson ave.....	1906	7'-6"	53'-0"	2
9	New Haven, Conn.....	Kimberly ave.....	1907	51'-0"	66'-0"	2
10	Manistee, Mich.....	Maple st.....	1907	81'-0"	3'-0"	2
11	Gloucester, Mass.....	Western ave.....	1907	46'-0"	46'-0"	0
12	Cambridge, Mass.....	Kimberly ave.....	1908	49'-0"	51'-0"	0
13	Fall River, Mass.....	Brightman st.....	1908	113'-6"	61'-0"	0
14	New York City.....	Pelham Bay Park.....	1908	80'-0"	49'-0"	0
15	Peoria, Ill.....	Bridge st.....	1909	149'-0"	36'-0"	0
16	New York City.....	Hunter's Point ave.....	1910	71'-6"	52'-0"	2
17	Bourne, Mass.....	.....	1911	160'-0"	35'-0"	1
18	Saybrook, Conn.....	.....	1911	212'-0"	24'-0"	1
19	Huron, Ohio.....	Van Rensselaer st..	Bldg.	104'-0"	37'-6"	1

In order to find out what the actual experience in operation has been, the Commission caused letters of inquiry to be sent out to all of the cities in the above list except Huron, at which place the bridge is still under construction, so that as yet there has been no opportunity to study its operation. Replies were received from all but three of the letters, and they were uniformly favorable to one-man operation. The questions contained in the letters were as follows:

Question 1. *Is one-man operation for a two-leaf bridge successful in general?* To this all answered "Yes"; except Peoria, where one man is employed at night and two men during the day.

Question 2. *Is one man sufficient where the traffic on the highway is dense, or are there situations where two men would be needed?* This question was not answered by all and in some cases the answer is not clearly stated. It is evident from the answers that one man can operate both leaves whatever may be the traffic conditions, but where traffic is heavy and gates are provided, extra attendants are sometimes employed to handle the gates. It is pointed out that this extra attendance would be required for a single-leaf span as well as for a double-leaf. At the Kimberly avenue bridge in New Haven the traffic at times is as high as 900 automobiles and 300 horse-drawn vehicles per day. This bridge has no gates and is operated by one man. The city of Cambridge advises that "It has been found convenient * * * to have an assistant to look after the closing of the highway gates which throw off the travel. While this is not essential to the closing of the bridge, it has been found to reduce the time required for the opening and closing."

Question 3. *Can the two-leaf bascule bridge be operated as cheaply as a one-leaf bascule, as far as attendants are concerned?* To this seven replied "Yes" and one did not express an opinion.

Question 4. *Do you find it necessary or desirable to have police protection in addition to the bridge operators?* This was answered in the negative in all of the replies.

Question 5. *Does the operation of the railway over these bridges affect the operation of the bridge in any way?* Four of the replies stated that there were no railways on the bridges in those places, and the other four replies answered in the negative.

It is interesting to note that at Boston two double-leaf bascule bridges which were originally operated by two men, one for each leaf, have been changed to one-man operation.

In the light of these replies one-man operation of the double-leaf type seems both feasible and satisfactory, so that in cost of operation as well as in first cost the three arrangements already mentioned, namely the swing type, the single-leaf bascule and the double-leaf bascule, are on an equal footing. Under these conditions the choice will fall upon the double-leaf bascule type, chiefly because it effectually closes both ends of the drawspan when the draw is open, thus affording greater protection to the street traffic than either of the other types.

A rehearing was held in the city hall at Oshkosh at 2:00 p. m. on June 19, 1912. Evidence was introduced on behalf of the city to establish the fact that the federal authorities are unwilling to give approval of more than one type of structure for a given location. The city also expressed a desire to have the roadway on the bridge made 28 feet wide in the clear, rather than 24 feet 6 inches as provided in the formal order in the original procedure. To this increase in width there can be no objection on the part of the Commission, as ample roadway is always desirable and a width of 28 feet is not excessive for a bridge of the importance of this one. But it should be clearly understood that the request for the extra 3 feet 6 inches of width is made by the city and not by the street railway company and it does not appear that the additional width will be of particular benefit to the latter. Therefore it is no more than just that the city of Oshkosh should be prepared to meet the increase in cost due to the requested increase in width. A parallel case would arise if the Wisconsin Electric Railway Company were to request some change in the structure, involving increased expenditure and benefiting that company exclusively. Under existing conditions, and in such a case, that company would be expected to assume the additional cost involved in complying with its desires. Therefore, as the changes requested by the city affect the apportionment made by the order of Jan. 5, the percentages contained in such order must now be set aside, and some apportionment made that will lay upon the Wisconsin Electric Railway Company a portion of the cost that will not exceed what would have been its portion under the original order. From the discussion of the matter of ap-

portionment contained in such order, it is evident that for the structure therein contemplated, 7 per cent of the cost, which was the portion laid upon the street railway company, would amount to approximately \$12,000, which sum was shown to be a reasonable and fair proportion to lay upon the company.

IT IS THEREFORE ORDERED:

1. That the former order be so modified as not to require the city of Oshkosh to have plans made nor specifications drawn up for the swing type of draw-span, nor call for bids on that type.

2. That the double-leaf bascule type of draw-span be adopted for the bridge, the draw-span being arranged for one-man operation.

3. That the roadway shall have a clear width of 28 feet, instead of 24 feet 6 inches; and there shall be a 6 foot sidewalk on each side, properly protected on the outside by a rigid hand rail, as provided in the original order.

4. That the street railway company is hereby required to contribute the sum of \$12,000 as its portion of the expense of constructing such bridge.

5. That complete plans for the structure be submitted to this Commission for approval by Sep. 5, 1912; that actual construction be commenced within sixty days after the plans are approved; and that the bridge be completed and ready for service within one year from the date on which the plans are approved.

6. That the provisions of the order of Jan. 5, 1912, shall hold except as they are specifically modified by the present order.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF THE MOUNT MORRIS AVENUE CROSSING, WAUTOMA, ON THE LINE OF THE CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Decided July 1, 1912.

The Commission, on its own motion, investigated the C. & N. W. Ry. grade crossing at Mount Morris avenue in Wautoma, Wis. Mount Morris avenue is the principal highway from Wautoma to the villages of Mount Morris, Pine River, and Poysippi, and is heavily traveled. On the south side of the west approach the view of the track from the highway is partially obstructed by buildings.

Held: The existing protection at this crossing is not sufficient and public safety requires the installation of a warning signal. Respondent is ordered to install and maintain an electric crossing bell with an illuminated sign or flash light for night indication. Sixty days is deemed a reasonable period within which to comply with this order.

On motion of the Commission a hearing was held on Jan. 22, 1912, at the village hall in Wautoma, Wis., for the purpose of receiving testimony in regard to the Mount Morris avenue crossing on the line of the Chicago & North Western Railway Company in Wautoma. *E. F. Kileen* appeared on behalf of the village of Wautoma and *Mr. Gorman* appeared for the Chicago & North Western Railway Company.

The testimony of witnesses and the report of the Commission's engineer show that Mount Morris avenue is the principal highway leading from Wautoma to the village of Mount Morris, Pine River, and Poysippi, and is heavily traveled. An average of about thirty teams a day use the crossing while several school children, in addition to other pedestrians, daily cross the tracks at this point. The highway runs east and west and the railroad nearly north and south, crossing Mount Morris avenue at an angle of about 75 degrees. The grade of the track over the crossing is practically level and at the same elevation as the original ground, with a curvature of about 1 degree 30 minutes. Seven hundred feet south of the crossing is the north switch of a passing track and about one quarter of a mile

south of Mount Morris avenue is the railroad station. The highway approaches are practically level. From a point within one hundred feet east of the track there is an unobstructed view for about one mile to the north and for one thousand feet south of the depot to the south, there being no obstruction in either the northeast or southeast angles. When approaching the tracks from the west, the view to the north is clear and a train can be seen for some distance. On the south side of the west approach the view is obscured by a small pop factory situated about 120 feet from the track. Between this factory and the next building to the west there is an open space of about 150 feet, where a train can be seen as far south as the depot. If a building were erected on this vacant lot, the view to the south would be completely obstructed. On Nov. 23, 1906, a man driving a team eastward from the village was struck by a north-bound train and killed. His widow testified that she was carried 400 feet up the track before the train was stopped; that no whistle or bell was heard to warn them of the approach of the train and that there was no time to turn the team around when the train was seen.

In view of the fact that buildings in the southwest angle of the crossing partially obstruct the view to the south and that a fatal accident has occurred at the crossing, we find that the existing protection is not sufficient and that the safety of the public requires the installation of a warning signal. If an electric bell were installed, the switching of cars might interfere with the bell circuit and cause some false ringing of the bell; however, this would probably not be sufficient to make the bell objectionable. The starting point of the bell would have to be located north of the depot, so as to prevent the bell ringing with passenger trains standing at the station platform.

NOW, THEREFORE, IT IS ORDERED, That the Chicago & North Western Railway Company install and maintain at Mount Morris avenue crossing, in the village of Wautoma, an electric crossing bell with an illuminated sign or flash light for night indication.

Sixty days is deemed a reasonable period of time within which to comply with this order.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF
THE DIVISION STREET CROSSING, DODGEVILLE, ON THE
LINE OF THE ILLINOIS CENTRAL RAILROAD COMPANY.

Decided July 1, 1912.

The Commission, on its own motion, investigated the grade crossing of the I. C. R. R. with Division street in the city of Dodgeville, Wis. Obstructions interfere with an adequate view of the tracks from the approaches of the highway.

Held: The crossing is dangerous to public travel. Respondent is ordered to install and maintain an electric alarm bell with an illuminated sign or electric flash light for night indication. Sixty days is deemed a reasonable time within which to comply with this order.

Upon motion of the Commission a hearing was held on Jan. 19, 1912, at the city hall, in Dodgeville, Wis., for the purpose of taking testimony in regard to the Division street crossing of the Illinois Central Railroad Company in the city of Dodgeville. *City Attorney J. E. O'Neill* appeared in behalf of the city of Dodgeville, and *J. P. Smelker* appeared for the Illinois Central Railroad Company.

The testimony of witnesses and the blue print submitted by the railroad company show that the highway runs east and west, and the railroad track extends northwest and southeast. Witnesses stated that on approaching the crossing from the west, the view of trains approaching from the south is very much obscured because of a hill located in the southwest angle of the crossing; that the view to the north is better and the track can be seen for some distance; that in approaching the track from the east the view is still more limited to the south, because of the ascending grade and the cut through which the railroad track passes, so that trains cannot be seen until a person gets near the crossing; that since the view is so obscured, they consider the crossing dangerous; that, though there have been no accidents, there have been many narrow escapes; and that there is much traffic along this highway.

The station agent of the railroad company at Dodgeville stated that there are two trains each way a day, the last train

being due at Dodgeville at 10:20 p. m.; that there are about six or eight extra trains a month; and that he had heard no complaints concerning the crossing.

An engineer of the Illinois Central Railroad Company testified that the cut is from 12 to 15 feet deep south of the crossing; that at a point 50 feet west from the crossing the track can be seen for 500 feet to the south; at a point 75 feet west, the track can be seen for 150 feet; and 100 feet west the track can be seen for 50 feet to the south; that at a point 200 feet east of the crossing the track can be seen for 200 feet to the north and 500 feet to the south of the crossing; and that the view to the north of the highway west of the crossing is obstructed for about 200 feet by a small hillock with a house and several trees and shrubs upon it.

The engineers of the Commission, after an investigation on the ground, report that the grade of the highway descends toward the east at about 6 per cent for a distance of 200 feet on either side of the crossing; that the track passes through curved cuts high enough to prevent trains being seen and that traffic studies show the highway to be used by 30 to 40 teams a day. In view of all the facts in the case as cited above, we regard the crossing as being dangerous to public travel.

THEREFORE, IT IS ORDERED, That the Illinois Central Railroad Company install and maintain at Division street crossing in the city of Dodgeville an electric alarm bell, supplemented by an illuminated sign or electric flash light for night indication.

Sixty days is deemed a reasonable time within which to comply with this order.

IN RE APPLICATION OF FARMERS' TELEPHONE EXCHANGE OF
RICHLAND CENTER FOR AUTHORITY TO INCREASE RATES.

Submitted June 18, 1912. Decided July 1, 1912.

Application was made by the Farmers' Telephone Exchange of Richland Center, Wis., for authority to make a charge for switching service, to establish a rate for extension bells, to charge subscribers within the city limits for messages to rural lines, and to revise its rate schedule, on the ground that present rates yield inadequate revenue. Investigation of revenues and expenses, together with a valuation of applicant's plant, show that the utility is running at a deficit. In order to ascertain which classes of service are responsible for the deficit, a traffic analysis was made and revenues and expenses were apportioned between toll and local, and rural business. Revenues and expenses for rural business were further apportioned between subscribers who are connected to lines owned by the utility and those who receive switching service only. Estimates were made of the total revenues which would accrue under the rates established by the Commission in this proceeding.

Held: All lines connected with the switchboard, over which subscribers can receive exchange service, may best be treated, so far as the central office is concerned, as a single system. The switching service is of value to parties on rural lines as well as to those in the city or on rural lines owned by the applicant, and they should bear their fair share of the cost of the service. If a proper rate is made for switching, it is not necessary to impose a message charge between city and rural stations. A rate of 15 cts. per month is authorized for extension bells. Instead of the same party rate for both business and residence phones, there should be a rate for one-party business, two-party business, etc., and a rate for residences similarly applied. In case of a business place and a residence on the same line, each should pay the two-party rate for the class of service supplied to it. Present revenues are not sufficient to meet the reasonable needs of the utility and applicant is authorized to discontinue its present schedule of rates, tolls, and charges and substitute therefor the schedule authorized by the Commission.

Application in the above-named case was filed on Dec. 5, 1911, and shows that the applicant is a corporation organized and doing business under the laws of the state of Wisconsin with its principal place of business at Richland Center, Wis.,

and that it is engaged in the management and operation of a telephone utility in and near that place.

Legal rates of the applicant as now in effect are as follows:

Single line business phone—per month.....	\$1.50
Single line residence phone—per month.....	1.00
Two-party line business phone to same party, per month.....	2.25
Two-party line, residence and business phones, to same party, per month	2.00
Three-party line, 1 residence and 2 business phones, to same party, per month.....	3.00
Three-party line, 2 residence and 1 business phone, to same party, per month.....	3.00
Two-party line residence phones, per month.....	2.00
Complete extension phone, per month.....	.50
Extension talking set, without bell, per month.....	.25
Extension bells—installing	1.00
Rural phones	1.00
Toll rates—Rural lines	
10 miles or less.....	.10
10 miles to 20 miles.....	.15
20 miles to 30 miles.....	.20
Toll rates—Metallic lines	
10 miles or less, 3 minutes.....	.15
10 miles to 15 miles, 3 minutes.....	.20
15 miles to 20 miles, 3 minutes.....	.25
Between stations on same line, 3 minutes.....	.10
Each additional minute.....	.05
Moving telephones	1.00

This application states that the present rates are insufficient to yield adequate revenues and authority is asked to charge subscribers within the city limits for messages to rural lines, to charge telephone companies for which the applicant does switching service a reasonable rate, and to adjust the general schedule of rates in such manner as the Commission's investigation shall show to be just and reasonable.

Hearing was held at Madison, on June 18, 1912. *Burnham & Black* appeared for the applicant by *Mr. Black*. There were no appearances in opposition.

Following is a statement of exchange earnings and expenses for the periods as indicated:

	Year ending June 30, 1911.	Eleven months ending May 31, 1912.
OPERATING REVENUES.		
Exchange telephone earnings.....	\$7,597.43	\$8,200.53
Earnings from connecting lines.....	51.60	72.15
Total	\$7,649.03	\$8,272.68
OPERATING EXPENSES.		
Central office.....	\$3,146.86	\$3,529.79
Wire plant.....	821.48	1,088.94
Substation.....	568.78	676.04
Commercial.....	12.45	.....
General.....	.....	98.37
Taxes.....	202.89	208.32
Total	\$4,752.46	\$5,601.46
Net exchange earnings	\$2,896.57	\$2,671.22

Toll earnings and expenses were as follows for the same points:

	1911	1912
Earnings	\$265.46	\$322.76
Expenses	31.21	21.49
Net from toll	\$234.25	\$301.27

According to expenses and revenues, as reported for these periods, there were available for interest and depreciation during the periods under consideration, \$3,130.82 and \$2,972.54, respectively. With non-operating revenues added, the totals are increased to \$3,268.07 and \$3,058.04.

The reported expenses of the utility are not in all cases listed under the proper accounts and the separation of expenses between local and toll business is incomplete, but the totals seem to reflect rather closely the actual condition of the plant.

The exchange business of the applicant may be divided in a general way into five classes:

1. Service to subscribers on its own lines within the city.
2. Service to subscribers on rural lines owned by the utility.
3. Service to parties on rural lines, where the lines are owned by parties connected, but where the applicant receives payment for switching.
4. Service to parties on lines of other companies which reach the Richland Center switchboard and for whom the applicant does switching service without charge.

5. Lines connecting Richland Center exchange with other exchanges for which the other companies pay Richland Center.

As shown by the books of the applicant, the number of parties receiving each of the five classes of service mentioned, were as follows, on June 1, 1912:

I. City business.

Class.	Rate.	No. of subscribers account's.	No. of phones.
1 party business.....	\$1 50	53	53
1 " residence.....	1 00	289	289
2 " business.....	2 25	4	8
Business and residence.....	2 00	52	102
3 party business and residence.....	3 00	3	9
2 " office.....	2 50	1	2
Free to employes.....			9
1 party rural.....	2 00	1	1

In addition to the above there are 10 extension sets at the rate of 50 cts. per month and 6 extension talking sets at 25 cts. per month.

II. Rural—Lines owned by applicant.

28 lines—273 phones.

III. Rural—Lines owned by subscribers who pay a switching fee.

1 line—13 phones.

IV. Lines of other companies connected to applicant's switchboard, no switching fee.

31 lines—334 phones.

V. Lines to other exchanges, revenue paid by other companies.

3 lines.

In addition to these five classes there are a few lines between Richland Center and other exchanges without any subscribers along the route and from which no revenue is derived, except perhaps toll revenue from non-subscribers.

Valuation of the plant was made by the Commission, as of June 1, 1912, and shows a cost new of \$41,726 and present value of \$28,123. The total book cost, as submitted by the utility for the same date, was \$35,740.73. There was available for depreciation and interest from the results of operation for the year ending June 30, 1911, a total of \$3,130.82. On the basis of the eleven months reported, the amount available for

the year ending June 30, 1912, will be not far from \$3,250. These reported figures are, however, in excess of the true amount, because no provision has been made for manager's salary. This item should probably be included at from \$800 to \$1,000, judging from the size of the exchange, the nature of the duties performed by the manager, and the salaries ordinarily paid for such work. The actual amounts which may be considered as available for depreciation and interest are, therefore, from \$2,200 to \$2,400 per year. The following table shows the deficits which result from earnings as shown :

Amount considered available.	Depreciation. at 6 1/2% of cost new.	Deficit to be overcome before anything is available for interest.
\$2,200	\$2,712	\$512
2,400	2,712	312

The actual total deficits will be as shown below, figuring interest at 6 per cent :

Plant value.	Interest at 6%	Additional deficit.	Total deficit.
\$11,726	\$2,504	\$312	\$2,816
35,741	2,244	312	2,556
28,123	1,687	312	1,999

The foregoing summaries show that present revenues are not sufficient to meet the reasonable needs of the utility. In order to indicate something as to the classes of service which should be affected by increased rates, a peg count was taken under the direction of the Commission, and the results are presented in the following table :

ANALYSIS OF TRAFFIC.
 FARMER'S TELEPHONE EXCHANGE OF RICHLAND CENTER.
 Number of calls by classes and per cent of total.

Hour	City to city.		City to country.		Country to city.		Country to country.		Total No.
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	
1-2 p. m.	121	46.0	33	12.5	39	14.8	70	26.7	263
2-3 "	83	47.2	24	13.6	25	14.2	44	25.0	176
3-4 "	95	48.8	25	12.8	31	15.9	44	22.5	195
4-5 "	76	43.0	25	14.1	23	13.0	53	29.9	177
5-6 "	103	46.7	39	17.4	35	15.9	44	20.0	221
6-7 "	87	41.6	43	20.6	30	14.4	49	23.4	209
7-8 "	93	39.4	45	19.1	46	19.5	52	22.0	236
8-9 "	63	43.8	26	18.0	15	10.4	40	27.8	144
9-10 "	19	54.3	4	11.4	9	25.7	3	8.6	35
10-5 a. m.	7	87.5			1	12.5			8
5-6 "	7	30.4	2	8.7	5	21.8	9	39.1	23
6-7 "	20	22.0	13	14.3	12	13.2	46	50.5	91
7-8 "	113	36.0	51	16.2	55	17.5	5	30.3	314
8-9 "	148	45.5	37	11.4	45	13.9	95	29.2	325
9-10 "	111	38.7	62	21.8	43	15.0	70	24.5	286
10-11 "	98	49.0	32	16.0	31	15.5	39	19.5	200
11-12 m.	99	47.5	27	13.0	33	15.9	49	23.6	208
12-1 p. m.	63	33.7	46	24.6	30	16.0	48	25.7	187
	1406	42.7	534	16.1	508	15.4	850	25.8	3298

Toll calls are included in this summary because these calls, as far as the regular switch board operators are concerned, involve practically the same amount of work as other classes of calls. The additional work due to the long distance business is handled by a long distance operator. Somewhat more time is required in the handling of rural business than of local, and allowance should be made for this condition.

On the basis of the eleven months of 1911-1912 for which we have reports, expenses for the full year, exclusive of wire plant and substation expenses which have been charged directly to the toll system, but including \$900 for manager's salary, will be as follows:

Central office operating labor	\$3,221.28
" supplies and expenses	537.36
" maintenance	92.04
Wire plant	1,187.88
Substation—operation	174.48
" —maintenance—local	283.08
" " —rural	279.72
General—officers' salary	900.00
Accounting	107.28
Total of above	\$6,783.12
Taxes	208.32
Depreciation	2,712.00
Interest, 7% on \$35,000	2,450.00
Total	\$12,153.44

For a complete and entirely accurate apportionment of these expenses as between different classes of service, more information would be required than is available at this time. From the data on hand, however, it appears that an apportionment as shown below is sufficiently accurate for purposes of this case:

	Total.	Toll and local.	Rural.
Central office operating labor.....	\$3,221 28	\$1,932 77	\$1,288 51
" " sup. & exp.....	537 36	462 13	75 23
" " maintenance.....	92 04	79 15	12 89
Wire plant.....	1,187 88	641 46	546 42
Substation—operation.....	174 48	110 79	63 69
" " —maintenance,—local.....	283 08	283 08	
" " —rural.....	279 72		279 72
General.....	1,007 28	611 42	395 86
Taxes.....	208 32	120 48	87 84
Depreciation.....	2,712 00	1,559 40	1,152 60
Interest.....	2,450 00	1,405 75	1,041 25
Total.....	\$12,153 44	\$7,209 43	\$4,944 01

The column headed "Toll and local" includes only such expenses of the toll business as were not charged directly to the toll business on the books of the utility. Toll expenses not included above amount to about \$23.45, according to the report for eleven months of the past year.

With the installation as of June 1, 1912, and present rates the annual revenue from local and rural business would be as shown below:

Number of accounts.	Annual rate.	Annual revenue.
<i>Local.</i>		
53.....	\$18 00	\$954 00
289.....	12 00	3,468 00
4.....	27 00	108 00
52.....	24 00	1,248 00
3.....	36 00	108 00
1.....	30 00	30 00
1.....	24 00	24 00
Total.....		\$5,940 00
<i>Rural.</i>		
273.....	\$12 00	\$3,276 00
13.....	6 00	78 00
334.....	00	00
3 lines.....	75 00	225 00
Total.....		\$3 579 00

According to these tables the revenue from local business will be about \$1,270 less than its cost to the utility. This cost, however, includes part of the toll expenses, and toll revenues

should be added to exchange earnings in determining the true condition of the business. According to the reports on file, toll system and messenger earnings will be about \$350 per year. This, however, does not include what the utility calls local toll, i. e., the revenue from toll messages carried only over its own lines, and the reports fail to show to what this revenue amounts. Apparently, however, this is not a very large amount, as toll charges are made only in the case of non-subscribers. Total toll earnings will hardly be more than \$500 per year. According to this, the total annual deficit on local business is not far from \$800 per year.

With regard to the rural business, there is an apparent deficit of about \$1,365. A schedule of rates designed to remove this deficit should avoid some of the inconsistencies of the present rural rates. There seems to be no reason why subscribers on rural lines belonging to other companies should receive switching service free from the Richland Center company, when subscribers on rural lines owned by the applicant and receiving the same class of service, under substantially identical conditions, should be required to pay a rate which covers the cost of switching. As far as the switching service is concerned, all lines connected with the switchboard, over which subscribers can receive exchange service, may best be treated, so far as the central office is concerned, as a single system. If no charge is made for switching, the applicant is either to receive nothing for the work involved, or it must make subscribers on its own lines bear this expense. The switching service is of value to parties on rural lines as well as to those in the city or on rural lines owned by the applicant, and they should bear their fair share of the cost of the service. This makes it necessary to divide the expenses of the rural business between that class of subscribers who are connected to lines which are owned and maintained by the utility, and those who receive switching service only. As nearly as this apportionment can be made from facts at hand, it appears that a total of \$971.49 of the expenses of the utility should be met by a charge for switching service. This, with \$225 derived from lines which are partly rural and partly toll lines, would make up a total revenue of \$1,196.49 in addition to regular subscribers' rentals, which would nearly wipe out the deficit from rural busi-

ness. If a proper rate is made for switching, it is not necessary to impose a message charge between city and rural stations.

In its schedule of rates for city service the utility has made provision for a number of rates which do not seem to be in accord with the best practice. Such are the rates for a business place and a residence on the same line and belonging to the same party, and other similar rates. Instead, there should be a rate for one-party business, two-party business, etc., and a rate for residences similarly applied. Then, if there is a case of a business place and a residence on the same line, each should pay the two-party rate for the class of service supplied to it. It has been found that an increase should be permitted in annual revenues from urban service, of approximately \$800 per year. If different rates are made for one-party and for two-party service, it is difficult to state just what the effect on revenues will be. Part of the subscribers will undoubtedly take the one-party service, while others will choose the two-party service at a lower rate. For the most part it may be expected that business places will take the single-party service, but the majority of residences will probably use two-party service. The following table shows estimated revenues under a schedule of rates which makes a distinction between one-party and two-party service, assuming that about one-third of the residences will use one-party service:

Class.	No. of phones.	Rate per year.	Annual revenue.
1 party business.....	53	\$21.00	\$1,113.00
2 or 3 party business.....	65	18.00	1,170.00
1 party residence.....	120	15.00	1,800.00
2 or 3 party residence.....	227	13.20	2,996.40
1 party rural.....	1	24.00	24.00
Extension sets.....	10	6.00	60.00
Extension talking sets.....	6	3.00	18.00
Total.....			\$6,981.40

Total revenues under rates as determined above would be made up as follows:

Toll—estimated	\$350.00
Local	6,981.40
Rural—lines owned by utility.....	3,276.00
Rural—switching at \$3 per phone.....	1,041.00
Rural trunk lines.....	225.00
Total	\$11,873.40

This is within \$300 of total expenses, as nearly as it has been possible to determine expenses and revenues from available information. It is believed that a schedule of rates as outlined above is reasonable and just.

The utility suggests that a change is desired in the charge for moving a telephone, from the present uniform charge of \$1.00, but the conditions do not seem to necessitate such a change. A rate is asked for for extension bells. 15 cts. a month is a common charge for this class of service and may be authorized here.

IT IS THEREFORE ORDERED, that the applicant, the Farmers' Telephone Exchange of Richland Center, may discontinue its present schedule of rates, tolls, and charges and substitute therefor the following schedule:

	Rate per month.
Business phones—1 party	\$1.75
“ “ —2 or 3 party	1.50
Residence “ —1 party	1.25
“ “ —2 or 3 party	1.10
Extension phone—complete .....	.50
“ talking set .....	.25
“ bells .....	.15
Rural phones on lines owned by applicant.....	1.00
“ —switching only .....	.25
Toll rates to remain as at present.	

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF
THE HIGHWAY CROSSING ONE MILE NORTH OF MILTON
JUNCTION ON THE LINE OF THE CHICAGO AND NORTH
WESTERN RAILWAY COMPANY.

Decided July 2, 1912.

The Commission, on its own motion, investigated the Nelson highway crossing of the C. & N. W. Ry. one mile north of Milton Jct., Wis., after a serious accident had occurred there.

Held: The crossing is dangerous to public travel and requires additional protection. Respondent is ordered to install and maintain an electric crossing alarm bell, with illuminated sign or electric flash light for night indication. Sixty days is deemed a reasonable time within which to comply with this order.

After a serious accident had occurred at a certain highway crossing located one mile north of Milton Junction, on the line of the Chicago & North Western Railway, the Commission ordered a hearing to determine whether such crossing should be protected by the installation of a warning signal or other safety device, or whether public safety required an alteration in the manner and method of such crossing or in the approaches thereto, or other changes made in the same.

The hearing was held Jan. 29, 1912, in the Farmer's Bank building at Milton Junction, Wis. Rock county was represented by *S. G. Dunwiddie*, district attorney, and the Chicago & North Western Railway Company by *C. A. Vilas*.

From the testimony of witnesses and the report of the engineering staff of the Commission, it appears that the crossing in question is located in a cut which extends north and south of the highway. The railway runs northeast and southwest, while the highway is a north and south road. The angle between the railway and highway is approximately 20 degrees, but the actual crossing of the roadway is at an angle of about 60 degrees, which is accomplished by turning the roadway near the west fence of the highway on the north side of the track. The roadway slopes down to the track from each side at about a 6 per cent gradè. Approaching the crossing from the north, the high-

way ascends to a knoll distant about twenty rods from the track, when a clear view is obtained of trains coming from the northeast. After passing this knoll the view is obstructed by the railroad cut. Coming from the south on the highway, approaching trains from the southwest cannot be seen by reason of a grove of trees and the railroad embankment; the railroad cut obstructs the view to the northeast. In summer time the weeds growing on the embankments further obscure the view in both directions. The railway company offered no witnesses to controvert the testimony submitted that the crossing is a dangerous one. The majority of the witnesses stated that trains frequently pass the crossing without whistling or ringing the bell. The testimony shows that a number of close calls have been experienced by witnesses and that one serious accident has occurred. The highway traffic is not heavy but averages that of the intermediate country road, with considerable automobile travel in the summer time.

In view of the above facts, we regard the crossing as dangerous to public travel and as requiring additional protection. Our engineer reports that the physical conditions are not unfavorable to an overhead bridge. However, such a structure, because of the acute angle at the crossing, would entail such expense as to be deemed unwarranted under present conditions. He recommends that an electric crossing alarm bell, supplemented by an illuminated sign or electric flash light for night warning, be installed at this crossing.

NOW, THEREFORE, IT IS ORDERED, That the Chicago & North Western Railway Company install and maintain at the Nelson crossing, one mile north of Milton Junction, an electric crossing alarm bell, supplemented by an illuminated sign or electric flash light for night warning.

Sixty days is deemed a reasonable time within which to comply with this order.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF THE CROSSING OF THE JUNEAU-LEIPSIC ROAD WITH THE LINE OF THE CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Decided July 3, 1912.

The Commission, on its own motion, investigated the crossing of the Juneau-Leipsic road with the C. & N. W. Ry. in Beaver Dam, Wis., after a fatal accident had occurred there. Farm buildings and trees obstruct the view of trains bound southeast to one approaching the crossing from the west.

Held: The crossing is dangerous and requires protection. The C. & N. W. Ry. Co. is ordered to install and maintain an electric alarm bell, supplemented by an illuminated sign, or electric flash light, for night indication. Sixty days is considered a reasonable period of time within which to comply with this order.

After an accident had occurred on Oct. 31, 1911, in which a man and a team of horses were killed, at the crossing of the Juneau-Leipsic road with the Chicago & North Western Railway, in the town of Beaver Dam, Dodge county, Wis., the Commission ordered a hearing to determine whether such crossing is unsafe and dangerous to human life and whether or not such crossing should be protected by the installation of a warning signal or other safety device, and whether public safety requires an alteration or change in the crossing or its approaches.

The hearing was held on Jan. 27, 1912, at the city hall in the city of Beaver Dam, Wis. *Burke & Leuck*, by *Mr. Leuck*, appeared for the town of Beaver Dam; and *C. A. Vilas* for the Chicago & North Western Railway Company.

Witnesses for the town board testified that the crossing in question is dangerous because the highway crosses the railway at an acute angle; that there are situated in this angle farm buildings and trees which obstruct the view when approaching the crossing from the west of trains bound southeast; that many of the trains fail to whistle at the whistling posts; and that it is customary for the trains to coast past to the crossing with little or no noise. All the witnesses agreed that the crossing was dangerous only when it was approached on the highway from the west. The testimony shows that a farmer was killed at the crossing on Oct. 31, 1911, by a train going southeast as he was driving in an easterly direction. The highway traffic aver-

ages about thirty to forty teams a day and the usual number of pedestrians on an ordinary country road.

The railway company submitted a blue print of a survey indicating the physical conditions surrounding the crossing, which the assistant engineer of the company testified was made under his direction. His testimony shows that from his own observations or from the scales given in the blueprint there is a 6 per cent approach to the crossing; that the track is about 4 feet above the traveled part of the highway; that at a point 125 feet west from the crossing a person can see about 800 feet up the track towards the northwest, and at 200 feet back a distance of 350 feet up the track; that north of the highway about 1,000 feet there is a cut 15 feet deep, the entrance to which can be seen from the highway at about 100 feet west of the crossing.

An engineer of the Commission has made an inspection of the crossing and reports that the highway intersects the railway at an acute angle of about 55 degrees, which acute angle is southeast and northwest of the crossing. At about 500 feet northwest of the crossing the ground rises gradually from 4 to 8 feet. This rise starts at the right of way and extends in a northeasterly direction, which obstructs the view when approaching the tracks from the east. On approaching the tracks from the west the grade of the highway is level, rising between 3 or 4 feet where it crosses the tracks. When within 500 feet of the railroad, west from the crossing, the view to the northeast is obstructed by farm buildings and some trees. When within 150 feet of the tracks the view to the northwest extends between 400 and 500 feet.

In view of the fact that all witnesses agree that east-bound traffic on the highway is endangered by southeast-bound trains, due to the presence of the buildings and trees in the northwest angle of the crossing, and further since a southeast-bound train struck and killed a man driving east along the highway, we regard this a dangerous crossing requiring protection.

NOW, THEREFORE, IT IS ORDERED, That the Chicago & North Western Railway Company install and maintain at the Juneau-Leipsic crossing in the town of Beaver Dam an electric alarm bell, supplemented by an illuminated sign, or electric flash light, for night indication.

Sixty days is considered a reasonable period of time within which to comply with this order.

IN RE APPLICATION OF THE BRODHEAD TELEPHONE COMPANY FOR AUTHORITY TO INCREASE RATES.

Submitted May 20, 1912. Decided July 5, 1912.

Application is made by the Brodhead Tel. Co. for authority to install two and four-party service in Brodhead, Wis., and to charge for four-party service at the present single-line rates, and at a higher rate for single and two-party service. The application is made on the ground that present rates are inadequate to yield a proper return on investment. A valuation of applicant's property was made, and the earnings and expenses investigated.

Held: Investigation shows an adequate return on investment. Any further development of single-party service will necessitate additions and extensions to the wire plant which can be avoided if party service is offered. The introduction of such service with the attendant increase in the number of subscribers, will cut down expenses per phone, as the amount of plant and equipment required per phone will be decreased. There will be an over-investment available to meet the expenses of additional business. There seems to be no need of two-party business service and no immediate need for four-party residence service. Applicant is authorized to establish a two-party residence class of service, also two-party business service, if it chooses to do so, provided the rate is lower than the rate for one-party business service, the rate to be fixed in the first instance by the utility. Applicant is ordered to put into effect the schedule of rates authorized by the Commission.

The application in this matter was filed on April 19, 1912. It shows that the applicant is a corporation organized and doing business under the laws of the state of Wisconsin, with its principal place of business in Broadhead, Green county, and that it is a public utility engaged in the management and operation of a telephone utility in that city and vicinity. As set forth in the application, the lawful rates of the applicant now in effect are as follows:

Local Business Rates:

Single-party phone—\$1.50 per month.

Two phones in same building to same firm where one is really an extension \$2.00 per month.

Local Residence Rates:

Single-party phone—\$1.00 per month.

Two phones in same building to same party where one is really an extension—\$1.50 per month.

Residence and Business Rate:

Two-party service with one business and one residence phone on same line \$2.00 per month.

Rural Residence Rates:

Four to twelve phones per line. Company tries to keep about eight phones per line. \$1.25 per month.

Extension Bells—installed at cost.

Desk Sets—additional cost of installing charged to consumer.

It is stated that present rates are inadequate to yield a proper return on investment after provision is made for depreciation. Authority is asked to put into effect the following schedule of rates:

Business—one party—\$2.00 per month.

Business—two-party—\$1.50 per month.

Residence—one-party—\$1.50 per month.

Residence—two-party—\$1.25 per month.

Residence—four-party—\$1.00 per month.

Extension set in same building—50 cts. per month.

Extension bell—10 cts. per month.

Desk sets—additional—25 cts. per month.

Hearing was held at Madison, May 20, 1912. Appearances were: For the applicant, *John Murdock* and *Thos. W. Nuzem*. In opposition, *Burr Sprague*, *C. Putnam*, and *L. J. Stair*.

Discussion at the hearing related largely to the return which had been earned by the utility and the amount of money which had been invested in the plant. Consideration has been given in what follows to all portions of the testimony which have a bearing on the case. Valuation of the property of the utility was made by the Commission, as of May 1, 1912. The cost of reproduction was found to be \$44,176 and the present value, \$29,249. Reports on file with the Commission show that total operating revenues and expenses for the past two years were as follows:

	YEAR ENDING	
	June 30, 1910.	June 30, 1911.
Total operating revenues.....	\$2,187 08	\$7,508 83
Total operating expenses.....	3,263 40	3,497 78
Net operating revenues.....	\$4,923 68	\$4,011 05

Revenues appear to have been reported as collected, rather than as earned. For the year ended June 30, 1912, operating expenses were \$4,273.26. No complete report of earnings for that period is available at present. The installation as of June 30, 1912, was as follows:

Business phones—66.
Residence phones—304
Rural phones—284.
Extension phones—4.

According to the present rates annual exchange earnings from this installation would be \$9,120. Toll earnings and earnings from connecting lines amounted to \$696.52, indicating that total earnings on the basis of present installation will be not far from \$9,800 per year. Collections are somewhat slow, as there is no penalty for not paying promptly. About thirty phones, mostly in residences, were added during the past year. In order to arrive at probable earnings a deduction should be made from the figure shown above, because of these phones not having been in use during the entire year. With such deduction it is probable that actual earnings were about \$9,600. According to the method erroneously followed by the utility of reporting only actual collections, the apparent earnings for the year may be considerably less than this amount. With revenues of \$9,600 and expenses of less than \$4,300, there would be a little over \$5,300 available for interest and depreciation. Depreciation at 6½ per cent of the cost new amounts to \$2,871.44, which would leave over \$2,400 for interest, or enough to pay an interest rate of 8.2 per cent on the present value of the property, or 5.3 per cent on the cost new. Reported net operating revenues for 1910 and 1911, respectively, were sufficient to have made adequate provision for depreciation and provided for interest at 4.6 per cent and 2.6 per cent on the cost new and 7 per cent and 3.9 per cent on the present value. From these facts it appears that, so far as present conditions are concerned, the utility is not in need of much more revenue. The argument was advanced by the applicant that extensions of the plant, amounting in all to several thousand dollars, were contemplated, but there seems to be no reason why subscribers should bear this burden.

Operating expenses of \$4,273.26 for the past year include \$100, the salary of the treasurer, which should have been paid

during the previous year, so that actual expenses of the year were \$4,173.26. For a total installation of 654 phones, nearly all on metallic circuits, and about 370 on single-party local lines, expenses of \$4,173.26 appear to be rather low, although they are considerably larger than for the two previous years.

Applicant asks for authority to install four-party line service at the present single-line rates and to charge a somewhat higher rate for two-party and single-party service. At present it has no provision for two or four-party service. The installation of party line service for a large class of patrons is undoubtedly a step in the direction of more economical telephone service. At present the wire plant of the utility has so nearly reached its limit that any considerable further development of single-party business will necessitate extensions and additions which can be avoided if party line service is offered. There seems to be no reason why such service should not be offered, provided patrons are allowed to choose what class of service they shall have. The effect of the introduction of such service, with the attendant increase which may be expected in the number of subscribers, will be to cut down the interest and depreciation and some of the other expenses per phone installed, as the amount of plant and equipment required per phone will be decreased. If the number of subscribers were to remain as at present and the transition to party line service were made, there would be a certain amount of over-investment in the plant. But as the business is likely to be still further developed, such excess as exists beyond present needs, with the plant arranged for party line service, will hardly be greater than the reserve which good business management would demand.

If the rate for party line service is cut below the present single-line rate, revenues will probably be diminished, because of the substitution of the cheaper for the more expensive class of service. The manager of the utility estimated that most of the business places would continue to use one-party service but that about five-sixths of the residences would use a party line service. There seems to be no immediate need for four-party service. The present plant capacity will be sufficient to handle all business that is likely to be added within a number of years, provided two-party service is furnished to a large number of subscribers now using single-party service. Without definite knowledge as to the number of subscribers who will receive each

class of service, no exact statement of probable revenues can be made, but the following may be taken as indicative of what revenues would be with rates as indicated:

Class.	Number (estimated).	Rate per year.	Annual revenue.
1 party business.....	50	\$21 00	\$1,050 00
2	16	18 00	288 00
1 party residence.....	76	15 00	1,140 00
2	228	16 00	2,736 00
Rural.....	284	15 00	4,260 00
Extensions.....	4	6 00	24 00
Total annual exchange earnings.....			\$9,498 00

With toll and connecting line earnings of \$696.52, as for the past year, total earnings would be \$10,194.52. For interest and depreciation there would be available a total of \$5,921.26, or enough to provide the reserve of \$2,871.44 annually for depreciation and provide for interest at 6.9 per cent of the cost new, or over 10 per cent on present value. On a valuation of \$35,000 the interest rate would be 8.7 per cent. These rates of interest are rather high, but in some respects the expenses of the utility have been lower than they can be expected to continue. The necessity for more revenue, however, is not pressing and it is more important that the utility be permitted to install two-party service in order to save the expense of large additional investment. This purpose can probably be accomplished if a two-party residence service is offered. There seems to be no need of a two-party business service, although if the utility chooses to establish such a class there will be no objection, provided the rate for such service is fixed at a lower figure than the single-party rate.

IT IS THEREFORE ORDERED:

1. That the applicant, the Brodhead Telephone Company, shall establish a two-party residence class of service at the rate fixed below, and may establish a two party business service if it chooses to do so, at a rate lower than the rate for one-party business service, such two-party business rate to be fixed in the first instance, by the applicant.

2. Monthly rates of the Brodhead Telephone Company shall be:

	<i>Gross</i>	<i>Net</i>
Single-party business	\$1.60	\$1.50
“ “ residence	1.35	1.25
Two “ “	1.10	1.00
Rural	1.35	1.25
Extensions .....	.50	.50

The net rate shall be charged in case payment for service is made within the month in which the service paid for is rendered.

3. Where more than one class of service is offered, patrons may choose which class of service they will take.

GEORGE W. BARTLETT

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

HEIN & FRANCIS

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY,
ILLINOIS CENTRAL RAILROAD COMPANY.

KNAPP BROTHERS

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

JOHN WHALEN

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY,
ILLINOIS CENTRAL RAILROAD COMPANY.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF
THE PASSENGER AND FREIGHT SERVICE ON THE BROD-
HEAD-NEW GLARUS BRANCH OF THE CHICAGO, MILWAU-
KEE AND ST. PAUL RAILWAY COMPANY.

Decided July 10, 1912.

Complaint is made that, by reason of a change in the schedule of trains on the New Glarus branch of the C. M. & St. P. Ry., passengers on that branch are unable to make connections with the trains of the Illinois Central Railroad at Monticello, and the freight service is inadequate. Petitioners request the restoration of the train service formerly rendered. The train schedule complained of by the petitioners is occasioned by a change in time of the Chicago and Milwaukee time freight. Since this change the train leaving Janesville with the combined Chicago and Milwaukee time freight destined for points west of Janesville, including the New Glarus branch, has been scheduled to arrive at Brodhead later than formerly. After the change in arrival at Brodhead, it was impossible for the mixed freight and passenger train for New Glarus to connect with the main line time freight out of Brodhead. The result was the abandonment of the New Glarus train as the amount of passenger business alone did not warrant its continuation.

Held: Most of the cars consist of interstate shipments and unless the schedule of the time freight out of Chicago is changed, the petitioners will be unable to obtain the relief prayed for. The intrastate freight train moving out of Janesville to all stations on the Mineral Point division has not sufficient traffic

to warrant changing the schedule of the Milwaukee freight so as to reach Brodhead on the former scheduled time. Petitions are dismissed.

The above entitled cases involve the question of freight and passenger service on the Brodhead-New Glarus branch of the Mineral Point division of the Chicago, Milwaukee & St. Paul Railway.

The complaints allege in substance that by reason of a change in the schedule of trains on its New Glarus branch of the Chicago, Milwaukee & St. Paul Railway Company, passengers on that branch are unable to make connections with the trains of the Illinois Central Railroad at Monticello; that the freight service is inadequate; that perishable freight is not properly cared for at Brodhead, but allowed to lie unprotected in the sun on the Chicago, Milwaukee & St. Paul Railway Company's platform from morning until noon, and that by reason of the lateness of the morning train out of Brodhead, freight is received so late in the day as to prevent the marketing of perishable goods until in the afternoon; wherefore, petitioners request the restoration of the train service formerly rendered by the Chicago, Milwaukee & St. Paul Railway Company.

In answering the petitions, the Chicago, Milwaukee & St. Paul Railway Company alleges that there is no reasonable necessity for the installation of an early morning freight or passenger train on the New Glarus branch, and avers that the present service is reasonable and adequate for the needs of that vicinity. It further alleges that, even though the train which was discontinued be reinstated, it could not make any earlier delivery of freight at Albany and New Glarus, wherefore, it prays that the petitions be dismissed.

The Illinois Central Railroad Company, in its answer, makes a general denial of the complaints.

Hearings were held on June 27, 1911, and Sep. 14, 1911, at the office of the Commission in the city of Madison, Wis. At the first hearing the petitioners were represented by *John Theiler* and *Joe Hoesly* of New Glarus, and *A. B. Comstock* and *J. M. Whitcomb* of Albany. *F. G. Wright* appeared for the Chicago, Milwaukee & St. Paul Railway Company. At the second hearing *E. M. Knapp* appeared for the petitioners, *F. G. Wright* appeared for the Chicago, Milwaukee & St. Paul Rail-

way Company, and *John J. Morgan* for the Illinois Central Railroad Company.

Petitioners stated that they had no complaint against the Illinois Central Railroad Company.

Witnesses testified that under the old schedule of passenger service, they could make a trip to Monroe, the county seat, via Monticello, transact an entire day's business, and return in the evening of the same day, while under the new schedule they would have only about two hours for business in Monroe if they wished to complete the trip in one day. They also complained that at present sufficient time is not allowed passengers from Albany to New Glarus to transact business at the latter place between trains. As regards freight service, witnesses claimed that perishable goods for Albany and New Glarus shipped from Chicago and Milwaukee are left on the Brodhead platform from 7:00 a. m. until 11:40 a. m., the time of the first train west on the branch; that formerly freight reached them in the morning while now they did not receive their shipments until in the afternoon. They emphasized the fact that trains were continually late, thus causing delay in the delivery of mail and often making it impossible to answer letters in time to leave on the train's return trip.

The division superintendent of the Chicago, Milwaukee & St. Paul Railway Company testified that formerly the Chicago and Milwaukee freight left Janesville at 2:30 a. m. and arrived at Brodhead at 3:45 a. m., connecting with the 6:50 a. m. train out of Brodhead for stations on the New Glarus branch. A change in the Chicago and Milwaukee scheduled time caused this consolidated freight to leave Janesville at 5:30 a. m. and arrive at Brodhead at 7:00 a. m., too late to connect with the 6:50 a. m. train. As there was not then enough passenger and freight traffic to pay for the expense of running the 6:50 a. m. train, it was discontinued. Witness stated that under the old schedule the crew was on duty fifteen hours and five minutes, and whenever the last train was late over fifty-five minutes, the company was compelled to put on an extra crew to avoid violating the federal sixteen-hour law, and, in fact, there had been two crews employed previous to the time the 6:50 a. m. train was taken off. Any additional service to that now given would cost \$35 per day and he contended that the present earnings would not warrant the increased expenditures. He claimed

that the New Glarus branch was not a profitable line, as it runs through a dairy country where the outgoing freight is small. Witness denied that trains on the branch had failed to make connections, except in case of accident, but stated that trains handling freight were always subject to more or less minor delays.

As a result of several investigations made by the Commission, we find that the train schedule complained of by the petitioners is occasioned by a change in time of the Chicago and Milwaukee time freight. Since this change the train leaving Janesville with the combined Chicago and Milwaukee time freight destined for points west of Janesville, including the New Glarus branch, has been scheduled to arrive at Brodhead at 7:00 a. m., when formerly it reached there at 3:45 a. m. The change in the time of the Chicago freight occurred Feb. 12, 1911, when its departing time from Chicago was scheduled at 9:00 p. m. instead of 7:10 p. m. Beginning with May 28, 1911, the Milwaukee time freight left Milwaukee at 9:30 p. m., when previous to this time it left at 7:50 p. m. These trains combine at Janesville and arrive at Brodhead at 7:00 a. m., when formerly they arrived at 3:45 a. m. The New Glarus connection was a mixed freight and passenger train, making connections with the Illinois Central Railroad Company's passenger trains at Monticello. This train, previous to May 28, 1911, left Brodhead at 6:50 a. m. and arrived at New Glarus at 8:20 a. m. After the change in the arrival at Brodhead of the time freight, it was impossible for this 6:50 morning train out of Brodhead to connect with the 7:00 a. m. main line time freight. The result was the abandonment of this train, as the amount of passenger business alone did not warrant its continuation. An analysis of the Chicago and Milwaukee time freight, forwarded to stations on the Mineral Point division of the Chicago, Milwaukee & St. Paul Railway, show that for the month of February, 1911, 301 cars were shipped from Chicago and 111 cars from Milwaukee. The average train out of Janesville consisted of sixteen loads and two empties. For the month of May, 1912, 322 cars were shipped from Chicago, with an average of 12.3 cars per train; 210 cars shipped from Milwaukee with an average of 8 cars per train. The average train out of Janesville for May, 1912, was 22.2 cars per train. During February, 1911, there were 74 cars shipped out of Chicago to

stations on the New Glarus branch and 21 cars out of Milwaukee. For May, 1912, 28 cars were shipped out of Milwaukee. The traffic on the branch line itself during May, 1912, amounted to 210 cars out of Brodhead and 121 cars into Brodhead.

Reviewing the testimony and the preceding statements of freight traffic, it appears that most of the cars consist of interstate shipments, and that unless the schedule of the time freight out of Chicago is changed, the petitioners will be unable to obtain the relief prayed for. The intrastate freight moving out of Janesville to all stations on the Mineral Point division is less than 10 cars per train, which is not sufficient traffic to warrant changing the schedule of the Milwaukee freight so as to reach Brodhead on the former scheduled time and which, while partly satisfying the demands of petitioners, might work an injustice to shippers and receivers at other stations on the same division.

Therefore, the petitions are dismissed.

W. A. STRESEN-REUTER ET AL.

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted June 7, 1912. Decided July 11, 1912.

Complaint is made that the C. & N. W. Ry. Co. for years has ignored and violated those provisions of the charter or contract which enables it to run trains along the park front of Milwaukee, Wis. Under these provisions neither cars nor engines were to be allowed to stand, nor was switching to be permitted, between Juneau avenue and Wisconsin street.

Held: The Commission is without jurisdiction in the premises. No specific statute exists conferring upon the Commission power to abate the alleged nuisance of which complaint is made. The general powers vested in the Commission by the Commission Act relate to the regulation of services and rates of railway companies. Petition is dismissed.

A number of citizens residing in the vicinity of Juneau Park in the city of Milwaukee, Wis., filed with the Commission a petition which reads as follows:

“For years the Chicago & North Western Railway Company has ignored the provisions of the charter, or contract, which enables it to run its trains along the park front of this city. By these provisions neither cars nor engines were to be allowed to stand, so we are informed, nor was “switching” to be permitted between Juneau avenue and Wisconsin street. Night after night, however, four and even five engines are waiting about the head of Mason street snorting, hissing, and belching volumes of coal smoke into the windows of the homes across the park; switching and shunting are of hourly occurrence; huge freight trains, frequently stalling, are hauled slowly and noisily up the grade, and the nights are made hideous by the panting and hissing of engines and our homes untenable by clouds of coal smoke. The conditions have been worse this past winter than ever before. Complaints to railway officials have resulted in nothing.”

The railway company, answering the petition, denies that any unnecessary movements of engines between Mason street and Wisconsin street are permitted or that more engines than are necessary for railroad operation are kept in the vicinity

complained of. It alleges that the railroad operations as conducted by it are necessary and indispensable to the conduct of the road; that in the month of March all time freight and dead freight from Milwaukee were sent over the new line of this company known as the Butler belt line; and that an employe of the company is on duty for the purpose of seeing that no avoidable moves of engines are made in the vicinity and that all necessary moves are made with a minimum of noise, smoke and discomfort.

The matter came on for hearing on June 7, 1912. The petitioners were represented by *A. D. Agnew* and the respondent by *W. G. Wheeler*.

A large volume of testimony was presented upon the hearing tending to substantiate the complaint of petitioners. It becomes unnecessary to review this testimony for the obvious reason that the Commission is without jurisdiction in the premises. No specific statute exists conferring upon the Commission power to abate the alleged nuisance of which complaint is made. The general powers vested in the Commission by the Commission Act relate to the regulation of services and rates of railway companies. The duties of such companies generally prescribed by the statute, which is declaratory of the common law, are contained in section 1797-3, which is as follows:

“Every railroad is hereby required to furnish reasonably adequate service and facilities, and the charges made for any service rendered, or to be rendered, in the transportation of passengers or property or for any service in connection therewith, or for the receiving, switching, delivering, storing and handling of such property, shall be reasonable and just, and every unjust and unreasonable charge for such service is prohibited and declared to be unlawful.”

Under the circumstances the petition must be dismissed.

Now, THEREFORE, IT IS ORDERED, That the petition be and the same is hereby dismissed.

ELMORE-BENJAMIN COAL COMPANY

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Decided July 11, 1912.

Petitioner alleges excessive charges on a shipment of soft coal from Sparta to Eau Claire, Wis. The class D distance tariff rate, applying locally between Wisconsin points on the C. & N. W. Ry. for distances over thirty to and including thirty-five miles, was collected from Sparta to Elroy. Class D rates apply on coal, generally, between stations in Wisconsin where no specific rate is published. Specific rates are published, generally, to apply from regular coal shipping points only. It is not likely that there is any regular movement of coal from Sparta to Elroy and a specific rate on coal between those points would probably not be justified. The shipment in question may be said to have been an emergency case for which the railroads usually provide a rate that expires with the shipment, thus keeping the regular tariff issues free from useless items.

Held: Under the circumstances the rate exacted was unusual and exorbitant, and refund is ordered on the basis of a rate which would have been reasonable under the circumstances.

The petition in this case is for refund of alleged excessive charges on a shipment of soft coal, Dec. 23, 1911, from Sparta, Wis., to Eau Claire, Wis., originally shipped from Dorothy, West Virginia, to Sparta, Wis. The charges, however, were paid on the Dorothy to Sparta shipment, so that the Sparta to Eau Claire shipment seems to have been a separate transaction. The Sparta to Elroy shipment was charged 86,400 lbs. at 5 cts. per 100 lbs., making \$43.20. This covered the movement from Sparta to Elroy via the Chicago & North Western Railway. From Elroy to Eau Claire the shipment was carried by the Chicago, St. Paul, Minneapolis & Omaha Railway without charges, for the reason that the coal was consigned to that line. The petition sets forth that the petitioner believes that the shipment from Sparta to Eau Claire should not have been charged to exceed 25 cts. per ton, inasmuch as \$1.20 per ton had already been paid from Milwaukee to Sparta, and asks for refund of 75 cts. per ton.

The respondent in its answer says that the charges complained of in the petition were the lawful rates according to the published tariffs, that they are not unjust, unreasonable or discriminatory, and that to have charged any less would have been discriminatory and a violation of the law.

The claim was submitted upon the pleadings, documents, and vouchers on file.

Examination of tariffs on file with the Commission shows that the rate and charges complained of are the published, and, therefore, the lawful rate and charges applicable to the shipment. The distance from Sparta to Elroy is 34 miles. The rate complained of, 5 cts. per 100 lbs., is the class D distance tariff rate, applying locally between stations in Wisconsin on the Chicago & North Western Railway for distances over 30 miles to and including 35 miles. The same rate applies on practically all Wisconsin lines for these distances, except between stations where there is a lower specific rate, and class D rates apply on coal generally, on all lines, including the respondent line, the Chicago & North Western Railway, between stations in Wisconsin where no specific rate is published. Specific rates on coal are published, generally, to apply from regular coal shipping points only. The regular coal shipping points in Wisconsin are the lake ports. Shipment of coal from interior points is rare and confined mostly to cases where wholly unexpected and unprepared for conditions arise, as seems to have been the case with the shipment in question. It is not likely that there is any regular movement of coal from Sparta to Elroy. It is quite probable that the instant case is the only one that has ever been made from and to these points, and that there may never be another. The charges paid on this coal from Milwaukee to Sparta were a proportion of the through charges from Dorothy, West Virginia, to Sparta, Wis., an interstate shipment, and cannot be considered as a part of the Sparta to Eau Claire shipment. The petition names 25 cts. per ton as a reasonable rate, but gives no basis for this other than the fact that \$1.20 per ton had already been paid on this coal from Milwaukee to Sparta. As stated above, the rate charged on this shipment would generally apply on any similar shipment between any two points in Wisconsin the same distance apart as Sparta and Elroy, except shipments from regular coal shipping points—lake ports.

The rates from coal shipping points on the Chicago & North Western Railway to points on that line over 30 miles, to and including 35 miles, as published in tariffs on file with the Commission, are as follows:

From	To	Distance in miles.	Rate per ton on soft coal.
Milwaukee.....	Kenosha.....	33	\$0.60
".....	West Bend.....	33	.65
".....	Belgium.....	33	.60
".....	Dousman.....	33	.70
Sheboygan.....	Malone.....	33	.65
".....	Ula.....	32	.50
".....	Two Rivers.....	33	.50
Manitowoc.....	Kaukauna.....	35	.65
Green Bay.....	Elba.....	33	.75
".....	Northern Jct.....	34	.75
Marinette.....	Little Suamico.....	34	.75
Ashland.....	Kimball.....	32	.55

The lowest rate listed in the above table for the distance involved is 50 cts. per ton; the highest 75 cts. per ton, and the average about 64 cts. per ton. These rates apply from points where there is a regular and continuous movement of coal that can be approximated and prepared for in advance, and, therefore, handled at a minimum expense to the carrier. Were the business scattered throughout the state, so that but an occasional shipment moved from any one point, it is quite probable that the rates would be on a somewhat higher basis.

The matter of coal rates in general is quite fully covered in *Wis. Pulp & Paper Mfrs. vs. C. & N. W. R. Co. et al.* 1911, 6 W. R. C. R. 436. In that case, however, the rates attacked applied from and to points where there was a regular and continuous movement of coal, and this traffic was expected to so continue in the future. In the present instance, the rate attacked applies from and to points where, no doubt, the one shipment complained of is the only one that has ever moved, and future shipments are not to be expected. It is not at all likely that a rate, low enough to bring about regular shipments of coal from Sparta to Elroy, could be made. The shipment in question, therefore, may be said to have been an emergency case for which the railroads, when so disposed, usually provide a rate that expires with shipment, thus keeping the regular tariff issues free from useless items. There appears to be but little doubt but that, had the matter of this shipment been taken up

with the railroad before shipment was made, a concession of some kind would have been granted, and the Commission, if applied to, would, no doubt, have authorized the establishment of any rate that appeared to be reasonable under the circumstances, as empowered so to do by sec. 1797-28.

The rate of \$1.00 per ton, and the charges complained of, \$43.20, for a haul of less than 35 miles, appear to be excessive. The reasonable rate and charges, under the circumstances, would not exceed 75 cts. per ton, or \$32.40. This would make excessive charges of \$10.80. For reasons which have already appeared, it is unnecessary for the Commission to follow its usual custom of establishing a rate in lieu of the one complained of. The order in the case, therefore, will be confined to an authorization of a refund of \$10.80.

We therefore find and determine that the rate of 5 cts. per 100 lbs., exacted of the petitioner by the railway company for the aforesaid shipment of coal from Sparta to Elroy, was unusual and exorbitant, and that the reasonable charge for such shipment is 75 cts. per ton.

Now, THEREFORE, IT IS ORDERED, That the Chicago & North Western Railway Company be and the same is hereby authorized and directed to refund to the petitioner, on the amount of such shipment, the sum of \$10.80.

WAUSAU PAPER MILLS COMPANY

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted April 9, 1912. Decided July 11, 1912.

Petitioner alleges that several months after it had applied for a reduction, respondent's rate on ground wood pulp from Rothschild to Brokaw, Wis., was reduced from 4.3 to 3 cts. per cwt. Request is made for a further lowering of the rate to 1.5 cts. per cwt. Refund is asked of the charges exacted in excess of 3 cts. per cwt. since petitioner's application for a reduction was made.

While wet pulp does not belong in the very lowest grade of commodities shipped, its loading is sufficiently heavy and its value is small enough so that it should perhaps be moved at rates netting the carrier a little less than the average return on all carload traffic moved. Added to the moderately low value and heavy loading is the fact that it can be handled in almost any kind of cars that happen to be available, involves little risk of loss or damage, and is loaded and unloaded promptly. Another element of importance is that the haul is in reality only a part of a complete shipment of pulp in and paper out. It is, therefore, perhaps not unjust to make the margin of profit to the carrier a little narrower than it would be if the haul were a single one without any resulting out-haul.

Held: While a rate of 1.5 cts. per cwt. is hardly high enough to yield the carrier the return to which it is entitled, the present rate of 3 cts. per cwt. is somewhat higher than conditions warrant. A comparison of similar rates, together with the cost data, would justify a 2 ct. rate between Rothschild and Brokaw. That rate would also do justice as between the petitioner and the competing pulp and paper mills of the Wisconsin and Fox river valleys, and it is accordingly ordered substituted for the present rate. As it seems to be entirely warranted by the facts, refund is ordered of the difference between the charges actually made and those which would have been charged under a rate of 3 cts. per cwt., made effective after the shipments in question had moved.

The petitioner is a corporation engaged in the manufacture of pulp and paper at Brokaw, Wis. It alleges that on July 10, 1911, it applied to the respondent company for a reduction of the rate on ground wood pulp from Rothschild, Wis., to Brokaw, from 4.3 to 1.5 cts. per 100 lbs.; that, effective Oct. 5, 1911, the rate was reduced by the respondent from 4.3 to 3 cts., and during the interval the petitioner had shipped sixty-one cars between the two points at the higher rate, with a total freight

charge of \$1,989.56. The petitioner asks for a refund of the excess of this charge over and above a 3 ct. rate, and also asks that for the future the rate be made 1.5 cts. per 100 lbs.

The respondent railway company, in its answer, denies that the petitioner is entitled to a refund and to a further reduction of the rate, alleges that the present rate is non-compensatory and that a 1.5 ct. rate would be confiscatory; and prays that the petition be dismissed.

The hearing was held at the office of the Commission, April 9, 1912. The petitioner was represented by *Kreutzer, Bird, Rosenberry & Okoneski*, and the respondent company by *J. N. Davis*.

The evidence at the hearing related principally to the petitioner's efforts during the summer of 1911 to obtain a reduction of the 4.3 ct. rate. About the time the 3 ct. rate was finally made effective, the Rothschild corporation, which was furnishing the pulp to the petitioner, lost its dam, and up to the time of the hearing no further shipments had been made, but it was testified that the petitioner expected soon to receive wood pulp again from Rothschild. The distance from Rothschild to Brokaw is 11.2 miles. It was the contention of the petitioner that because of the delay of the railway company from July to October in making the 3 ct. rate effective, the petitioner was entitled to a refund of the amount charged in excess of the rate finally established, on shipments moving during the interval. As to the establishment of a 1.5 ct. rate for the future, the petitioner's request was based upon the existence of a 1 ct. rate between Grand Rapids, Port Edwards and Nekoosa, and a 2 ct. rate between certain Fox river valley mills on the Chicago & North Western line. These rates will be set forth and discussed below.

The commodity involved in this case, ground wood pulp, is shipped wet, the average amount of water in the pulp shipped to the petitioner being about 66 per cent. This makes it a comparatively heavy commodity, and the amount of water contained in it reduces its value far below that of the same bulk when dry. The average loading of the 61 cars on which the petitioner asks for a refund was about 76,000 lbs. The value of the dry pulp appears to be about \$20 per ton, so that the shipment made to the petitioner, being two-thirds water, were worth only about \$7.00 per ton, or 35 cts. per 100 lbs. The commodity thus

ranks a little higher than pulp wood, coal and coke, lime, iron ore, and brick in value per unit of weight, but is of less value than pig iron, grain, lumber, and a large number of other common carload commodities. Therefore, while wet pulp does not belong in the very lowest grade of commodities shipped, its loading is sufficiently heavy and its value is small enough so that it should perhaps be moved at rates netting the carrier a little less than the average return on all carload traffic moved. Added to the moderately low value and heavy loading is the fact that it can be handled in almost any kind of cars that happen to be available, involves little risk of loss or damage, and is loaded and unloaded promptly. The petitioner states its average time of unloading the cars in question to have been one and six-tenths days.

Another element of importance in the consideration of the wood pulp traffic is that the haul is in reality only a part of a complete shipment of pulp in and paper out. The movement here in question is between two paper mills, one of which apparently manufactures more wood pulp than it needs for production of paper, and transfers a part of it to the other mill for such production. Brokaw is located on only one line of railway so that the paper shipped out must necessarily move over the respondent's line. It is therefore perhaps not unjust, in fixing a rate on the wood pulp shipped in, to make the margin of profit to the carrier a little narrower than it would be if the haul were a single one without any resulting out-haul. When all of the facts detailed above are taken into account, and the cost of performing the service is analyzed according to the methods used by this Commission and set forth in its earlier decisions, it is found that the rate asked for by the petitioner, 1.5 cts. per 100 lbs., is hardly high enough to yield the carrier the return to which it is entitled. At the same time, the present rate of 3 cts. per 100 lbs. seems under the circumstances to be somewhat higher than the conditions warrant. The location of a rate which is under all the facts of this case reasonable, may be facilitated by examining the other rates of the respondent and the Chicago & North Western Railway Company for hauls of comparable length in the state. A compilation of these rates is given in table I:

TABLE I.
SHORT DISTANCE RATES ON GROUND WOOD PULP.

From	To	Miles	Rate, cts.
<i>1. Chicago, Milwaukee & St. Paul rates.</i>			
Nekoosa (between)	Port Edwards.....	3	1
Port Edwards (between)	Grand Rapids	4	1
Appleton	Menasha	5	2
Appleton	Neenah	6	2
Nekoosa (between)	Grand Rapids	7	1
Rothschild.....	Brokaw	11	3
Merrill	Brokaw	14	3
Mosinee.....	Brokaw	19	3.5
Stiles.....	Green Bay	25	5
Neenah.....	Green Bay.....	44	5
Appleton	Green Bay	47	5
<i>2. Chicago & North Western rates, conditioned on reshipment of product over same line.</i>			
Kaukauna.....	Little Chute	2	1
Kaukauna.....	Combined Locks.....	2	1
Combined Locks.....	Kimberly	2	1
Port Edwards.....	South Centralia.....	2	1
Nekoosa	Port Edwards.....	3	1
Kaukauna.....	Kimberly	4	1
Appleton	Kimberly	4	1
Port Edwards.....	Grand Rapids.....	4	1
Appleton	Little Chute	5	1
Nekoosa	South Centralia.....	5	1
Appleton	Combined Locks.....	6	1
De Pere.....	Little Rapids.....	6	2
Appleton	Neenah-Menasha	7	2
Nekoosa	Grand Rapids.....	7	1
Appleton	Kaukauna	7	1
Kaukauna	Little Rapids.....	10	2
Kimberly	Neenah-Menasha	10	2
Kimberly	Little Chute.....	11	1
Green Bay.....	Little Rapids.....	12	2
Combined Locks.....	Neenah-Menasha	13	2
Combined Locks.....	Little Chute.....	14	2
Kaukauna.....	Neenah-Menasha	14	2
De Pere.....	Kaukauna	16	5
Appleton	Little Rapids.....	17	2.5
De Pere.....	Appleton	23	5
Neenah-Menasha	Little Rapids.....	24	3
Kimberly.....	Little Rapids.....	24	2
De Pere.....	Neenah-Menasha	30	5
De Pere.....	Combined Locks.....	31	5
De Pere.....	Shawano.....	44	5

It will be seen that on the North Western line the prevailing rate for distances similar to that here involved, and for several miles farther, is 2 cts. per 100 lbs. or less. On the respondent's line the examples are less numerous and the general level of the rates is probably somewhat higher. The Chicago & North Western rates are conditioned on reshipment of the manufactured product over the same line, which, as has been pointed out, is also an implied condition at Brokaw, because of the location of that village on only one railway line. The one cent rate in

force between Nekoosa, Port Edwards and Grand Rapids on both railways applies for a maximum distance of seven miles, and, in practical operation, affects the business of a single paper company having mills at all three places. Aside from these very low rates, and the one cent rate from Kimberly to Little Chute (eleven miles via Appleton Jct.), the general level of rates shown in table I is such as to suggest that a 2 ct. rate between Rothschild and Brokaw, eleven miles, would do justice as between the petitioner and the competing pulp and paper mills of the Wisconsin and Fox river valleys.

While rate comparisons are dangerous as a measure of the absolute reasonableness of a proposed rate, for the reason that the rates with which comparison is made are not proved to be reasonable and are sometimes the result of peculiar conditions, yet such a comparison as is shown in table I is of considerable value in finding a rate that is reasonable under all the circumstances. The paper mills of the Wisconsin and Fox river valleys are engaged in keen competition, the margin of profit on the finished product is claimed by them to be small, and the rates at which one set of paper mills can transfer wood pulp among themselves for manufacture are therefore of some importance in determining what the rates should be between another set of mills. Furthermore, the Rothschild-Brokaw rate of 2 cts. per 100 lbs., which seems to be the logical result if comparison alone be used as the basis, is also justified by the cost data heretofore referred to, when the conditions surrounding the traffic are all taken into account. The reasonable rate for the future, therefore, will be fixed at 2 cts. per 100 lbs.

With regard to the matter of refund on past shipments, it is to be noted that the petitioner asks only for a refund of the difference between the old 4.3 ct. rate and the present 3 ct. rate on shipments moving between July 10 and Oct. 5, 1911. This being the full measure of the request, the Commission cannot properly go farther and grant a refund on the basis of the 2 ct. rate herein found reasonable for the future. As a matter of fact, it is not certain that the petitioner, even if it had prayed for it, would have been entitled to a refund of the entire difference between 4.3 cts. and 2 cts. It does not always follow from the reduction of a rate that a refund may properly be granted, and each case depends largely upon its own peculiar circumstances. The refund of the difference between 4.3 cts.

and 3 cts., however, seems to be entirely warranted by the facts. The petitioner applied for a lower rate before any shipments moved, and the correspondence between the petitioner and the railway company, which is of record in this proceeding, shows that the petitioner continually pressed the respondent for a more rapid settlement of the matter, but the respondent delayed making the 3 ct. rate effective until nearly three months after the request was made. Both the 4.3 ct. and the 3 ct. rates are high enough so that there can be no doubt of the petitioner's right to a refund of the difference between the two. An itemized statement of the shipments between July 12 and Oct. 3, inclusive, shows a total charge on the sixty-one cars of \$1,989.56. At 3 cts. per 100 lbs. the charge would have been \$1,388.79. The refund to which the petitioner is entitled is therefore \$600.77.

We therefore find and determine that the charges exacted of the petitioner upon its sixty-one shipments of ground wood pulp from Rothschild to Brokaw, Wis., based upon a rate of 4.3 cts. per 100 lbs., were unreasonable and exorbitant, and that a reasonable rate upon which to have assessed such charges would not have been higher than 3 cts. per 100 lbs., and that the petitioner is entitled to a refund of the difference between the charges actually made and those which would have been made under a rate of 3 cts. per 100 lbs., or \$600.77. We further find that 2 cts. per 100 lbs. is a reasonable rate for the future, upon the traffic herein involved.

IT IS THEREFORE ORDERED, That the respondent, the Chicago, Milwaukee & St. Paul Railway Company, discontinue its present rate of 3 cts. per 100 lbs. on ground wood pulp from Rothschild to Brokaw, Wis., and substitute in lieu thereof a rate of 2 cts. per 100 lbs.

IT IS FURTHER ORDERED, That the said respondent company be and the same is hereby authorized and directed to refund to the petitioner, the Wausau Paper Mills Company, the sum of \$600.77, being the amount exacted of the said petitioner on shipments of ground wood pulp from Rothschild to Brokaw in excess of the amount herein designated as the sum above which the charges upon said shipments are unreasonable.

CITY OF RHINELANDER

vs.

RHINELANDER LIGHTING COMPANY.

IN RE VALUATION OF THE PROPERTY OF THE RHINELANDER
LIGHTING COMPANY.

Decided July 11, 1912.

Petitioner alleges that the electric rates of the Rhinelander Lighting Co. for light, power and other purposes in the city of Rhinelander, Wis., are unreasonably high. Respondent leases power for electric current from the Rhinelander Power Co. and pays a fixed annual amount. The contract limits the sale of current by respondent to lighting purposes and to use for electric fans at lighting rates and the power company reserves the right to sell current for power and to furnish its power customers with current for light.

In the determination of a basis for rate-making purposes, respondent claimed certain intangible values not named in the Commission's valuation. Water power has been substituted for steam power and respondent contended that the saving resulting from hydraulic generation represented a contract value. Respondent also claimed a franchise value based on an estimate of the free service rendered according to the original franchise. The franchise has been given up for an indeterminate permit and reliable records of free service during the life of the franchise are not available.

Applicant called in question the amount allowed for wages and salaries for rate-making purposes. Analysis of comparative data shows that the normal amount expended for wages and salaries is about 40 to 45 per cent of total operating expenses, modified in individual instances by local conditions. The amount in the present case does not appear to be excessive.

Operating data, desirable for rate-making purposes, were found to be incomplete and it was necessary to resort to estimates to a considerable degree. Operating expenses seem to have been about normal. Consumer data available indicate that the flat rate consumers, while using over twice as much current as the metered consumers, furnish little more than one-third of the total commercial revenue. Data also show discrimination that may exist even among the flat rate consumers. The situation is not entirely the fault of the company, but grows to some extent from the tendency of consumers to extend their installations without notifying the company. On account of the difficulties of formulating equitable flat rates and of the greater difficulties of formulating such rates side by side with equitable meter rates, the cost analysis is based on the assumption that all commercial service is to be metered. Free service is eliminated. Operating expenses and revenues determined upon were apportioned between output and capacity expenses and further apportioned between commercial service and municipal arc lighting. Earnings from street lighting appear to be about normal.

Valuation of respondent's physical property as of July 15, 1911, shows a cost of reproduction new of \$35,747 and a present value of \$28,942.

Held: The title of the owners in utility business to the entire savings due to use of water power instead of steam power has not been clearly demonstrated. To preclude the public from any share in economical methods of service and to place upon consumers the burden of maximum costs of operation, results in costs that are not dependent upon reasonable efficiency, normal investments and local advantages. The welfare of the utility requires that mutual benefit arise from supplying the public from natural power. In the present case, comparison of respondent's contract for hydraulic current with contracts of other local consumers does not seem to indicate that, from the lessor's point of view, the water power is of more value than the lighting company's rate provided in the original lease. The terms of the lease are such as to reduce the worth materially below that for power to which exclusive right may be had and on which no restriction of disposal may be made.

Upon the surrender of respondent's original franchise, obligations to supply the city with free service ceased, and the value of such service as may have been subsequently rendered can hardly be made now the basis of a franchise value. It does not appear that a very material sum may be properly added to the valuation on account of operating expenses incurred for free service under the earlier franchise provisions.

The absence of certain information can hardly be permitted to stand in the way of adjustments which apparently will lead to greater equity between the utility and the public and between the different classes of consumers. To completely prevent adjustment and reduction of rates would add an incentive for failure to provide for ordinary utility records.

A more equitable adjustment of the rate schedule, the elimination of waste of current and a substantial reduction in charges will result if all service is metered. Respondent is therefore ordered to install integrating meters within 90 days on all commercial service, except for patrolled sign, outline and window lighting, and on the main circuits going out from the substation. It is further ordered that respondent put in effect the rate schedule provided by the Commission and the meter rates therein established shall become effective for metered use of current for the month of August 1912.

Inasmuch as the power company is not prepared, or has not taken the steps necessary to supply general power service, it appears to be unjust to the public to permit the agreement between the parties to the lease to so operate as to place beyond the reach of the public the rates to which it is entitled. The utility which is ostensibly serving the community should be required to furnish that service at reasonable rates or the concern, which reserves the right to the business, should be ordered to furnish it. Rates for power service are included in the prescribed schedule.

Complaint in this matter was filed with the Commission April 21, 1911. It sets forth that the rates of the above named Rhinelander Lighting Company for furnishing electric current for lighting, power and other purposes in the city of Rhinelander, Wis., are unreasonably high and prays that, after due hearing

and investigation, such rates be ordered as the Commission shall find to be just and reasonable.

Pursuant to notice hearings were held in the above matter Dec. 28, 1911, at Rhinelander, and Feb. 8, 1912, at the office of the Commission. The following appearances were entered: for the petitioner, *Henry F. Steele*, city attorney, and *Drew & Jameson* by *Walter Drew*; for the respondent, *Miller, Mack & Fairchild* by *J. B. Blake* at the hearing on Dec. 28, 1911, and by *E. S. Mack* and *J. B. Blake* at the hearing on Feb. 8, 1912.

The hearings dealt chiefly with the corporate relations of the Rhinelander Lighting Company, respondent, and the Rhinelander Power Company and with the bearings of this situation upon the operating expenses of the former. The free service, which is rendered by the respondent to the city of Rhinelander, was also made the subject of considerable testimony.

It appears from the evidence that *E. A. Forbes* and *C. A. Wixson*, the present owners of the Rhinelander Lighting Company, acquired the lighting business in 1898 and carried it on for some time thereafter as a copartnership. The original plant was operated by steam power, the fuel for which was principally slabs from saw mills. Later, because slabs were no longer available in sufficient quantities to supply the entire needs of the lighting business, it became necessary to resort to the partial use of coal. This, it is claimed, resulted in unprofitable operation and caused the owners to look about them for a different means of generation.

The Rhinelander Power Company was incorporated Feb. 17, 1904, for the purpose of developing a hydro-electric plant on the Wisconsin river near Rhinelander and transmitting current to that city for delivery to Forbes and Wixson for lighting and to other large users for power. The capital stock amounted to \$85,000, of which \$25,000 was common stock and \$60,000 cumulative 8 per cent preferred stock. It appears from the stockholders' minutes of Feb. 23, 1904, that *E. A. Forbes* and *C. A. Wixson* subscribed to the majority of the stock. The preferred stock, referred to above, was later retired by an issue of \$60,000 first mortgage 6 per cent gold bonds. Subsequently \$15,000 additional 8 per cent cumulative preferred stock, authorized by the Railroad Commission Feb. 20, 1908, was issued. Of this issue, there is now \$11,950 outstanding. The interest rate has been voluntarily reduced by the takers from 8 to 7 per cent. Although an additional \$50,000 common stock was voted

at the annual meeting of the stockholders, Jan. 6, 1908, this stock has not been issued.

E. A. Forbes and C. A. Wixson, the principal incorporators, each hold now fifteen out of a total of two hundred and fifty shares of common stock in the power company. It would appear, therefore, that the ownership of the Rhinelander Lighting Company and the Rhinelander Power Company is not identical to the same extent that originally prevailed.

The contract entered into by the power company and E. A. Forbes and C. A. Wixson, Aug. 30, 1904, provides, essentially, that the lessor furnish 280 h. p. of electric current to the lessee, at the latter's plant in Rhinelander, at the rate of \$15 per h. p. per year. This contract is to run until Jan. 1, 1924, with the provision that the demands of the lighting company, up to 280 h. p., shall have preference over all other demands on the power company except 500 h. p. to be furnished by the power company to the Rhinelander Paper Company under a prior agreement. Provision was also made that, in case the lighting company desired additional power, a supplemental lease should be entered into subject to prior contracts. This was taken advantage of by the lighting company and on Dec. 30, 1905, the president and secretary of the power company were instructed by the board of directors to lease to the lighting company 30 h. p. additional at the rate of \$20 per h. p. per year.

This agreement limits the sale of current by the respondent to lighting purposes and to use by fans at lighting rates. On the other hand, it reserves to the power company the right to sell current for power in the city of Rhinelander and to furnish its power customers with current for lighting.

The following is a summary of the contracts of the Rhinelander Power Company:

Lessee.	H. p. leased.	Consideration.	Date power was first furnished.	Period of contract.
1. Rhinelander Paper Co.....	500	\$12 per h. p. per year.	Jan. 1, 1906	25 years.
2. Rhinelander Lighting Co..	230	\$15 per h. p. per year.	Nov. 1, 1905	19 "
3. " " "	30	\$20 per h. p. per year.	Dec. 30, 1905	19 "
4. City of Rhinelander	Water pump'd	\$200 per mo.	.....	3 "
5. E. A. Edmonds, transferred to Paper Co	All excess h.p.	Building 3rd unit.	.....	*19 "

*Option to renew at \$15 per h. p. per year.

The total power now leased by the lighting company is 310 h. p., for which it pays \$5,100 per year.

In addition to their interests as owners of the Rhinelander Lighting Company and as stockholders and officers of the Rhinelander Power Company, E. A. Forbes and C. A. Wixson at one time held a contract with the power company under the terms of which the properties of the latter were to be operated by Forbes and Wixson. It is the testimony of the respondent that the copy of the contract exhibited by the applicant is not entirely the same as the contract entered into for the operation of the power plant. The respondent also testifies that no agreement for this service now exists, but that the operation of the power plant is still carried on by Forbes and Wixson and that the service is paid for by the Rhinelander Power Company. According to the books of the latter, the consideration involved for the services of Forbes and Wixson in operating the power company's properties was \$3,510 for the year ending Dec. 31, 1910.

The generating plant, which is owned by the power company, is located on the Wisconsin river about seven miles from Rhinelander. The power company owns the transmission line also, which carries the current at 11,000 volts. The substation equipment of the power company is located in the substation building belonging to the Rhinelander Lighting Company. The books of the two companies are kept in the same office, which is part of the substation building. The entire substation labor cost appears to be borne by the respondent, although the service of other power customers of the Rhinelander Power Company is supplied through apparatus located in this building.

PRESENT RATES.

The schedule of rates of the Rhinelander Lighting Company, on file with the Commission, and against which the applicant brings complaint, is as follows:

SCHEDULE OF RATES.

Filed April, 1910, and Amended May, 1910.

FLAT RATE.

Commercial Lighting.

Stores and offices.....	50	cts. per month
Saloons, restaurants and all night lights.....	75	“ “
Churches, lodge halls and schools.....	25	“ “

*3 Glower Nernst Lamps.**

Store lighting	\$3.00	per month each
Saloons and restaurants.....	4.00	“ “

Commercial Enclosed Arc Lamps.

Store lighting	\$5.00	“ “
Saloons and restaurants.....	6.00	“ “

Residence Lighting.

1 light	\$0.75	per month.
2 “	1.25	“
3 “	1.50	“
4 “	1.75	“
5 “	2.00	“
For the next 5 additional lights.....	.35	“ each
For the next 5 additional lights.....	.30	“ “
All over 15 lights.....	.25	“ “

The above is based on 16 c. p. carbon filament lamps.

All persons using light on flat rates may substitute a 40 watt Tungsten lamp for each 16 c. p. carbon lamp used, or any other sizes in Tungsten lamps at the same ratio.

Blacksmith Shops, 50 cents per light per month 6 months of the year.
Balance of the year no charge is made.

METER RATES.

Commercial Lighting.

10 cents per 1000 watts with a minimum charge of \$1.00 per month.

Hotel Lighting.

8 cents per 1000 watts with the following discounts:

Monthly bills less than \$5.00	no discount.
“ of \$5.00 and less than \$10.00	10% discount.
“ “ 10.00 “ “	15.00 15% discount.
“ “ 15.00 “ “	20.00 20% discount.
“ “ 20.00 “ “	25.00 25% discount.
“ “ 25.00 “ “	30.00 30% discount.
“ “ 30.00 “ “	35.00 35% discount.
“ “ 35.00 “ “	40.00 40% discount.

RATES FOR MOTOR SERVICE.

Meter Rate.

8 cts. per 1000 watts.

When motor is less than $\frac{3}{4}$ h. p.: Flat rate \$1.00 per month. Minimum rate when on meter, \$1.00 per month.

When motor is $\frac{3}{4}$ h. p. and less than 1 h. p.: Flat rate \$2.00 per month. Minimum rate when on meter, \$2.00 per month.

On motors of 1 h. p. and over a minimum charge of \$3.00 for the first h. p. per month will be charged, plus \$1.00 for each additional h. p. as a minimum charge up to and including 5 h. p., with the following discounts:

Monthly bills less than \$5.00	no discount.
“ of \$5.00 and less than \$10.00	10% discount.
“ “ 10.00 “ “	15.00 15% discount.
“ “ 15.00 “ “	20.00 20% discount.
“ “ 20.00 “ “	50.00 25% discount.
“ “ 50.00 “ “	100.00 30% discount.
“ larger than \$100.00	special discount.

* None in use now.

Miscellaneous Rates for Power. Flat.

Tailors' flat irons 11 lbs.....	\$1.50 per mo.
Fan motors	1.00 "
Barbers' massage machine.....	1.00 "
Dental motors	1.00 "
Coffee grinder motors.....	3.00 "
One h. p. motor in shoe shop ¹	3.00 "
½ h. p. motor in printing office ¹	3.00 "
Cutting slabwood ²	10 cts. per cord
<i>Sign Lighting</i> on meter takes same rates as motor on meter.	

MUNICIPAL CONTRACT LIGHTING.

Enclosed arc lights for all night every night service \$6.00 per month.

SPECIAL RATES.

1. Brown Bros. Lbr. Co. for lighting three residences, planing mill, sawmill, and sawmill office—5 cts. per 1000 watts and other valuable consideration.
2. Oneida county house and jail, 82 lamps for which the county pays \$24.24 per month.³

SERVICE RENDERED FOR WHICH NO CHARGE IS MADE.

City hall
 Two hose houses
 City jail
 Public library
 Band stand in court house yard
 Owners' and employes' residences
 Attorneys' offices and residence
 One electric heater in the residence of a business associate.
 Church societies giving socials, suppers, etc., in vacant building.

The question that the complaint raises involves, principally, the value upon which the respondent should be allowed to earn returns, the normal operating expenses in view of the situation met with here, and the net earnings to which the respondent is entitled.

VALUATION.

A valuation of the respondent's physical property has been made by the engineers of the Commission and is of date July 15, 1911. A summary of this valuation follows:

¹ Discontinued.

² Obsolete rate.

³ Discontinued, now on meter.

TABLE I.
VALUATION OF THE PHYSICAL PROPERTY
OF THE RHINELANDER LIGHTING COMPANY.
As of July 15, 1911.

CLASSIFICATION	Cost of re- production	Present value
A. Land.....	\$500	\$500
B. Transmission & distribution.....	22,204	17,532
C. Buildings & misc. structures.....	3,000	2,400
D. Power plant equipment.....	2,649	2,235
E. General equipment.....	1,400	1,010
F. Paving.....		
Total foregoing.....	\$29,753	\$23,677
G. Add 12% (see note below).....	3,570	2,841
Total foregoing.....	\$33,323	\$26,518
H. Material & supplies.....	2,424	2,424
Total.....	\$35,747	\$28,942

NOTE:—Addition of 12% to cover engineering, superintendence, interest during construction, contingencies, etc.

Concerning the valuation of the physical property, very little objection was raised by the parties to these proceedings. Some question was raised, however, by the applicant as to the propriety of burdening the business of the respondent with the entire value of some of the items of the valuation in view of the use made thereof by the power company.

The value of the respondent's property, as stated by the books of the Rhinelanders Lighting Company, is shown in table II, which follows, and in which is also shown a comparative statement of the engineers' appraisal:

TABLE II.
VALUE OF PROPERTY
OF THE RHINELANDER LIGHTING COMPANY.

CLASSIFICATION.	Property account per books, June 30, 1911	Commission's engineers' appraisal as of July 15, 1911.	
		New	Existing
Organization.....	\$165 25		
Franchises.....	24,868 80		
Rights, licenses, etc.....	48,730 90		
General office buildings.....	3,613 25	\$3,000 00	\$2,400 00
Land.....		500 00	500 00
Substa. and transformer sta. equipment.....	1,200 00	2,649 00	2,237 00
Distribution system.....	12,973 52	7,312 00	5,872 00
Transformers.....	4,475 54	4,307 00	3,268 00
Meters.....	4,258 23	4,806 00	3,992 00
Commercial lamps and lamp equipment.....	85 40	362 00	211 00
Mun. cont. lighting system.....	8,131 49	5,427 00	4,187 00
General office equipment.....	800 00	800 00	560 00
Utility equipment.....	1,145 00		
Miscellaneous equipment.....	150 00	600 00	450 00
Total foregoing.....	\$110,537 38	\$29,753 00	\$23,677 00
Addition of 12% (see note below).....		3,570 00	2,841 00
Total foregoing.....	\$110,537 38	\$33,323 00	26,518 00
Materials and supplies.....		2,424 00	2,424 00
Total.....	\$110,537 38	\$35,747 00	\$28,942 00

NOTE:—Add 12% to cover engineering, superintendence, interest during construction, contingencies, etc.

The considerable difference between the total of the company's book account and that of the appraisal is due to the fact that the latter covers tangible assets only, while the former includes large items of intangibles. From memoranda at the respondent's office, it appears that the franchise value was determined by computing the value of the free service to the city at the commercial rate for 20 years, the assumed average period of the plant's usefulness. The item, "Rights, licenses, etc.", amounting to \$48,730.90, consists of so-called going value of \$11,245.00, equal to one-third of the respondent's inventory value of \$33,737.71, and of a contract value of \$37,485.00. In determining the contract value, it appears that the respondent assumed the value of the power to be \$25 per h. p. per year for 17 years. The difference between the assumed value and the contract rate was determined and this amount, discounted at 6 per cent simple interest, was taken as the extent to which the contract should be capitalized.

The respondent's physical property has been apportioned between municipal arc lighting, and commercial light and power tentatively, as shown below. In this division all of the respond-

ent's property is charged to these two classes of service and none to the business of the power company.

TABLE III.
APPORTIONMENT OF PHYSICAL PROPERTY.
RHINELANDER LIGHTING COMPANY.

CLASSIFICATION.	TOTAL.		MUNICIPAL ARC.		COMMERCIAL LIGHT AND POWER.	
	Cost new.	Present value.	Cost new.	Present value.	Cost new.	Present value.
A. Land.....	\$500	\$500	\$80	\$80	\$420	\$420
B. Distribution.....	22,204	17,532	5,427	4,187	16,777	13,345
C. Buildings and miscellaneous structures.....	3,000	2,400	480	384	2,520	2,016
D. Substation equipment.....	2,649	2,237	1,528	1,291	1,121	946
E. General.....	1,400	1,010	224	162	1,176	848
F. Paving.....						
Total foregoing.....	\$29,753	\$23,679	\$7,739	\$6,104	\$22,014	\$17,575
Addition of 12%.....	3,570	2,841	929	732	2,642	2,109
Total foregoing.....	\$33,323	\$26,520	\$8,668	\$6,836	\$24,656	\$19,684
Material and supplies.....	2,424	2,424	256	256	2,168	2,168
Total.....	\$35,748	\$28,944	\$8,924	\$7,092	\$26,824	\$21,852

A table of the value of the physical property was introduced for the applicant at one of the hearings, showing what cost of reproduction new should be allowed for the business of the lighting company and how that value should be divided between city arc lighting, and commercial light and power. The total allowance made by the applicant is less than the engineers' total reproduction cost new by \$1,451. This reduction is due chiefly to dividing the value of the office and substation building between the services of the lighting company and of the power company.

The applicant's apportionment allots about \$560 more to value of the property devoted to municipal arc lighting and about \$2,010 less to commercial service than does the Commission's apportionment. In a general way, the applicant's apportionment follows methods pursued by the Commission. Such items as land and plant equipment, used by both classes of service, were divided by the applicant in proportion to the relative maximum demands of these services during the average day. Those items were divided, in the Commission's apportionment, on a basis more dependent on the relative maximum demands during the maximum day.

OPERATING STATISTICS.

The operating statistics, desirable for a rate-making analysis, were found to be incomplete in this instance and it was necessary to resort to estimates to a considerable degree.

None of the energy delivered from the substation of the Rhinelander Lighting Company is metered by recording instruments. The current used by the lighting company is measured by indicating ammeters on each of the several single-phase out-going circuits and the voltage of the circuits is measured by one voltmeter. Observations of the amount of current in amperes and of the pressure in volts are recorded each hour. An integrated summary of these statistics would furnish a fairly satisfactory basis of estimating the annual output of the lighting company were the records complete for the entire period. But, during a considerable portion of the year, the meter on one circuit was in bad order and the total plant load is not determinable for that interval. No determination has ever been made, it seems, by the power company or by the lighting company, of the kilowatt or horse power load at the substation or of the output over any period of time.

Relying on the available information, several estimates of the respondent's output were made from various angles. These estimates indicate clearly that the annual output over the lighting company's commercial lines is about 500,000 kw. hrs., of which about 400,000 kw. hrs. are delivered to users of current for all purposes other than street lighting. The current used for street lighting, which also is not metered, is placed at 132,000 kw hrs. per annum.

ESTIMATED DIVISION OF STATION OUTPUT.
RHINELANDER LIGHTING COMPANY.

	Annual kw. hrs. output.	Per cent.
Commercial lighting and power.....	500,000	79.1
Street lighting.....	132,000	20.9
Total.....	632,000	100.0

The consumer data have been kept in rather fragmentary form. Analysis of such records as the respondent could furnish indicates that about 116,000 kw. hrs. were sold through

meters, leaving 284,000 kw. hrs., after deducting a fair amount for losses of distribution, which were used by flat rate and non-revenue consumers. These consumers, while using over twice as much current as the metered consumers, furnish little more than one-third of the total commercial revenue. It is, therefore, apparent that, if costs of service are apportioned to the several classes on the usual basis, the situation, as far as rates and revenues for flat rate and metered consumers are concerned, will be practically reversed. The obvious and necessary solution of the problem is to place all services on meters, which will result in a fair distribution of the costs among all users and in the elimination of waste of current. It is believed that this can be accomplished by an additional investment of not more than \$2,000.

On account of the difficulties of formulating equitable flat rates and of the greater difficulties of formulating such rates side by side with equitable meter rates, the statistical and cost analysis is based on the assumption that all commercial service is to be metered. The result of this assumption will be to so change related conditions that a detailed analysis of all the local consumer data, as they exist today, will not be of first importance but reliance must be placed to a considerable degree on estimates based on the general conditions in Rhineland and on facts found under similar conditions elsewhere.

The general effect of placing the flat rate users on meters will be to decrease the total current consumption. The connected load, on the other hand, will be increased considerably, because the rate will be changed from a charge based entirely on the size of the load to one based, at least partly, on the amount of current used. The demand on the plant may be either increased or decreased. It is, however, likely that the demand will not be greatly changed. It is believed that the connected load, which is now 414 kws., will be increased to about 575 kws. when all service is metered.

Several estimates of annual consumption under these conditions follow:

ESTIMATE OF ANNUAL COMMERCIAL CONSUMPTION.

ALL SERVICE METERED.

<i>Basis of estimate.</i>	<i>Annual kw. hrs. consumed.</i>
4,000 kw. hrs. per 100 population	225,000
500 kw. hrs. per full year consumer.....	256,000
420 kw. hrs. per connected kw.....	242,000

It seems safe to assume that the consumption of current in Rhinelander, when all service is metered, will amount to as much as 225,000 kw. hrs. per year. While this is nearly double the present amount of metered current, it may be seen from the following table that many of the business places are now charged at flat rates:

TABLE IV.

SHOWING RELATION OF NUMBER OF CONSUMERS NOT METERED TO TOTAL NUMBER OF CONSUMERS.

Year Ending June 30, 1911.

<i>Class of users.</i>	<i>Per cent of consumers NOT metered.</i>
Lighting	
Residences	27.3
Saloons	96.1
Offices	67.4
Stores	58.5
Industrial establishments	63.6
Hotels	10.0
Theaters	0.0
Churches	25.0
Lodge Halls	12.5
Schools	50.0
Depots	0.0
Signs	60.0
Hospitals	0.0
Miscellaneous	16.7
Power	
Bakeries	0.0
Butcher shops	66.7
Groceries	0.0
Print shops	0.0
Pop factory	0.0
City schools	0.0
Laundries	0.0
Brewery	0.0
Miscellaneous	50.0

Assuming that the commercial consumption will be 225,000 kw. hrs. when all service is metered, and that the losses of distribution amount to 20 per cent of the quantity sent out, the substation output will be 281,000 kw. hrs. and the total output of the lighting company will be divided as follows:

	<i>Kw. hrs. output.</i>	<i>Per cent.</i>
Commercial light and power.....	281,000	68
Street lighting	132,000	32
Total	413,000	100

Careful estimates of the station load indicate that the following is a fair determination of the amount and division of the maximum demand:

DIVISION OF MAXIMUM LOAD.

	<i>Kws.</i>	<i>Per cent.</i>
Commercial light and power.....	175	84.2
Street lighting	33	15.8
Total	208	100.0

The relative extent to which the distribution system is devoted to municipal street lighting and to commercial service is shown in a general way by the relation of the number of miles of wire in the system for these purposes:

MILES OF WIRE IN DISTRIBUTION SYSTEM.

	<i>Miles</i>	<i>Per cent.</i>
Commercial light and power.....	41.8	75.0
Street lighting	14.0	25.0
Total	55.8	100.0

OPERATING REVENUES AND EXPENSES.

The respondent was unable to produce records showing the full status of the business since it was acquired by the present owners in 1898. The revenues and expenses of the electric business for a considerable period were more or less involved with other transactions of the owners and the testimony shows that, during that period, no careful account was kept of what each partner drew from the business. For the last two fiscal years, reports by the respondent to the Railroad Commission show what the earnings and expenses of the business have been.

It is rather difficult to test the expenses of the Rhinelander Lighting Company by its volume of business, because of the considerable flat rate consumption. In the aggregate, however, the expenses do not seem to be excessive for an electric utility business in a city of the size of Rhinelander. The following table has been prepared from annual reports for the year ending June 30, 1910, showing what the electric utility expenses were for Wisconsin cities having about the same number of inhabitants as Rhinelander:

TABLE V.
ELECTRIC UTILITY OPERATING EXPENSES.
Population of Cities: 4,500 to 8,000.

City.	Population.	Total operating expenses, 1910.
Baraboo.....	6324	\$9,515.37
Beaver Dam.....	6758	22,323.36
Berlin.....	4636	25,786.03
De Pere.....	4477	9,422.25
Grand Rapids.....	6321	20,386.37
Kaukauna.....	4717	20,959.98
Marshfield.....	5783	16,536.90
Menomonie.....	5036	12,108.88
Monroe.....	4410	7,626.86
Platteville.....	4552	20,690.25
Portage.....	5440	16,980.90
Rhineland.....	5637	18,632.11
Stoughton.....	4761	8,749.75
Sturgeon Bay.....	4262	10,430.01
Minimum.....	4262	7,626.86
Maximum.....	6758	25,786.03
Average.....	5236	15,725.00
Median.....	4761	16,980.90
Rhineland, 1910.....	5637	18,632.11
Rhineland, 1911.....	5637	17,652.69

The following comparisons also tend to show that the expenses of this company are about normal:

TOTAL COMMERCIAL EXPENSES.

Cents per Consumer.

Class B electric utilities.	1909	1910
Minimum.....	3.07	8.99
Maximum.....	460.28	900.00
Average.....	103.80	111.08
Median.....	60.61	59.42
Rhineland.....	70.64	46.60

COST OF MAINTAINING METERS.

Cents per Meter.

Class B electric utilities.	1909	1910
Minimum.....	0.13	0.20
Maximum.....	204.00	520.70
Average.....	54.40	53.92
Median.....	39.13	34.22
Rhineland.....	130.20	17.47

REVENUES AND EXPENSES, 1910.

Class B electric utilities.	Operating revenue per consumer.	Direct operating expenses per consumer.
Minimum.....	\$16.64	\$8 85
Maximum.....	328.79	300.81
Average.....	41.69	28.96
Median.....	36.39	23.90
Rhinelanders.....	40.73	32.13

The following shows the condensed income accounts for the years ending June 30, 1910 and 1911:

TABLE VI.
OPERATING REVENUES AND EXPENSES.
RHINELANDER LIGHTING COMPANY.

	1909-1910	1910-1911
<i>Operating Revenues</i>		
Commercial lighting.....	\$15,061 41	\$16,241 53
Municipal contract lighting.....	4,759 06	4,965 40
Commercial power.....	716 80	1,054 52
Municipal power.....	112 80	121 22
Miscellaneous.....		1,465 00
Total.....	\$20,649 48	\$23,847 67
<i>Operating Expenses</i>		
Commercial current purchased.....	\$5,100 00	\$5,100 00
Transmission and transportation.....	1,186 93	1,166 98
Distribution.....	1,037 24	1,038 73
Consumption.....	105 81	67 48
Commercial.....	520 16	427 70
Total direct expenses.....	\$8,308 27	\$8,229 64
General.....	5,948 15	6,160 67
Undistributed.....	2,034 44	805 61
Taxes.....	636 53	572 07
Total above.....	\$16,927 39	\$15,867 69
Depreciation.....	1,773 00	1,773 00
Interest.....	2,315 00	2,315 00
Total operating expenses.....	\$21,015 39	\$19,955 69
Net income.....		\$3,891 98
Net deficit.....	365 91	

In the foregoing table the annual depreciation has been placed at \$1,773. This sum will be divided later between street lighting and commercial service according to the apportionment of the depreciable property between these services. Interest has been placed at \$2,315, and this allowance will be divided according to the apportionment of the total physical property.

Following the Commission's usual method of apportioning

expenses between those which vary with the capacity of the plant and those which vary with the output, a summary division is shown below:

TABLE VII.
APPORTIONMENT OF OPERATING EXPENSES BETWEEN CAPACITY AND OUTPUT.

	Year ending June 30, 1910.			Year ending June 30, 1911.		
	Total.	Capacity.	Output.	Total.	Capacity.	Output.
Direct expenses.....	\$8,308 27	\$5,397 39	\$2,910 88	\$8,229 34	\$5,366 04	\$2,863 30
General.....	5,948 15	3,866 30	2,081 85	6,160 67	4,016 76	2,143 91
Undistributed.....	2,034 44	1,322 39	712 05	805 61	525 26	280 35
Taxes.....	636 53	413 74	222 79	672 07	438 19	233 88
Total above.....	\$16,927 39	\$10,999 82	\$3,592 79	\$15,867 57	\$10,346 25	\$5,521 44
Depreciation.....	1,773 00	1,152 45	620 55	1,773 00	1,156 00	617 00
Interest.....	2,315 00	1,504 75	810 25	2,315 00	1,509 38	805 62
Total oper. expenses....	\$21,015 39	\$13,657 02	\$7,358 37	\$19,955 69	\$13,011 63	\$6,944 06

These expenses have been divided between commercial service and street lighting as shown below:

TABLE VIII.
APPORTIONMENT OF OPERATING EXPENSES BETWEEN COMMERCIAL SERVICE AND STREET LIGHTING.

	Total.	Com'l Lt. & Pr.		Street Lighting.	
		Per cent.	Amount.	Per cent.	Amount.
Year ending June 30, 1910.					
Capacity.....	\$13,657 02	79.7	\$10,887 25	20.3	\$2,769 77
Output.....	7,358 37	65.0	4,781 68	35.0	2,576 69
Total.....	\$21,015 39	74.6	\$15,668 93	25.4	\$5,346 46
Year ending June 30, 1911.					
Capacity.....	\$13,011 63	80.0	\$10,408 77	20.0	\$2,602 86
Output.....	6,944 06	66.5	4,615 34	33.5	2,328 72
Total.....	\$19,955 69	75.3	\$15,024 11	24.7	\$4,931 58

STREET LIGHTING.

The street lighting révenues and expenses for the two years, as determined by the foregoing analyses, were as follows:

	1909-1910	1910-1911
Revenues.....	\$4,759 06	\$4,965 40
Expenses.....	5,346 46	4,931 58
Net income..		\$33 82
Net deficit.....	\$587 40	

Determined on this basis, street lighting appears to be earning about what should be expected.

COMMERCIAL LIGHT AND POWER.

Following are the revenues and expenses for this group as taken from the preceding analyses:

	1909-1910	1910-1911
Revenues.....	\$15,890 42	\$18,882 27
Expenses.....	15,668 93	15,024 11
Net income.....	\$221 49	\$3,858 16

The expenses of operation for this group decreased during the last period reported and the operating revenues increased, thereby furnishing a considerably larger net income for the year ending June 30, 1911, than for the year ending June 30, 1910.

The unit costs which follow are based upon the estimated conditions, assuming all commercial service metered and free service eliminated. As noted heretofore, the estimated consumption of current for commercial purposes under these conditions amounts to 225,000 kw. hrs. Dividing the commercial output expenses of \$4,615.34 for the year ending June 30, 1911, by the foregoing estimate, we find the unit output cost to be 2.05 cts. per kw. hr. The total connected load was placed at 575 kw. hrs. Assuming 50 per cent of this to be active, which closely approximates the figure usually found, the active load is 287.5 kw. hrs. Dividing the capacity expenses of \$10,408.77 for the same period by this load, the unit capacity expense is found to be \$36.20 per active kw. per year, which corresponds to 9.92 cts. per kw. hr. for one hour's use of the load per day.

The following table shows how the cost of service varies with different lengths of use of the active load:

Cents per kw. hr.

Daily hours' use of active load.	Capacity.	Output.	Total.
1 hour.....	9.92	2.05	11.97
2 ".....	4.96	"	7.01
3 ".....	3.31	"	5.36
4 ".....	2.48	"	4.53
5 ".....	1.98	"	4.03
10 ".....	.99	"	3.04

These figures are computed on the assumption that the power load affects the peak as much as the lighting load. This may not be the case. The following figures are arrived at assuming the power business as entirely off-peak load. The connected lighting load under this condition is placed at 500 kws., of which 50 per cent or 250 kws. is considered active. The capacity expenses for the year ending June 30, 1911, divided by this amount, shows that the unit capacity costs are \$41.63 per active kw. per year, which corresponds to 11.41 cts. per kw. hr. for one hour's use per day of the active load.

When this expense is combined with the output expense of 2.05 cts., as before, the following variable cost curve results:

Cents per kw. hr.

Daily hour's use of active load.	Capacity.	Output.	Total.
1 hour.....	11.41	2.05	13.46
2 ".....	5.70	"	7.75
3 ".....	3.80	"	5.85
4 ".....	2.85	"	4.90
5 ".....	2.28	"	4.33
10 ".....	1.14	"	3.19

RESPONDENT'S CLAIMS.

VALUE OF CONTRACT FOR PURCHASE OF CURRENT.

The unit costs which have been determined above rest upon the operating expenses actually borne by the respondent, with interest and depreciation charges based on the value of the physical property. It was pointed out, earlier herein, that the property account of the lighting company includes large items for intangibles, referred to as franchise, contract, and going values. The respondent's method of determining these values for its book accounts was also pointed out. Following the ideas upon which these intangible values are based, the respondent presented, through its counsel, a statement of the operating expenses which it claims should be allowed for rate-making purposes. This statement is based upon an estimate of the saving effected by hydraulic current operation over that by steam power, and upon an estimate of the value of free service rendered to the city of Rhineland. That is, the respondent contends that the saving brought about by the use of water power

represents, through capitalization, a value of its contract and that the free service rendered to the city from June, 1904, to Feb. 1, 1912, represents a cost of franchise upon which the company is entitled to earn.

The annual saving that the respondent finds from operation under its contract with the power company is \$10,540. Analysis of the methods and calculations reveals that the estimate is based upon such assumptions that the results are of doubtful value as a guide to the probable saving brought about by the use of purchased current in lieu of steam power generation.

We find that no deduction was made from the engineers' valuation for the value of substation land, buildings and equipment which would not be needed were power generated at a local steam plant. Interest and depreciation are therefore based, in the respondent's estimate, upon the equipment required for the utilization of water power under present conditions as well as that needed for steam power generation under hypothetical conditions.

An overhead charge is also added to the cost of steam power generation which is apparently that portion of the general expenses which respondent believes is occasioned by the generation of power, but no deduction is made from the existing overhead or general expenses because of the absence of substation operation.

Steam power generation labor was placed at \$2,820; but no deduction was made from the existing expenses for substation labor which, according to the company's books, was \$1,932 for the year ending June 30, 1911. Reference to statistics concerning the relation of wages and salaries to operating expenses, set forth later in this decision, shows that the amount now borne by this company for this purpose is high rather than low for such a utility. The existing wages and salaries appear, therefore, to be about sufficient for operation under steam power conditions and a further allowance for plant labor seems to be unnecessary.

The respondent's estimate of the amount of coal needed appears to be about fair for conditions that might be expected were service supplied from steam power, but the estimated cost of \$4.65 per ton of coal delivered at the plant appears to be higher than the usual cost. It is claimed that the estimates are based to some extent upon conditions obtaining in Antigo. The report of the electric utility in that city shows that, for the

year ending June 30, 1911, the cost of coal per ton was \$3.35, to which was added a cost of 40 cts. per ton for hauling. The cost of coal delivered at the plant was therefore \$3.75 per ton which agrees closely with what appears to be the average price of coal used by similar utilities. An estimate of \$4,500 instead of \$5,420 seems to be a reasonable allowance for fuel. Depreciation of the hypothetical steam plant was placed by the respondent at 5 per cent. On a straight line basis the composite or average rate of depreciation of the entire property of electric utilities has frequently been found to be from 4.5 to 5.0 per cent. The depreciation of the generating plant alone is probably materially less than this rate, as the plant includes land and items of property which have a comparatively long life.

On account of such facts, it appears that modifications must be made in the calculations, which reduce the estimate of the saving to not more than about \$4,000. In fact, it seems that a duplication of some expenses may still remain in this estimate, because of failure to eliminate such items as insurance, taxes, repairs and maintenance of substation building and equipment.

While calculations of the saving produced by the use of water power instead of steam power are of much importance in private and public undertakings in showing the financial feasibility of hydraulic construction, the title of the owners in utility business to the entire savings so produced has not been clearly demonstrated. Indeed, the respondent's claims seem to go so far as to preclude the public from any share in economical methods of service and seem to place upon users of utility service the burden of maximum costs of operation. That this principle may be followed in determination of rates that are equitable to the public and the utility, appears to be very doubtful, as it results in costs that are not dependent upon reasonable efficiency, normal investments, and local advantages to which the community lends value, and sets up, as a standard and test, methods of operation which are most costly and least efficient.

The owners or distributors of water power as a utility service are limited to a marked degree to the locality in which that power is found and hence they are dependent upon community growth for prosperity in their business. Therefore, although the public may not actually own the water power, the relation of the owners' business to the public use seems to be such that

the welfare of the owners requires that mutual benefit arise from supplying the public from natural power.

That the owners in this instance had this in mind is shown by their testimony regarding the situation in which the company found itself when the supply of slabs, used for fuel, became insufficient to supply the needs of the business. Steam operation with coal as fuel was discontinued and water power used, as the testimony shows, in order that the rates need not be increased. Undoubtedly the owners believed at that time that their own as well as the public welfare required this course. The respondent admits that the development of the water power was in the nature of a life-saver for the Rhineland Light Company and claims that the company was, therefore, surely justified in contracting for somewhat more of the power than its needs at that time absolutely required. How, under this condition, the Commission can revert to the earlier basis of operating expenses in a determination of present rates is difficult to find.

Comparison of the terms of the respondent's contract for hydraulic current with those of contracts which the power company has with other local consumers, would hardly support the idea that, from the lessor's point of view, the water power is held to be of much higher value than the rate provided in the original lease to the lighting company.

The existing contract provides that the power current leased to the lighting company shall be disposed of only for lighting purposes or for fans supplied at lighting rates. The natural consequence of this provision is that the major portion of the service, which the respondent supplies, is confined to a relatively short period of the day, the load factor is low, and the respondent's field for business is limited. Therefore, the terms of the lease are such as to reduce its worth materially below that for power to which exclusive right may be had and of which no restriction of disposal may be made.

The lighting company's schedule of rates provides for power charges which differ in form from those for lighting service. Nevertheless, it may be observed by reference to the following table of average charges for power and for the hotel lighting, that the average charge for power is not less than that for hotel lighting.

TABLE IX.
SHOWING AVERAGE CHARGES FOR METERED CURRENT USED FOR
POWER.
Year Ending June 30, 1911.

Consumer.	Annual kw. hrs. consumed.	Annual charges.	Average charge per kw. hr.
1.....	294	\$26 88	9.1 cts.
2.....	317	30 51	9.62
3.....	628	46 19	7.35
4.....	631	45 18	7.16
5.....	647	48 24	7.45
6.....	651	51 50	7.92
7.....	701	45 63	6.50
8.....	831	96 95	11.65
9.....	962	64 88	9.62
10.....	1,060	70 22	6.60
11.....	1,256	88 24	6.97
12.....	1,289	92 96	7.22
13.....	4,825	289 25	6.00
Total.....	14,092	\$396 63	.....
Average.....	.....	.....	7.05

TABLE X.
SHOWING AVERAGE CHARGES FOR METERED CURRENT USED FOR
HOTEL LIGHTING.
Year Ending June 30, 1911.

Consumer.	Annual kw. hrs. consumed.	Annual charges.	Average charge per kw. hr.
1.....	645	\$48 38	7.50 cts.
2.....	829	70 27	8.47
3.....	924	68 48	7.30
4.....	1,098	78 60	7.15
5.....	1,425	99 38	6.97
6.....	1,663	114 98	6.91
7.....	2,227	142 25	6.33
8.....	2,370	147 59	6.22
9.....	2,521	155 11	6.15
10.....	2,658	178 27	6.70
Total.....	16,360	\$1,103 31	.....
Average.....	.....	.....	6.75

Regardless of whether the power business of the respondent is small because of the terms of its agreement with the power company or because the former concern meets with competition in its power business, it appears that the situation is such as to reduce the value of the power materially below what it would be in an exclusive but otherwise similar territory.

VALUE OF FREE SERVICE TO THE CITY.

The franchise under which Forbes and Wixson were operating their electric business when the franchise was surrendered

for an indeterminate permit, June 21, 1908, was granted June 9, 1904. As a consideration for the rights granted it was provided that, during the life of the franchise, the electric company should furnish to the city certain electric service free of charge. Upon the surrender of this franchise such obligations as may have existed for the supply of free service ceased, and the value of such service as may have been subsequently rendered can hardly be made now the basis of a franchise investment.

The value found by the respondent for free service to the city from the date of the franchise to Feb. 1, 1912, is \$8,309. When this estimate is limited to the period ended by the granting of the indeterminate permit, the sum is reduced to about \$3,500.

The value which the applicant finds is \$966 and covers a period of 55 months. When this also is so limited as to correspond to the period of the city's franchise to the respondent, this sum is reduced to \$833.

The facts relative to the amount of free service received by the city during the life of the city franchise are uncertain, as reliable records thereof are not available and the testimony is not entirely conclusive. In addition, we do not have the records of the income accounts of that period which would show to what extent the earnings of the utility suffered by reason of its franchise relations with the city. If the total value of the free service is as little as is admitted by the applicant, the annual interest thereon at 7 per cent is about \$68; if it is as much as is claimed by the utility for the period to June 21, 1908, the annual interest amounts to about \$237. In view of these considerations it does not appear that a very material sum may be properly added to operating expenses because of the earlier franchise provisions.

APPLICANT'S CLAIMS.

FIXED CHARGES.

The adjustments that the applicant makes in the inventory of the property are such as have little effect in the final determination of normal expenses. In fact, the interest and depreciation charges suggested by the applicant's witness, as necessary after these adjustments are made, are somewhat in excess of those allowed in the preceding apportionments.

WAGES AND SALARIES.

Adjustments of the operating expenses also were made by the applicant in its analysis. These affect principally substation labor expenses and general office salaries. The former item the applicant would have reduced a half, because of joint use of the substation with the Rhinelander Power Company. The suggested reduction in general office salaries is based on the estimate of witness of the amount usually required for this purpose by similar utilities.

The pay roll of the Rhinelander Lighting Company for the year ending June 30, 1911, amounted to \$8,253.60. Of this sum about \$1,170 was charged to the operation and maintenance of the substation, which is owned by the lighting company but which is used jointly with the Rhinelander Power Company. Two officers of the lighting company receive salaries of \$2,400 per year each. This, it appears, is intended for compensation not merely on account of executive relations but also for services rendered in actual operation.

It is claimed by the applicant that \$600 is a sufficient allowance for substation wages of respondent because of the operating relations existing between the lighting company and the power company. Applicant also claims that \$2,400 is sufficient salary for the management of such a utility and that the wages and salaries should be reduced about \$3,000 for these reasons.

Statistics bearing on wages and salaries are shown below for several Wisconsin electric utilities. For convenience of comparison the utilities are divided into three groups. The first group consists of small utilities in cities of from 2,000 to 4,000 inhabitants. The second group consists of utilities in cities of from 4,000 to 7,000 inhabitants. These are cities of about the size of Rhinelander. Class A electric utilities comprise the third group. The wages and salaries for utilities in cities of less than 2,000 inhabitants are not shown here, as they are of little importance in the present instance.

WAGES AND SALARIES FOR WISCONSIN ELECTRIC UTILITIES.

Year Ending June 30, 1911.

	Popu- lation.	Oper. exps. exc. dep. int. and taxes.	Employees' wages.		Total wages and salaries.	
			Amount.	Per cent of oper. exp.	Amount.	Per cent of oper. exp.
Utilities in 22 cities of 2,000 to 4,000 population.						
Minimum.....	2,082	\$4,544 10	\$1,603 63	20.8	\$1,674 84	21.1
Maximum.....	3,973	24,906 57	6,509 40	92.3	6,837 99	92.3
Average.....	2,940	9,388 78	3,276 86	37.3	4,161 69	46.1
Median.....	2,944	8,320 26	3,111 01	32.8	3,783 40	39.4
10 utilities in cities of 4,000 to 7,000 population.						
Minimum.....	4,262	\$7,430 14	\$2,880 00	17.8	\$3,217 91	31.4
Maximum.....	6,758	22,389 25	8,021 66	57.9	9,440 41	65.8
Average.....	5,082	14,339 52	4,890 29	36.0	5,867 73	41.9
Median.....	4,739	12,871 36	3,872 97	34.6	5,025 21	40.4
15 class A utilities.						
Minimum.....	8,740	\$18,107 85	\$5,575 24	23.5	\$6,414 36	25.3
Maximum.....	40,384	113,086 51	34,976 90	60.8	42,913 20	73.5
Average.....	20,187	48,389 51	17,231 82	39.2	21,161 23	45.6
Median.....	16,773	39,784 42	15,924 16	35.7	19,354 16	44.4

Examination of the foregoing statistics shows that there is considerable variation in the amounts paid for wages and salaries even within groups of utilities of about the same size. A wide range exists also in the percentage relation between wages and salaries and total operating expenses. These facts render it difficult to establish, on this basis, a conclusive test of what employes' wages and the combined wages and salaries should be in any instance. Comparison, however, will show whether or not these expenses for a certain utility fall reasonably well within the range for the group in which that utility belongs. In this way, some general indication may be had of the reasonableness of these expenditures.

Naturally, local circumstances affect the percentage relation between sums paid for wages and salaries and total operating expenses. This is especially noticeable in those instances in which the utility owns its hydraulic power. In such cases wages and salaries form a much larger proportion of the total operating expenses than under other conditions.

Analysis of the data above shows that the normal amount expended for wages and salaries is about 40 to 45 per cent of the

operating expenses under usual conditions. Wages alone are not far from 35 per cent of the operating expenses. The division of the statistics into several groups and the determination of independent averages and medians for each group show very clearly that the percentages referred to above are not accidental, but are quite definite when the number of utilities considered is sufficient to eliminate the effect of local conditions.

The pay roll of the Rhinelander Lighting Company was \$8,253.60 for the year ending June 30, 1911. This is much above the normal amount for the group of small utilities. It is also much below the normal amount for the class A utilities. It is therefore more nearly equal to the normal of the group in which Rhinelander belongs than to the normal of either of the other groups.

The operating expenses of the Rhinelander Lighting Company were \$15,195.62, exclusive of depreciation, interest and taxes. Of this amount, wages and salaries were 54.3 per cent. While the amount paid by the Rhinelander Lighting Company for wages and salaries is somewhat more than the average and median of wages and salaries for cities of 4,000 to 7,000 inhabitants, it is to be observed that Rhinelander is somewhat larger than the average and median cities and that there are several utilities of this group which spend about the same amount for the same purpose.

The comparisons that have been made seem to indicate that the expenditure of the Rhinelander Lighting Company for wages and salaries is somewhat high rather than low for a utility of its size. However, it does not appear to be sufficiently high to correspond to similar expenditures of class A utilities.

The income accounts of the Rhinelander Power Company show that this concern is bearing no expense for general office salaries and substation operating labor. While this fact and the relations between the power company and the lighting company may be such as to somewhat affect the amount that the lighting company should pay for wages and salaries, the situation is, in other respects, of such a character that the importance of these points is of minor significance, and final conclusion as to their merits would not materially affect the schedule of rates which the Commission, in view of other elements, feels warranted in ordering at this time.

ADJUSTMENTS ON A METER BASIS.

A review of the respondent's operating expenses and of its sales indicates that a fair apportionment of the expenses between metered and flat rate use would result in flat rates so high that much of the service, now paid for on this basis, would probably be transferred to the meter schedule. On the other hand, a schedule of meter rates, based on the assumption that flat rate service would not decrease, would be so low, if considerable decrease in flat rate use took place, as to be unable to furnish the necessary income when applied to a major portion of the respondent's business. In view of these and other facts, it appears that a more equitable adjustment of the rate schedule and a more substantial reduction in the charges may be made if all service is metered. It is the opinion of the Commission that this should be done.

The fact that sufficiently complete information for a careful revision of the respondent's rate schedule is not available, has already been alluded to. Under somewhat similar conditions, when the application has been for an increase of rates, the Commission has dismissed the case, holding it to be the duty of the utility to maintain such records of its operation as may be necessary for a proper analysis of its business. But under the conditions found in this case, the absence of certain information can hardly be permitted to stand in the way of those adjustments which available facts indicate will lead to greater equity between the utility and the public and between the different classes of consumers. To permit uncertainty, arising from the utility's failure to provide for ordinary utility records, to completely prevent adjustment and reductions of rates would be adding an additional incentive for failure on the part of the utility to determine and record important facts concerning its business with the public.

As further indicating the advisability of metering all service, lists of the flat rate charges of the Rhineland Lighting Company are shown below:

FLAT RATE CHARGES FOR RESIDENCES.

Lamps connected.	Schedule charge per month.	Actual charges to various consumers.
1	\$0.75	
2	1.25	\$1.25; 1.00; 1.25; 1.50
3	1.50	1.50; 1.50; 1.50
4	1.75	1.25; 1.75; 2.00
4.5	1.87½	2.00; 2.00
5	2.00	2.00; 1.75; 2.00; 2.00; 2.00; 1.50, 2.00
6	2.35	2.00; 2.00; 1.75; 1.50
7	2.70	2.70; 2.00
8	3.05	2.50
9	3.40	2.00
10	3.75	2.00
17.5	5.87½	2.70

FLAT RATE CHARGES FOR STORES AND OFFICES.

Lamps connected.	Schedule charge per month.	Actual charges to various consumers.
1	\$0.50	\$0.50; 0.75; 0.50; 0.50; 0.50
2	1.00	1.00; 1.25; 1.00; 1.00; 1.00
3	1.50	1.00; 1.00; 1.00; 1.50; .75
4	2.00	.75; 1.00; 1.00; .50
4.5	2.25	1.50
5	2.50	1.50
6	3.00	4.50; 2.00; 1.50
7	3.50	2.75; 3.50; 3.00
8	4.00	3.50; 2.50; 2.00; 3.00; 3.90; 3.50
9	4.50	5.00
10	5.00	1.00; 2.50; 3.00; 5.00
11	5.50	4.00; 2.20; 7.00
12	6.00	2.50
13	6.50	2.00
14	7.00	4.00
15	7.50	6.00; 5.50
17	8.50	7.50
17.5	8.75	6.00
22	11.00	8.25
24	12.00	9.00
26	13.00	14.00; 10.00
30	15.00	12.00; 9.50

FLAT RATE CHARGES FOR SALOONS, RESTAURANTS, ETC.

Lamps connected.	Schedule charge per month.	Actual charges to various consumers.
1	\$0.75	\$0.75
2	1.50	.75; 1.50
3	2.25	.75
4	3.00	1.75
5	3.75	
6	4.50	3.75; 3.75
7	5.25	5.25; 5.25
8	6.00	
9	6.75	
10	7.50	6.75; 9.50
11	8.25	9.00; 6.05
12	9.00	9.00; 9.00; 8.25
15	11.25	9.00
15.5	11.62½	6.45
16	12.00	6.00
28		
43	21.00	12.00
44	32.25	10.50
	33.00	16.50

These charges show the discrimination that may exist even among users of flat rate service. The situation is not entirely the fault of the operating company but grows to some extent from the tendency of consumers to extend their installations or to increase the sizes of their lighting units without the knowledge of the company.

ESTIMATE OF REVENUE UNDER PROPOSED RATES.

Just how the respondent's total sale of current will be divided among various periods of the use of the active load, when all current sold is metered, it is impossible to determine at this time. Experience gained from dealing with similar cases in which more complete facts were had leads to the belief that about 40 per cent of the commercial sales will be represented by the first hour's daily use, 35 per cent by the next two hours' daily use, and 25 per cent by all use of current in excess of the foregoing.

From the following estimates of revenue it appears that without increasing the existing maximum rate of 10 cts. per kw. hr., a material reduction may be made for what is termed secondary and excess current:

Group.	Per cent	Estimated division of consumption kw. hrs.	Suggested net rate per kw. hr.	Estimated revenue.
Primary.....	40	90,000	10 cts.	\$9,000.00
Secondary.....	35	78,750	7 cts.	5,512.50
Excess.....	25	56,250	4 cts.	2,250.00
Total.....	100	225,000		\$16,662.50

Current used for power purposes has been included in the above estimate, but this use is a relatively small proportion of the total, because of the poorly developed power business. Such service, however, is entitled, ordinarily, to charges approximating those for secondary and excess use of current for lighting.

Although the contract between the respondent and the Rhinelander Power Company limits the sale of current leased by the former to lighting and fan use, it appears that the lighting company has taken on a rather meager power business for which it charges at rates that are, in effect, about equal to those for hotel lighting. But, inasmuch as the power company is not prepared or has not taken the steps necessary to supply general power service in the city of Rhinelander, it appears to be unjust to the public to permit the agreement between the parties to the lease to so operate as to place beyond the reach of the public the rates to which it is entitled. For such reasons, it is believed that the utility which is ostensibly serving the community should be required to furnish that service at reasonable rates, or that the concern which reserves the right to the business, should be ordered to furnish it.

ORDER.

IT IS THEREFORE ORDERED, That the respondent, the Rhinelander Lighting Company, install integrating meters on all commercial service except for patrolled sign, outline and window lighting, and on the main circuits going out from the substation.

IT IS FURTHER ORDERED, That the respondent place in effect the following rate schedule deemed just and reasonable, as provided in sec. 1797m—46, ch. 499, Laws of 1907.

COMMERCIAL LIGHTING.

For all metered lighting service, including such incidental use of appliances for heating and power used on lighting services and measured by the same meter, the charge shall be:

Primary rate.

10 cts. net or 11 cts. gross per kilowatt hour for current used equivalent to or less than the first thirty hours' use per month of the active connected load.

Secondary rate.

7 cts. net or 8 cts. gross per kilowatt hour for additional current used equivalent to or less than the next sixty hours' use per month of the active connected load.

Excess rate.

4 cts. net or 5 cts. gross per kilowatt hour for all current used in excess of the above ninety hours' use per month of the active connected load.

For patrolled lighting service for signs, outlines and windows, the charge shall be 5 cts. per 50 watt unit or equivalent per month, plus 4 cts. net or 5 cts. gross per kilowatt hour for current used as estimated on the basis of hours contracted for.

Active connected load shall in each case be a fixed percentage of the total connected load, consisting of lamps, appliances, etc., installed upon the consumer's premises.

In class A, which shall include residences, dwellings, flats and private rooming houses, where the total connected load is equal to or less than 500 watts nominal rated capacity, 60 per cent of such total connected load shall be deemed active; where the installation exceeds 500 watts nominal rated capacity, $33\frac{1}{3}$ per cent of such a part of the total connected load over and above 500 watts shall be deemed active.

In class B, which shall include all stores, offices, business and professional places, public halls, passenger depots and theaters, where the total connected load is equal to or less than 2.5 kilowatts, nominal rated capacity, 70 per cent of such total connected load shall be deemed active; where the installation exceeds 2.5 kilowatts nominal rated capacity, 55 per cent of such part of the total connected load over and above 2.5 kilowatts shall be deemed active.

In class C, which shall include county and city buildings, schools, factories, industrial establishments, shops, stables, garage and warehouses, 55 per cent of the total connected load shall be deemed active.

In class D, which shall include unmetered lighting for sign outlines and windows patrolled by the company, and con-

tracted for on a yearly basis, the total connected load shall be deemed active.

The minimum monthly charge for commercial lighting service shall be \$1.00 for each installation.

STREET LIGHTING.

The charge for street arc lighting remains unchanged and shall be \$6.00 per arc per month, for such service as is now rendered.

POWER.

The following charges shall apply to all power service rendered through meters not measuring current for lighting:

A fixed or service charge of \$1.00 per month for each installation of 1 h. p. or less, nominal rated capacity.

A fixed or service charge of \$0.75 per month for each additional h. p. nominal rated capacity, up to and including 5 h. p.

A fixed or service charge of \$0.50 per month for each h. p. nominal rated capacity connected over and above 5 h. p.

Plus a meter charge of 3 cts. net or 4 cts. gross per kilowatt hour for current used equivalent to or less than the first ninety hours' use per month of the connected installation; and 2 cts. net or 3 cts. gross per kilowatt hour for all current used in excess of the above ninety hours' use of the connected installation.

DISCOUNT.

The company shall bill all consumers the gross rate and the difference between the gross and net rates above specified, or one cent per kilowatt hour, shall constitute a discount for prompt payment.

Where company is unable to read a meter after reasonable effort, the fact shall be plainly indicated upon the monthly bill, the minimum charge of \$1.00 in the case of lighting and the fixed or service charge in the case of power shall be assessed and differences adjusted with the consumer when meter is again read.

The order relative to meter rates shall become effective for metered use of current for the month of August, 1912.

Ninety days is deemed sufficient time within which to comply with the order relative to the installation of meters.

J. C. MEYER ET AL.

vs.

SHEBOYGAN GAS LIGHT COMPANY.

IN RE VALUATION OF THE PROPERTY OF THE SHEBOYGAN GAS LIGHT COMPANY.

Decided July 11, 1912.

Complaint is made that respondent's rates for gas in Sheboygan, Wis., are unreasonably high.

The revised valuation as of June 30, 1911, showed a cost of reproduction of respondent's physical property of \$301,386, including a small amount for non-operating property, and a present value of \$250,383. No more has been invested in the business than is represented by the present value, and consequently no addition was made for going value.

Although the investment is not more than might be expected for a city of the size of Sheboygan, it is much higher than normally prevails when measured by the amount of business transacted, due to the relatively poor development of the business. Analysis of operating statistics shows that, while the number of gas consumers per 100 population is a little less than the average and median values for class A utilities, the sales per capita and per consumer and the amount of mains per 100 population are much below normal. Expenses and revenues were analyzed and compared with those of other Wisconsin gas utilities. Operating expenses of the last three years were apportioned between consumer and output costs, and variable unit costs of consumer, output and total expenses for consumers using different amounts of gas per month, were ascertained. Estimates were made of the gas revenues that respondent would have received during the year ending June 30, 1911, for rates placed at several different amounts. To what extent the under-development of respondent's business is due to the present rate schedule, the management of the utility or the character of the business which it supplies, is not determined in the present case.

Held: In the present case conditions over which the utility has little control materially affect the quantities in which gas is used. They are something for which the utility is no more responsible than the users. While on the one hand these conditions affect the costs to the consumer, they seem, on the other, to affect the value of the investment and what it may equitably earn under the circumstances. In view of these facts, something of a reduction should be made in the rates charged by respondent. A minimum monthly charge should be established to return to the utility at least a reasonable portion of the costs it must bear even when the consumer uses no gas. Respondent is ordered to substitute for its present rate schedule a schedule of reduced rates fixed by the Commission.

Petition in the above entitled matters was filed with the Commission, July 25, 1911, setting forth that the rates of the respondent company are unreasonably high and excessive and praying that the Commission order such rates for gas furnished to the public of Sheboygan as may be found to be just and reasonable upon valuation of the property and investigation of the earnings and expenditures of the respondent.

Hearing was held Jan. 12, 1912, at the office of the Commission. *Edward Voigt* appeared for the petitioners, *Simon Gillen* for the respondent.

EXISTING RATES.

The existing rates against which the petitioner complains are as follows:

	Per M cu. ft.	
	Gross	Net
Less than 10,000 cu. ft. per month.....	\$1.60	\$1.35
10,000 cubic feet or over ".....	1.60	1.25
Power		1.00

One flat rate customer, \$65.00 per month.

It is claimed by the petitioner that nearly all of the customers use less than 10,000 cubic feet of gas per month and are, therefore, subject to the maximum rate. It is contended that the rates should be materially reduced. While admitting that nearly all of its customers use less than 10,000 cubic feet per month, and, indeed, that the majority of these use less than 2,000 cubic feet, the respondent denies that the rates should be reduced.

In reaching a conclusion in this matter, the Commission has caused a valuation of the physical property to be made and has made such investigation into the investment and operating costs of the respondent as seems necessary for a determination of what rates will be fair to both parties in view of all the circumstances.

VALUE OF PLANT AND BUSINESS.

VALUE OF PHYSICAL PROPERTY.

A valuation of the physical property, as of June 30, 1911, was made by the Commission's engineers which placed the cost of reproduction at \$284,486 and the present value at \$229,658. This valuation was subsequently revised and increased to the totals shown in the table below. The change was occasioned chiefly because of additional information submitted by the utility relative to the existence of certain items not appearing in the original inventory.

TABLE I.
ENGINEERS' REVISED VALUATION OF PHYSICAL PROPERTY.
SHEBOYGAN GAS LIGHT COMPANY,
June 30, 1911.

Classification.	Cost of reproduction new	Present value
A. Land.....	\$16,500.00	\$16,500.00
B. Transmission and distribution.....	148,442.00	126,562.00
C. Buildings and misc. structures.....	19,337.00	12,948.00
D. Plant equipment.....	67,779.00	52,080.00
E. General equipment.....	4,915.00	3,811.00
F. Paving.....	1,484.00	1,375.00
Total.....	\$258,487.00	\$213,266.00
G. Add 12% (see note below).....	31,018.00	25,592.00
Total.....	\$289,505.00	\$238,858.00
H. Material and supplies.....	10,491.00	10,491.00
Total.....	\$299,996.00	\$249,349.00
I. Non-operating.....	1,390.00	1,034.00
Total.....	\$301,386.00	\$250,383.00

NOTE:—Addition of 12% to cover engineering, superintendence, interest during construction, contingencies, etc.

ORIGINAL VALUE OF PLANT AND BUSINESS.

The Sheboygan Gas Light Company was organized in 1901, and took over the properties and business of what was formerly known as the National Gas Light Company. The new company increased the capitalization of \$100,000 to \$150,000. Bonds were authorized for \$250,000, of which \$40,000 were issued for the bonds and \$45,000 for the stock of the old company, and \$65,000 for improvements. The stockholders also loaned the company \$85,000 for improvements. This was subsequently repaid. Bonds issued from time to time for the purpose of

improvement or for repayment of loans bring the total bonds outstanding at the present time to \$241,500.

The respondent admitted at the hearing that practically nothing was paid for the stock which it issued. The petitioner claims, therefore, that the property is represented by the bond issue.

The amount of bonds issued by the new company up to Jan. 1, 1902, was \$131,000, of which \$85,000 were given for the bonds and stock of the old company and \$46,000 were apparently used for immediate improvements. Computation, shown by the table below, has been made for the purpose of indicating the value of the physical property in 1901:

TABLE II.
COST OF PHYSICAL PROPERTY EACH YEAR, 1902 TO 1911.
STARTING WITH ENGINEERS' COST OF REPRODUCTION, JULY 1, 1911.

Year ending	Cost end of year	Annual additions	Cost beginning of year
June 30, 1911	\$301,400	\$34,057	\$267,343
June 30, 1910	267,343	10,022	257,321
June 30, 1909	257,321	6,307	251,014
June 30, 1908 ¹	251,014	15,705	235,309
Dec. 31, 1906 ²	235,309	7,734	227,575
July 31, 1906 ³	227,575	16,195	211,380
Dec. 31, 1904	211,380	10,700	200,680
Dec. 31, 1903	200,680	11,482	189,198
Dec. 31, 1902	189,198	16,367	172,831
Dec. 31, 1901	172,831	.....	.....

¹18 month period
²5 " "
³19 " "

It appears from these figures that the cost of reproduction in 1901 was in the neighborhood of \$173,000 and that, if about the same relation existed at that time as now exists between the cost of reproduction and the present value, the present value was then not far from \$138,000.

COST OF THE PRESENT PLANT AND BUSINESS.

The following tables show the balance sheets at various times and the income accounts for various periods since the organization of the respondent's company:

TABLE III.
STATEMENT OF ASSETS AND LIABILITIES.

	Jan. 1, 1902	Jan. 1, 1903	Jan. 1, 1904	Jan. 1, 1905	Aug. 1, 1906	Jan. 1, 1907	July 1, 1908	July 1, 1909	July 1, 1910	July 1, 1911
ASSETS.										
Plant and equipment.....	\$277,554.65	\$293,922.11	\$305,404.04	\$316,104.13	\$332,298.71	\$340,033.20	\$355,737.77	\$398,772.64	\$408,795.13	\$443,351.88
Cash on hand.....	3,548.02	6,343.80	518.15	1,062.63	3,827.21	1,850.11	1,830.21	6,421.12	5,514.07	2,206.58
Accounts receivable.....	4,245.84	6,713.98	7,244.91	8,397.42	6,188.26	8,821.03	6,613.30	7,839.70	8,928.37	9,607.79
Materials and supplies.....	2,985.12	5,716.04	10,043.27	11,919.42	3,919.52	5,122.70	7,003.64	8,529.45	8,933.13	9,808.05
Open accounts.....	371.18	1,368.79	1,730.08	1,531.93	2,182.79	1,916.72	2,768.09	2,370.98	8,145.16	1,371.48
Total assets.....	\$288,704.81	\$314,064.72	\$324,940.45	\$339,015.53	\$348,416.49	\$357,743.76	\$373,953.01	\$423,933.89	\$440,315.86	\$463,345.78
LIABILITIES										
Capital stock.....	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00
Bonds outstanding.....	131,000.00	150,000.00	150,000.00	150,000.00	180,000.00	180,000.00	180,000.00	214,000.00	227,500.00	241,000.00
Notes payable.....			9,386.81				4,600.00			3,003.00
Accounts payable.....	6,040.17	6,912.33	3,604.44	23,865.99	2,764.61	6,655.65	6,667.23	7,137.12	8,625.05	5,172.72
Reserve accounts.....	1,187.26	1,072.38	1,206.94	1,084.26	1,403.71	1,232.58	770.00	1,185.49	956.12	815.28
Security deposits.....	15.50	3.00	3.00		106.00	96.50	87.50	82.50	92.50	114.50
Surplus.....	461.88	6,077.01	10,739.26	14,065.28	14,142.17	19,729.03	14,828.28	51,528.78	53,142.19	66,243.28
Total liabilities.....	\$288,704.81	\$314,064.72	\$324,940.45	\$339,015.53	\$348,416.49	\$357,743.76	\$373,953.01	\$423,933.89	\$440,315.86	\$463,345.78

TABLE IV.
STATEMENT OF INCOME ACCOUNT.

Italic figures denote

CLASSIFICATION.	Jan. 1, 1901 to Jan. 1, 1902	Jan. 1, 1902 to Jan. 1, 1903	Jan. 1, 1903 to Jan. 1, 1904	Jan. 1, 1904 to Jan. 1, 1905	Jan. 1, 1905 to Aug. 1, 1906	Aug. 1, 1906 to Jan. 1, 1907	Jan. 1, 1907 to July 1, 1908	July 1, 1908 to July 1, 1909	July 1, 1909 to July 1, 1910	July 1, 1910 to July 1, 1911
Revenue:										
Gas earnings.....	\$11,765 33	\$26,292 39	\$29,340 78	\$32,071 27	\$55,328 87	\$16,631 20	\$56,935 20	\$43,220 19	\$49,559 60	\$54,367 82
Earnings from residuals.....				6,349 45	7,960 62	2,964 63	14,199 31	11,278 01	3,621 44	3,726 43
Miscellaneous earnings.....	89 63	118 60	7 26		277 47	20 10	38 08	46 26	203 31	50 82
Total revenue.....	\$11,854 96	\$26,410 99	\$29,357 04	\$38,420 72	\$63,566 96	\$19,615 93	\$71,103 19	\$54,544 46	\$53,390 35	\$58,145 07
Expenses:										
Production.....	\$4,554 20	\$3,545 26	\$9,954 06	\$18,394 37	\$25,391 14	\$7,632 32	\$31,146 60	\$24,358 10	\$17,365 04	\$18,304 74
Distribution.....	1,245 51	2,668 93	2,633 04	3,291 19	5,441 28	1,590 67	6,330 83	1,611 39	3,285 45	3,034 98
Commercial.....								3,106 79	3,374 36	3,399 72
General.....	705 29	1,768 69	1,393 49	2,722 25	4,926 11	1,070 00	4,619 01	4,779 08	5,842 87	5,965 28
Undistributed.....	620 49	1,245 05	2,221 95	2,577 31	4,304 90	1,625 40	4,312 65	1,212 84	1,581 96	2,257 48
Adjustments.....				132 83	3,814 57		122 96	97 07	194 75	271 84
Total expenses.....	\$7,125 49	\$15,227 93	\$16,208 54	\$27,027 95	\$43,878 00	\$11,318 39	\$46,286 13	\$34,971 13	\$31,254 93	\$32,690 86
Net oper. revenue or deficit.....	\$4,729 47	\$11,183 06	\$13,148 50	\$11,392 77	\$19,688 96	\$8,297 54	\$24,817 06	\$19,573 33	\$22,135 42	\$25,454 71
Non-operating revenue.....	<i>174 21</i>		<i>853 89</i>	<i>306 37</i>	<i>110 66</i>	<i>1,039 32</i>	<i>1,248 30</i>	<i>805 67</i>	<i>1,140 42</i>	<i>2,511 23</i>
Gross income or deficit.....	\$4,555 26	\$11,183 06	\$12,294 61	\$11,086 20	\$19,799 62	\$9,336 86	\$25,865 36	\$20,379 00	\$23,275 84	\$27,965 94
Deductions from gross income										
Interest on bonds.....	\$3,093 38	\$6,567 92	\$7,500 00		\$13,650 84		\$14,125 00	\$10,044 30	\$10,750 00	\$11,580 57
Interest on floating debts.....			132 36	260 18	71 89		141 62	68 17		
Coupons.....				7,500 00		\$3,750 00				
Total deductions.....	\$3,093 38	\$6,567 93	\$7,632 36	\$7,760 18	\$13,722 73	3,750 00	\$14,266 62	\$10,112 47	\$10,750 00	\$11,580 57
Net income or deficit.....	\$1,461 88	\$4,615 13	\$4,662 25	\$3,326 02	\$6,076 89	\$5,586 86	\$11,598 74	\$10,266 53	\$12,525 84	\$16,385 87
Dividends.....					6,000 00		16,500 00	9,000 00	9,000 00	9,750 00
Surplus or deficit.....	\$1,461 88	\$4,615 13	\$4,662 25	\$3,326 02	\$76 89	\$5,586 86	<i>4,991 26</i>	\$1,266 53	3,525 84	6,635 87

Computations have been made of the cost of the plant and business June 30, 1911, based upon the facts disclosed by tables III and IV, and upon \$135,000 as representing a fair value of the gas properties of the Sheboygan Gas Light Company, Jan. 1, 1902. In table V, which follows, interest was computed at 6 per cent while in table VI it was placed at 7 per cent. Additions shown in column 4 are those determined from the books of the utility. The net earnings of column 8 are those shown in table IV. Under the conditions of table V it appears that the cost of the plant and business, June 30, 1911, was about \$245,063; under those of table VI, about \$269,028. The former is \$5,320 less than the present value of the physical property; the latter is \$18,645 more.

TABLE V.
COST OF PLANT AND BUSINESS
JANUARY 1, 1902, TO JULY 1, 1911.
Interest computed at six per cent.

Year beginning	Cost of plant and business first of year.	Physical value first of year.	Additions during year.	Depreciation, 1½% on col. 3 plus ¼ col. 4.	Interest 6% on col. 2 plus ¼ col. 4.	Total col. 2, 4, 5 and 6.	Net earnings	Cost of plant and business end of year.
1	2	3	4	5	6	7	8	9
Jan. 1, 1902...	\$135,000	\$172,831	\$16,367	\$2,715	\$8,591	\$162,674	\$11,183	\$151,490
Jan. 1, 1903...	151,490	189,198	11,482	2,924	9,434	175,330	12,295	163,035
Jan. 1, 1904...	163,035	209,680	10,700	3,090	10,103	186,928	11,086	175,842
Jan. 1, 1905 ¹ ...	175,842	211,380	16,195	5,212	17,474	214,722	19,800	194,923
Aug. 1, 1906 ² ...	194,923	227,575	7,734	1,447	4,970	209,074	9,347	199,737
Jan. 1, 1907 ³ ...	199,737	235,309	15,705	5,471	18,683	239,596	25,865	213,731
July 1, 1908...	213,731	251,014	6,307	3,813	13,013	236,864	20,379	216,485
July 1, 1909...	216,485	257,321	10,922	3,935	13,290	249,732	23,275	220,457
July 1, 1910...	220,457	267,343	34,057	4,266	14,249	273,029	27,966	245,063
July 1, 1911...	245,063	301,400	.....	.....	.....	.....	.....	.....

¹ 19 month period

² 5 " "

³ 18 " "

TABLE VI.
COST OF PLANT AND BUSINESS.
JAN. 1, 1902 TO JULY 1, 1911.
Interest computed at seven per cent.

Year beginning	Cost of plant and business first of year.	Physical value first of year.	Additions during year.	Depreciation 1½% on col. 3 plus ½ col. 4.	Interest 7% on col. 2 plus ½ col. 4.	Total col. 2, 4, 5 and 6.	Net earnings.	Cost of plant and business end of year.
1	2	3	4	5	6	7	8	9
Jan. 1, 1902...	\$135,000	\$172,831	\$16,367	\$2,715	\$10,023	\$164,105	\$11,183	\$152,922
Jan. 1, 1903...	152,922	189,198	11,482	2,984	11,106	173,434	12,295	166,139
Jan. 1, 1904...	166,139	200,680	10,700	3,090	12,004	191,933	11,086	180,847
Jan. 1, 1905 ¹ ...	180,847	211,380	16,195	5,212	20,941	223,195	19,800	203,395
Aug. 1, 1906 ² ...	203,395	227,575	7,734	1,447	6,045	218,621	9,337	209,284
Jan. 1, 1907 ³ ...	209,284	275,309	15,705	5,471	22,799	253,259	25,865	227,394
July 1, 1908...	227,394	251,014	6,307	3,813	16,138	253,652	20,379	233,273
July 1, 1909...	233,273	257,321	10,022	3,935	16,680	263,910	23,275	240,635
July 1, 1910...	240,635	267,343	34,057	4,266	18,036	296,994	27,966	269,028
July 1, 1911...	269,028	301,400	.....	.....	.....	.....	.....	.....

¹ 19 month period.

² 5 month period.

³ 18 month period.

GOING VALUE.

Witness for the respondent stated that in his judgment \$45,000 is a fair and reasonable allowance for going value in this case. The witness admits that no calculations were made in arriving at this amount, that the facts necessary for his process of calculation are not available and that the figure is an estimate derived from similar determinations for other properties.

The petitioner points out that from June 30, 1908, to June 30, 1911, over \$9,200 was expended for promotion of business and customers' premises expenses. It contends that about \$6,000 of this sum should not be allowed in the operating expenses but should be considered in the nature of an investment for future business and a part of the capital account. According to the method followed in determining the cost of plant and business in tables V and VI, there is practically no difference whether those costs are added as extensions of plant or as a part of operating expenses.

Computations that we have made show that the owners of this utility have not invested in the undertaking more than is represented by the present value of the physical property.

For this reason we conclude that little or nothing should be added in the way of going value to the value of the physical property.

WORKING CAPITAL.

In order to shed some light on what the respondent requires for working capital, tables have been compiled showing what 10 per cent and 15 per cent of the gross earnings amount to for the last three years and what the difference is between the current assets and liabilities for the same periods:

GROSS EARNINGS.

Year.	Total.	10 per cent of	15 per cent of
1908-1909.....	\$55,447 20	\$5,544 72	\$8,317 00
1909-1910.....	63,517 41	6,351 71	9,527 61
1910-1911.....	72,170 70	7,217 07	10,825 60

CURRENT ASSETS AND LIABILITIES.

	1908-09	1909-10	1910-11
Current assets and prepaid accounts:			
Cash.....	\$6,421 12	\$5,514 07	\$2,206 58
Accounts receivable.....	7,839 70	8,928 37	9,607 79
Materials and supplies.....	8,529 45	8,933 13	9,808 05
Miscellaneous prepaid accounts.....	2,370 98	2,714 40	1,371 48
Total.....	\$25,261 25	\$26,089 97	\$22,993 90
Current and accrued liabilities:			
Notes and bills payable.....			\$3,000 00
Accounts payable.....	\$7,137 12	\$8,625 50	5,172 72
Consumers' deposits.....	82 50	92 05	114 50
Accrued insurance.....	94 55	34 00	25 47
Accrued taxes.....	737 52	248 07	293 23
Total.....	\$8,051 63	\$8,999 62	\$8,605 92
Difference.....	\$17,209 56	\$17,090 35	\$14,387 98

The applicant admits that allowance should be made for working capital and adds \$10,000 for this purpose to its assumed value of the plant, which value it states includes materials and supplies.

The value of materials and supplies found by the engineers June 30, 1911, is \$10,491. This amount is included in the total cost of reproduction of \$301,386. Analysis of the relation of the value of materials and supplies to the total assets of class

A utilities reveals that an allowance of \$8,000 would be ample on this basis for the respondent's business. Tested by the amount of business transacted, the necessary allowance would be even less.

The difference between the current assets and liabilities June 30, 1909 and 1910, was about \$17,000, which is more than 25 per cent of the annual gross earnings. On June 30, 1911, the difference had decreased to \$14,388, an amount equal to about 20 per cent of the gross earnings for the year.

It appears, on the whole, that the value of materials and supplies, as it appears in the engineer's valuation, is somewhat more than would ordinarily be necessary, that the difference between the current assets and liabilities is unusually high and that, therefore, the additional cash capital that should be added to the value of the property is somewhat less than the reports of the utility would indicate are necessary for its business.

OPERATING STATISTICS.

Although the utility is provided with water gas as well as coal gas equipment, the entire output is reported as coal gas.

The following table shows the comparative gas accounts for several years:

TABLE VII.
GAS ACCOUNT
SHEBOYGAN GAS LIGHT COMPANY.

	1907	1908-09	1909-10	1910-11
Gas on hand first of year.....		56,000	66,000	60,000
Gas made during year.....	23,504,000	37,571,000	41,206,000	44,687,000
Total gas to account for.....		37,627,000	41,272,000	44,747,000
Gas on hand close of year.....		66,000	60,000	137,000
Gas delivered to mains.....		37,561,000	41,212,000	44,610,000
Gas sold.....		32,456,900	37,158,300	40,734,100
Gas used by company.....		762,600	834,200	838,200
Gas transferred.....		53,600	60,300	62,700
Total gas used and sold.....	28,714,200	33,273,100	38,052,800	41,635,000
Gas unaccounted for.....		4,287,900	3,159,200	2,925,000
Pct.		11.4	8.5	6.6

The following table shows the number of commercial, industrial, power gas and total consumers at the close of each year since June 30, 1908:

Year	Commercial consumers	Industrial consumers	Power gas consumers	Total consumers
903-09.....				2,413
909-10.....	2,597	43	5	2,645
910-11.....	2,898	41	7	2,946

The following table shows the development of business and saturation of territory as compared with other class A gas utilities in Wisconsin:

TABLE VIII.
DEVELOPMENT OF BUSINESS AND SATURATION OF TERRITORY.

Class A gas utilities, 1910.	Consumers per 100 population.	Cubic feet sales per capita per annum.	Cubic feet sales per consumer per annum.	Feet of mains per 100 population.	Consumers per mile of mains.
Minimum.....	5.3	694	13,003	302	48.6
Maximum.....	20.0	7,103	38,836	1,474	172.2
Average.....	12.7	2,778	20,732	817	84.6
Median.....	12.8	2,355	19,690	800	76.1
Sheboygan, 1910.....	10.0	1,405	14,053	611	86.7
Sheboygan, 1911.....	11.4	1,540	13,761	629	94.0

While the number of gas consumers per 100 population is not very far from the average and median values for class A utilities, the sales per capita and per consumer are much below normal. The amount of mains per 100 population is also considerably below normal. It is for these reasons, therefore, that the units of investment based on sales and miles of mains are high, as observed later on. The number of consumers per mile of mains is somewhat above normal, perhaps because the usual effort has not been made to supply the less populous districts. This assumption is supported also by the fact that the amount of mains per 100 population is considerably less than the average and median for other class A gas utilities. If the miles of mains were increased to the normal amount, it is likely that the number of consumers per 100 population would be increased to about the normal. The effect would also be to reduce the number of consumers per mile of main; but this value is now above normal.

“The sales statistics taken from Brown’s Gas Directory for 1908, covering data from about 185 plants throughout the country, shows the following relations:

	Annual sales per capita, cu.ft.
"Minimum	120
Maximum	6,400
Average	2,545
Median	2,550
Mode	2,600"

(City of Racine v. Racine Gas Light Co.)

These figures indicate that the normal annual use of gas is about 2,550 cu. ft. per capita. During the year ending June 30, 1911, the sales of the Sheboygan Gas Light Company amounted to 1,540 cu. ft. per capita, or much less than the usual sales.

COST OF PHYSICAL PROPERTY PER UNIT.

In order to show the effect of the conditions indicated above upon the relation of the value of the physical property to the development of the utility's business, the costs of reproduction, exclusive of materials and supplies, paving, and addition of 12 per cent, were classified as shown below and reduced to units based on several elements representing the magnitude of the business.

TABLE IX.
UNIT PHYSICAL INVESTMENT VALUES SHEBOYGAN GAS LIGHT CO.

	Cost new.	Per M sales.	Per consumer.	Per mile of mains.
Land.....	\$16,500	\$0.404	\$5 80	\$625 00
Buildings.....	19,367	.475	6 92	617 00
Plant.....	30,481	.748	10.90	972 00
Station ¹	66,348	1.625	23 71	2,113 00
Holder	36,238	.888	12 96	1,155 00
Distribution	148,442	3.639	53 06	4,730 00
Office furniture and supplies.....	2,526	.062	90	80 40
Miscellaneous.....	2,389	.059	85	76 00
Total above.....	\$255,943	\$6.274	\$91 48	\$8,151 00

¹ Station includes land, buildings and plant equipment.

In arriving at the above values, the following figures for year ending June 30, 1911, were used:

Annual cu. ft. sales.....	40,797,000
Miles of mains.....	31.4
Consumers	2,798

The foregoing unit investment values are compared in the following table with the average, minimum, maximum and me-

dian of similar values for 12 gas utilities, valuations of which have been made by the Commission's engineers:

TABLE X.

UNIT INVESTMENT IN PHYSICAL PROPERTY OF GAS UTILITIES.
AVERAGE, MINIMUM, MAXIMUM, AND MEDIAN VALUES FOR TWELVE
WISCONSIN UTILITIES.

	Land.			Buildings.			Plant.		
	Per M sales.	Per consumer.	Per mi. of main.	Per M sales.	Per consumer.	Per mi. of main.	Per M sales.	Per consumer.	Per mi. of main.
Average	\$0.173	\$3.611	\$292.58	\$0.343	\$6.71	\$189.66	\$0.666	\$14.27	\$1,100.21
Minimum...	.037	1.130	84.91	.089	1.62	200.50	.283	6.43	560.57
Maximum...	.253	7.668	762.00	.785	18.83	1,241.50	1.550	33.84	2,539.50
Median.....	.179	3.164	190.10	.250	5.02	350.59	.543	9.87	751.20
Sheboygan..	.404	5.80	525.00	.475	6.92	617.00	.748	10.90	972.00

	Station. ¹			Holder.			Distribution.		
	Per M sales.	Per consumer.	Per mi. of main.	Per M sales.	Per consumer.	Per mi. of mains.	Per M sales.	Per consumer.	Per mi. of mains.
Average	\$1.202	\$24.94	\$1,881	\$0.655	\$12.54	\$990	\$2.467	\$48.51	\$3,827
Minimum...	.541	9.19	890	.117	3.39	303	1.349	34.96	2,192
Maximum...	2.510	58.78	4,464	1.736	26.38	2,413	4.663	61.36	6,580
Median.....	.916	17.01	1,312	.664	9.13	848	2.301	47.24	3,840
Sheboygan..	1.626	23.71	2,113	.888	12.96	1,155	3.639	53.06	4,730

	Office furniture and appliances.			Miscellaneous.			Total.		
	Per M sales.	Per consumer.	Per mi. of main.	Per M sales.	Per consumer.	Per mi. of mains.	Per M sales.	Per consumer.	Per mi. of mains.
Average	\$0.074	\$1.38	\$129.80	\$0.016	\$0.34	\$24.31	\$4.408	\$87.79	\$6,785
Minimum...	.029	.66	39.26	.001	.09	6.75	2.626	59.88	3,500
Maximum...	.236	3.59	201.85	.034	.98	56.41	5.8	146.94	12,933
Median.....	.056	1.27	93.40	.016	.36	19.07	4	76.10	6,510
Sheboygan..	.062	.90	80.40	.059	.85	76.00	4	91.48	8,151

¹Station includes land, buildings and plant equipment.

From the preceding table it will be seen that the investment in the physical property of the Sheboygan Gas Light Company is about normal as measured by the number of consumers, but upon the basis of the total annual sales or of the miles of mains the investment is much above the average and median values for other gas utilities.

REVENUES AND EXPENSES.

The following is a comparative statement of the respondent's income account for three years:

TABLE XI.
COMPARATIVE INCOME ACCOUNT.
SHEBOYGAN GAS LIGHT COMPANY.

	Year ending June 30,		
	1909	1910	1911
Operating Revenues:			
Commercial earnings.....		\$46,081 42	\$50,788 02
Industrial earnings.....		2,015 40	2,163 93
Power earnings.....		1,092 80	1,123 40
Total earnings from gas.....	\$43,009 46	\$49,189 62	\$54,074 35
Earnings from residuals.....	11,278 01	12,413 33	14,968 99
Total operating revenues.....	\$54,287 47	\$61,602 95	\$69,044 34
Operating Expenses:			
Production.....	\$24,358 10	\$26,156 93	\$29,547 30
Distribution.....	1,611 39	3,285 45	3,034 98
Commercial.....	3,106 79	3,374 36	3,399 72
General.....	4,779 08	5,842 87	5,965 28
Undistributed.....	144 56	778 22	924 14
Total above items.....	\$33,999 92	\$39,437 83	\$42,871 42
Taxes.....	1,068 28	803 74	1,333 34
Total above expenses.....	\$35,068 20	\$40,241 57	\$44,204 76
Net above.....	\$19,219 27	\$21,361 38	\$24,839 58
Non-Operating Revenues.	1,159 73	1,914 46	3,126 36
Total remaining for interest, profits and depreciation.....	\$20,379 00	\$23,275 84	\$27,965 94

Various analyses of these expenses have been made in order to determine whether or not the expenses as a whole or in groups are normal as measured by those of other gas utilities.

The table below shows the percentage distribution of the production, distribution, municipal contract lighting, commercial, general, and undistributed expenses. This distribution indicates that, in the case of the Sheboygan Gas Light Company, a somewhat larger proportion of expenses than usual is devoted to the commercial and general phases of the business.

A comparison of the operating costs per M cu. ft. of gas sold is seen in the next table. It should be noted in examination of this table that the costs of both water and coal gas utilities are included. This has especial bearing upon the production expenses and the net earnings from residuals. In determining

the minimum, maximum, average and median for residuals, only those utilities were considered which have such earnings. The same is true with reference to the expenses of municipal contract lighting.

TABLE XII.
SUMMARY OF PERCENTAGE ANALYSIS OF EXPENSES.
CLASS A GAS UTILITIES.

	Production.			Distribution.			Municipal contract lighting.		
	1909	1910	1911	1909	1910	1911	1909	1910	1911
Weighted average....	71.56	70.29	67.19	9.95	11.39	12.28	0.19	0.32	0.31
Minimum.....	58.36	50.68	57.11	3.24	3.23	2.28	.20 ¹	.48 ¹	.56 ¹
Maximum.....	86.05	86.05	80.66	16.81	17.52	17.76	5.73	5.40	2.46
Average.....	71.75	70.81	69.73	8.25	8.73	9.10	2.71	2.83	1.23
Median.....	72.92	71.63	70.66	7.93	8.43	9.63	2.21	2.60	.66
Sheboygan.....	71.64	66.33	68.92	4.74	8.33	7.08	.....	.....	.....

	Commercial.			General.			Undistributed.		
	1909	1910	1911	1909	1910	1911	1909	1910	1911
Weighted average....	9.06	9.14	10.00	8.23	7.76	8.70	1.01	1.10	1.51
Minimum.....	1.59	1.52	1.05	1.76	5.08	5.31	.11	.21	.71
Maximum.....	23.29	26.23	26.28	21.13	19.17	22.31	6.26	6.23	9.36
Average.....	7.44	7.20	7.34	10.67	10.89	11.24	2.13	2.43	2.96
Median.....	5.59	5.45	5.19	9.27	9.94	10.42	1.82	2.28	2.23
Sheboygan.....	9.14	8.56	7.93	14.05	14.81	13.91	.43	1.97	2.16

¹ For those having municipal contract lighting expenses.

TABLE XIII.

UNIT COSTS.

CLASS A GAS UTILITIES.

Costs in cents per M cubic feet.

Italic figures denote deficits or credits.

	Production.			Net earnings from residuals.			Production less residuals.		
	1909.	1910.	1911.	1909.	1910.	1911.	1909.	1910.	1911.
Minimum.....	27.77	27.22	22.37	0.60	2.51	0.16	19.77	19.65	18.92
Maximum.....	102.14	96.56	98.77	48.20	47.55	45.02	74.23	66.64	81.45
Average.....	67.21	66.92	66.97	31.06	31.25	28.30	41.69	41.91	42.91
Median.....	69.72	74.18	67.70	34.80	33.30	35.41	40.70	40.76	40.90
Sheboygan.....	75.05	70.39	72.43	34.70	33.30	36.69	40.35	37.09	35.74

	Distribution.			Municipal contract lighting.			Commercial.		
	1909.	1910.	1911.	1909.	1910.	1911.	1909.	1910.	1911.
Minimum.....	3.45	3.20	2.80	0.08	0.19	0.35	1.61	1.30	0.96
Maximum.....	11.68	12.04	20.90	5.87	5.51	2.76	17.80	22.58	22.04
Average.....	7.46	7.69	8.10	2.79	2.75	1.05	6.55	6.29	6.29
Median.....	6.93	8.33	7.43	2.41	2.54	.90	4.63	4.82	5.51
Sheboygan.....	4.96	8.84	7.44	.....	.....	.....	9.55	9.08	8.34

	General.			Undistributed.			Total of foregoing without deducting residuals.		
	1909.	1910.	1911.	1909.	1910.	1911.	1909.	1910.	1911.
Minimum.....	1.34	2.14	2.48	0.45	0.23	0.72	39.43	39.35	35.35
Maximum.....	20.20	19.54	20.73	6.39	5.81	11.46	140.48	128.30	126.30
Average.....	9.97	10.41	10.70	2.14	2.38	3.08	83.46	93.62	94.75
Median.....	7.56	8.82	9.33	1.92	2.01	2.26	100.84	98.34	98.40
Sheboygan.....	14.72	15.72	14.62	.45	2.10	2.27	104.74	106.13	105.10

	Total of foregoing less residuals.			Taxes.		
	1909.	1910.	1911.	1909.	1910.	1911.
Minimum.....	31.43	31.78	31.90	3.00	1.93	2.96
Maximum.....	109.61	115.03	120.29	14.42	14.56	13.28
Average.....	69.12	68.62	70.63	6.51	5.40	6.89
Median.....	68.96	66.49	65.49	5.57	6.97	6.04
Sheboygan.....	70.04	72.83	68.41	3.29	2.16	3.27

The item "Production less residuals," for the Sheboygan Gas Light Company, decreased during the period from 1909 to 1911, due to a general decrease in the production expense and to a general increase in the net earnings from residuals. During 1910 the item "Production less residuals" was somewhat less for this company than the average and median for the other utilities; during 1911 it was very materially lower. Distribution and undistributed expenses appear to be about normal as compared with the averages and medians for the other companies. Commercial and general expenses, however, are quite high, which agrees with the indication of the percentage analysis. The total of "Foregoing expenses less residuals" is not far from the average and median. Taxes per M cu. ft. sold are low as compared with those for other gas companies.

The following comparison of commercial, street department labor, maintenance of mains, meter, and customers' premises expenses have a bearing on the determination of the normal cost. It may be noted especially that the cost of reading meters and delivering bills is somewhat higher than the averages and medians for the other companies, but this is offset in the other meter expenses. During the years ending June 30, 1910 and 1911, customers' premises expenses increased very much and are now much above similar expenses per customer for other class A gas utilities.

TABLE XIV.
COMMERCIAL EXPENSES.

Class A gas utilities.	Per meter.			Per consumer.		
	1909	1910	1911	1909	1910	1911
Minimum.....	\$0.322	\$0.216	\$0.194	\$0.384	\$0.252	\$0.195
Maximum.....	3.150	3.783	4.469	3.370	4.260	4.480
Average.....	1.081	1.054	1.162	1.267	1.253	1.289
Median.....	1.174	.960	.933	1.170	1.093	1.069
Sheboygan.....	1.260	1.253	1.154	1.287	1.276	1.154

TABLE XV.
COST PER MILE OF MAIN.

Class A gas utilities.	Street department labor.			Maintenance of mains.			Miles of mains.		
	1909	1910	1911	1909	1910	1911	1909	1910	1911
Minimum.....	\$2.90	\$0.29	\$0.57	\$1.69	\$1.70	\$0.52	8	8.3	8.4
Maximum.....	32.47	39.39	48.15	31.98	48.87	68.31	387	399.2	428.1
Average.....	17.75	10.22	11.10	12.29	19.36	19.91	47	49.6	52.0
Median.....	18.28	1.67	1.55	10.41	14.16	11.64	28	31.3	32.7
Sheboygan.....		.29	1.57	2.81	22.68	12.96	28	30.6	32.1

TABLE XVI.
GAS CUSTOMERS' PREMISES EXPENSES
CLASS A GAS UTILITIES.

Municipalities.	1909			1910			1911		
	Customers' premises expenses.	Consumers.	Customers' premises exp. per customer.	Customers' premises expenses.	Consumers.	Customers' premises exp. per customer.	Customers' premises expenses.	Consumers.	Customers' premises exps. per customer.
Appleton.....	\$2,597 55	3,149	\$0.856	\$2,594 86	3,364	\$0.782	\$2,671 83	3,604	\$0.742
Ashland.....	80 29	824	.096	145 87	874	.167	127 25	938	.136
Beloit.....	344 92	1,080	.205	339 13	1,790	.190	396 36	1,938	.204
Chippewa Falls..	250 14	429	.536	349 39	471	.742	613 95	448	1,370
Eau Claire.....	587 20	2,464	.238	536 60	2,559	.210	677 13	2,723	.248
Fond du Lac.....	403 26	2,416	.167	264 96	2,598	.102	528 91	2,769	.191
Green Bay.....	1,269 41	2,216	.572	1,201 18	2,501	.480	1,067 18	2,634	.405
Janesville.....	1,779 29	2,580	.689	1,825 81	2,641	.691	1,619 88	2,736	.592
Kenosha.....	621 99	2,808	.221	698 56	3,177	.220	1,164 69	3,360	.346
La Crosse.....	1,206 52	3,026	.398	1,016 31	3,169	.321	844 57	3,436	.246
Madison.....	2,235 90	4,432	.504	2,728 40	4,768	.572	2,131 69	5,634	.423
Manitowoc.....	329 73	1,809	.182	285 60	1,929	.148	84 17	2,017	.042
Marinette.....	461 61	527	.876	319 95	594	.538	278 20	538	.517
Milwaukee.....	7,044 48	63,569	.111	10,659 82	68,389	.156	12,283 35	73,497	.167
Oshkosh.....	535 00	3,664	.146	406 32	3,827	.106	446 22	4,126	.108
Racine.....	(1)...	16,399	(1)...	2,033 87	6,992	.294	2,269 59	7,596	.299
Sheboygan.....	454 65	2,413	.188	1,615 87	2,645	.612	1,690 65	2,946	.573
Superior.....	802 83	2,981	.269	1,095 44	3,259	.336	1,839 06	3,566	.515
Watertown.....	390 26	1,264	.308	204 59	1,325	.154	210 91	1,410	.149
Wausau.....	102 44	2,200	.085	63 10	1,301	.048	.....	1,464	.00
Minimum.....	80 29	429	.085	63 10	471	.048	.....	448	.....
Maximum.....	7,044 48	63,569	.876	10,659 82	68,389	.782	12,283 35	73,497	.742
Average.....	1,150 39	5,445	.350	1,419 28	5,909	.343	1,547 28	6,339	.364
Median.....	535 00	2,416	.238	617 58	2,584	.257	760 85	2,752	.274
Sheboygan.....	454 65	2,413	.188	1,615 87	2,645	.612	1,690 65	2,946	.573

¹ Not considered for this year.² Estimated.

TABLE XVII.
METER EXPENSES PER METER IN CENTS.
CLASS A GAS UTILITIES.

	Number of meters.			Labor removing and resetting meters.			Meters and fittings department labor.		
	1909	1910	1911	1909	1910	1911	1909	1910	1911
Minimum.....	565	552	564	6.07	6.91	5.22	3.23	.02	.62
Maximum.....	92,652	92,373	81,837	73.26	71.82	73.56	9.73	19.21	31.13
Average.....	7,867	7,814	7,333	19.32	19.90	21.57	6.73	6.86	7.90
Median.....	2,760	2,833	2,858	14.91	14.75	14.92	7.00	6.27	6.55
Sheboygan.....	2,465	2,693	2,946	15.57	14.75	13.52	.....	.....	.....

	Meter and fittings department supplies and expenses.			Maintenance of meters.			Reading meters and delivering bills.		
	1909	1910	1911	1909	1910	1911	1909	1910	1911
Minimum.....	.99	.17	.95	3.95	.54	.35	12.42	8.51	.80
Maximum.....	13.66	21.72	43.14	62.82	55.19	61.00	60.78	61.14	69.01
Average.....	6.74	6.21	9.34	27.27	24.50	27.03	24.36	21.23	20.71
Median.....	5.14	6.65	7.77	27.14	23.70	27.50	20.16	18.27	17.06
Sheboygan.....	.....	.....	.....	6.96	8.69	6.61	34.68	23.62	23.97

TABLE XVIII.
 APPORTIONMENT OF OPERATING EXPENSES BETWEEN CONSUMER AND OUTPUT EXPENSE.
 JULY 1, 1908, TO JUNE 30, 1911.

Interest Based on Costs of Plant and Business Shown in Table V.

	1908-1909					1909-1910					1910-1911				
	Consumer.		Output.		Total amount.	Consumer.		Output		Total amount.	Consumer.		Output.		Total amount.
	Per cent.	Amount.	Per cent.	Amount.		Per cent.	Amount.	Per cent.	Amount.		Per cent.	Amount.	Per cent.	Amount.	
Manufacture.....	.....	.....	100.	\$24,358 10	\$24,358 10	.....	.....	100.	\$26,156 93	\$26,156 93	.....	.....	100.	\$29,547 30	\$29,547 30
Distribution.....	64.3	\$1,035 61	35.7	575 78	1,611 3-	61.2	\$2,009 33	38.8	1,276 12	3,285 45	60.7	\$1,842 95	39.3	1,192 03	3,034 98
Collection.....	.....	855 04	.....	.....	855 01	.....	1,127 50	.....	1,127 50	.....	1,328 19	.....	.....	1,328 19	
Total direct.....	7.1	\$1,890 62	92.9	\$24,933 88	\$26,824 50	10.2	\$3,136 83	89.8	\$27,433 05	\$30,569 88	9.4	\$3,171 14	90.6	\$30,739 33	\$33,910 47
General.....	.....	339 32	.....	4,339 76	4,779 09	.....	595 97	.....	5,246 90	5,842 87	.....	560 74	.....	5,404 54	5,965 28
Undistributed.....	.....	10 26	.....	134 30	144 56	.....	79 38	.....	698 84	778 22	.....	86 87	.....	837 27	924 14
New business.....	.....	136 89	.....	1,791 18	1,928 07	.....	189 80	.....	1,670 95	1,860 75	.....	155 45	.....	1,498 32	1,653 77
Total above.....	7.1	\$2,337 09	92.9	\$31,299 12	\$33,676 21	10.2	\$4,001 98	89.8	\$35,049 74	\$39,051 72	9.4	\$3,984 20	90.6	\$38,479 46	\$42,453 66
Deduct residuals.....	.....	.....	100.	11,278 01	11,278 01	.....	.....	100.	12,413 33	12,413 33	.....	.....	100.	14,968 99	14,968 99
Deduct non-operating revenues.....	7.1	82 34	92.9	1,077 39	1,159 73	10.2	195 27	89.8	1,719 19	1,914 46	9.4	293 88	90.6	2,832 48	3,126 26
Net above.....	.....	\$2,294 75	.....	\$18,943 72	\$21,238 47	.....	\$3,806 71	.....	\$20,917 22	\$24,723 93	.....	\$3,690 32	.....	\$20,677 99	\$24,368 31
Taxes.....	35.4	378 17	64.6	690 11	1,068 28	35.4	284 52	64.6	519 22	803 74	35.4	472 00	64.6	861 34	1,333 34
Depreciation.....	55.7	2,098 39	44.3	1,668 92	3,767 31	55.7	2,134 80	44.3	1,697 87	3,832 67	55.7	2,314 15	44.3	1,840 52	4,154 67
Interest.....	35.4	5,380 38	64.6	9,727 18	15,057 56	35.4	5,413 66	64.6	9,879 17	15,292 83	35.4	5,767 79	64.6	10,525 41	16,293 20
Bad debts.....	7.1	22 98	92.9	300 73	323 71	10.2	39 38	89.8	346 73	386 11	9.4	39 27	90.6	378 49	417 76
Total operating expenses.....	.....	\$10,124 67	.....	\$31,330 68	\$41,455 33	.....	\$11,679 07	.....	\$33,360 21	\$45,039 28	.....	\$12,283 53	.....	\$34,283 75	\$46,567 28

TABLE XIX.

Interest Based on Costs of Plant and Business Shown in Table VI.

Net above ¹.....	.....	\$2,294 75	.....	\$18,943 72	\$21,238 47	.....	\$3,806 71	.....	\$20,917 22	\$24,723 93	.....	\$3,690 32	.....	\$20,677 99	\$24,368 31
Taxes.....	35.4	378 17	64.6	690 11	1,068 28	35.4	284 52	64.6	519 22	803 74	35.4	472 00	64.6	861 34	1,333 34
Depreciation.....	55.7	2,098 39	44.3	1,668 92	3,767 31	55.7	2,134 80	44.3	1,697 87	3,832 67	55.7	2,314 15	44.3	1,840 52	4,154 67
Interest.....	35.4	5,707 65	64.6	10,415 66	16,123 31	35.4	5,871 72	64.6	10,715 06	16,586 78	35.4	6,314 74	64.6	11,523 50	17,838 24
Bad debts.....	7.1	22 98	92.9	300 73	323 71	10.2	39 38	89.8	346 73	386 11	9.4	39 27	90.6	378 49	417 76
Total operating revenues.....	.....	\$10,501 94	.....	\$32,019 14	\$42,521 08	.....	\$12,137 13	.....	\$34,196 10	\$46,333 23	.....	\$12,830 48	.....	\$35,281 84	\$48,112 32

¹As shown in table XVIII.

INTEREST, PROFITS AND DEPRECIATION.

The annual fund required to meet the element of depreciation has been determined, based upon the average physical value of the property during the year ending June 30, 1911. On the 4 per cent sinking fund basis, this fund amounts to \$4,155 per annum, which is 1.675 per cent of the depreciable and 1.461 per cent of the total property. On the 2 per cent sinking fund basis, the necessary fund is increased to \$5,787, which is 2.287 per cent of the depreciable and 2.015 per cent of the total property.

Interest and profits, when computed at 7 per cent of the cost of plant and business of table V, amount to \$16,293.20. For the purpose of this determination no allowance is made at this time for cash capital, as the value of materials and supplies included in the cost of reproduction new upon which the value of plant and business is based is not very far from what would ordinarily be required for working capital for a gas utility of this size.

When depreciation, amounting to \$4,155, is added to interest and profits of \$16,293, the total is equivalent to 49.1 cts. per 1000 cu. ft. sold and transferred. This amount is considerably more than the Commission has found to be reasonably necessary in several other cases which have been before it. This fact is in accord with those shown by the analyses of unit investments which appear earlier in this decision. It indicates quite conclusively that, insofar as the sales are concerned, the investment is very high and that the return for interest, profits and depreciation, when determined in the usual manner, is much in excess of the usual amount necessary with properly developed business.

APPORTIONMENT OF OPERATING EXPENSES.

The operating expenses for three years have been apportioned between consumer and output expenses in the manner usually followed by the Commission in similar instances. No changes, except in reclassification, have been made in the expenses reported by the utility, but allowance has been made for depreciation and for interest and profits.

Tables XVIII and XIX represent two bases of the costs of service. The difference lies only in the amount allowed for interest and profits, which is based in each instance upon the costs of plant and business determined in tables V and VI, respectively.

The following table shows the average annual meter-months for the several years under consideration:

GAS METER-MONTHS.

	1908-09	1909-10	1910-11
Meters in use first of year.....	2,227	2,417	2,649
Meters added during the year.....	190	232	297
Average number of meters in use during year	2,302	2,533	2,798
Average annual meter-months.....	27,624	30,396	33,576

The units of cost are found by dividing the consumer expenses by the number of annual meter-months and the output expenses by the number of 1000 cu. ft. sold and transferred. The unit consumer and output expenses are as shown in tables XX and XXI, for the expenses given in tables XVIII and XIX, respectively:

TABLE XX.
SHEBOYGAN GAS LIGHT COMPANY.
UNIT COSTS BASED ON TABLE XVIII.

Class of expense.	Unit.	1908-1909			1909-1910			1910-1911		
		No. of units.	Total cost.	Unit cost.	No. of units.	Total cost.	Unit cost.	No. of units.	Total cost.	Unit cost.
Consumer.....	Meter-months.....	27,624	\$10,124 67	\$0.366	30,396	\$11,679 07	\$0.384	33,576	\$12,283 53	\$0.366
Output.....	M cubic feet.....	32,511	31,330 66	.964	37,219	33,360 21	.896	40,797	34,283 75	.840
Total.....	M cubic feet.....	32,511	\$41,455 33	\$1.275	37,219	\$45,039 28	\$1.210	40,797	\$46,567 28	\$1.141

TABLE XXI.
UNIT COSTS BASED ON TABLE XIX.

Consumer.....	Meter-months.....	27,624	\$10,501 94	\$0 380	30,396	\$12,137 13	\$0.399	33,576	\$12,830 48	\$0.382
Output.....	M cubic feet.....	32,511	32,019 14	.985	37,219	34,196 10	.919	40,797	35,281 84	.865
Total.....	M cubic feet.....	32,511	\$42,521 08	\$1.308	37,219	\$46,333 23	\$1.245	40,797	\$48,112 32	\$1.179

The average cost per 1000 cu. ft. is also shown by the foregoing tables. In table XX this unit decreased from \$1,253 per 1000 cu. ft. in 1909 to \$1.126 per 1000 cu. ft. in 1911. In table XXI the corresponding decrease was from \$1.285 to \$1.162. When the consumer and output costs are combined, the variable cost of service is as shown in the tables below:

TABLE XXII.
VARIABLE UNIT COST OF THE CONSUMER, OUTPUT AND TOTAL EXPENSE.
Based on the Computations of Tables V, XVIII and XX.

M cu. ft. per month.	1908-1909				1909-1910				1910-1911.			
	Con- sumer cost.	Output cost \$0.964 per M.	Total cost.	Total cost per M cu. ft.	Con- sumer cost.	Output cost \$0.896 per M.	Total cost.	Total cost per M cu. ft.	Con- sumer cost.	Output cost \$0.840 per M.	Total cost.	Total cost per M cu. ft.
1	\$0.366	\$0.964	\$1.330	\$1.330	\$0.384	\$0.896	\$1.280	\$1.280	\$0.366	\$0.840	\$1.206	\$1.206
1.5	"	1.446	1.812	1.208	"	1.344	1.728	1.152	"	1.260	1.626	1.084
2	"	1.928	2.294	1.147	"	1.792	2.176	1.088	"	1.680	2.046	1.023
3	"	2.892	3.258	1.086	"	2.688	3.072	1.024	"	2.520	2.886	.962
4	"	3.856	4.222	1.056	"	3.584	3.968	.992	"	3.360	3.726	.932
5	"	4.820	5.186	1.037	"	4.480	4.864	.973	"	4.200	4.566	.913
10	"	9.640	10.006	1.001	"	8.960	9.344	.934	"	8.400	8.766	.877
20	"	19.280	19.646	.982	"	17.920	18.304	.915	"	16.800	17.166	.858
30	"	28.920	29.286	.976	"	26.880	27.264	.909	"	25.200	25.566	.852
40	"	38.560	38.926	.973	"	35.840	36.224	.906	"	33.600	33.966	.850
50	"	48.200	48.566	.971	"	44.800	45.184	.904	"	42.000	42.366	.847
100	"	96.400	96.766	.968	"	89.600	89.984	.900	"	84.000	84.366	.844
200	"	192.800	193.166	.966	"	179.200	179.584	.898	"	168.000	168.366	.842

TABLE XXIII.
VARIABLE UNIT COST OF THE CONSUMER, OUTPUT, AND TOTAL EXPENSE.
Based on the Computations of Tables VI, XIX and XXI.

M cu. ft. per month.	1908-1909				1909-1910				1910-1911			
	Con- sumer cost.	Output cost \$0.985 per M.	Total cost.	Total cost per M cu. ft.	Con- sumer cost.	Output cost \$0.919 per M.	Total cost.	Total cost per M cu. ft.	Con- sumer cost.	Output cost \$0.865 per M.	Total cost.	Total cost per M cu. ft.
1	\$0.380	\$0.985	\$1.365	\$1.365	\$0.399	\$0.919	\$1.318	\$1.318	\$0.382	\$0.865	\$1.247	\$1.247
1.5	"	1.478	1.858	1.239	"	1.378	1.777	1.185	"	1.297	1.679	1.119
2	"	1.870	2.350	1.175	"	1.838	2.237	1.119	"	1.730	2.112	1.056
3	"	2.855	3.335	1.112	"	2.757	3.156	1.052	"	2.595	2.977	.992
4	"	3.840	4.320	1.080	"	3.676	4.075	1.019	"	3.480	3.842	.960
5	"	4.925	5.305	1.061	"	4.595	4.994	.999	"	4.325	4.707	.941
10	"	9.850	10.230	1.023	"	9.190	9.589	.959	"	8.650	9.032	.903
20	"	19.700	20.080	1.004	"	18.380	18.779	.939	"	17.300	17.682	.884
30	"	29.550	29.930	.998	"	27.570	27.969	.932	"	25.950	26.332	.878
40	"	39.400	39.780	.994	"	36.760	37.159	.929	"	34.600	34.982	.875
50	"	49.250	49.630	.993	"	45.950	46.349	.927	"	43.250	43.632	.873
100	"	98.500	98.880	.989	"	91.900	92.299	.923	"	86.500	86.882	.869
200	"	197.000	197.380	.987	"	183.800	184.199	.921	"	173.000	173.382	.867

For the purpose of illustration and comparison, there are shown below unit costs and cost curves for several additional computations for the year ending June 30, 1911. In the first instance, interest is based upon outstanding bonds of \$241,500; in the second, upon \$250,000 which is approximately the present value of the physical property; and in the third, upon an allowance for interest and depreciation of 40 cts. per 1000 cu. ft. of gas sold.

TABLE XXIV.

UNIT COSTS.

YEAR ENDING JUNE 30, 1911.

Class of expense.	Unit.	Number of units.	Interest based on bonds of \$241,500.		Interest based on \$250,000 approximate present value.		Interest and depreciation at 40 cts. per 1,000 cu. ft. sold.	
			Total cost.	Unit cost.	Total cost.	Unit cost.	Total cost.	Unit cost.
Consumer.	Meter-months.....	33,576	\$12,487 72	\$0.372	\$12,710 74	\$0.379	\$10,533 27	\$0.314
Output....	M cu. ft.....	40,797	34,656 36	.849	35,063 34	.859	31,904 93	.781
Total..	M cu. ft.....	40,797	\$47,144 08	\$1.156	\$47,774 08	\$1.171	\$42,438 20	\$1.038

TABLE XXV.

COST PER UNIT OF THE CONSUMER, THE OUTPUT AND THE TOTAL EXPENSE.

YEAR ENDING JUNE 30, 1911.

M cu. ft.	Interest based on bonds of \$241,500.				Interest based on \$250,000 approximate present value.				Interest and depreciation at 40 cts. per 1,000 cu. ft. sold.			
	Consumer cost. \$0.819 per M.	Output cost per M.	Total cost.	Total cost per M cu. ft.	Consumer cost.	Output cost per M.	Total cost.	Total cost per M cu. ft.	Consumer cost.	Output cost per M.	Total cost.	Total cost per M cu. ft.
1	\$0.372	\$0.849	\$1.221	\$1.221	\$0.379	\$0.859	\$1.238	\$1.238	\$0.314	\$0.781	\$1.095	\$1.095
1.5	"	1.274	1.646	1.097	"	1.289	1.668	1.112	"	1.172	1.486	.991
2	"	1.698	2.070	1.035	"	1.718	2.097	1.049	"	1.562	1.876	.938
3	"	2.547	2.919	.973	"	2.577	2.956	.985	"	2.343	2.657	.886
4	"	3.396	3.768	.942	"	3.436	3.815	.954	"	3.124	3.438	.860
5	"	4.245	4.617	.923	"	4.295	4.674	.935	"	3.905	4.219	.844
10	"	8.490	8.862	.886	"	8.590	8.969	.897	"	7.810	8.124	.812
20	"	16.980	17.352	.868	"	17.180	17.559	.878	"	15.620	15.934	.797
30	"	25.470	25.842	.861	"	25.770	26.149	.872	"	23.430	23.744	.791
40	"	33.960	34.332	.858	"	34.360	34.739	.868	"	31.240	31.554	.789
50	"	42.450	42.822	.856	"	42.950	43.329	.866	"	39.050	31.364	.787
100	"	84.900	85.272	.853	"	85.900	86.279	.863	"	78.100	78.414	.784
200	"	169.800	170.172	.851	"	171.800	172.179	.861	"	156.200	156.514	.782

The analyses of costs and the variable unit costs derived therefrom indicate something regarding what the rates should be upon the several bases outlined above. It appears that the unit costs based upon interest computed on the bonds or on the approximate present value of the property do not differ much from those based upon the cost of plant and business of table VI. But these costs are somewhat more than those which are based upon the cost of plant and business of table V and of those derived when interest and depreciation are placed at 40 cts. per 1000 cu. ft. of gas sold. This latter fact indicates conclusively that the total costs of operation are very materially higher than would be the case were the investment per unit of sales not greater than the usual or normal amount.

The tables showing the variable cost of service indicate the considerable difference in cost of supplying consumers using different amounts of gas per month. The petitioner has pointed out that many of the respondent's consumers use very small quantities of gas monthly and this is borne out by the analysis that has been made of the distribution of gas among the various quantities used.

Per Cent of Total Annual Sales in Each Group.

First ½ M.....	34.10	5th M	2.77
½ M to 1 M.....	22.08	6th to 10th M	5.81
2nd M	20.20	All over 10th M.....	2.18
3d M	8.30		
4th M	4.56	Total	100.00

From the distribution of the sales it is seen that the first 0.5 M cu. ft. of gas sold is represented by 34.10 per cent of the total. It is also seen that the rate which applies to the first M cu. ft. will affect 56.18 per cent of the gas sales. This percentage for the first M cu. ft. is much larger than is ordinarily found and is to some extent the result of unusual conditions that the utility must meet. The unavoidable effect of these circumstances is to place the highest cost on an unusually large proportion of the sales.

Estimate of the gas revenues that the respondent would have received during the year ending June 30, 1911, are shown below for rates placed at several different amounts:

TABLE XXVI.

ESTIMATE OF REVENUE FROM GAS SALES UNDER VARIOUS SCHEDULES.

Groups	M cu. ft.	Per cent of total gas sold.	Rate per M.	Esti- mated revenue derived.	Rate per M.	Esti- mated revenue derived.	Rate per M.	Esti- mated revenue derived.
First M. cu. ft. per month.	22,920	56.18	\$1.10	\$25,212.00	\$1.20	\$27,504.00	\$1.25	\$28,650.00
Next 4 M cu. ft per month.	14,617	35.83	1.00	14,617.00	1.00	14,617.00	1.00	14,617.00
All over 5 M cu.ft. per mo.	3,260	7.99	.80	2,608.00	.85	2,771.00	.85	2,771.00
Total.....	40,797	100.00	.....	\$42,437.00	.....	\$44,892.00	.....	\$46,038.00

These estimates may be compared with the following summary of expenses for the several bases that have already been worked out:

TOTAL EXPENSES INCLUDING INTEREST AND DEPRECIATION

for the year ending June 30, 1911.

BASIS	AMOUNT
I. Cost of plant and business from table V and operating expenses from table XVIII.....	\$46,567.28
II. Cost of plant and business from table VI and operating expenses from table XIX.....	48,112.32
III. Interest based on value equal to bonds of \$241,500..	47,144.08
IV. Interest based on \$250,000 approx. present value of property	47,774.08
V. Interest and depreciation placed at 40 cts. per M cu. ft. sold, which is somewhat higher than the usual amount, and lower than actual amount for Sheboygan	42,438.20

MINIMUM BILL.

The present rate schedule of the respondent does not provide for a minimum monthly charge, but the amount paid is determined only by the quantity of gas used. As a result of this situation the company is required to carry on its books and bill from month to month, accounts so small that they do not pay the fixed charges, to say nothing of the cost of gas actually supplied. The petitioner admits that a minimum charge should be established and believes that it should be placed at 25 cts. net per month.

Examination of those costs that have a special bearing on the minimum bill leads us to believe that the circumstances are such that the charges for this purpose may be placed at about the amounts that the Commission has found to be equitable in other cases.

With such charges in effect, it is estimated from the facts available that the annual revenue derived from the minimum charge would be about \$1,200 and would effect an addition to the estimate of revenue from gas sales of from \$600 to \$700.

SUMMARY AND CONCLUSIONS.

As a result of a valuation of the respondent's physical property by the Commission's engineers, it has been determined that the cost of reproducing the plant is \$301,386, including a small amount for non-operating property, and that the present value is \$250,383. Examination of the obligations that the company acquired and of its earnings and expenses since the organization in 1901 discloses that the owners have not invested in the business more than is represented by the present value of the physical property. Further examination of the investment shows that, although it is not more than might be expected for a city of the size of Sheboygan, it is much higher than normally prevails when measured by the amount of business transacted. That this is due to the relatively poor development of the business is proven by the development statistics.

To what extent the cause of this under-development may be traced to the present rate schedule, the management of the utility or character of the business which it supplies, we are not prepared to say at this time. Unquestionably, conditions over which the utility has little control materially affect the quantities in which gas is used and are something for which the utility is no more responsible than the users. But while, on the one hand, these conditions affect the costs to the consumer, they seem, on the other, to affect the value of the investment and what it may equitably earn under the circumstances.

In view of these facts, it appears to us that somewhat of a reduction may be made in the rates charged by the respondent, although a minimum monthly charge should be established to return to the utility at least a reasonable portion of the costs it must bear even when the consumer uses no gas.

ORDER

IT IS THEREFORE ORDERED, That the respondent, the Sheboygan Gas Light Company, abandon its present schedule of rates

E. P. BACON & COMPANY

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

Decided July 17, 1912.

Petitioner complains of the charges exacted on a mixed carload shipment of rye and barley from Stetsonville to Milwaukee, Wis., made for the purpose of clearing out petitioner's warehouse and weighing 25,960 lbs. Charges were assessed on a basis of 44,000 lbs. minimum weight. Petitioner alleges that other railways in the state have in effect a rule providing that, at the close of the shipping season each year, the carload rate and actual weight, subject to minimum of 20,000 lbs., may be applied on one straight carload or one mixed carload of grain, or grain and seeds, for the purpose of cleaning out houses and elevators. Petitioner asked that settlement be made on the basis of 24,000 lbs. minimum weight and that this rule be fixed for future shipments under the same conditions.

Held: The rule in question has been enforced for many years on other railways in Wisconsin and has applied jointly by way of the respondent line and the line of the C. M. & St. P. Ry. Co. Under date of May 28, 1912, respondent made application for the approval of this rule to be put in force locally over its line. The application was approved June 1, and was duly ordered to take effect August 1, 1912. There is therefore no call for the establishment of the rule by order of the Commission. Refund is ordered on the basis of the rule in question.

The petitioner complains of the charges on a mixed carload of rye and barley from Stetsonville to Milwaukee, which moved Jan. 30, 1912, in "Soo" car No. 11964 and weighed 25,960 lbs. The charges exacted of the petitioner were as follows:

Bulk rye—44,000 lbs., 10 cts. per cwt.....	\$44.00
18 bags barley—2,020 lbs., 23 cts. per cwt.....	4.65
Total charges	\$48.65

The petitioner further alleges that other railway companies doing business in this state have in effect the following rule:

"At the close of the shipping season each year the carload rate and actual weight subject to minimum of 24,000 lbs. may be applied on one straight carload or one mixed carload of grain, or grain and seeds, for the purpose of cleaning out houses and elevators."

That the mixed shipment referred to was made for the purpose of cleaning out the warehouse of the shipper; and that the defendant railway company should be required to put into effect said rule.

The respondent railway company, answering the petition, admits that the carload consisted of the barley and rye weights specified in the complaint, and that the freight charges amounting to \$48.65 were collected therefor, but alleges that authority has been given the defendant's agent at Milwaukee to refund \$4.65, which makes the total freight charge \$44.00, being based on 10 cts. per cwt. on a 44,000 lbs. minimum loading requirement.

The respondent also alleges that its tariff provides for a 10 ct. rate on mixed cars; that the shipper could have ordered a small car, the minimum of which would have been protection, though a larger car had been actually furnished for respondent's convenience; but that respondent is willing to adopt such a ruling as requested if the Commission so orders.

The claim was submitted upon the pleadings, papers, documents, and vouchers on file.

The charges in question were based on a misunderstanding of the tariff applicable to the shipment. A letter addressed to the petitioner by the freight claims agent of the respondent carrier offers settlement on the basis of correct tariff rates, which is 34,000 lbs. for the entire shipment at 10 cts. per cwt., making a charge of \$34.00. The minimum weight of 34,000 lbs. is based on the fact that a small car was ordered but a large car furnished at carrier's convenience. The tariff provisions covering the settlement offered are clear and there is no question that such settlement may be made, and in fact should be made. However, the petitioner asked that the Commission order settlement on the basis of 24,000 lbs. minimum weight and fix this as a rule for future shipments under the same conditions. The rule set forth in the petition is in effect upon other lines in this state. Examination of tariffs on file shows that such rule is in effect on the lines of the Chicago & North Western Ry. Co., Chicago, Milwaukee & St. Paul Ry. Co., and the Great Northern Ry. Co. It is also in effect on the Chicago, St. Paul, Minneapolis & Omaha Ry. Co. during the period from June 1 to July 31, only, of each year. The rule as in effect on the line of the Chicago, Milwaukee & St. Paul Ry. Co.

applies also on joint traffic between that line and practically all Wisconsin lines, including the line of the respondent railway company. The only exception to the joint application with the Chicago, Milwaukee & St. Paul Ry. Co. seems to be with that line and the line of Chicago & North Western Ry. Co. The rule has been enforced for many years and has applied jointly by way of the respondent line and the line of the Chicago, Milwaukee & St. Paul Ry. Co. Under these conditions there is no reason that such rule should not apply locally also on the respondent lines, if there is any demand therefor. It is probable that there is little demand for it on the respondent's line or such rule would doubtless have been made effective some time ago.

Nevertheless, under date of May 28, 1912, the respondent made application for the approval of such rule to be put in force locally over its line, which application was approved June 1, 1912, and the same was duly ordered to take effect Aug. 1, 1912. There is therefore no call for the establishment of the rule by order of the Commission.

According to the conditions outlined, there appears to be no reason why the charges complained of should not be declared unreasonable to the extent of the difference between these charges and the charges that would have been applied had the rule mentioned been in effect locally on the respondent's line. The difference in the charge is as follows:

Charges paid	\$48.65
Charges based on minimum weight of 24,000 lbs., actual weight 25,960 lbs.—at 10cts. per cwt.....	25.96
Overcharge	\$22.69

We therefore find and determine that the charges exacted of the petitioner by the respondent upon the aforesaid shipment of a mixed carload of rye and barley from Stetsonville to Milwaukee is unusual and exorbitant, and that the reasonable charge for such shipment would have been, as indicated, the sum of \$25.96.

NOW, THEREFORE, IT IS ORDERED, That the respondent railway company be and the same is hereby authorized and directed to refund to the petitioner the sum of \$22.69.

TOWN BOARD OF THE TOWN OF BEAVER DAM IN DODGE COUNTY

vs.

MILWAUKEE, SPARTA AND NORTH WESTERN RAILWAY COMPANY.

Submitted Jan. 27, 1912. Decided July 18, 1912.

The town board of Beaver Dam alleges that the M. S. & N. W. Ry. Co. maintains a dangerous crossing at the intersection of the east and west center lines of sections 20 and 21 in town 11 north, range 14 east, town of Beaver Dam, Dodge county, Wis. There are two highways at this point, one extending north and south, the other east and west, which intersect and are crossed at their intersection by the railroad running in a northwesterly direction.

Held: The crossing in question is dangerous. The respondent is ordered to construct and maintain an overhead bridge and the approaches, or those portions of the highways of which the bridge forms a part, within respondent's right of way, according to the plan approved by the Commission. Four months is deemed a reasonable time within which to comply with this order.

The town board of Beaver Dam in its petition alleges that the respondent maintains a dangerous crossing at the intersection of the east and west center lines of sections 20 and 21 in town 11 north, range 14 east, town of Beaver Dam, Dodge county, Wis. According to the petition there are two highways at this point, one extending north and south, the other east and west, which intersect and are crossed at their intersection by respondent's line of railroad running in a northwesterly direction. These highways are extensively traveled by the public in general and especially by school children during their attendance at a public school situated some six hundred feet east of the crossing. In the opinion of the petitioner the danger from this crossing arises because the point of intersection is at the bottom of a rather steep grade ascending to the east upon the one highway and to the south upon the other, and because the railroad runs through a deep cut east of the crossing. Owing to these conditions, the petitioner states that persons traveling west and north on these highways are entirely cut off from the

view of west-bound trains. Petitioner believes it is practicable to construct a bridge whereby the highway will be carried over respondent's tracks, and states that the respondent is willing to construct this overhead crossing, to acquire the land necessary therefor, and to build the approaches with a grade not to exceed 6 per cent. Petitioner considers the plan submitted to the Commission by the respondent as the most practical one for the elimination of the dangers enumerated.

The respondent, answering the petition, represents that it will abide by and perform any lawful order which the Commission may make in the matter.

The hearing was held Jan. 27, 1912, at the city hall of Beaver Dam, Wis. *Burke & Lueck*, by *Mr. Lueck*, appeared for the petitioner and *C. A. Vilas* for the respondent.

Petitioner's witnesses emphasized the facts set forth in the petition and are agreed, with one exception, that the location of the bridge as shown on the blue print accompanying the petition was the most desirable. Witness Joseph Schoenberger, who opposed the proposed location, desired the new highway placed west of a well on his property, as the highway as planned would deprive him of its use and also take more of his land than the location suggested by him.

Respondent's engineer stated that according to the plans submitted the bridge would be located at the highest point of the cut, but if located as suggested by Mr. Schoenberger the proposed clearance of twenty-two feet and six inches from the rails to the bottom of the floor could not be obtained without increasing the grade of the approaches, and if the highway were shifted farther to the west it would also leave a turn at the north end of the bridge and another turn at the north end of the highway.

Statement was made by counsel for respondent that in case the change was ordered by the Commission and the necessary legal steps were perfected by the town board, the respondent would bear the entire initial cost of the change in the highway and the construction of the bridge and would thereafter maintain the latter at its own cost.

The engineering staff of the Commission has examined the plans submitted by respondent and recommended their adoption.

IT IS THEREFORE ORDERED, That the respondent, the Milwaukee, Sparta & North Western Railway Company, discontinue the present grade crossing at the intersection of the east and west center lines of sections 20 and 21 in town 11 north, range 14 east, town of Beaver Dam, Dodge county, Wis., and in place thereof construct and maintain a bridge and the approaches, or those portions of the highways of which the bridge forms a part, within respondent's right of way; all in accordance with the blue print attached to the petition.

Four months is deemed a reasonable time within which to comply with this order.

IN RE APPLICATION OF THE BRUCE WATER AND LIGHT COMMISSION FOR AUTHORITY TO INCREASE ITS RATES, TOLLS AND CHARGES.

Decided July 23, 1912.

Application was made by the Bruce Water and Light Commission for authority to increase electric rates for power service at Bruce, Wis. Applicant wishes to increase the rate for a moving picture arc which has been classified as power and given a low rate. This arc is on the same circuit as the ordinary lighting load and is used at the time of the peak load of the plant. Valuation of the plant, as of April 8, 1912, shows a cost new of \$8,706 and a present value of \$7,725.

Held: The question at issue is one of classification of consumers rather than of power rates. Under the circumstances the moving picture arc should take the lighting rate. The cost of service for such an arc is about the same as for general illumination, especially where the electric plant is operated only at night, as in the present case, and where the use of the arc is entirely limited to the hours of commercial lighting. It is ordered that the applicant may classify moving picture arcs to which it furnishes current as lighting consumers, and charge for such current at lighting rates.

In the present case consumers whose meters are owned by the utility are required to pay a monthly minimum charge, while those who own their meters are exempted from the payment of any minimum. This feature of the schedule is in violation of the Public Utilities Law. It is the duty of the utility to furnish meters, and no distinction, as far as rates or minimum charges are concerned, can be made between consumers who own their meters and those whose meters are owned by the utility. Steps should be taken to remove this illegal feature of the schedule at once.

Application in this matter was filed with the Commission on Feb. 3, 1912. The application shows that the lawful rates of the applicant for electric current in effect at the time of filing were as follows:

Lighting—12 cts. per kw. hr.

Power—9 cts. per kw. hr.

Authority is asked to increase the power rate to 12 cts. per kw. hr.

Hearing was set for May 25, 1912, but no appearances were made.

An inspection and valuation of the plant was made by the Commission, as of April 8, 1912. The cost new of the property is \$8,708, with a present value of \$7,725.

There are two consumers who come under the classification of power users, one using a small elevator motor in a potato warehouse, the return from which is about \$1 per year, and the other using a moving picture arc consuming between 60 to 80 kw. hrs. per month. According to the rates as filed in this office the power rate is 10 cts. per kw. hr. instead of 9 cts. as stated in the application, and the 9 ct. rate applies only to the moving picture arc. This arc is on the same circuit as the ordinary lighting load and is used at the time of the peak load on the plant.

The report of the electric department for the year ending June 30, 1911, shows that total revenues were \$2,878.64, and expenses were \$2,097.47, leaving a net income of \$781.17. No very accurate separation has been kept of water and light revenues and expenses, but it seems clear that, so far as the financial condition of the department is concerned, the increase asked for will not be unreasonable.

The report for 1911 shows a total of 10 power consumers, but later reports show that this figure is in error and that there is really only one very small power consumer aside from the moving picture arc.

Under these circumstances this case seems to resolve itself into one of classification of consumers rather than of power rates. As stated, the moving picture arc is on the same circuit as the commercial lighting load, and its demand is coincident with the station peak load. The production of light and not of mechanical energy is unquestionably the purpose of a moving picture arc.

The elements of cost of serving such an arc are about the same as those which form the basis of rates for general illumination. This is especially true where the electric plant is operated only at night, as in the present case, and where the very nature of the service rendered is such that the use of the arc is entirely limited to the hours of commercial lighting.

It may appear that what is true of the moving picture arc is also true of general power service, and perhaps under conditions as they exist at present this is the case. The use of current for power is so very small, however, that present conditions

cannot be accepted as indicative of conditions which would exist if the power business were to reach a point of some importance.

Under the circumstances existing in this case it seems clear that it will be reasonable to permit the applicant to classify the moving picture arc as a part of the lighting load and charge a 12 ct. rate for current used.

There is one feature of the power rates of the applicant which is in violation of the Public Utilities Law. This is the provision that consumers whose meters are owned by the utility must pay a monthly minimum of \$1, while those who own their meters are exempted from the payment of any minimum. It is the duty of the utility to furnish meters, and no distinction, as far as rates or minimum charges are concerned, can be made between consumers who own their meters and those whose meters are owned by the utility. This feature of the rate schedule must be remedied and steps should be taken to remove the illegal features of the schedule at once. The only formal order which need be issued at this time relates to the classification of the moving picture arc.

IT IS THEREFORE ORDERED, That the applicant, the Bruce Water and Light Commission, may classify moving picture arcs to which it furnishes current as lighting consumers and charge for such current at lighting rates as filed with the Commission.

M. B. CHRISTENSON ET AL.

vs.

CHICAGO, ST. PAUL, MINNEAPOLIS AND OMAHA RAILWAY COMPANY.

Submitted March 18, 1912. Decided July 24, 1912.

Complaint was made that the C. St. P. M. & O. Ry. Co. does not provide any depot service either for the accommodation of passengers or for the storing and protection of freight at South Range, Wis. At the hearing the respondent conceded the necessity for better station facilities and subsequently submitted plans for approval.

Held: Station facilities are necessary. Respondent is required to construct a station building according to the plans approved by the Commission and to provide a station agent. Sixty days is deemed a reasonable time within which to comply with the terms of this order.

The petitioners reside at South Range, Wis., and complain that the respondent railway company does not provide any depot service either for the accommodation of passengers or for the storing and protection of freight handled at its station at South Range. Wherefore, the petitioners pray that the railway company be required to furnish proper station facilities.

The matter came on for hearing on March 18, 1912. *M. B. Christenson* appeared in his own behalf and in behalf of his co-complainants. *C. W. Peterson* appeared for the respondent.

Upon the hearing it was conceded by the railway company that better station facilities are required at South Range, and in order to avoid taking of testimony, consented to the construction of a station and providing a station agent at such a point.

Since the hearing plans for a new station have been submitted by the respondent and approved by the Commission.

NOW, THEREFORE, IT IS ORDERED, That the Chicago, St. Paul, Minneapolis & Omaha Railway Company be and the same is hereby required to construct a station building at South Range, Wis., according to the plans submitted to and approved by the Commission.

IT IS FURTHER ORDERED, That said railway company be and the same is hereby required to provide a station agent at South Range upon the completion of said station.

Sixty days is deemed a reasonable time within which to comply with the terms of this order.

IN RE APPLICATION OF THE VILLAGE OF WHITEHALL FOR
AUTHORITY TO INCREASE ITS ELECTRIC RATES.

Decided July 24, 1912.

Application was made by the village of Whitehall, Wis., for authority to increase rates for electric current. Applicant's electrical property consists of electrical equipment and a distribution system. Hydraulic power to generate current is purchased of the Whitehall Mill and Power Co. Revenues and expenses were examined and operating expenses were apportioned over capacity and output expenses. Capacity expenses were further apportioned to the different classes of service on the basis of the contribution each makes to the station peak, and the output expenses on the basis of the amount of current used by each class. Based upon data submitted by the utility and comparison with other plants, total expenses were apportioned among metered consumers, flat rate consumers, and street lighting.

Held: An advance in rates is reasonable and applicant is ordered to amend its present schedule and to put in effect the rates prescribed by the Commission.

The application in the above entitled matter was filed April 10, 1912. Hearing was set for April 25, 1912, at the office of the Commission, at which time and place no appearances were made for or against the application.

The applicant, the village of Whitehall, owns and operates a municipal electric plant with which it lights the streets of Whitehall and supplies electric current to the inhabitants. The rates on file with the Commission and now effective are as follows:

Meter Rate.—Minimum monthly charge 75 cts. Rate per kw. hr. varies from 3 to 8 cts. per kw. hr., depending on monthly expense of operation.

Flat Rate.—Consumers having less than four lights are charged 30 cts. per 16 c. p. lamp or equivalent per month.

Street Lighting. 128 16 c. p. lamps at 25 cts. per lamp per month.

It is set forth in the application that these rates are insufficient to meet operating expenses including depreciation, and it is prayed that authority be granted to fix the rate at 6 cts. per kw. hr. and flat rate at 40 cts. per 16 c. p. lamp.

The book value of the electrical property for the year ending June 30, 1911, was \$4,451.21. This includes only the electrical equipment and distribution system; as the Whitehall Mill and Power Co., from which the village purchases hydraulic power to generate current, owns the building and the water wheels. For the hydraulic power purchased the village pays a fixed sum of \$1,200 per year. Only one man is employed to operate the plant, and he is paid \$660 per year. It would seem that on this basis the total operating expenses including interest, depreciation, and taxes would amount to about \$2,619. The total revenue from all sources for the year ending June 30, 1912, was \$2,246.88.

The following table has been made up from consumer records submitted by the utility, covering the year ending June 30, 1912:

	No. of consumers	Connected load kw.	Kw. hrs. consumed	Lamp-months	Revenue
Metered residences.....	59	51.002	12,624	.....	\$672 46
business.....	44	37.287	11,873	.....	658 22
Total metered.....	103	88.289	24,497	.....	\$1,330 68
Flat rate residences.....	80	8.520	.....	1,456	\$436 80
business.....	11	1.680	.....	318	95 40
Total flat rate.....	91	10.200	11,169	1,774	\$532 20
Street lighting.....	.....	7.680	10,752*	1,536	\$384 00
Total.....	194	106.169	46,418	.....	\$2,246 00

* Estimated.

It will be noted that while only 53 per cent of the consumers are metered, the connected load of the metered consumers is 90 per cent of the total commercial connected load and the metered consumers furnish 71 per cent of the commercial revenue.

The situation at this plant is rather unique, in that all of the expenses are fixed,—i. e., none of them, except possibly a part of depreciation and maintenance, vary directly with the output. The expenses, however, have been separated over capacity and output in the ordinary manner, because even though some of them are a fixed definite yearly amount, they still partake of the nature of the expenses which in most plants vary directly with the output.

After separating expenses over capacity and output in the ordinary manner, the capacity expenses have been apportioned to the different classes of service on the basis of the contribution each makes to the station peak, and the output expenses on the basis of the amount of current used by each class. From data submitted by the utility and from comparative data for other plants in this state of about the same size, it seems that the total expenses should be assessed to each class of service as follows: metered consumers \$1,569, flat rate consumers \$505, and street lighting \$545.

From data submitted by the company we find that the metered consumers used 24,497 kw. hrs. during the fiscal year ending June 30, 1912, which means an average cost of 6.4 cts. per kw. hr. During that same period the flat rate consumers burned 1,774 lamp-months, which results in a cost of 28.4 cts. per lamp per month. The costs assessed to street lighting, when divided by the number of street lamp-months, 1,536, shows a cost of 35.5 cts. per lamp per month. The difference in cost of street lighting and regular flat rate lighting is due to the fact that the former ordinarily is used a much longer time each day than the latter.

From the foregoing it would seem that a rate of 6 cts. per kw. hr. for the metered consumers, 30 cts. per lamp per month for the flat rate consumers, and 40 cts. per lamp per month for street lighting would be just and reasonable. Estimating the future revenue on this basis, we find that it will amount to about \$2,616, which is approximately the same as the estimated expenses.

IT IS THEREFORE ORDERED, That the applicant, the village of Whitehall, amend its present schedule of electric rates and place in effect the following:

Meter rates. Minimum monthly charge 75 cts. Current 6 cts. per kw. hr.

Flat rates. Consumers having less than 4 lights, 30 cts. per 16 c. p. lamp or equivalent per month.

Street lighting. 40 cts. per 16 c. p. lamp or equivalent per month.

AHNAPEE VENEER AND SEATING COMPANY

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

Decided July 25, 1912.

Petitioner alleges excessive charges on fifty-three carload shipments of logs from Edgewater to Birchwood, Wis. The rate contended for had previously been in force but through an error in the publication of the tariff a higher rate was in legal effect at the time the shipments moved. Subsequently the former rate of 1.2 cts. per cwt. was reestablished.

Held: The rate exacted was unusual and the reasonable charge that should have been effective and applicable to the shipments in question is the rate of 1.2 cts. per cwt. Refund is ordered.

The petitioner is engaged in the manufacture of veneers at Birchwood, Wis. It alleges that during the month of January, and prior to the 26th day thereof, it shipped some fifty-three carloads of logs from Edgewater, Wis., to Birchwood, Wis., a distance of eight miles, over the respondent's line and was charged therefor at the rate of 1.5 cts. per cwt., according to its published tariff. It further alleges that the charges thus exacted are excessive and unreasonable in the amount that they exceed charges based on a rate of 1.2 cts. per cwt., which rate was in effect prior to the issuance of the tariff naming the rate of 1.5 cts. per cwt., and which was reestablished and became effective Jan. 26, 1912. The total amount of overcharge on said fifty-three cars is \$79.50. Wherefore, petitioner prays that the company be authorized and directed to refund to it said overcharge. The railway company consents to an order authorizing the refund.

In view of the fact that the shipments in question moved during the interval that a higher rate was effective, which rate seems to have been published through error or oversight, we deem that reparation should be awarded.

We find and determine that the charge of 1.5 cts. per cwt., charged the petitioner on the aforesaid shipment of logs from Edgewater to Birchwood, is unusual, and that the reasonable

charge that should have been effective and applicable to such shipment is 1.2 cts. per cwt.

Now, THEREFORE, IT IS ORDERED, That the Minneapolis, St. Paul & Sault Ste. Marie Railway Company be and the same is hereby authorized and directed to refund to the petitioner the sum of \$79.50.

RIPON VENEER AND BOX WORKS

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted May 14, 1912. Decided July 26, 1912.

Complaint was made that since November, 1909, the C. & N. W. Ry. Co. has charged lumber rates on shipments of logs from various points on its line to Ripon, Wis. Petitioner alleges that the product of such logs, insofar as practicable, has been shipped out over respondent's line and that lumber rates on such shipments are excessive. Investigation shows that the product of these logs, berry boxes and crates, amounts to about one carload for each three cars of logs shipped in, and that only about one-half the total product is shipped out via the respondent's line. Refund is asked on six shipments from Oshkosh, Glenbeulah, and Stratford to Ripon, Wis.

Held: The facts presented do not indicate that the shipments complained of were entitled to the rates on logs for manufacture and reshipment. The lumber rates were therefore properly applicable according to published tariffs. Lumber rates applied to similar shipments of logs were quite fully investigated in *Gablowsky et al. v. C. & N. W. R. Co. et al.* 1912, 8 W. R. C. R. 544, in which instance logs were shipped in to be manufactured into cheese boxes and a small part of the products were shipped out over respondent railway. The Commission held that petitioner was not entitled to a rate conditioned on the shipment of the product out, but that a reasonable rate based on the value of the logs, the loading per car, etc. would be the rates on pulp wood as established in *In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168. The circumstances in the present case are parallel, and there is no reason why a like order should not be made. It is recommended that the pulp wood distance rates be generally established on logs not subject to reshipment of product conditions. Such rates for the distances involved in the present case are the reasonable rates that should have been in effect and applicable to the shipments in question and refund is ordered on this basis.

The petitioner alleges that since November, 1909, the respondent railway company has charged the rates applying to lumber or shipments of logs from various points on its line to Ripon, Wis.; that the product of such logs, insofar as practicable, has been shipped out from Ripon over respondent's line; and that the lumber rates on such shipments are unusual, exorbitant and excessive. Wherefore, the petitioner prays that the respondent railway company be authorized to refund to it

such charges as are found to be excessive on the shipments mentioned.

The respondent railway company, answering the petition, alleges that the rate charged upon the logs was the duly and regularly published rate, and that if the logs moved into Ripon for manufacture and reshipment and were manufactured and reshipped in accordance with its tariff G. F. D. 10891-A, the petitioner would be entitled to reparation.

The matter came on for hearing on May 14, 1912. The petitioner was represented by *C. J. Timm*, its president, and the respondent by *C. C. Wright*, its general solicitor.

The complaint in this case is against the rates applying on logs from various points in Wisconsin to Ripon, Wis., and petition was made for refund of such part of the charges as may be found excessive on six shipments of logs from and to these points. The paid freight bills for the shipments on which refund is asked accompanied the petition and are made a part thereof. The rates or charges complained of, the distances between shipping points and destination, and other information relative thereto are shown in the table following:

SHIPMENTS OF LOGS TO RIPON ON WHICH REFUND IS ASKED.

Date of shipment	Shipping point	Miles	Weight	Rate	Charges paid
May 27, 1911.....	Oshkosh.....	39	50,400	4	\$20 16
Feb. 12, 1912.....	Glenbeulah.....	46	46,500	7.5	34 88
Feb. 17, 1912.....	".....	46	46,900	7.5	35 18
Jan. 28, 1912.....	Stratford.....	114	52,600	9	42 34
Feb. 16, 1912.....	".....	114	46,900	9	42 21
Mar. 12, 1912.....	".....	114	54,600	9	49 14
Total charges paid.....	.....	.....	.....	.....	\$222 91

The complaint against the rates does not enumerate the points from which such rates apply, but it was the evident intention to make complaint against the rates from and to the points listed in the above table, that is, from Oshkosh, Glenbeulah, and Stratford to Ripon.

The evidence on the part of the petitioner shows that for fifteen to seventeen years previous to 1911 shipments of logs to the petitioner at Ripon from Stratford and other points on respondent's lines were charged at from $2\frac{3}{4}$ to $3\frac{1}{4}$ cts. per cwt., depending on distance. Last year (1911) the rate from Stratford was changed to 9 cts. and from Glenbeulah to 6 cts.

or more, the rates applying on lumber. The product of these logs, berry boxes and crates amount to about one carload for each three cars of logs shipped in. About one-quarter of this product is sold locally and not shipped out by petitioner, about one-quarter is shipped out via the Chicago, Milwaukee & St. Paul Railway and the balance, about one-half the total product, via the respondent's line. The number of cars of logs received via respondent's line varies from two or three to six or eight a year. Some logs are also bought locally around Ripon and not shipped in by rail, and an occasional car is received via the Chicago, Milwaukee & St. Paul Railway. In addition to the logs some lumber is also shipped in, a part of which is manufactured into parts of the berry boxes or crates. Witness for the petitioner was unable to state definitely as to the amount of shipments out, but said that practically all of it went to points in Wisconsin and that all shipments to points reached by respondent's lines were shipped out of Ripon via such lines. He said that he considered the rates complained of an outrage and unreasonable, and that petitioner could not manufacture at all under such rates.

The assistant general freight agent for the respondent explained that the only rates on logs in effect on respondent's lines, when the product of such logs was not shipped out from the manufacturing point via the Chicago & North Western Railway, were the rates applying on lumber, and stated that he did not consider the rates established on logs for manufacture,—product to be shipped via Chicago & North Western Railway,—remunerative except in combination with the rates on the manufactured product, that the application of these rates on logs for manufacture and reshipment to petitioner's shipments in the past was due to the laxity of agents, and that such application was stopped because it was found that the respondent was not getting the product out.

Letters addressed to each party to the complaint by the Commission, asking for full information about petitioner's shipments in and out of Ripon via Chicago & North Western Railway, have received no response. It is therefore necessary to decide the case on the facts set forth above.

The facts presented in this case do not indicate that the shipments complained of were entitled to the rates applicable to logs for manufacture and reshipment. The rates charged,

lumber rates, were therefore properly applicable according to published tariffs. This, however, does not prove that these rates are reasonable. The rates on lumber from and to the points named may be excessive and higher than lumber rates in general, and the application of lumber rates to logs, when the product thereof is not shipped out via the Chicago & North Western Railway, may not be a proper basis.

The matter of rates on lumber, as applicable to logs, was quite fully investigated in *Gablowsky v. C. & N. W. R. Co. et al.* and *Hagen v. C. & N. W. R. Co. et al.*, decided by the Commission Jan. 31, 1912 (8 W. R. C. R. 544). Inasmuch as the matters involved in these cases were exactly the same as those at present under consideration, it does not appear to be necessary to enter into any discussion of them here. In the former case the Commission found that the rates applying on pulp wood, as established by the Commission *In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168, were reasonable rates to apply on logs, the product of which is not shipped out via the Chicago & North Western Railway. The present case, insofar as the Chicago & North Western Railway only is concerned, does not present any feature that was not covered in the case referred to above. There is, therefore, no reason why a like order should not be made in this case. In *Paul Gablowsky and Charles Hagen v. C. & N. W. R. and G. B. & W. R.*, the rates established for the distances involved in the present case, 39, 46, and 114 miles, were 2.48, 2.72, and 3.95 cts. per cwt., respectively. These rates are now declared to be reasonable maximum rates to apply on shipments of logs, in carloads, not subject to the condition that the product of such logs must be shipped via the Chicago & North Western Railway, from Oshkosh, Glenbeulah, and Stratford to Ripon, and it is further declared that these rates were reasonable maximum rates to have applied to the shipments listed above on which refund is asked. The application of these rates to the shipments referred to would result in charges as follows:

Date of shipment.	Shipping point.	Miles.	Weight.	Rate.	Charges.
May 27, 1911.....	Oshkosh.....	39	50,400	2.48	\$12 50
Feb. 12, 1912.....	Glenbeulah.....	46	46,500	2.72	12 65
Feb. 17, 1912.....	".....	46	46,900	2.72	12 76
Jan. 28, 1912.....	Stratford.....	114	52,600	3.95	20 78
Feb. 16, 1912.....	".....	114	46,900	3.95	18 53
Mar. 12, 1912.....	".....	114	54,600	3.95	21 57
Total.....	.....	.....	.....	.....	\$98 79

Total charges paid on these shipments, as shown by the paid freight bills, was \$223.91. The excessive charges, therefore, amount to \$125.12.

It is recommended that the pulp wood distance rates be made generally applicable to logs not subject to reshipment of product conditions.

For the reason stated, we find and determine that the charges exacted of the petitioner for the aforesaid shipments of logs are unusual, exorbitant and excessive, and that the reasonable rates that should have been in effect and applicable to such shipments are those hereinbefore indicated.

Now, THEREFORE, IT IS ORDERED, That the Chicago & North Western Railway Company be and the same is hereby authorized and directed to refund to the Ripon Veneer & Box Works the sum of \$125.12, the amount of the excessive charges on the aforesaid shipments.

IN RE APPLICATION OF THE ASHLAND HOME TELEPHONE COMPANY FOR AUTHORITY TO INCREASE RATES.

Submitted June 3, 1912. Decided July 27, 1912.

Application is made by the Ashland Home Tel. Co. for authority to increase its telephone rates in Ashland, Wis. The applicant gives, among the reasons for the advance in rates, the increased value of the service to the customers, growing cost of repairs and maintenance, failure of the income of the exchange to meet the expenses for the past two years, and the proposed enlargement and improvement of the plant. A valuation was made and the operating expenses and revenues of the exchange were investigated.

According to the valuation, as of May 1, 1912, the cost new of the Ashland exchange system is \$78,320, and the present value, \$42,341.

Held: The utility is in need of more revenue than can reasonably be expected from the present schedule of rates, but not as much as would be available from the proposed schedule. Applicant is authorized to substitute for its present rates a schedule approved by the Commission.

The application in this matter was filed on April 15, 1912. Applicant is a corporation organized and doing business under the laws of the state of Wisconsin with its principal place of business in the city of Ashland, and is engaged in the management and operation of a telephone exchange in that city. Lawful rates of the applicant now in effect are as follows:

Business phones—one party—\$2.50 per month.
 Business phones—two party—\$2.00 “ “
 Residence phones—\$1.00 per month.

Among the reasons for desiring to increase rates, applicant lists the following:

1. The utility is now rendering service to approximately 1,300 patrons at the same rates at which it rendered service when only 400 phones were in use in its exchange. It is held that this service is of more value to patrons and is more expensive to the utility than the service which was rendered when a smaller number of phones were connected.

2. Plant and equipment have been in use about ten years. The utility claims that the cost of repairs and maintenance will increase rapidly for the next few years.

3. For the past two years operating expenses, fixed charges, repairs, maintenance, and contribution to sinking fund to retire bonds exceeded the income of the exchange.

4. It is the purpose of the utility to enlarge its plant so as to enable it to furnish service to a larger number of patrons, and it intends to install a new switchboard of improved design and extend its pole lines and cable equipment.

Application is therefore made for authority to put into effect the following schedule of rates:

Business phone—one party—	\$3.00	per month
Business phone—two party—	2.50	“
Business phone—four party—	2.00	“
Residence phone—one party—	2.00	“
Residence phone—two party—	1.50	“
Residence phone—four party—	1.25	“

Hearing was held at Madison, June 3, 1912. Appearances were: For the applicant, *K. V. Haymaker* and *A. L. Bigelow*. No appearances in opposition.

The applicant operates exchanges at both Ashland and Mellen but the application in this matter relates only to the Ashland exchange. Valuation of the property was made as of May 1, 1912. According to this valuation the cost new of the Ashland exchange system is \$78,320, and the present value is \$42,341.

At the hearing, objection was offered to certain items in the valuation, principally the value placed on poles and cable. The utility was unable to produce any evidence relating to actual cost of these portions of the property. As far as the unit prices which were used by the staff are concerned, there seems to be no reason for changing the valuation. It was stated at the hearing that a rather large number of poles have been set in concrete and that the valuation should be raised, because of this fact not having been called to the attention of the representative of the Commission who made the valuation. At the time of compiling the data for the valuation all matters relating to manner and cost of construction were gone over carefully with representatives of the utility, and it was stated by their representatives that no poles had been set in concrete, and that the only concrete construction consisted of two large anchors.

Records of the cost of the original construction have never been in the possession of the applicant. The plant was built by a construction company, and in 1902 it was sold to the tele-

phone company. No detailed record of earnings and expenses for the period during which the system has been operated is available. A statement submitted by the utility shows the amount of exchange and toll earnings separately, but disbursements have not been classified. Consequently, it is impossible to determine with any degree of accuracy the losses, if any, which have been incurred in connection with the development of the business.

Reports on file with the Commission show that revenues and expenses have been as follows:

	Year Ending June 30,		
	1909	1910	1911
OPERATING REVENUES:			
Local subscribers telephone earnings..	\$18,609 47	\$17,611 80	\$17,466 10
Rural telephone earnings.....	304 55	602 85	736 50
Toll connection earnings.....	1,439 18	369 11	380 25
Misc. exchange system earnings.....	67 90	8 00	51 31
Total operating revenues.....	\$20,421 10	\$18,591 76	\$18,634 16
OPERATING EXPENSES:			
Central office.....	\$6,523 02	\$4,638 80	\$5,301 79
Wire plant.....	1,781 37	1,852 46	3,323 50
Substation.....	909 96	2,030 91	2,860 94
Commercial.....	756 00	956 20	888 00
General.....	643 04	1,075 22	1,112 33
Undistributed.....	587 81	1,162 30	803 69
Total of above.....	\$11,201 20	\$11,715 89	\$14,290 25
Taxes.....	531 96	450 23	441 84
Total of above.....	\$11,733 16	\$12,166 12	\$14,732 09

NOTE:—Toll connection earnings for 1909, as reported, include all toll earnings. Operating expenses for that year include toll expenses.

No complete report is available at this time for the year ending June 30, 1912. So far as appears from the available facts, however, there is no reason to expect any marked change in earnings and expenses from those of the year previous. The number of instruments in use may be taken as some indication of the changes in the business, and the following summary shows the number of phones of each class in use on the dates shown:

	<i>Business.</i>			
	One party.	Two party.	Four party.	Extension.
June 30, 1909.....	209	127	4	35
June 30, 1910.....	162	136	14	34
June 30, 1911.....	159	134	16	37
June 22, 1912.....	140	140	9	46
	<i>Residence.</i>			
June 30, 1909.....	567	163	156	32
June 30, 1910.....	478	167	171	30
June 30, 1911.....	504	166	222	30
June 22, 1912.....	529	65	360	40
	Rural.	Call be.	*Total Phones.	
June 30, 1909.....	46	.....	1,272	
June 30, 1910.....	44	.....	1,172	
June 30, 1911.....	60	.....	1,261	
June 22, 1912.....	66	15	1,309	

* Exclusive of extensions and call bells.

There seem to have been errors in reporting the number of phones in several cases, as the number shown as in use at the end of the year is not the same as the number listed for the beginning of the following year. Whether this affects the totals for the end of the year, as shown above, our records do not show, but it seems certain that the record as of June 22, 1912, is a correct one.

With extension phones excluded, the operating expenses per phone installed were as follows, using the number of phones in use at the end of the year:

Year ending June 30, 1909.....	\$9 22
Year ending June 30, 1910.....	10 35
Year ending June 30, 1911.....	11 66

According to these unit costs there has been an increase each year in the cost of operation per phone in use. Expenses for 1909 include toll expenses, and taxes are included for all three years. For the years 1910 and 1911, excluding taxes, the operating and maintenance expenses per phone installed are shown in the following comparison with the averages of classes A and B independent utilities.

	1910	1911
Ashland.....	\$10 00	\$11 31
Average.....	9 31	9 89
Median.....	8 65	9 44

Although the expenses per phone are somewhat higher than the general level for utilities which are comparable with the applicant, they do not seem to be unreasonably large. The increase of expenses from 1910 to 1911 was a rather general increase. On the whole, it seems that it will be reasonable, for the purposes of this case, to accept the reported operating expenses for the year ending June 30, 1911, as expenses of a normal year. The number of phones has increased since that time, but judging from the expenses of other utilities and of the applicant itself during other years, expenses with the present installation will hardly be expected to reach a normal level higher than for the year accepted.

According to the installation of June 22, 1912, local and rural telephone earnings would be as follows:

Class.	No.	Present rates.		Proposed rates.	
		Annual rate.	Annual revenue.	Annual rate.	Annual revenue.
1-party busiess.....	140	\$30 00	\$4,200 00	\$36 00	\$5,040 00
2-party business.....	140	24 00	3,360 00	30 00	4,200 00
4-party business.....	9	24 00	216 00	24 00	216 00
Extension business.....	46	12 00	552 00	12 00	552 00
1-party residence.....	529	12 00	6,348 00	24 00	12,696 00
2-party residence.....	65	12 00	780 00	18 00	1,170 00
4-party residence.....	360	12 00	4,320 00	15 00	5,400 00
Extension residence.....	40	6 00	240 00	6 00	240 00
Rural.....	66	15 00	990 00	15 00	990 00
Extension bells.....	15	3 00	45 00	3 00	45 00
Total.....			\$21,051 00		\$30,549 00

Other exchange earnings, as reported for the year ending June 30, 1911, would bring the total exchange earnings under present and proposed rates up to \$21,482.56 and \$30,980.56, respectively. With exchange operating expenses amounting to \$14,732.09, as reported for the year ending June 30, 1911, the amounts available for interest and depreciation would be \$6,750.47 under present rates and \$16,248.47 under proposed rates. The introduction of a schedule of rates with a considerable lower charge

for two-party or four-party service than for single-party service would probably lead many patrons who are at present receiving single-party service, to choose two or four-party service at a lower rate. The effect on this situation would be to make the total revenues under proposed rates somewhat lower than the amount determined above.

It is hardly probable that many business phones would be affected by this condition, but a large part of the residence installations would probably be placed on two or four-party lines. This change in class of service demanded might reduce estimated revenues from the proposed schedule as much as \$2,000 per year, although this amount necessarily is only an estimate. If we assume that the amount available for interest and depreciation under present rates remains at \$6,750.47, and that the amount available under the proposed schedule would be only \$14,500, the rates of return after providing for depreciation would be as follows:

Amount available	Depreciation 6½% of cost new	Am't available for interest	Rate of interest on cost new	Rate of interest on present value
\$6,750 47	\$4,738 36	\$2,012 11	2.6%	4.7% present rates
14,500 00	4,738 36	9,761 34	12.5%	23.0% proposed rates

Reference to the foregoing summary shows that the utility is in need of more revenue than can reasonably be expected from the present schedule of rates, but of not as much as would be available from the proposed schedule. In order to have a return of 7 per cent upon the value of its property the utility must have from \$1,000 to about \$3,500, depending upon whether the present value or the cost new of the property is accepted as the basis for computing interest. In the absence of accurate information bearing upon the financial and operating history of the utility, it is not possible to state just what final value should be placed upon the property, but it seems that interest may reasonably be based upon a value not far from the cost new.

This raises the question of what rates should be charged in order to enable the utility to secure the necessary additions to revenue. It will be remembered that the present schedule provides for rates of \$30 a year for single-party business phones and \$24 a year for two-party lines, but that the rate for all

classes of residence service is only \$12 a year. No rate has been filed for four-party business service, but it is assumed that the \$24 rate holds for this class also.

Although the facts available in this case are not sufficient to enable an accurate apportionment of expenses to be made in order to determine the exact cost of each class of service, the schedule now in effect is so far out of line with what has usually been found suitable in the telephone business, that the changes which should be made are obvious. In general there does not seem to be justification for as wide a difference as exists between business and residence rates, and there is no reason why all classes of residence service should have the same rate. If rates for one-party service are placed at a higher point than for two or four-party service, it will be impossible to determine in advance just how much revenue will be produced, as there will undoubtedly be a large number of changes in classification to avoid the effect of the higher rates.

The following schedule shows what exchange telephone earnings would be under a schedule as outlined, assuming that the classification of consumers remained as at present:

Class.	Number.	Annual rate.	Amount revenue.
1-party business.....	140	\$30 00	\$4,200 00
2- " ".....	140	24 00	3,360 00
4- " ".....	9	21 00	189 00
Extension ".....	46	12 00	552 00
1-party residence.....	529	19 20	10,156 80
2- " ".....	65	16 20	1,053 00
4- " ".....	360	13 20	4,752 00
Extension ".....	40	6 00	240 00
Rural.....	66	15 00	990 00
Extension bells.....	15	3 00	45 00
Total.....			\$25,537 80

Exchange telephone earnings, according to the schedule outlined above, would be \$4,486 greater than revenues under existing rates on the basis of the present installation and classification. The only change in business rates affects the four-party service and will have only a very slight effect on total revenues. With regard to residence patrons, however, it is probable that there will be a large number of instances where patrons will demand party line service at the lower rates, and a smaller part of the total will be on single-party lines. The effect of this will be to reduce the total revenues from residence serv-

ice. In the table above the total revenue from one, two and four-party residence service is estimated at \$15,961.80. If we assume that one hundred of the single-party patrons choose two-party service and two hundred choose four-party service, revenues will be reduced to \$14,461.80. Of course, this assumption is to some extent arbitrary, but some such change as that assumed is probable. In view of this condition it does not seem that a schedule of rates, lower than those outlined above, should be adopted. These will be sufficient to enable the utility to make adequate provision for interest and depreciation, without being in any way unreasonable to subscribers. If changes in classification follow the lines suggested above, the total increase over earnings under present rates will be \$2,986. Actually the increase will probably be very nearly \$3,500 per year, or enough to provide for depreciation at 6½ per cent and interest at 7 per cent of the cost new of the property.

IT IS THEREFORE ORDERED, That the applicant, the Ashland Home Telephone Company, be and the same hereby is authorized to discontinue its present schedule of rates for its Ashland exchange, and to substitute therefor the following schedule:

<i>Class.</i>	<i>Monthly rate.</i>	<i>Class.</i>	<i>Monthly rate.</i>
One-party business	\$2.50	Four-party residence	\$1.10
Two- " "	2.00	Extension " .....	.50
Four- " "	1.75	Rural "	1.25
Extension "	1.00	" business	2.00
One-party residence	1.60	Extension bells .....	.25
Two- " "	1.35		

IN RE APPLICATION OF THE MIDWAY TELEPHONE COMPANY
FOR AUTHORITY TO INCREASE RATES.

Submitted June 24, 1912. Decided July 27, 1912.

Application is made by the Midway Tel. Co. for authority to increase its rate for multi-party residence phones from \$0.75 to \$1.00 per month in the villages of Stetsonville and Dorchester, Wis. On account of the 55 hour law an additional operator is necessary at each exchange and applicant proposes to give continuous service if increase in rates is permitted. Investigation shows that the requested change will effect a total increase of a little more than the estimated increase of expenses.

Held: As both the expenses and the investment appear to have been conservative, the amount of the increase and the rate of return which will be available do not appear to be unreasonable. The application is granted.

The application in this case was dated May 27, 1912. Applicant is a corporation organized and doing business under the laws of the state of Wisconsin and is a public utility engaged in the operation and management of a telephone utility in and around the villages of Stetsonville and Dorchester. Legal rates of the applicant now in effect are stated in the application as follows:

Multi-party business	\$1.00 per month.
“ “ residence .....	.75 “
Single “ business	1.50 “
“ “ residence	1.00 “
Toll charge to Athens.....	.20
Toll charge to non-subscribers:	
Stetsonville to Dorchester or vice versa.....	\$0.10
Dorchester “ Athens .....	.20
Stetsonville “ “ .....	.30
Dorchester “ Curtiss .....	.15
Stetsonville “ “ .....	.20
On all rural lines, up to six miles .....	.10
“ “ over “ .....	.15

The foregoing is not a complete statement of toll rates as filed with the Commission. With the exception of the rate from Stetsonville to Curtiss, rates appear to have been stated correctly. From Stetsonville to Curtiss the rate on file is 25 cts. instead of 20 cts.

The application states that in order to comply with the law limiting the hours of work of women employed as operators to 55 per week, it will be necessary to employ an additional operator at each exchange. An order is asked for permitting the applicant to put into effect a rate of \$1.00 per month for multi-party residence phones, in place of the present rate of \$0.75 per month, all other rates to remain as at present.

Hearing was held at Madison, June 24, 1912. *M. B. Brecke* appeared for the applicant. There were no appearances in opposition.

Applicant is at present operating exchanges at Stetsonville and Dorchester, with unlimited service to subscribers through both exchanges. Service is furnished from 7 a. m. to 9 p. m., with the exception of an hour at noon and an hour in the evening. The utility agrees to offer continuous service from 7 a. m. to 9 p. m. if the increase in rates is permitted.

Operating revenues and expenses for the past two years were as follows:

	1911.	1912.
Operating revenues.....	\$3,081 41	\$3,086 58
Operating expenses.....	1,853 47	1,885 52
Available for interest and depreciation.....	\$1,227 94	\$1,201 06

The cost of the property to June 30, 1912, appears to have been \$7,971.93. The amounts available for interest and depreciation for the past two years have been equivalent to a return of 15.4 per cent and 15.1 per cent of the cost of the property.

The installation as of June 30, 1912, was as follows:

One-party business	32
" residence	42
Rural—multi-party	212
Total	286

On June 30, 1911, the total number of phones was 279, distributed as follows.

One-party business	30
Multi- " "	19
One- " residence	22
Multi- " "	208
Total	279

For 1912 the available data do not show the division of the multi-party phones as between business and residence. With a total business installation of 49 phones for the previous year, however, and an increase of only nine phones during the past year, it appears that about 195 of the multi-party phones are in residences. These multi-party phones are on rural lines with an average of about ten phones on a line.

An increase of \$3 per year per multi-party residence phone will effect a total increase of about \$585 per year, or a little more than the estimated increase of expenses because of the 55 hour law. As both the expenses and the investment appear to have been conservative, and as there seems to be no reason for questioning either, the amount of the increase and the rate of return which will be available do not appear to be unreasonable.

With this increase the schedule of rates for exchange service would be:

One-party business	\$1.50 per month
“ residence	1.00 “
Multi-party (rural) phones.....	1.00 “

In the light of the facts as shown by the reports on file and other information which has been obtained with reference to this case it appears that the increase should be authorized.

IT IS THEREFORE ORDERED, That the applicant, the Midway Telephone Company, may increase its rate for multi-party residence phones to \$1 per month.

IN RE APPLICATION OF THE CHIPPEWA VALLEY RAILWAY,
LIGHT AND POWER COMPANY FOR AUTHORITY TO IN-
CREASE ITS RATE FOR FLAMING ARCS.

Decided July 27, 1912.

Application was made by the Chippewa Valley Ry. Lt. & P. Co. for an amendment of its schedule to provide a higher rate for flaming arc lamps. The applicant has its chief place of business in Chippewa Falls and operates in Eau Claire, Menomonie, Elk Mound and Altoona, Wis. The flaming arc lamp is a novelty lamp for advertising purposes. The carbons are a patented product more expensive than for the ordinary lamp, and more labor is required in trimming. The cost of maintenance and operation is nearly six times as much as for the standard enclosed arcs and the amount of current consumed is less, due to the greater efficiency of the lamp. The lighting rate only a little more than pays for the carbons used. At present the company furnishes lamps, lamp maintenance, and carbons. The desired rate for the flaming arc lamp is the regular lighting rate with the provision that the consumers purchase and install the lamps and furnish all carbons used in their operation, or pay the cost price to the company.

Held: The regular lighting rate does not meet the greater cost to the company of the flaming arc lamps. Applicant is authorized to put in effect the proposed amendment.

The petition in the above entitled matter was filed Aug. 15, 1911. Pursuant to notice, hearing was set for Sep. 1, 1911, at the office of the Commission, at which time and place *Mr. George B. Wheeler* appeared for the applicant. No appearances were made against the application.

The application shows that at the time it was filed the rate for flaming arc lamps was the same as for current under the regular schedule of lighting rates on a meter, the company furnishing the lamps, lamp maintenance and carbons.

The petitioner prays that authority be granted to fix a rate as follows:

Rate for Flaming Arc Lamps.—The company will furnish current for all flaming arc lamps at the regular price per kilowatt hour for lighting service, but the consumer shall purchase and install such lamps at his own expense and furnish or pay to the company the cost price of all carbons used in their operation.

The application and the testimony in the case show that the company is operating in the cities and villages of Eau Claire,

Menomonie, Elk Mound, Altoona, and Chippewa Falls, and that the company has only two flaming arc lamps, used by one consumer in the last named place. The testimony further shows that the revenue from these two lamps for the year ending June 1, 1911, was about \$60, and the actual cost of carbons necessary to supply the two lamps for the same period, \$59.49, leaving practically nothing to cover the cost of furnishing and maintaining the lamps, the labor for trimming the same, and the current used.

As the company alleges in its petition, flaming arcs require nearly six times as much maintenance and operation costs as the standard enclosed arcs. This is due to the fact that the carbon used is a patented product and far more expensive than the ordinary kind, and the lamps have to be trimmed much more frequently. Added to this there is also the fact that the amount of current used is much less, due to the greater efficiency of the lamps, the flaming arc producing about five times the total illuminous flux for the same expenditure of electrical energy. The company then is confronted with the situation of paying much more for repairs, carbons and trimming and at the same time selling less current.

From the foregoing it would appear that justice not only to the company but also to other users of electricity demands that the application of the company be granted.

IT IS THEREFORE ORDERED, That the applicant, The Chippewa Valley Railway, Light and Power Company, be and hereby is authorized to put into effect the rate for flaming arcs prayed for in its petition and as set forth above.

CITY OF JANESVILLE

vs.

ROCKFORD AND INTERURBAN RAILWAY COMPANY.

Submitted Oct. 19, 1911. Decided July 30, 1912.

The city of Janesville alleged that the Rockford and Interurban Ry. Co. abandoned operation within the city on the west side of Rock river and began operation on the east side contrary to the provisions of the franchise and without the permission of the common council. Petitioner complained that the change decreased the value of property on the west side and caused general inconvenience to the public. Mention was made of a deficiency of power up a certain grade and of inconvenience caused by abandonment of the former freight depot. The railway traverses a better business and residence section than formerly. Respondent has granted the Janesville Tr. Co. the right to operate its street cars on the west side and while respondent operated its cars once every hour, the traction company has given 20-minute service over the same tracks, except that part which is called "The Loop." The urban service on the west side has greatly increased and it is doubtful if the property has decreased in value as contended by petitioners. The public seems to be reasonably well accommodated by the arrangements of the two companies, except that respondent's ticket office is farther from the depots of the steam roads than formerly. The Janesville Tr. Co. runs its urban cars from the depots to a corner passed by respondent's line, but the companies have not provided for interchange of transfers.

Held: In the present case, respondent's franchise authorized the use of the two routes for both urban and interurban service. As interurban service would impose an additional servitude upon the highway, such franchises only gave the right to occupy streets for interurban railway purposes as against the public, and it was necessary to acquire the consent of the abutting property owners by mutual agreement, or secure the right through condemnation proceedings.

To obtain the right for interurban operation on the west side would require too great an expenditure. It is not to the interest of the public that the capitalization of the company should be unnecessarily increased in acquiring such rights. The respondent is rendering service in substantial compliance with the terms of its franchises. The part of the former route known as "The Loop," was used primarily for the turning of cars, and would be of no use under present conditions. Completion of the track to the new freight house will remove any cause of inconvenience or interference with street traffic. It also appears that the deficiency in power has been remedied. The interchange of transfers would stimulate traffic and be beneficial for both the company and the traveling public, and it is recommended that the

companies make the necessary agreement. Informal complaint has been made upon the adequacy of service and the subject may come up for further investigation in another proceeding. The petition is dismissed.

The city of Janesville alleges that on April 22, 1901, it granted a franchise to the respondent railway company to occupy certain streets in Janesville, and that the respondent railway company constructed and operated its system of railway pursuant to the provisions of such franchise and the amendments thereto on North Franklin street, commencing at Wall street and thence to West Bluff street, on West Bluff street to High street, south on High street to Wall street, east on Wall street to North Franklin street, south on Franklin street, to Oak street, westerly on Oak street to Jackson street, southerly on Jackson street to McKay Boulevard, southerly on McKay Boulevard to the city limits, and thence southerly to Beloit; that the respondent operated its cars on Franklin street under said franchise until Aug. 1, 1911, when it abandoned operation on the streets on the west side of Rock river without the permission of the common council of the city and began operations on the east side of Rock river, entering the city on Eastern avenue, thence to Beloit road, northerly on Beloit road to Main street, thence on Main street to Milwaukee street terminus; that on June 14, 1911, this Commission entered an order reducing the fares charged by respondent company from the corner of Franklin and Milwaukee streets to South Janesville from 10 cts. for each passenger to 5 cts.; that as a result of abandoning operations on the streets on the west side of Rock river and South Franklin street, passengers are deprived of the benefit of such reduction in fares.

Petitioner further alleges that the traveling public is greatly inconvenienced because of lack of sufficient power to carry a car with a trailer laden with passengers up the hill near Buob's brewery on South Main street; that the respondent has abandoned its freight depot on South Franklin street and loads and unloads its freight on South Main street, thereby hindering and delaying traffic.

The respondent railway company, answering the petition, alleges that on May 13, 1901, the common council of the city of Janesville granted to the Beloit, Delavan Lake & Janesville Railway Company, its predecessor, a franchise to construct and

operate a street railway in the city of Janesville, thereby authorizing the laying of railway tracks on McKay Boulevard, South Boulevard street, Oak street, and West Bluff street, all of which streets, excepting McKay Boulevard, being on the west side of Rock river; that it operated its railway over the streets mentioned on the west side of the river until Aug. 1, 1911, when it abandoned them for interurban service. It denies that it has refused or neglected to operate its railway in accordance with the provisions of its franchise, or that any person is deprived of the benefit of the reduction in fare between Janesville and South Janesville, or that it has hindered or delayed traffic at the intersection of Main and Milwaukee streets due to the switching of cars. It alleges that in the fall of 1908 forty-four actions for damages were begun against it by owners of property abutting on Franklin, North Franklin, and other streets on the west side of the river over which it operated its interurban cars, each of which owner claiming that the presence of the railway damages his property from 25 to 50 per cent of its value; that respondent was obliged to begin three condemnation proceedings to protect its rights on the streets, in one of which the owner of a blacksmith shop obtained 6 cts. damages, the owner of a residence obtained \$125 damages, and the owner of a hay scale, feed store, hay barn and residence was awarded \$1,320 damages.

Respondent further alleges that on March 28, 1910, it was granted a franchise by the city of Janesville giving it the right to operate its railway for urban and interurban purposes within the city on the east side of Rock river, starting from a point at the intersection of McKay Boulevard and Eastern avenue, thence Easterly on Eastern avenue to Beloit avenue, over Beloit avenue to Main street, and thence along Main street to the intersection of Main street with East Milwaukee street, provided respondent could obtain the right or release to do so from the Janesville Traction Company, whose tracks occupied the center of such streets; that the respondent accordingly made the required agreement and the Janesville Traction Company reconstructed its tracks appropriate for interurban service along the new route; that on June 26, 1911, a franchise was granted to respondent by the city of Janesville giving it authority to extend its lines and construct and operate a railway for urban and interurban traffic from the intersection of

Main and East Milwaukee streets over North Main street to a point about 150 feet north of the northerly side of Prospect avenue where it crosses North Main street, and to construct such tracks on Prospect avenue in the vicinity of such intersection as would make it practicable for it to load and unload packages, freight, express, and United States mail at its new station on the corner of Prospect avenue and North Main street on the east side of Rock river and thereby abandon its old freight station on Franklin street on the west side of the river. Respondent further alleges that because of the action of abutting property owners on the west side of the river it was compelled to operate over the tracks on the east side of the river as thus authorized; that the respondent has granted the Janesville Traction Company the right to operate its street cars over the tracks on the west side of the river over which it had discontinued interurban service, and that while the respondent operated its cars over its line on the west side of the river once every hour, the Janesville Traction Company has given twenty-minute service over the same tracks, except over that part which is called "The Loop", where service has been discontinued entirely because the city has covered about half the tracks on this "Loop" with 4 inches of crushed stone, rolled with a steam roller and sprinkled oil over a good many rods of it, so that it would cost several hundreds of dollars to remove the stone and oil from the tracks and resume operations; respondent further alleges that it would cost at least \$50,000 to pay damages in the suits that have been instituted against it and which would be begun in case it remains on the west side of the river; that in case it desires to extend its line to Edgerton, Stoughton, and Madison, it would be obliged to operate on the east side of the river.

The hearing in the matter was held Oct. 19, 1911. The petitioner was represented by *H. L. Maxfield*, its city attorney, and respondent by *Thomas C. Nolan*, its attorney.

Copies of the various ordinances mentioned in the petition and answer were introduced in evidence. Considerable testimony was offered on the part of both parties tending to substantiate their claims as set forth in the pleadings.

The investigation discloses that the public library, courthouse, jail, county training school, the largest dry goods stores, the largest hotel, two banks, and the opera house are located

on the east side of the river. This is the important business section of the city. Since the arrangement whereby the Janesville Traction Company operates its cars on the west side of the river and the respondent enters and leaves the city with its interurban cars on the east side of the river, the public has been reasonably well accommodated and is satisfied with the existing service. The street railway service has been trebled on the west side since the change. The patrons on the west side had to walk to reach the respondent's former site. The present location of the freight house and the completion of the track on Prospect avenue will remove complaints of inconvenience caused by loading and unloading freight on the streets and by turning the cars at the intersection of Main and East Milwaukee streets. It also appears that the new route traverses a better residence section than the old route did, and is closer to the largest factories, and perhaps more convenient to the retail store district. The largest hotel in the city and the two important office buildings are situated at the corner of Main and Milwaukee streets, which is practically the end of the new route, as the waiting room is in such hotel building. The old route passed within a block of the depots of the two steam roads, but the new route is eight blocks distant from them. It was the practice formerly for people who arrived on the steam roads, and intending to reach points over the interurban road, to walk to the corner of West Milwaukee and Franklin streets, where the respondent maintained a ticket office, and there wait for the cars. Tickets purchased at the office cost less than fares collected on the cars. This corner is about five blocks from the depots, so that where formerly the distance was five blocks, it is now eight blocks to the respondent's ticket office. The Janesville Traction Company operates city cars from the depot to the hotel in which the waiting room is situated but does not issue transfers with the respondent. With the exception of the case of those who go from the depots directly to the interurban cars, the new routing appears more convenient than the former routing. With the exception of that part of the traveling public which goes directly from the depots of the steam roads to the interurban waiting room, the greater number of people are inconvenienced by the new route.

The freight and express cars load, unload and turn at the freight house wye. Passenger cars are turned at the corner of

Main and Milwaukee streets, and, from observation, it did not appear to the representative of the Commission who investigated the matter that the turning of these cars caused any particular delay. The conductors and motormen were observed to handle the cars with necessary care to avoid accident. One was observed to unload express on Main street just north of Milwaukee street, but there was no marked inconvenience to the public. It was also noted that the wye at the freight house was long enough to accommodate two cars and that a second car cannot be turned while one is being loaded or unloaded.

The property owners on the west side, whose property abutted on the tracks of the respondent, were well content to have the interurban service discontinued, and those on the east side were very desirous of having that service on Main street. That those persons on the west side whose property is abutting on the tracks of the respondent have suffered any damage because of the change of service is not apparent. There is grave doubt, under the change of service in which the urban service has been trebled, that their property has depreciated in value as was contended by petitioner. It further appears that the deficiency of power at Buob's brewery has been remedied, and that there is no greater inconvenience or delay of traffic caused by respondent's interurban cars on the east side than the interurban service would ordinarily cause in the streets of any city of the size of Janesville. The petitioner made claim that all service has been abandoned on that part of the former route known as "The Loop" without the consent of the city. From its amended petition requesting an order to be entered requiring the respondent to enter the city on one side of the river and to leave on the opposite side, it is evident that the petitioner does not seek the resumption of service on "The Loop", which was used formerly primarily for the turning of respondent's cars, and which would be of no use if such an order were entered.

The respondent's franchises authorize the use of the two routes for both urban and interurban service. As interurban service would impose an additional servitude upon the highway, such franchises only gave it the right to occupy streets for interurban railway purposes as against the public. It had no right to use such streets without first having acquired the consent of the abutting property owners by mutual agreement,

or secured the right through condemnation proceedings. When it operated its interurban cars it invaded the right of the adjoining property owners. The expense of acquiring the right on the west side to operate an interurban railway would be greater than could be justified under the circumstances disclosed. It is not to the interest of the public that the capitalization of the company should be unnecessarily increased in acquiring such rights. This is especially true in view of the fact that the urban service on the west side has increased enormously since the interurban service was removed to the other side of the river.

There is one defect in the service which should be remedied. The respondent should negotiate with the Janesville Traction Company for the interchange of transfers, as the latter company runs its urban cars from the depots of the steam roads to the corner of Main street and East Milwaukee street. If the two companies interchanged transfers it would obviate any complaint that the traveling public was inconvenienced because of the change of route, or that those who live on the west side of the river were greatly inconvenienced because of the additional few blocks they have to walk to board respondent's cars for South Janesville. Furthermore, the interchange of transfers would stimulate traffic and be beneficial for both the city and the interurban company. As this matter is not involved in these proceedings, this recommendation is made, and we trust it will be carried into effect without any further action on the part of the Commission. From the facts and circumstances disclosed, there would be no justification for requiring the respondent to enter the city with its interurban cars on one side of the river and to depart on the opposite side, or to restore the former service.

It is the judgment of the Commission that the respondent is rendering service in substantial compliance with the terms of its franchises in the city of Janesville. However, we do not express ourselves upon the adequacy of the service, against which informal complaint has been made and which may be subject to further investigation in another proceeding.

NOW, THEREFORE, IT IS ORDERED, That the petition be and the same is hereby dismissed.

NATIONAL MANUFACTURING COMPANY

vs.

ILLINOIS CENTRAL RAILROAD COMPANY,
CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted Dec. 12, 1911. Decided Aug. 1, 1912.

The petitioner alleges that shipments of wagons from Blanchardville, Wis., on the I. C. R. R. to points on the Mineral Point div. of the C. M. & St. P. Ry. are delayed on account of being transferred at Freeport, Ill., instead of at Dill, Wis., and that the respondents neglect and refuse to provide track connection at Dill. Since the hearing a change in the tariff has been made which provides the desired routing of less than carload shipments.

Complaint is also made of excessive rates on shipments of wagons from Blanchardville to points on the Mineral Point div. of the C. M. & St. P. Ry. and to Wisconsin points on the I. C. R. R. Investigation shows that the complaints were due to an erroneous application of the rates and of the classification requirements for crating. The shipments were inspected in transit and a higher rate charged by reason of imperfect crating.

Held: Since the rates in question were applied on interstate shipments the Commission is without jurisdiction in the matter.

There appears to be no immediate necessity for the track connection, and the business offered by petitioner would not seem to justify this expense for some time to come. The petition is dismissed.

The petition sets forth in substance that shipments of wagons from Blanchardville, Wis., a station on the Illinois Central Railroad, to points on the Mineral Point division of the Chicago, Milwaukee & St. Paul Railway are delayed by reason of the respondents' transferring such shipments at Freeport instead of at Dill, which latter point of interchange would greatly lessen the distance of the haul and ensure quicker delivery to petitioner's customers; that the rates charged on petitioner's shipments of wagons from Blanchardville to points on the Mineral Point division of the Chicago, Milwaukee & St. Paul Railway and to points on the Illinois Central Railroad in the state of Wisconsin are unreasonable and excessive; that the respondents neglect and refuse to provide track connection at Dill and

to interchange carload and less than carload shipments at such transfer point when directed so to do by shipper.

The respondents deny that the rates on petitioner's product are excessive and deny that there is any reasonable necessity for the transferring of freight or for the installation of a connecting track at Dill. They claim that there are joint rates now in existence from Blanchardville to many stations on the Chicago, Milwaukee & St. Paul Railway, and allege that the amount of business done by petitioner and others in the vicinity of Dill would not warrant the expense of constructing a connecting track as requested by petitioner.

The hearing was held Dec. 12, 1911, at the office of the Commission at Madison. *M. J. Cleary* appeared for the petitioner; *E. J. B. Schubring* of *Jones & Schubring* represented the Illinois Central Railroad Company; and *F. C. Wright* appeared for the Chicago, Milwaukee & St. Paul Railway Company.

Petitioner, through its president and its secretary, testified in substance that in filling orders of customers in southern Wisconsin, its business had suffered by reason of delays in shipments of wagons, due to the refusal of the respondents to give the shipments the shortest route to destination. No testimony was offered showing that the rates paid by petitioner were excessive, although a number of freight bills were introduced exhibiting different rates on wagons to the same destination. Some of these freight bills bore evidence that the shipments were inspected in transit and a higher rate charged by reason of imperfect crating. This lack of uniformity in the rates was regarded by petitioner as evidence of the failure of the respondents to provide a joint rate. Witnesses admitted that they were not fully conversant with the requirements of the western classification as to the proper method of crating their shipments so as to obtain the lowest rate, but they contended that the railroad inspectors had arbitrarily changed the rating. It was also admitted that petitioner had not forwarded any carload shipments from Blanchardville, but had received some raw material in carloads and for that reason desired respondents to establish track connection at Dill. They admitted that such a request would be unreasonable if petitioner were the only consumer on the line of the Illinois Central Railroad that demanded it, but they stated that other industries at Blanchard-

ville would be benefited by an interchange of carload freight at Dill.

Witness for the Illinois Central Railroad testified that the tariff provided for the routing of shipments from Blanchardville to points on the Mineral Point division of the Chicago, Milwaukee & St. Paul Railway via Freeport, but that before this complaint was made his company had negotiated with the Chicago, Milwaukee & St. Paul Railway for the routing of less than carload shipments via Dill, and that such routing would be published in the next supplement of the tariff. He explained the conditions of the western classification in regard to shipping wagons and claimed that petitioner was responsible for the different rates charged on its products by failing to conform to the classification rules. He stated that the revenue received from petitioners was exceedingly small. Operating officials of both railroads testified that less than carload shipments were now being transferred at Dill, although the amount of such freight was small. The superintendent of the Illinois Central Railroad testified that he could not say that a track connection would not warrant the expense, but witness for the Chicago, Milwaukee & St. Paul Railway claimed there was not sufficient business to justify the required expenditure.

Since the hearing a change in the tariff covering shipments from Blanchardville to the territory under consideration has been made which provides routing via Dill instead of via Freeport, so that the complaint in this particular is satisfied. An examination of the freight bills introduced by petitioner shows that all the consignments were forwarded via Freeport, Ill., and were therefore interstate shipments. This Commission, therefore, is without jurisdiction over the rates and charges paid thereon; nevertheless, as the complaint in this case was brought about, partly at least, through the alleged excessiveness and lack of uniformity in these rates and charges as applied to different shipments, it was considered necessary to make some investigation thereof. A representative of the Commission who has visited Blanchardville and made a personal examination of the wagons as crated by petitioner, reports that all shipments made in the past, properly classified under the requirements of the western classification would be subject to double first class rating. He also reports that the petitioner has not been familiar with the classification requirements for the crating of

vehicles and did not, therefore, follow any uniform system in crating shipments; that since the hearing the inspector at Freeport has informed the petitioner as to these requirements and the different ratings when the requirements were not followed, but that the petitioner, owing to lack of facilities to do this crating, had concluded that it would be more advantageous to ship its wagons without crating. The testimony in this case and further inquiries made by the Commission's representative show that the complaints in this case as to rates were not based on the rates actually in force, but were due to a misunderstanding and erroneous application of them and of the classification requirements for crating. The request of petitioner for track connection at Dill in order that carload shipments may be interchanged between the respondents has more reference to prospective business than to present need. There appears to be no demand or necessity for any immediate installation of such connection and the amount of business offered by petitioner to the respondents would not seem to justify this expense for some time to come.

In view of all the facts disclosed at the hearing and by special investigation as mentioned above, the complaint of petitioner is dismissed.

GEORGE WILDING

vs.

CHICAGO, ST. PAUL, MINNEAPOLIS AND OMAHA RAILWAY COMPANY.

Submitted Jan. 23, 1912. Decided Aug. 2, 1912.

Petitioner alleges that passenger service has been discontinued at Kurth, Wis. There is no station or village at the place in question but for a number of years the respondent has stopped its day passenger trains on signal. This practice has been discontinued as it is only a short distance to a regular station at Granton. A majority of the trains on this line carry interstate traffic and in the interest of through passenger service all unnecessary stops have been eliminated.

Held: The circumstances do not justify the stop in question. Petition is dismissed.

The petition sets forth that the petitioner resides at Kurth, Wis.; that the respondent is a common carrier, engaged in the transportation of persons and property by railroad between points in the state of Wisconsin, and as such common carrier is subject to the laws of the state relative thereto; that for a number of years the respondent has stopped its day passenger trains on signal at Kurth station, which is between Granton and Neillsville; that recently such service has been discontinued to the great inconvenience of residents living in the vicinity; and that in order to render adequate service, the respondent should be ordered to stop all day trains there on signal.

The respondent, in its answer, alleges that there is no station or village at Kurth and that the place is 1.9 miles distant from Granton, a regular station on respondent's line; that a majority of the trains passing Kurth carry interstate traffic; that it is necessary to eliminate all unnecessary stops of trains to make scheduled time to reach important junction points; and that for the amount of traffic involved and revenue derived from Kurth, as well as its close proximity to a regular station, the maintenance of a flag station or a stopping of trains thereat is unwarranted.

The hearing was held Jan. 23, 1912, in the city hall at Neillsville. *George Wilding* appeared in his own behalf, *G. W. Peterson* on behalf of the respondent.

The testimony shows that Kurth is neither a village nor a hamlet. It was in the early days a lumber district, when a spur track was put in for the handling of logs and trains stopped to accommodate the men working in the woods. The sidetrack and platform is called Kurth and has a surrounding farming population of about 100 within a radius of a mile from the railroad. Previous to August 1911 the day passenger trains stopped at Kurth on signal. The service at Kurth and similar places was discontinued in order to give better service to the through passenger traffic which has materially increased on this branch of the respondent's line during the last few years. Respondent submitted a statement of passenger business out of Kurth from Feb. 1, 1911, to Aug. 31, 1911, which showed a revenue of \$51.61. This amount, however, does not include the revenue derived from incoming passengers which probably equals the outgoing business. During the period covered by the statement, 479 passengers boarded the cars at Kurth. Of this number 9 went as far west as Merrilan and 21 as far east as Marshfield. We have no evidence that these 30 passengers traveled beyond the terminals mentioned; but if they represent the entire through traffic for 7 months, it appears that the general traveling public is little affected by the elimination of the stop at Kurth. A further analysis of the passenger traffic from Kurth shows that 153 persons went to Granton, to which station the fare is 5 cts., and 275 persons to Neillsville, to which city a fare of 11 cts. is charged. It therefore appears that there is a monthly average of 61 persons who use respondent's trains from Kurth to the next station east and west and that the revenue therefrom is less than \$6 per month.

In view of the foregoing facts we do not feel justified in ordering respondent to stop its trains at Kurth; therefore, the petition is dismissed.

CITY OF MILWAUKEE

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Decided Aug. 2, 1912.

Petitioner complains of a dangerous grade crossing at the intersection of the tracks of the C. M. & St. P. Ry. Co. with Muskego ave. in Milwaukee, Wis. Respondent is willing to provide adequate protection at the point in question.

Held: The crossing is unsafe and respondent is ordered to install and continuously maintain crossing gates, and to employ a gateman to operate them. Thirty days is deemed a reasonable time within which to comply with this order.

The petition sets forth that the city of Milwaukee is a municipal corporation organized under and existing by virtue of the laws of the state of Wisconsin; that the respondent is a common carrier engaged in the transportation of persons and property by railroad between points in the state of Wisconsin and is subject to the provisions of ch. 87 of the Statutes of 1898 and acts amendatory thereof, and also to the provisions of ch. 362 of the Laws of 1905; that the tracks and right of way of the respondent cross Muskego avenue at grade in the city of Milwaukee, and that Muskego avenue is a very important and much used street, and because of the presence of buildings and other obstructions the crossing is so dangerous as to necessitate the erection of gates thereat for the protection of persons and property; wherefore, petitioner prays that the respondent be required to answer the charges herein, and after due hearing and investigation an order be made commanding respondent to erect gates at such crossing and to place an agent in charge thereof to open and close the same when an engine or train passes; and for such other and further order as the Commission may deem just in the premises.

The respondent, answering the petition, admits that the city of Milwaukee is a municipal corporation as claimed; admits that the respondent is a common carrier as alleged and subject to the laws relative thereto; and says that it is willing to install

crossing gates and employ a gateman to operate them at the point in question, if such provision meets with the approval of the Commission and it sees fit to enter an order to that effect.

Now, THEREFORE, IT IS ORDERED, That the respondent, the Chicago, Milwaukee & St. Paul Railway Company, install and continuously maintain crossing gates at the intersection of its track with Muskego avenue in the city of Milwaukee and that such crossing gates be placed in charge of a competent man to open and close the same when an engine or train passes.

Thirty days is deemed a reasonable time within which to comply with this order.

THE A. C. PARFREY MANUFACTURING COMPANY

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY,
CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Decided Aug. 8, 1912.

Petitioner alleged that the rate on a carload shipment of cheese boxes from Richland Center to Lancaster, Wis., was excessive. The rate exacted was the sum of the locals. The C. M. & St. P. Ry. Co. reduced the minimum weight of 15,000 lbs. to 13,650 lbs., according to a rule of the western classification. The C. & N. W. Ry. Co. did not allow for the deduction. There was no commodity rate in effect, doubtless due to the fact that there was no demand for such a rate. A through commodity rate of 20 cts. per cwt. was subsequently established with a minimum weight of 15,000 lbs., subject to the deduction provided by the western classification.

Held: The rate exacted was unusual and exorbitant and the reasonable rate that should have been in effect and applicable to such shipments was the rate subsequently established. Refund is ordered on this basis.

The petitioner is a corporation engaged in the manufacture and sale of cheese boxes in Richland Center, Wis., and alleges that on or about Feb. 15, 1911, it delivered to the Chicago, Milwaukee & St. Paul Railway Company, a number of cheese boxes consigned to the Ellenboro Cheese Company at Lancaster; that Lancaster is reached only by the line of the Chicago & North Western Railway Company; that the minimum carload weight of the shipment was 13,650 lbs.; that the petitioner was informed that such shipment was carried over the line of the Chicago, Milwaukee & St. Paul Railway Company to Madison and thence to Lancaster over the line of the Chicago & North Western Railway Company; that petitioner paid freight charges to the Chicago & North Western Railway Company as follows: \$47.48, \$27.00 of which was charges over the Chicago, Milwaukee & St. Paul Railway Company and \$20.48 charges over the Chicago & North Western Railway Company, the former railway company charging at the rate of 15 cts. per cwt. on 13,650 lbs., and the latter 18 cts. per cwt. on 15,000 lbs.; that the contents of the car was less than such minimum weight;

that the charges were excessive, exorbitant and unreasonable. Wherefore, petitioner prays that the respondents be required to refund to it the charges in excess of the amount found by the Commission to be reasonable.

The respondent, the Chicago, Milwaukee & St. Paul Railway Company, answering the petition, alleges that its tariff G. F. D. 9805-B provides a through rate of 20 cts. which should have been applied to the shipments in question.

The respondent, the Chicago & North Western Railway Company, answering the petition, admits all the formal allegations thereof and alleges that the correct rate to have been applied on the shipments in question was a commodity rate of 15 cts. per cwt., with a minimum of 16,000 lbs. applicable to cars 40 feet and under in length, and on such basis there would be an overcharge of \$23, which it is willing to refund.

The claim was submitted upon the pleadings, papers, and documents on file.

At the time the shipment in question moved there was no commodity rate in effect applicable to cheese boxes shipped in carload lots from Richland Center to Lancaster. According to the western classification the fourth class rate applicable to the shipment in question provided a minimum loading weight of 15,000 lbs. According to the distance tariff in effect on the respondent roads, respectively, the rate from Richland Center to Madison is 15 cts. per cwt., and from Madison to Lancaster 18 cts. per cwt. The rates applied to the shipment were therefore in accordance with the published tariffs. However, the minimum weight being subject to rule 6-B of the western classification, which allows 3 per cent per foot to be deducted for each foot of the length of the car less than 36 feet, with a minimum of 91 per cent, and as the car in question was 33 feet in length, according to the rule the minimum loading requirement that should have been applied on both roads is 13,650 lbs. On April 16, 1911, the commodity rate of 20 cts. per cwt. on cheese boxes from Richland Center to Lancaster was duly published. According to this tariff the minimum weight of 15,000 lbs. was subject to the rule of the western classification above mentioned.

The fact that there was no commodity rate in effect at the time that the shipment was made, was doubtless due to the fact that there was no demand therefor. It is conceded by

both carriers that the charges exacted of the petitioner were exorbitant and that reparation should be made.

For the reason stated we find and determine that the rates exacted of the petitioner for the aforesaid shipment of cheese boxes from Richland Center to Lancaster were unusual and exorbitant and that the reasonable rate that should have been in effect and applicable to such shipment is the existing through rate of 20 cts. per cwt.

NOW, THEREFORE, IT IS ORDERED, That the Chicago, Milwaukee & St. Paul Railway Company and the Chicago & North Western Railway Company be and the same are hereby authorized and directed to refund to the petitioner the amount charged on the aforesaid shipment in excess of 20 cts. per cwt.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF
THE REESON AND LARSON CROSSINGS NEAR DODGEVILLE,
ON THE LINE OF THE CHICAGO AND NORTH WESTERN
RAILWAY COMPANY.

Decided Aug. 14, 1912.

Complaint having been made, the Commission, on its own motion, investigated two highway crossings of the C. & N. W. Ry. Co. near Dodgeville, Wis. The Reeson crossing, about 2½ miles west of Dodgeville, consists of a highway running east and west, and another running south therefrom, with the railroad tracks crossing both in a northeasterly and southwesterly direction. View of approaching trains is obstructed by an up-grade, and also by a cut. The Larson crossing, about ¼ of a mile southwest of the Reeson crossing, is formed by the intersection of a north and south highway with the tracks of the C. & N. W. Ry.

Held: Traffic at the Larson crossing is not heavy enough to warrant the installation of any safety device. At the Reeson crossing, respondent is ordered to install and maintain an automatic alarm bell with a light for night indication, and to fill all holes in the highway within its right of way. Sixty days is considered a reasonable time within which to comply with this order.

Complaint having been made to the Commission that two highway crossings located on the line of the Chicago & North Western Railway Company near Dodgeville are unsafe and dangerous to human life, a hearing was ordered to determine whether such crossings are unsafe and dangerous and whether or not they should be protected by the installation of a warning signal or other safety device, and whether public safety requires an alteration in the manner and method of such crossing or the approaches thereto.

The hearing was held Jan. 19, 1912, at the city hall in the city of Dodgeville. *E. G. Williams* appeared for the town of Dodgeville, and *Irving Herriott* represented the Chicago & North Western Railway Company.

From the testimony it appears that Reeson's crossing, which is located about two and a half miles west of Dodgeville station, is a double crossing consisting of one highway running east and west and another running south therefrom, with the railroad tracks crossing both in a northeasterly and southwest-

erly direction. The east and west highway is extensively used by vehicles. A record of the traffic, taken on Jan. 17, 1912, from 8 a. m. to 5 p. m., shows the east and west road to have been used by fifty teams and the road going south by twelve teams. The approach to the crossing from the east and south is an up-grade and the view of approaching trains from the southwest is obscured until within a short distance of the track. There is also some difficulty in observing trains coming from the same direction when approaching the crossing from the west, as a cut obstructs the view and the track is not crossed at a right angle. Witnesses testified that many trains failed to whistle for the crossing which added to the danger. At the hearing it was suggested by witnesses that the grade of the highway from the east might be improved by filling up to a height which would enable a person to see trains approaching from the southwest when at a reasonable distance from the track. A conference has since been had on the ground by the engineers of the Commission with the town officials and railroad representatives, at which time, after a thorough examination, it was agreed that the installation of an automatic crossing alarm bell with a light for night indication, together with the filling up of holes in the highway within the limits of the railway company's right of way, would give satisfactory protection at this crossing.

The Larson crossing, which is located approximately one-quarter of a mile southwest of the Reeson crossing, is formed by a north and south highway crossing the tracks of the Chicago & North Western Railway. The testimony shows that this crossing is not in use the entire year and travel thereon is very light. Attempts have been made to close the highway, but a few property owners have objected. The view of trains from the east, when traveling north, is obscured by a cut until within a short distance of the track; the view in other directions is clear. Since the hearing an examination of this crossing has been made by one of the engineers of the Commission in company with the town chairman and a representative of the railway company. It was agreed that traffic on the highway is not heavy enough to warrant the installation of a crossing bell, but our engineer recommends that the holes in the south approach be filled with suitable material and that the trees in the northeast angle of the crossing be removed.

Now, THEREFORE, IT IS ORDERED, That the Chicago & North Western Railway Company install and maintain an automatic alarm bell with a light for night indication at the intersection of its tracks with the highway about two and a half miles west of Dodgeville station, known as Reeson's crossing; and that it fill with suitable material all holes within its right of way at such crossing.

Sixty days is considered a reasonable time within which to comply with this order.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF
THE SPRING STREET CROSSING AT BEAVER DAM, ON THE
LINE OF THE CHICAGO, MILWAUKEE AND ST. PAUL RAIL-
WAY COMPANY.

Decided Aug. 14, 1912.

On motion of the Commission investigation was made of the C. M. & St. P. Ry. crossing at Spring street in Beaver Dam, Wis., at which point an accident had occurred. Four tracks of the respondent's railway cross this thoroughfare. Several buildings obstruct the view of approaching trains. Cars standing on side tracks and considerable switching in the vicinity increase the danger. Because of extensive traffic, night as well as day protection appears to be necessary.

Held: The crossing in question is dangerous. Respondent is ordered to maintain a flagman on duty, so that the crossing shall have continuous protection.

An accident having occurred on Nov. 23, 1911, at the Spring street crossing of the Chicago, Milwaukee & St. Paul Railway in the city of Beaver Dam, the Commission ordered a hearing to determine whether such crossing is unsafe and dangerous to human life and whether warning signals or other safety devices should be installed for the protection of the public.

The hearing was held Jan. 17, 1912, at the city hall in the city of Beaver Dam. *J. C. Haley* appeared for the city of Beaver Dam; the Chicago, Milwaukee & St. Paul Railway Company was represented by *H. Whitty*, roadmaster.

It appears from the testimony that four tracks of the Chicago, Milwaukee & St. Paul Railway cross Spring street near Beaver Dam Junction, and that the highway in question is the main thoroughfare of travel between Beaver Dam and the country districts north thereof, including the city of Waupun. The crossing is heavily traveled by automobiles and other vehicles, and, in addition to the ordinary pedestrian travel, is used by a number of school children who attend the public and parochial schools in the neighborhood.

South of the main through track, the depot obstructs the view to the east, and an elevator, stock pens and oil tanks obstruct the view of tracks west of the crossing. North of the main

track the plant of the Beaver Dam Manufacturing Company obstructs the view of trains to the east, while a residence obstructs the view toward the west. The view is still further limited by cars which are generally standing on the side track; and the danger is increased by considerable switching in the vicinity, in addition to the regular trains passing over the street.

An engineer of the Commission has investigated the physical conditions surrounding the crossing and reports that the crossing is more than ordinarily dangerous on account of the limited view to be had of approaching trains and because of the fact that some of the trains going east, especially through freights, continue on the main track while others, passenger trains and local freights, take the west branch of the wye track leading to the depot at Beaver Dam. This branch of the wye track is located about eighty-five feet south of the main track on the center line of Spring street, and the view is so obstructed to the west that a person hearing a train west of the crossing is not able to judge on which track it will cross the street. Between the main track and the west branch of the wye track there is a sidetrack on which switching is done, adding to the confusion of being able to determine on which track the cars will cross the street.

Inasmuch as there are three regular night passenger trains and extra night trains not shown on the railway company's time card, also switching movements during the night, our engineer considers it desirable to protect this crossing by a flagman twenty-four hours per day.

In view of all the facts disclosed at the hearing and those given by our engineer, we find the crossing in question to be a dangerous one and should be protected by a flagman.

NOW, THEREFORE, IT IS ORDERED, That the Chicago, Milwaukee & St. Paul Railway Company continuously maintain a flagman on duty at the intersection of its tracks with Spring street in the city of Beaver Dam, so that such crossing shall have twenty-four hour protection every day.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF
THE GREEN BAY ROAD CROSSING ON THE LINE OF THE
SHEBOYGAN RAILWAY AND ELECTRIC COMPANY AT SHE-
BOYGAN FALLS.

Decided Aug. 14, 1912.

Upon complaint, the Commission on its own motion investigated the crossing of the Green Bay road with the tracks of the Sheboygan Ry. & El. Co. in the village of Sheboygan Falls, Wis. The interurban cars run at a high rate of speed over the crossing in question and the view of approaching cars is obstructed by buildings and trees. The selection of the type of bell especially adapted to operation on electric roads was carefully considered and the necessity of continual attention to the upkeep of the bell was emphasized.

Held: A warning signal is necessary for day and night protection at the crossing. Respondent is ordered to install and maintain an automatic alarm with illuminated sign for night indication, the type and details of such protective device to be approved by the Commission. Sixty days is deemed a reasonable time within which to comply with this order.

Complaint having been made to the Commission that a certain highway crossing of the Green Bay road with the tracks of the Sheboygan Railway and Electric Company in the village of Sheboygan Falls is unsafe and dangerous, notice of hearing was given to determine whether such crossing is unsafe and dangerous to human life and whether it should be protected by the installation of a warning signal or other safety device.

The hearing was held on Dec. 23, 1911, at the village hall, Sheboygan Falls. *C. G. Peck* appeared for the village of Sheboygan Falls and *Ernst Gonzenbach* for the Sheboygan Railway and Electric Company.

The testimony shows that the Green Bay road is the principal highway from Milwaukee to Green Bay and extends northwesterly from the village of Sheboygan Falls. It is heavily traveled by teams and automobiles and at the crossing in question is used by children going to and from school. The tracks of the interurban lines run approximately east and west across this highway and on the southerly line of an east and west highway. The north approach to the crossing is practically level for one hundred feet north of the tracks and descends with a 4 per cent

grade in the next two hundred feet. From the south the approach has an upgrade of 7 per cent in a distance of five hundred feet. The view of approaching cars is obscured by dwellings, other buildings and trees until within a short distance of the track. The president of the railway company stated that the cars ran at a speed of thirty miles an hour over the crossing. He admitted that it was a dangerous crossing and that a motorcyclist had been killed and several minor accidents had occurred there. He volunteered to install any alarm device that the Commission might recommend, but expressed doubts as to the reliability of an electric bell being operated without getting out of order and thus increasing the danger to the public.

Investigation made by the engineering staff of the Commission shows that grade separation is feasible at this crossing, but that the construction of a subway on the Green Bay road would prevent a highway connection with the east and west highway which, under existing circumstances, would appear to be open to objections of a serious nature. Two aspects of the subject of bell protection which received considerable emphasis at the hearing, were the difficulty of finding bell appliances especially adapted to the conditions prevailing on electric roads, and, secondly, the necessity of careful and continued attention to the upkeep of the bell after the original installation is satisfactorily made. A third important feature, not touched upon at the hearing of this case but one which is receiving increased attention from this Commission in determining the most suitable protection for highway crossings throughout the state, is the provision of additional protection at nighttime by the use of an illuminated danger sign. This further protection should obviously be had without special difficulty in the case of an electric road, and the dangers incident to the use of this particular crossing appear to be such as to demand all the safeguards which may reasonably be provided.

The foregoing and related features have received special consideration by the Commission's engineering staff since the hearing, both with reference to this particular crossing and in connection with detailed investigations of many crossing situations in progress throughout the state of Wisconsin. In the light of all available facts and evidences disclosed by these inquiries, the Commission's engineers report that there appears to be no substantial reason why adequate protection should not be provided

at the crossing now under consideration by the installation of one of the most approved types of bell now available, provided the protective appliances be properly maintained by the railway company.

Now, THEREFORE, IT IS ORDERED, That the Sheboygan Railway and Electric Company install and maintain an automatic alarm with illuminated sign for night indication at the crossing of the Green Bay road in the village of Sheboygan Falls, the same to be located in the manner best suited to meet the needs of those using the crossing, the type and details of such crossing alarm and light installation to be approved by the Commission.

Sixty days is deemed a reasonable period of time within which to comply with the terms of this order.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF HIGHWAY CROSSING ONE MILE EAST OF SCHLEISINGERVILLE ON THE LINES OF THE CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY AND THE MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE RAILWAY COMPANY.

Submitted Jan. 26, 1912. Decided Aug. 14, 1912.

Complaint was made of a dangerous crossing one mile east of Schleisingerville, Wis., on the lines of the C. M. & St. P. Ry. Co. and the M. St. P. & S. S. M. Ry. Co. The crossing is locally known as Mud Lake crossing, and is located in town of Polk, Washington county.

Held: The crossing in question is dangerous to human life and requires protection. It is ordered that the C. M. & St. P. Ry. Co. and the M. St. P. & S. S. M. Ry. Co. each install and maintain an automatic, electric alarm bell with an illuminated sign for night indication. The alarms are to be installed according to the specifications of the Commission. It is further ordered that each of the railway companies widen the highway and grade the space between the two tracks in the manner prescribed. Sixty days is deemed a reasonable time within which to comply with these orders.

Complaint having been made to the Commission that a highway crossing located one mile east of Schleisingerville, in the town of Polk, on the lines of the Chicago, Milwaukee & St. Paul Railway Company and the Minneapolis, St. Paul & Sault Ste. Marie Railway Company is unsafe and dangerous to human life, a hearing was ordered to determine whether such crossing is unsafe and dangerous and if it should be protected by the installation of a warning signal or other safety device.

The hearing was held Jan. 26, 1912, at the village hall at Schleisingerville. *H. A. Sawyer*, district attorney, appeared for Washington county; *Andrew Lehner*, for the town of Polk; *F. W. Sawtelle* represented the C. M. & St. P. Ry. Co. and *C. N. Kalk* the M. St. P. & S. S. M. Ry. Co.

The testimony shows that at the crossing in question, known locally as Mud Lake crossing, the tracks of the two railroads are parallel and about eighty feet apart, the "Soo" railroad being to the west of the Chicago, Milwaukee & Saint Paul Railway. The highway runs north and south and the railroad tracks curve northwest and southeast in a cut. All four angles of the cross-

ing are obstructed by banks and by trees along the highway, so that a person cannot see approaching trains until within a few feet of the track. One fatal accident and many minor ones and close calls have occurred at the crossing. The highway is the main road from the town of Ridgeway to the village of Schleisingerville, and is traveled by about forty or fifty teams per day, and a few automobiles. The children of seven or eight families use the crossing twice daily to and from school at Schleisingerville.

From an examination on the ground made by one of the engineers of the Commission, it further appears that the highway approaches within the limits of the railway companies' right of way are too narrow and that there is a four foot depression in the highway between the railroad tracks.

In view of all the facts disclosed at the hearing and as reported by our engineer, we find that the crossing in question is dangerous to human life and requires protection. It is therefore ordered that the Chicago, Milwaukee & St. Paul Railway Company, at the intersection of its tracks with the highway one mile east of Schleisingerville, known as Mud Lake crossing, install and maintain an automatic electric alarm bell with an illuminated sign for night indication, same to be placed on the north side of its tracks.

It is further ordered that the Minneapolis, St. Paul & Sault Ste. Marie Railway Company install and maintain an automatic electric alarm bell with an illuminated sign for night indication on the south side of its tracks at Mud Lake crossing.

It is further ordered that each of the above named railway companies at said crossing widen the highway within the limits of its right of way to a width of sixteen feet and place the highway between the two tracks on a uniform grade.

Sixty days is deemed a reasonable time within which to comply with these orders.

JOHN HOFFMAN & SONS COMPANY

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY,
CHICAGO AND NORTH WESTERN RAILWAY COMPANY,
GREEN BAY AND WESTERN RAILROAD COMPANY.

Submitted June 11, 1912. Decided Aug. 15, 1912.

The petitioner, a wholesale grocer at Milwaukee, alleges that the freight movements from Milwaukee to Black Creek, Shiocton, and Seymour, Wis., are unreasonably slow, while competitors in other cities are given more expeditious service. Wholesale grocers of Green Bay compete with petitioner and have a natural advantage in being able to supply these points directly over the G. B. & W. R. R. Milwaukee freight must be transferred to the G. B. & W. R. R. in order to reach the same territory.

Held: Milwaukee merchants are entitled to have their goods transported without unnecessary delay. Respondents are ordered to so arrange their schedules that goods shipped by petitioner in less than carload lots over the route in question shall reach their destination within eighty-four hours from the time they are delivered to the carrier at Milwaukee.

The petitioner is a corporation engaged in the wholesale grocery business at Milwaukee, Wis. It alleges that the freight movements from Milwaukee to Black Creek, Shiocton, and Seymour, Wis., are unreasonably slow and work a hardship upon and discriminate against petitioner; that much more expeditious service is granted to other cities where other wholesale grocers are located; that on account of the service petitioner's business is injured, and customers have threatened to withdraw their patronage from it and place same with wholesale dealers at other cities where they can secure better freight service. Wherefore, petitioner prays that an order be made requiring respondents to maintain a reasonable schedule on traffic from Milwaukee to Black Creek, Shiocton, and Seymour.

The respondent Chicago, Milwaukee & St. Paul Railway Company, answering the petition, admits all the formal allegations thereof but denies that the freight service between Milwaukee and Black Creek, Shiocton, and Seymour is unreasonably slow or discriminates against the petitioner, or that more expeditious

service is afforded by it to other cities under similar conditions; that certain movements of freight complained of did not involve unnecessary and avoidable delays but only such delays as were necessarily due to weather conditions, traffic conditions, and operating conditions; that it will be its practice in the future to move freight between such points as expeditiously as weather and traffic conditions will permit.

The respondent Chicago & North Western Railway Company, answering the petition, avers that there were but two shipments over its lines concerning which petitioner made complaint; that the first shipment was received at Milwaukee Feb. 26, 1912, and delivered to the Green Bay & Western Railroad at Green Bay on March 1, 1912; that there was a delay at Milwaukee caused by a heavy snow storm covering all tracks with snow and making it impossible to move freight at that time; that the second shipment was received in Milwaukee on March 11, 1912, and was delivered to the Green Bay & Western Railroad at Green Bay March 14, 1912; that there was some delay at Milwaukee due to connections which probably could have been avoided, but that an investigation has since been made and all shipments are now moving on schedule time.

The Green Bay & Western Railroad failed to file an answer to the petition.

The matter came on for hearing on June 11, 1912. The petitioner was represented by *G. W. Wadsworth*; the Chicago, Milwaukee & St. Paul Railway Company by *J. N. Davis*; the Chicago & North Western Railway Company by *C. A. Vilas*; and the Green Bay & Western Railroad Company by *J. B. Call*.

The petitioner and other wholesale grocers of Milwaukee are in competition in the territory in question with wholesale grocers of Green Bay. The latter have a natural advantage because of their location on the line of railroad passing through the commercial center of such territory, which enables them to have their goods delivered to the retail dealers along such line with reasonable promptness. Freight from Milwaukee must be transferred either at the Green Bay junction from the line of either the Chicago, Milwaukee & St. Paul Railway Company or the Chicago & North Western Railway Company to the Green Bay & Western Railroad, or at the New London junction from the line of the Chicago & North Western Railway Company to the Green Bay & Western Railroad. However, it seems that

little, if any, freight of the character here involved moves by way of the latter route. The principal grievance seems to result from delays on shipments in less than carload lots by way of Green Bay.

The distance from Green Bay to Seymour is 17 miles, to Black Creek 24 miles, and to Shiocton 31 miles. The distances from Milwaukee to shipment points by way of the Chicago & North Western Railway are 145.8, 152.8, and 159.8 miles, respectively, and by way of the Chicago, Milwaukee & St. Paul Railway 129, 136, and 143 miles, respectively. Merchants in the towns along the Green Bay & Western Railroad west of Green Bay can order goods from Green Bay in the afternoon of any day and receive them the following morning, while if they order from Milwaukee dealers, it takes on an average from four to ten days before the goods reach their destination. As an illustration of the tardiness of the service, petitioner presented the following list of shipments, showing date of delivery at Milwaukee, the carrier to which delivered, and the date of arrival at destination:

Receiving carrier.	Date of billing.	Destination.	Arrival at destination.
C. M. & St. P. Ry.	March 13, '12	Black Creek.....	Mch. 18, 1912
C. & N. W. Ry.	" 11, '12	" "	" 4, "
	Feb. 26, '12	" "	" 4, "
C. M. & St. P. Ry.	April 3, '12	Shiocton.....	Apr. 9, "
"	March 19, '12	"	Mch. 30, "
"	April 2, '12	"	Apr. 10, "
"	March 19, '12	"	Mch. 30, "
"	" " "	"	" " "
"	" " "	"	" " "
"	April 1, '12	"	Apr. 6, "

Shipments over the line of the Chicago & North Western Railway Company on the train which leaves Milwaukee at 4 a. m. and arrives at Green Bay about noon, should ordinarily reach the places mentioned the following morning. The Chicago, Milwaukee & St. Paul train leaving Milwaukee at midnight reaches Green Bay the next morning, and goods shipped on the same to any such points should reach their destination the following forenoon. In explanation of the failure to keep the schedule time as indicated, it was contended by the respondents that there is not sufficient tonnage to justify through service daily from Milwaukee to points on the Green Bay & Western Railroad. At present it is the practice of the carriers in case of a car

containing less than 10,000 lbs. for points west of Green Bay to put merchandise into the cars for points north and east of Green Bay. This necessitates taking the car on its arrival at Green Bay to the transfer house and unloading goods for points not on the line of the Green Bay & Western Railroad. This generally consumes the greater part of the day on which the car arrives, and therefore the car is not usually transferred to the Green Bay & Western road until the day following, after the west-bound train has departed. As a result, the goods remain in Green Bay another day. Some days delivery to the final carrier is made on the afternoon of the arrival of the car at Green Bay, and in that event the merchandise moves to its destination the following morning.

Notwithstanding the favorable location of the Green Bay merchants with respect to the territory complained of, yet the Milwaukee merchants who are located on connecting lines are entitled to have their goods transported without unnecessary and avoidable delay. In the very nature of things it is impossible for goods to be delivered from Milwaukee to points west of Green Bay with the same expedition and promptness that goods are delivered from Green Bay. Nevertheless, it seems that, with proper diligence on the part of the carrier, goods arriving by way of either the Chicago, Milwaukee & St. Paul Railway or the Chicago & North Western Railway trains at Green Bay for points west could be delivered to the final carrier on the evening of their arrival, and be transported to their destination the following morning. We can see no reason why more than eighty-four hours should be required for transporting merchandise in less than carload lots from Milwaukee to Seymour, Black Creek, and Shiocton. Under the circumstances, the respondents will be required to render more expeditious freight service from Milwaukee to the points named.

NOW, THEREFORE, IT IS ORDERED, That the Chicago, Milwaukee & St. Paul Railway Company, the Chicago & North Western Railway Company, and the Green Bay & Western Railroad Company so arrange their schedules that goods shipped by petitioner in less than carload lots from Milwaukee to Seymour, Black Creek, and Shiocton shall reach their destination within a period of eighty-four hours from the time that such goods are delivered to carrier at Milwaukee.

EDWARD J. CHROMASTER

vs.

MILWAUKEE NORTHERN RAILWAY COMPANY.

Decided Aug. 15, 1912.

The M. N. Ry. Co. prays for a modification of the former order, *Chromaster v. M. N. Ry. Co.* 1912, 8 W. R. C. R. 734. The complaint relates to the requirement for twenty-minute service on Saturday afternoons.

Held: Thirty-minute service is adequate for the time in question. The former order is modified insofar as it relates to Saturday afternoon traffic, and the company is authorized to establish a thirty-minute service between Milwaukee and Brown Deer on Saturday afternoons during the summer months.

The respondent having made application to the Commission for a modification of its order of March 12, 1912 (*Chromaster v. M. N. R. Co.* 1912, 8 W. R. C. R. 734), whereby a twenty-minute local service was ordered to be established on Saturday afternoons, Sundays, and holidays, during the summer months, between Milwaukee and Brown Deer; and the respondent having submitted to the Commission statements showing that twenty-minute service on Saturday afternoons during the summer months was a hardship to the company, the Commission ordered its engineering staff to fully investigate the service between Milwaukee and Brown Deer on the days designated; and the report of our engineers showing that cars operated on a thirty-minute headway between Milwaukee and Brown Deer will provide ample transportation facilities for this class of traffic on Saturday afternoons during the summer months and this modified schedule being acceptable to the petitioner in this case:

Now, THEREFORE, THE COMMISSION DOES HEREBY MODIFY ITS ORDER of March 12, 1912, insofar as same relates to the Saturday afternoon traffic, and authorizes the respondent to establish in lieu thereof a thirty-minute service on Saturday afternoons, during the summer months, between Milwaukee and Brown Deer.

TOWN OF GILLETT

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Decided Aug. 16, 1912.

The petitioner, the town of Gillett, Oconto Co., Wis., alleged that a new highway, beginning near the southwest corner of sec. 14, town 28 N., range 18 E., running in a northerly direction, is intersected by the C. & N. W. Ry. Complaint was made that the railway company refuses to install the required crossing and refuses to allow the petitioner to install the same.

The respondent railway company challenged the validity of the action of the town board of supervisors in laying out the new highway, and the necessity of the highway was also questioned.

Held: Whether the necessary steps were taken to lay out the highway in the manner prescribed by statute can only be determined by the courts. The town supervisors are the judges, under the statute, of the necessity for the highway. The Commission, however, may determine the manner and mode of crossing prior to the actual establishment of the highway and independently of the question whether the highway has been lawfully established or not. (Wis. St. sec. 1797—12e.)

The desired location of the crossing is the only practical one. The crossing does not require protection. It is ordered that the crossing of the proposed highway be constructed at grade, and that the town of Gillett and the railway company each bear one-half of the cost of construction.

The petitioner herein alleges that its supervisors laid out a certain highway hereinafter described, and sets forth in detail the proceedings taken. It further alleges that demand has been made upon the respondent railway company to open and install a crossing over the property of the company on the line of such highway, but that the respondent not only neglects and refuses to open and install such crossing, but also refuses to allow the petitioner to open and install the same. It further alleges that the public safety and convenience requires that there shall be opened and established and maintained a public crossing at the point of intersection of such highway with the line of the railway company.

The highway is described as follows: Beginning at a point 25 ft. east from the southwest corner of sec. 14, township 28,

range 18, thence running in a northerly direction to a point on the $\frac{1}{8}$ line between the n. w. $\frac{1}{4}$ of the s. w. $\frac{1}{4}$ and the s. w. $\frac{1}{4}$ of the s. w. $\frac{1}{4}$ of sec. 14, township 28, range 18, 25 ft. east from the northwest corner of the s. w. $\frac{1}{4}$ of the s. w. $\frac{1}{4}$ in such section, town and range, the highway to pass through the line owned by the Chicago & North Western Railway Company in the town of Gillett, Oconto county. The line of survey is the center of the highway, and the same is laid out with a width of three rods.

The respondent railway company, answering the petition, denies that the public safety or convenience requires there shall be opened or established or maintained a public crossing at the point of intersection of the highway with the line of the railway company.

The matter came on for hearing on Jan. 9, 1912, and at an adjourned hearing on April 17, 1912. The petitioner was represented by *E. C. Smith*, its attorney, and the respondent by *C. A. Vilas*, its attorney.

The validity of the proceedings of the board of supervisors was challenged by the railway company. It becomes unnecessary to consider the question thus raised, as that is a matter upon which the Commission cannot pass. Whether the necessary steps were taken to lay out the highway in the manner prescribed by statute, can only be determined by the courts. Considerable testimony was introduced bearing upon the necessity of the highway in question, but with the question of such necessity the Commission is not concerned. The supervisors of the town have undertaken to lay out the highway and they alone are the judges, under the statute, of the necessity of the same. The only question that can be considered by the Commission is the location and the manner of the crossing of the respondent's tracks by the proposed highway. This can be determined independently of the question whether the highway has been lawfully established or not, for the actual laying out of a highway is not a condition precedent to the jurisdiction of the Commission. The statute contemplates the determination of the manner and mode of crossing of new highways prior to their actual establishment. The language material and applicable to the situation here under consideration is as follows:

“Whenever a petition is lodged with the commission by
* * * the town board of any town * * * within * * *

which a highway * * * is proposed to be laid out across a railroad * * * to the effect that public safety * * * required the determination of the mode and manner of making such new crossing, and praying that the same may be ordered, it shall be the duty of the commission * * * ” etc.—Wis. St. sec. 1797—12e.

It seems that the only practical location of the crossing is at the point proposed by the petitioner. As the highway will evidently serve but very few persons at the present time, we do not deem that the crossing will be sufficiently dangerous to require the same to be protected. A separation of grades at the point of the crossing is not practicable. Therefore the crossing must be established at grade. The cost of constructing the crossing is of little consequence. However, the statute provides that the Commission shall apportion the cost and expense of a new crossing between the railway company and the town. We deem, under the circumstances involved, if the crossing shall be constructed, that each party shall bear one-half of the cost of constructing the same.

NOW, THEREFORE, IT IS ORDERED, That the crossing of the proposed highway over the tracks of the Chicago & North Western Railway Company be constructed at grade, and that the town of Gillett and the railway company each bear one-half of the cost and expense of constructing such crossing.

TOWN OF BUFFALO

vs.

MILWAUKEE, SPARTA AND NORTH WESTERN RAILWAY COMPANY.

Submitted Feb. 13, 1912. Decided Aug. 16, 1912.

Complaint was made by the town board of Buffalo of the M. S. & N. W. Ry. crossing known as Graham's crossing and located in sec. 14, town 14, range 10 east, in the town of Buffalo, Marquette county, Wis. The petitioner alleges that trains approaching from the east cannot be seen from either approach to the crossing and that the crossing is unsafe for travel.

Held: The crossing in question is dangerous and requires protection. Respondent is ordered to install and maintain an automatic electric crossing alarm bell, with an illuminated sign for night indication. Plans showing the circuit arrangement for the bell and light are to be submitted to the Commission for approval. Sixty days is deemed a reasonable time within which to comply with this order.

The petition, signed by the town board of the town of Buffalo, Marquette county, sets forth that the Milwaukee, Sparta & North Western Railway Company is a common carrier, engaged in the transportation of persons and property by railroad between points in the state of Wisconsin, and as such is subject to the laws of the state relative thereto; that the respondent's line of road crosses a highway in sec. 14, town 14, range 10 east, in the town of Buffalo; that the respondent agreed to grade the highway on each side of the right of way to a level with the track, and to properly gravel the approach on the east, but only a portion of this work has been done; that trains approaching from the east cannot be seen from either approach to the crossing, and that the crossing is unsafe and dangerous to human life. Wherefore, petitioner prays that the respondent be required to properly protect the crossing.

The respondent, in its answer, admits that some protection is necessary for the crossing, and states that materials have been ordered and preparations made for installing a crossing bell at the point mentioned, and that it will be installed and put in operation at the earliest date possible.

A hearing in this matter was held on Feb. 13, 1912, at the office of the Commission in the city of Madison. *D. E. Cadigan* appeared for petitioner and *C. A. Vilas* represented the respondent.

The testimony shows that the Milwaukee, Sparta and North Western Railway crosses the highway in question in a north-westerly and southeasterly direction, while the highway runs southwest and northeast. The highway is an unimportant thoroughfare and is not very heavily traveled. The approach to the crossing from the southwest is about level, but the road has been cut down by the railway company to a depth of about four feet, leaving a bank about eight feet high in the southeast angle which obstructs the view of trains coming from the southeast until a person is within a few feet of the railroad right of way. The view in this direction is further obscured by timber and underbrush. A train coming from the northwest can be plainly seen because the ground north of the highway is low and marshy. On approaching the crossing from the northeast, the view is good to within six or eight rods of the track, after which the heavy timber on each side of the highway obscures the view up to the right of way. This approach is not regarded by the town officials as very dangerous as the road is wide enough for a team to turn around. Some dissatisfaction was expressed by the town chairman at the hearing with regard to the condition of the roadway, but the respondent stated that the crossing was to be readjusted in the spring and would then be properly surfaced with gravel. Representatives of the respondent testified that they did not consider the crossing particularly dangerous, but were willing to install an automatic electric bell, which they believed would give adequate protection to the public.

An examination on the ground has been made by one of the engineers of the Commission who reports the crossing to be dangerous and requiring protection. He recommends that an automatic electric bell, supplemented by an electric sign for night indication be installed.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Milwaukee, Sparta & North Western Railway Company, install and maintain an automatic electric crossing alarm bell, supplemented by an illuminated sign for night indication at Gra-

ham's crossing, located in sec. 14, town 14, range 10 east, in the town of Buffalo, and that plans showing the circuit arrangement for the bell and light be submitted to the Commission for approval.

Sixty days is deemed a reasonable time within which to comply with this order.

IN RE INVESTIGATION BY THE COMMISSION, ON ITS OWN MOTION, OF THE RATES, RULES AND REGULATIONS OF THE FOLLOWING COMPANIES WHICH FURNISH ELECTRIC ENERGY OR SERVICE FOR LIGHTING AND POWER PURPOSES IN THE CITY OF MILWAUKEE:

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY,
PLANKINTON ELECTRIC LIGHT AND POWER COMPANY,
COMMONWEALTH POWER COMPANY,
WELLS POWER COMPANY,
RAILWAY EXCHANGE BUILDING COMPANY,
COLBY AND ABBOTT BUILDING COMPANY,
MOLITOR AND HUMMELL REALTY COMPANY.

Decided Aug. 20, 1912.

Complaint was made that discriminatory practices were resorted to among competing companies furnishing electric current in Milwaukee, Wis. The T. M. E. R. & L. Co. petitioned for the establishment of such rates, rules and regulations for the utilities involved as would put a stop to the practices complained of. The Plankinton Lt. & P. Co. made a similar complaint and asked for authority to put in effect a lower rate schedule whenever necessary to protect its business from the encroachment of the Commonwealth P. Co. It was found that unjust discriminatory practices had brought about a situation that verged upon a destructive rate war. The Commission on its own motion investigated the rates, rules and regulations of the T. M. E. R. & L. Co., Commonwealth P. Co., Plankinton El. Lt. & P. Co., Wells P. Co., Railway Exchange Bldg. Co., Colby & Abbott Bldg. Co., and the Molitor & Hummell Realty Co. Pending the investigation an order was directed to the Commonwealth Co. and the T. M. E. R. & L. Co. suspending such practices as would tend to aggravate the situation.

The franchise of the T. M. E. R. & L. Co. covers the entire city and this company comes in competition with all the other companies named. The franchises or rights of the other companies appear to be limited to certain sections of the city. The companies maintain separate schedules and sets of rules and regulations. The T. M. E. R. & L. Co. is so situated that when all the factors are taken into consideration, such as reserve requirements, size of its business, and provision for extra demand that may arise, it is quite obvious that the plant and equipment cannot be much, if any, smaller than would be required if it had to furnish all the services for the entire city. The city, however, adopted the policy of permitting other companies to come in and share or compete for the business. The result is that in this city much more property, supplies, labor and services of all kinds are employed in furnishing electric energy for light and power than would be the case if one company with one set of organizations gave this service. These duplications cost money, cause greater depreciation and inter-

est charges as well as higher operating expenses than would otherwise be needed, which fall as an increased burden on the people served.

The T. M. E. R. & L. Co., Commonwealth Co. and the Plankinton Co. have a maximum demand schedule which is the same for the three companies and which for each company is limited by increment rate schedules applied as maximum rates. For power these increment or maximum schedules are also the same for all three companies, but for lighting the increment or maximum schedules differ. It appears that during the past few months the Commonwealth Co. has carried on an aggressive campaign for new business. In order to obtain new business, it has so interpreted its rate schedule that it could apply its increment or maximum power rates for lighting as well as power purposes. These increment power rates for certain classes of users are as much as 2 cts. per kw. hr. lower than its own increment lighting rates, and for certain classes 4 cts. lower than the increment lighting rates of the Plankinton Co. and T. M. E. R. & L. Co. The Commonwealth Co. justified this practice by a paragraph in its rate schedules which provides a reduced rate "for the operation of electric motors" or for "any purpose" to customers not receiving free renewals of the company's standard lamps. The position of this paragraph and the circumstances connected with it indicate quite clearly that it was intended as a "joker." The rate schedule in question was undoubtedly built upon the theory that the rates for lighting should be kept at a higher level than the rates for power. That this is the case is evident not only from the way it is constructed but from the manner in which it was applied until the late campaign for business was begun. Due to the interpretation of the paragraph in question, customers receiving the regular lighting service, except free lamp renewals, were allowed a reduction of 2 cts. per kw. hr. The cost of lamp renewals does not exceed $\frac{1}{2}$ ct. per kw. hr. and it is a serious question whether this practice is not unlawful as well as unjust. Certain other practices were also employed in order to obtain business, not always in line with the provisions in the rate schedule. The T. M. E. R. & L. Co. has in its rate schedule a paragraph identical with the one of the Commonwealth Co. Just how this paragraph may have been used in the past was not fully disclosed. It appears that at present it was not interpreted to permit the substitution of the increment power rates for the increment lighting rates. This company, however, has in effect many rates which appear discriminatory. Concerning the remaining companies little or nothing was brought out that tended to show that, for the present at least, they attempted to secure new business by any such methods as those complained of.

Held: The practice of substituting power rates instead of the lighting rates properly applicable under the schedules in the present case results in unjust discrimination.

It appears to have been the practice of several companies to allow an occasional variation from the maximum demand for power service of about 33 $\frac{1}{3}$ per cent. The justification for this practice lies in the fact that power service, unlike lighting service, seldom, if ever, occurs upon the winter peak. No objections can be found to this rule if it is consistently applied.

The method of determining the demand charge in the present case was questioned. The general practice of companies using the demand schedule is to base the determined demand upon the

greatest rate at which electric energy is used by the customers for fifteen consecutive minutes and no objection can be found to this practice if it is uniformly applied. It is the obvious intent of the present schedule that the demand charge be assessed upon the basis of the maximum demand for the year and be payable in twelve monthly installments. Such maximum demand for lighting service usually occurs during the winter months. Where service is connected during the summer months and the demand is unknown, some temporary assessment must be made of the demand charge until the differences between the estimated demand and measured demand can be accurately determined. It appears that it has been the practice of a number of companies in the present case to determine the demand monthly, thus placing at a disadvantage the consumers who connect for service during the winter months.

Held: Where the intent of the schedule is to base the demand on the maximum demand for the year, the practice of assessing it on the monthly basis results in discrimination.

Discrimination seems to have resulted in the present case from the practice of furnishing fixtures and other items at or below cost in order to secure customers. The cost of fixtures depends upon the character of the building, the taste of the customer and other local conditions, and after installation this equipment is practically out of the company's control. When the fixtures are furnished by the company the cost becomes a part of fixed charges and operating expenses and is borne by the consumers irrespective of their individual equipment.

Held: Since costs for fixtures depend on different causes and units than the other costs of service, they cannot often be equitably distributed among the consumers unless they are paid for directly. In the present case, the fixtures should be paid for by the customer directly at ruling prices. Any other practice in the struggle for business will lead to all sorts of preferences and irregularities.

Objection was made to a rule in the proposed schedule permitting the competing companies to supply customers' appliances, fixtures and equipment at not less than the cost price thereof, including interest at 6 per cent. It was contended that the cost of such supplies to the companies varied, and that new companies would be handicapped in extending their business.

Held: Rules regulating the furnishing of fixtures are necessary in order to prevent discrimination and to bring about an equitable condition between the utilities and their customers. Variations in the price of fixtures are not likely to be so great as not to admit of a cost that is fair to all. Since the rule in question simply permits the utilities to furnish fixtures, but does not compel them to do so and since the cost to the consumer is placed at a figure which would yield only the ordinary return in the way of interest, no utility can very well be harmed if it chooses to stay out of this part of the business. It is quite likely that such rules are more or less of a handicap to those who desire to secure business through special favors, but since they affect one competitor as much as the other it is hard to find injustice in them. Undoubtedly a new company will be handicapped more than a well-established one, but to attempt to overcome such inequalities in conditions would permit a continuation of present discriminatory practices. The rule in the proposed schedule is just and reasonable under the circumstances in the present case.

- The practice obtained in isolated instances of billing separate premises belonging to a single owner under a single bill. This method caused considerable reduction in the total charge. Practices of this sort as a rule result in unjust discriminations. When contrary to the provisions in the rate schedules and rules they are also unlawful. Cumulative billing has clearly not been the intent of the schedules as filed with the Commission. From the wording of the schedules a customer must be defined as a single contracting party, since the minimum bills for service are based upon the cost of billing, reading, and maintaining of separate services.
- If special inducements are offered by any company in order to secure additional business, under such competitive conditions as prevail in the present case, it would lead not only to unjust and serious discriminations, but to rate wars from which in the end only harm can come to the public.
- Competition, in the very nature of things, cannot be a proper regulator in the public utility field. Competition means duplication of plants, excessive fixed and operating expenses and useless outlay. It stands for unnecessary tearing up and occupation of already overcrowded streets and alleys, the possible duplication of services on customers' premises and for many other inconveniences and costs.
- In the public utility field rate wars are so clearly against public policy that they should not be permitted under any circumstances. It is clearly in order to enable this Commission to prevent or stop such struggles that sec. 1797m-99 was included in the Public Utilities Law.
- Before being in a position to remedy the complaints in the present case it was necessary to obtain some idea of the approximate cost-value of the plants involved and the amounts which in each case appear to constitute the earnings and operating expenses.
- Held:* Public interests require that the rates, rules and regulations complained of should, temporarily at least and pending further investigation, be so altered and amended as to, as far as is both just and practicable, place the contending utilities in relatively the same position with reference to their customers or the business to be had, and so as to eliminate as far as possible such discriminations as between customers and others which are unjust and inimical to public interests. On the whole the present schedules of the companies are fully as high as they should be. Certain reductions and modifications should be made in the demand and other rates insofar as they effect business lighting and power. Such reductions in the rates for the three companies which are mostly concerned in these proceedings, the Railway, the Commonwealth, and the Plankinton, would seem to be justified by the facts. The rates as thus reduced would also seem to apply to the Wells P. Co., although in this case it would result in about as many increases as decreases in the rates, neither of which would seem to be serious or out of line with conditions. As the Railway Exchange Bldg. Co., the Colby & Abbot Bldg. Co., and the Molitor & Hummell Realty Co. were more indirectly involved in the original proceeding which led to this case, and as the relation of these companies to the issues involved has as yet not been fully investigated, it is thought best, pending the final conclusion in the matter, not to include these three companies in this order. It is ordered that the T. M. E. R. & L. Co., the Commonwealth P. Co., the Plankinton El. Lt. & P. Co., and the Wells P. Co. abandon their present schedule for commercial lighting and power service

and, pending further investigation, substitute the approved standard rate with accompanying rules and regulations, deemed just and reasonable under the provisions of ch. 499, Laws of 1907. Schedules of the above companies now in force for residence lighting service, federal, county and municipal building service and high tension water power service are to remain unchanged. This order is to apply to service billed for the month of September, and is to supersede the temporary orders in the matter.

This is an investigation of the rates, rules and regulations of the above public utilities furnishing electric service in Milwaukee. It is made pursuant to the Public Utilities Law, and especially under sec. 1797m-99 thereof. The reasons for this investigation are found in certain complaints affecting these rates and rules that were made to the Commission, and in the further fact that, in investigating these complaints, the Commission found that in order to obtain new or additional business at least one of the above companies resorted to practices which appeared discriminatory and almost certain to lead to such further struggles for business which in the end would be inimical to public interests.

July 11, 1912, The Milwaukee Electric Railway and Light Company filed a complaint with this Commission alleging therein in substance that certain practices were resorted to in order to obtain electric light and power business in Milwaukee that were discriminatory and that were also injurious to property and business used in serving the public and therefore affecting the public interest. In this complaint the above company also asked this Commission to investigate the matter and to establish such rates, rules and regulations for the utilities involved as would put a stop to the practices complained of.

A few days later the Plankinton Light and Power Company made an informal complaint to the same effect, and in addition to this asked for authority to put into effect a new and lower rate schedule than the one it then had, to be used by it whenever necessary to protect its business from such encroachments as were made upon it by the Commonwealth Power Company. These complaints caused the Commission to investigate the situation. In this investigation it was discovered that at least one of the companies, namely, the Commonwealth Power Company, partly through such applications of its rate schedules as to bring about lower rates than the existing lighting rates, and partly also through certain methods of computing the monthly

bills and of furnishing fixtures, etc., which appeared questionable, was gradually securing for itself the business and customers of some of its competitors. It was also found that these methods were resulting in unjust personal discriminations and had brought about a situation that verged upon a destructive rate war that would not only be injurious to public interests but to the companies themselves. For these and other reasons the present investigation was ordered. In addition to this the Commission, upon further representations, also found it necessary soon thereafter, and pending this investigation, to suspend by order certain ones of the practices complained of. This order was dated July 31, 1912, and was directed to the Commonwealth Power Company and The Milwaukee Electric Railway and Light Company.

The following companies furnishing current for lighting, power, and other purposes in Milwaukee were included in the original complaint as well as in the present investigation: The Milwaukee Electric Railway and Light Company, Commonwealth Power Company, Plankinton Electric Light and Power Company, Wells Power Company, Railway Exchange Building Company, Colby and Abott Building Company, Molitor and Hummell Realty Company.

The notice of the investigation by the Commission was dated July 24, 1912. The hearing in the matter was held in the city hall in Milwaukee, Aug. 6, 1912. At the hearing The Milwaukee Electric Railway and Light Company was represented by *J. B. Blake* and *A. H. Fairchild* of *Miller, Mack & Fairchild*; the Commonwealth Power Company was represented by *Walter Drew* of *Drew & Jamieson*; the Plankinton Light and Power Company and the Wells Power Company were represented by *Charles C. Russell* of *Cary, Uppham & Black*; the Railway Exchange Building Company was represented by *W. Drappers*; the Molitor and Hummell Realty Company was represented by *J. P. Hummell*; the Colby and Abbott Building Company apparently had a representative present but did not take part in the proceedings. The city was represented by *G. S. Canwright*, assistant city attorney.

The franchise of The Milwaukee Electric Railway and Light Company covers the entire city and this company, therefore, in its business, comes in competition with all of the other companies named. The franchises or rights to do business of the remain-

ing companies appear to be limited to certain areas or sections of the city, and their business is therefore for the most part, though not entirely in all cases, confined to their respective territories.

These companies also maintain separate schedules and sets of rules and regulations which differ more or less from each other. The Milwaukee Electric Railway and Light Company, the Commonwealth Power Company, and the Plankinton Light and Power Company, among other rates, have a maximum demand schedule which is the same for the three companies, and which for each company is limited by increment rate schedules which are applied as maximum rates. For power these increment or maximum schedules are also the same for all of these three companies. For lighting, on the other hand, the increment or maximum schedules differ as between these companies. The one maintained by the Commonwealth Power Company, for instance, is from less than 1 to about 2 cts. per kw. hr. higher than its increment power schedule, while the increment lighting schedules for The Milwaukee Electric Railway and Light Company and the Plankinton Light and Power Company are from less than 1 to about 4 cts. per kw. hr. higher than their increment power schedule. As the increment or maximum power rates are the same for all of these three companies, it follows that the increment or maximum lighting rates for certain quantities of current are as much as 2 cts. per kw. hr. higher for the latter two companies than for the Commonwealth Power Company. Of the other companies the Colby and Abbott Building Company apparently has about the same rate schedules in effect as The Milwaukee Electric Railway and Light Company. The rate schedules for the three remaining companies, the Wells Power Company, Railway Exchange Building, and the Molitor and Hummell Realty Company, while differing as between themselves, appear on the whole to be somewhat lower than the rate schedules just described.

From the testimony and other facts it appears that during the past few months the Commonwealth Power Company has carried on a rather aggressive campaign for new business, and that in order to obtain such business, it has so interpreted its rate schedules that it could apply its increment or maximum power rates for lighting as well as for power purposes. As these increment power rates, as pointed out above, for certain

classes of users are as much as 2 cts. per kw. hr. lower than its increment lighting rates, and for certain classes of users as much as 4 cts. per kw. hr. lower than the increment lighting rates of the Plankinton Light and Power Company and of The Milwaukee Electric Light and Railway Company, it is not difficult to understand the success of the Commonwealth Power Company in securing their business. From these and other facts it is also obvious that in order to hold their customers the Railway company and the Plankinton company would either have to reduce their rates to a lower figure than those of the Commonwealth Power Company, or endeavor to have these practices stopped through the establishment of fair rates by this Commission. The former method, as was plain, would not only have resulted in lower than reasonable rates, but in still further reductions in the rates by one or more of the companies. The latter method was therefore the only one under which there could be any hope of obtaining equitable results, and this is also the one that was chosen.

The Commonwealth Power Company justified its practices in securing business by the necessities of the situation and by paragraph 4 in its rate schedules which reads as follows:

“The foregoing rate less $\frac{1}{2}$ ct. per kw. hr. shall apply to (1) all customers utilizing company’s service for the operation of electric motors and not receiving free renewals of company’s standard lamps, and (2) all customers utilizing company’s service for *any purpose* and not receiving free renewals of company’s standard lamps.”

This paragraph occupies such a position in the rate schedule, that it is by no means clear to us that it can lawfully be interpreted so as to permit the use of the power rates for lighting purposes, except as specifically provided elsewhere in the schedule. It appears immediately after the paragraphs therein which contain the so-called demand schedule, which applies to both lighting and power, and also after provisions for lamp renewals. On the other hand, it is placed ahead of the so-called increment rates which are given separately for lighting and power, the former being the highest, and which increment rates are merely given as maximums under the demand rates. The position of this paragraph and the circumstances connected with it are in fact such as to indicate quite clearly that this paragraph was intended as a “joker” to be used for special pur-

poses. It is one of those discriminatory provisions which in the past have been so common in the rate schedules of public utilities.

The rate schedule in question was undoubtedly built upon the theory that the rates for lighting should be kept at a higher level than the rates for power. That this is the case is evident, not only from the way it is constructed, but from the manner in which it was applied until the late campaign for business was begun. This is also sound both in theory and practice. It is a method that for these reasons is now almost universally adopted. The schedule, however, has of late been so applied that some lighting customers are charged a maximum rate of 10 cts. per kw. hr., while other customers under similar conditions, except as to lamp renewals, are charged a maximum rate of 8 cts. per kw. hr. As the cost of lamp renewals of the kind in question here does not, according to the testimony in the case and according to facts obtained by this Commission upon investigation, exceed one-half of one cent per kw. hr., it is a serious question whether this practice is not unlawful as well as unjust.

Lower rates for power than for lighting service are usually justified on the ground of differences between them, both as to cost and character. The power service is ordinarily sold in larger quantities. It often requires less in the way of wire and pole lines and other equipment as well as less steadiness as to voltage. In addition to these and other factors it is largely an off-peak business. In character this service is as a rule regarded as of a lower grade than the lighting service. These and other facts and conditions tend to materially reduce the cost value of the power service. Since the cost value of this service is less, it is proper that the rates charged for the power service should be lower. These differences between the lighting and the power service, while perhaps less pronounced for the Commonwealth Power Company than for at least some of the other companies involved, are nevertheless certain to be present to such an extent in its service also as to warrant considerable difference in these two classes of rates.

The testimony indicated that certain other practices were also employed in order to obtain, and perhaps also to retain, business, that were not always in line with the provisions in the rate schedules. One of these was to permit the consumption for

several services and meters for the same customer, even when located in separate buildings, to be included in computing the monthly bill, because this method caused considerable reduction in the total charge. Another method was to base the demand charge upon the monthly instead of on the maximum demand. Again, in various ways fixtures and other items seem to have been furnished at or at less than cost. Practices of this sort can not only be made very effective in securing business, but they also, as a rule, result in unjust discrimination. When contrary to the provisions in the rate schedules and rules they are also unlawful. It is probable that in the past more than one company has resorted to these and similar practices.

The Milwaukee Electric Railway and Light Company also has in its rate schedule a paragraph which is identical with paragraph 4 in the schedule of the Commonwealth Power Company, which has already been discussed. The testimony and facts, however, indicated that at present its interpretation of this paragraph was not to the effect that it permitted the substitution of the increment power rates for the increment lighting rates. Just how this paragraph may have been used in the past was not very fully disclosed. It appeared, however, that this company also has in effect many rates which appear to be discriminatory.

Concerning the remaining companies little or nothing was brought out that tended to show that, for the present at least, they attempted to secure new business by any such methods as those mentioned.

That practices of this kind under such competitive conditions as those which prevail in Milwaukee should lead not only to unjust and serious discriminations but to disastrous rate wars from which in the end only harm can come to the public, is obvious to all who have paid attention to such matters. Unjust personal discriminations are always injurious, not only to the person adversely affected but from the point of view of public interest. When carried far enough, or in their exaggerated form, they usually drive those, who are not favored, out of business and leave the favored persons in control of the situation. In the past such practices have often defeated the laws of competition. It has also, as a rule, led to questionable business practices in other respects.

Rate wars usually mean, for a time at least, lower than paying rates, failure to keep the plant in good operating condition, and in the long run inadequate service. They often result in financial ruin to one or more of the plants involved, the crippling of the rest, and in the ultimate consolidation of the remnants of all into one concern. When peace has in this way been restored, it is often necessary, in order to secure adequate service, to advance the rates, not only to the level which prevailed before the contest, but to even higher figures. This has been the history of rate wars from their beginning and there is nothing to indicate that this would not be the result in these cases. If the war was permitted to go on, such results could not even be entirely prevented by the Public Utilities Law, for the only way in which ruined plants can be made to furnish adequate service is through the investment of additional capital, and this can only be had at rates that are high enough for reasonable returns. In one way or another losses and destruction due to rate wars are in the end almost certain to have to be borne by the public. In the end the customers also will lose more through bad service and high rates than they gained through the temporary low rates which they enjoyed during the struggle. In the public utility field rate wars are so clearly against public policy that they should not be permitted under any circumstances. This is also recognized in the Public Utilities Law, for it is clearly in order to enable this Commission to prevent or stop such struggles that sec. 1797m—99 was included therein.

These points have been more fully discussed by this Commission in its decision in the first application of the La Crosse Gas and Electric Company for authority to increase its rates; and in *Kenosha El. Ry. Co. v. Kenosha G. & El. Co.* 1911, 8 W. R. C. R. 119. In the former decision the Commission said in part:

“Duplications of such plants is a waste of capital, whenever the services can be adequately furnished by one plant only. It necessarily means that interest and maintenance must be earned on a much greater, if not twice as great, an investment and that the actual cost of operation is likely to be relatively higher. Competition in this service therefore usually means a bitter struggle and low rates, until one of the contestants is forced out of the field, when the rates are raised to the old level if not above it, or to a combination or understanding of some sort between them which also ultimately results in higher rates. In this way it often happens that the means which were thought

to be the preventative of onerous conditions become the very agents through which such conditions are imposed. In fact, active and continuous competition between public utility corporations, furnishing the same service to the same locality seems to be out of the question. This has been shown by experience. Such competition is also contrary to the very nature of things. Two distinct and separate corporations are not likely to remain separate very long after it becomes clear that the services rendered by both can be more cheaply and more effectively furnished by only one of them." *In re Appl. La Crosse G. & El. Co.* 1907, 2 W. R. C. R. 3, 5.

The following quotation from the decision of the public service commission for the second district of New York, in the application of the Lockport Electric Company for authority to consolidate and to issue bonds, is also in point:

"A business which supplies to a community a public utility like gas, or electricity for light or power, is one in which free and full competition between two companies engaged in the same business can not be expected to prevail permanently. Experience has, we think, amply demonstrated the fact that when there is more than one such company in a municipality engaged in the same business, while active competition may prevail for a more or less brief period, the companies generally find it to their interest to reach an understanding either as to prices or division of territory, and in the great majority of cases the two companies either become one or the control of both passes into the hands of the same parties. It can doubtless be demonstrated beyond any possibility of successful contradiction that better service and fairer prices in furnishing such public utilities to a community can, as a general rule, be given by one corporation than by several and that this can be done with the use of less capital. The existence of more than one corporation furnishing the same public utility leads, for a time at least, to duplicate developments, to the building of plants which are not needed to serve the community, to the duplication of unsightly and expensive pole lines and distributing service, to costly and unnecessary tearing up and destruction of pavements, to administrative expenses greatly in excess of those which a single company would have to meet, and to increased leakage of gas or electric current. Undoubtedly municipalities have many times enjoyed periods of better service and lower prices by reason of temporary competition prevailing between two or more companies in the same field. After the almost inevitable consolidation, understanding or division of territory, however, the service often becomes poor, and prices are raised in an effort to make the city and its inhabitants bear the burden involved

in paying returns on the unnecessary capital invested in the duplicated plants. It is our belief that the provisions of the Public Service Commission Law show a full appreciation of these facts by the Legislature of the state." *Lockport Lt. Heat & P. Co. et al.* 1907, 1 P. S. C. Rep. (Ind. Dist. N. Y.) 12, 21-22.

That competition in the very nature of things can not be a proper regulator of rates and other conditions in the public utility field, would seem to be too well understood for discussion. A real competition in this field means duplications of plants, which duplications, when once put in, are for the most part useless for any other purpose than that for which they were intended, and which duplication, unlike current capital, cannot be withdrawn from the service and used for other purposes. It also means excessive outlays for fixed and operating expenses. Again, it stands for unnecessary tearing up and occupation of already overcrowded streets and alleys, the possible duplication of services on customers' premises, and for many other inconveniences and costs.

The question in point is illustrated by the situation in Milwaukee. In this city The Milwaukee Electric Railway and Light Company obtained a franchise to serve the entire city. This company is so situated that when the size of its business, the reserve requirements, the probable extra demand upon it that may arise at any time, and other factors are taken into consideration, it is quite obvious that the plant and equipment it has to maintain can not be much if any smaller than would be required if it had to furnish all the services needed in the entire city. Instead of requiring this company alone to furnish all of these services, the city adopted the policy of permitting other companies to come in and share it, or compete for the business. These companies also must be provided with plants and other equipment, including reserve requirements, as well as business and operating organizations. The inevitable result of this is that in this city much more property, much more in the way of supplies, labor, and services of all kinds are employed in furnishing electric energy for lighting and power purposes than would be the case if only one company with one set of organizations had been required to perform all this work. These duplications cost money. They stand for greater depreciation and interest charges as well as for higher operating expenses than would otherwise be needed. Just how much these extra costs

foot up to, is a matter that can only be fully determined by detailed investigations. But from the fact that each of the separate companies maintain separate plants and separate organizations all along the line, it is fair to assume that it amounts to large sums each year. The book value of the plants alone of the six companies, outside of the railway company, which are included herein, amounts to more than \$600,000. As the earnings of these plants, when taken as a whole, are also sufficient to cover fixed charges and operating expenses, it is also evident that the extra costs in question are not paper costs merely, but an actual expense upon the people of the city. The electric lighting and power service in Milwaukee therefore is not only confronted by a serious rate war, but it is more costly than it would be if furnished by one company. With respect to this extra cost, the situation is also such that it is not likely to be remedied in the near future.

The views thus expressed are also held by the Massachusetts board of gas and electric light commissioners, as may be seen from its report upon a franchise granted to a new company by the city of Worcester in 1893. This report is in part as follows:

“The evidence as presented to the board seems to afford no reasonable ground for the expectation that the proposed company could afford its lights for less than the existing company. * * * It does not possess and probably does not expect to acquire the exclusive control of any invention by which special saving in cost may be effected, and it cannot reasonably be expected to possess any higher technical or business talent than lies within the reach of the existing company.

“It is the duty of the board and its only purpose to secure to the people of Worcester, so far as it lies within its power, the best service at the lowest reasonable price. There is some reason to believe that the admission of the proposed company might seriously impede, perhaps wholly defeat, this object. It must be recognized that both companies are to be promoted and to be conducted for the sake of profit, and that they will be governed by the same laws as other companies in similar business. * * * The history of corporations doing an electric lighting and similar business in competition in various parts of the country afford strong ground for believing that a new company, if allowed to engage in business, would not long remain by itself, as competition for a period would probably be followed, as elsewhere, by consolidation or absorption. * * * But combinations and consolidations, as is well known, afford the op-

portunity and usually a temptation to stock development too great to be resisted. Such needless outlay should be avoided and saved, for when it has once been incurred or the money expended in an enterprise not required to supply the public wants, so great is the expectation of gain, and so persistent and unyielding the demands of capital for dividends, the remedy is not then easily found or applied, and the better policy avoids the evil at the outset by preventing the expenditure. * * *

“If to sustain this appeal shall seem to secure to the existing company a monopoly of the business, it must be remembered that it can only retain this as long as the public interest is best served thereby, and that such monopoly is conditional and restricted. The company claims and exercises a general franchise throughout the city. It may be compelled to meet all reasonable demands. If it unreasonably fails or neglects to supply light when requested, this board has power to compel such supply and has frequently exercised this authority in other localities. Consumers have a right to the lowest remunerative rates, and if they believe the prices charged are too high they can petition for a reduction, and the order of the board as to price is binding upon the company. While the interests of the shareholders, present or prospective, ought not to be overlooked, the convenience, comfort and pecuniary benefit to the community are surely of the first importance.” Mass. G. & El. Lt. Comm. 9th Ann. Rep. 1893, 23-26.

Again, in the *Haverhill* case in 1904, the Massachusetts board reached similar conclusions and said:

“Experience shows that the exploitation of a new company in a territory already occupied does not necessarily depend for its financial success upon the sale of electricity to the city and its citizens. That is by no means the only source of profit to such company. It has been repeatedly demonstrated that the profits of a new concern do not so much depend upon its dealings with the public as upon the relation which it may be able to establish with the company first in the field.

“If the request of the new company be granted, it may naturally be expected that for a time both city and commercial lighting will be offered by both companies at considerably less than present rates, but such competition, under the conditions in this case, is sure to be expensive, even though for a time apparently economical or profitable. We may confidently expect, first losses, then profits; losses in the conduct of the business and the struggle for a control of the situation; profits in the later union or consolidation; losses for a time in the supply of electricity, to be converted later into new capitalization as a perpetual and irremedial burden of the public. The temporary advantage to a portion of the public is reasonably sure to be

followed by an undue burden upon the public as a whole, through the larger capital demanding a return, much of it representing unnecessary duplication of properties as well as losses. * * *

“The action of the board upon this case is not to be taken as a refusal to admit of competition under all circumstances, nor as an endorsement or approval of the prices offered by the existing company, or of all the doings and policy of its management. It is the duty of this company to serve all its customers at prices at the lowest reasonable point, and to manage its business with such zeal, economy and enterprise as shall enable it to give the best possible service to the greatest number at the lowest cost. If it shall fail in this duty, the legislature has provided the methods by which its fulfillment may be secured, with an apparent purpose to avoid, if possible, the expensive and burdensome results so sure to follow such competition as was proposed in this case. The board has ample authority, upon the petition of the mayor or a limited number of customers, to thoroughly investigate all the company’s affairs, and make such orders as the public interest may require.” Mass. G. & El. Lt. Comm. 19th Ann. Rep. 1903, 24-25.

The supreme court of Massachusetts, in upholding the decision of the board in the case of *Weld v. Gas & Electric Light Commissioners*, said:

“The fundamental principles, relied on by the petitioner as applicable to corporations of this general class, are well established. But the laws of this commonwealth in regard to gas and electric lighting companies and the facts of this case give rise to considerations very different from those which induced the decisions in many of the cases above cited. In the first place, in reference to this department of public service, we have adopted, in this state, legislative regulation and control as our reliance against the evil effects of monopoly, rather than competitive action between two or more corporations, where such competition will greatly increase the aggregate cost of supplying the needs of the public, and perhaps cause other serious inconveniences. The state, through the regularly constituted authorities, has taken complete control of these corporations so far as is necessary to prevent the abuses of monopoly. Our statutes are founded on the assumption that, to have two or more competing companies running lines of gas pipe and conduits for electric wires through the same street would often greatly increase the necessary cost of furnishing light, as well as cause great inconvenience to the public and to individuals from the unnecessary digging up of streets from time to time, and the interference with pavements, street railway tracks, water pipes and other structures.” *Weld v. G. & El. Lt. Commissioners*, 1908, 197 Mass. 556, 558-559.

The appellate division of the New York supreme court has recognized the same theory. It interpreted the action of establishing the state commission as follows in 1908:

“It is the settled policy of the state to discourage competition of this character and the reasons for the adoption of this policy have been clearly stated by the court of appeals (*People ex. rel. N. Y. Electric Lines Co. v. Ellison*, 1907, 188 N. Y. 523). By sec. 11 of the Gas and Electric Commission Act of 1905 (ch. 737 of the Laws of 1905) it was provided that no corporation for the manufacture and supply of gas should exercise its power without first obtaining a certificate of authority from the commission, and the commission was authorized to withhold its certificate ‘if the territory within which such corporation proposes to operate is already supplied by an ample and well constructed system, furnishing the service which such corporation proposes to furnish at a fair and reasonable rate,’ and while the act containing this provision has been superseded and repealed by the Public Service Commissions Law (ch. 429, Laws of 1907), that act continued the prohibition of the exercise of its powers by any gas or electrical corporation until it shall first have obtained the permission and approval of the proper commission provided for by the act. * * *

“As has already been shown, the power which the state retains and has exercised to fix a reasonable price upon the commodity, and to compel its delivery to any person desiring to purchase it, removes any danger of the especial vice which attaches to monopolies in other articles in common use, and, as has also been shown, the consolidation of control brought about by the purchases of stock complained of does not in any proper sense create such a monopoly as the common law and our statutes condemn. *Matter of Attorney General*, 1908, 124 App. Div. (N. Y.) 401, 406-408.

An examination of the Public Utilities Law will disclose that it is among the duties of this Commission to investigate complaints as to rates, services and facilities; to determine and fix reasonable rates; to investigate the services rendered and facilities afforded and to see to it that these are reasonably adequate under the circumstances; to discover and prevent unjust discriminations of all kinds; and, when deemed necessary, to prevent injury to property employed in public service and affected with public interest, to temporarily alter and amend existing rates, rules and regulations. That the law covers such conditions as those at issue in these cases seems clear, not only from the reading of the various provisions therein but from the

circumstances under which they were enacted and from what is required in order to carry out the law as a whole, both in spirit and fact.

From the facts that have been thus obtained in these cases it appears to us that public interests require that the rates, rules and regulations complained of herein, and which have been the subject of this investigation, should, temporarily at least and pending further investigation, be so altered and amended as to, as far as is both just and practicable, place the contending utilities in relatively the same position with reference to their customers, or the business to be had, and so as to eliminate as far as possible such discriminations as between customers and others which are unjust and which are inimical to public interests.

This conclusion in the matter at once raises the question, how can the existing rates, rules and regulations be so altered and amended as to put a stop to the practices which have thus been found to be unjust, and to be inimical to public interests? It is manifest from the facts and conditions in these cases that this cannot be accomplished by adopting one set of rates and rules for one company and another set of rates and rules for another. Nor can it be accomplished by simply withdrawing the existing rates and rules and permitting the companies to establish rates and rules of their own. If harmony is to be restored at all it must be through some other means. In considering the situation as a whole, it would seem that this can only be accomplished by the establishment of rates, rules and regulations, which, as stated above, will place the contending and competing companies in relatively the same position with reference to the service and the business to be had. Any rates, rules and regulations under which it is possible for one company to obtain any advantage over the others with reference to the securing of customers will necessarily be found ineffective to that end. They would simply result in the continuance of the present situation if not in aggravating it.

In order to be in position to promulgate rates and rules in these cases that are fair as between the utilities under the circumstances and also, under existing conditions, reasonable from a legal point of view, we have carefully examined the facts presented at the hearing, the annual reports of the companies to this Commission, and many other facts. Such examinations

were necessary in order to obtain some idea of the approximate cost value of the plants involved, the amounts which in each case appear to constitute the earnings and operating expenses, and the kind of rates and rules that would best meet the situation. While the facts thus obtained with respect to cost of the service and the conclusions to which they lead are perhaps not as accurate in every respect as would be the case if the plants had been valued in detail and the accounts were carefully audited, it is our impression that the costs per unit, or the cost curves which have been computed therefrom and which are given herein, are nearly enough correct to be of material aid in determining what rates in this case are proper under the circumstances. It is also our impression that the facts we have secured with respect to the rules and regulations are of such character that they will be of material assistance to us in formulating rules and regulations that, under the circumstances, are, as nearly as practicable, just to all. Because of lack of space all of the details upon which our conclusions are based can not be presented herein.

The average cost per kilowatt hour, or the so-called cost curves for the Wells company, the Plankinton company, the Commonwealth company, and the Railway and Light company, are given below. For the Railway company the figures are based on the report for the fiscal year 1912. For the three other companies the figures are based on their reports for the fiscal year ending June 30, 1911. The figures are made up of that part of the cost which depends on the demand and of that part which depends on the output. The latter costs per kw. hr. amounted to 3 cts. for the Wells; 2.59 cts. for the Plankinton; 1.59 cts. for the Commonwealth; and to 2.09 cts. for the Railway. As lighting is largely "on peak" and power largely "off peak" business, the costs for the former are somewhat higher and the costs for the latter somewhat lower than the figures given. The respective costs for these two classes of service are also affected by length of the distribution systems that are required in each case. The separations of the expenses between the demand and the output costs were made on the bases usually employed by this Commission and which have been explained in other decisions.

The differences that are noticed as between the unit costs for the several plants are mainly due to differences in the volume

of business, to differences in the relation which this volume bears to the reported investments, and to other variations between them with respect to operating conditions, and perhaps also, to some extent, to their methods reporting the results of their operations. Something over two years ago the cost per unit of the output expenses for the Railway and Light company, under the same methods of figuring, amounted to about 1½ cts. per kw. hr. more than it does to-day. At that time the total amount per kw. hr. of both the demand and output costs for the one hour users was something over eleven cents.

COSTS IN CENTS PER KILOWATT HOUR.

Hours of daily use of installation.	Wells Power Co.	Plankinton Co.	Commonwealth Co.	Railway and Light Co.
1 hour	14.88	15.68	12.24	10.35
2 "	8.94	9.14	6.92	6.22
3 "	6.96	6.99	5.14	4.85
4 "	5.97	5.87	4.25	4.16
5 "	5.38	5.21	3.72	3.75
6 "	4.98	4.77	3.36	3.47
8 "	4.49	4.23	2.92	3.13
10 "	4.19	3.90	2.65	2.92
24 "	3.54	3.14	2.12	2.44
Output costs.....	3.00	2.59	1.59	2.09

*In computing the above costs per unit the operating expenses and depreciation charges of the companies were accepted as given in their reports, while the interest charges were figured at 7 per cent on the book values as reported to us. Detailed appraisals of the plants and careful audits of their books might result in changes in the basic figures as well as in the above costs, although it is not believed that those changes would be of such nature as to materially disturb the relations which the costs for the various companies bear to each other. The use of 7 per cent as the rate allowed for interest and profit does not mean that this figure is regarded as more than the approximate rate that should be used in computations of this sort under the circumstances in question.

The costs for operating expenses, including depreciation and interest charges on the basis given, are in no case as high or higher than the corresponding gross earnings. Nor are the costs per unit as given above, as a rule, as high or higher than the rates actually charged. The inference from this is that on the whole the present schedule of the companies are fully as high.

as they should be. In fact, it seems to us that the situation, when everything is considered, is such that there should be a reduction of one cent per kw. hr. in the energy charge for the first 100 kw. hrs. in the demand schedule; that the highest maximum increment rate ought not to exceed 10 cts. per kw. hr. for lighting and 6 cts. per kw. hr. for power; and that similar reductions should also be made in the rates for the successive steps or quantities in the increment or maximum schedules. These conclusions are based on careful analysis of the facts directly and indirectly involved.

Such reductions in the rates for the three companies which are mostly concerned in these proceedings, namely, the Railway, the Commonwealth, and the Plankinton, would also seem to be justified by the facts. In other words, they would not seem to result in lower earnings than these companies would seem entitled to. They would also tend to reduce the friction incidental to such readjustments as are necessary because of the practices which led up to these proceedings. Again, they would tend to give the consumers as a whole such consideration as they would seem to be entitled to in the matter. The rates when thus reduced would also be much more closely adjusted to the business conditions in the city than the present rates. These rates, as thus reduced, would also seem to apply fairly closely to the situation for the Wells Power Company also, although in this case, because of its present schedule, they would result in about as many increases as decreases in the rates, neither of which would seem to be serious or out of line with conditions. These changes in the rates should be confined to the rates involved in this controversy. That is, they are confined to the demand and other rates insofar as they affect business lighting and power. They are not intended to apply to residence lighting nor to such other lighting services for which separate rates have been provided in the order.

In drafting uniform rules and regulations to be applied in connection with standard rate, efforts have been made to provide a schedule which will prove sufficiently elastic to meet the various types of commercial service demanded; which will be clear and easily understood and apply with the minimum of inconvenience to the customers; and which will, at the same time, assist in preventing the discriminations of the type which have occasioned the present controversy.

The distinction as to what is lighting and what is power service has been established primarily with consideration of the necessity for maintaining the Commission's rules of service. The necessity has also been recognized of allowing some heating and motive appliances as a portion of the lighting load, since it is not practicable to meter separately a limited amount of incidental power used in connection with lighting. For a similar reason a limited amount of lighting has been provided as a portion of the power service. The rule, as finally drafted, as to what uses of electrical energy may be classed as power is more liberal than that maintained by The Milwaukee Electric Railway and Light Company and is intended to obviate a broad interpretation of what service shall be included under a power rate maintained by the Commonwealth Power Company.

Some question has been raised as to the difference in rate properly applied in the schedule for lamp renewal and as distinct from non-renewal contracts. From such facts as have been presented it is apparent that the cost of free lamp renewal will not exceed $\frac{1}{2}$ ct. per kw. hr., and such a difference is maintained in the charge for energy under the standard rate and in the maximum or limited schedule for lighting. There is some evidence of the abuses of the free renewal privilege and while such abuses are probably not extensive, the rules have been so drafted as to limit possible abuse.

The problem of determining what is the maximum demand for the service during the year has presented some difficulties, and the rules have been drafted with the intent that any present discriminatory practices will be obviated and that the methods for determining such demand shall be uniform. It appears to be the general practice of the companies using the demand schedule to base the determined demand upon the greatest rate at which electric energy is used by the customers for fifteen minutes, and no objection can be found to this practice if it is uniformly applied. It is the obvious intent of the present schedule that the demand charge be assessed upon the basis of the maximum demand for the year and be payable in twelve monthly installments. Such a maximum demand for lighting service usually occurs during the winter months when the control station is more closely pressed for additional capacity. Where service is connected during the summer months and the demand is unknown, some temporary assessment must be made of the

demand charge until the differences between the estimated demand and measured demand can be accurately determined. It appears from the testimony that it has been the practice of a number of companies to determine this demand monthly, thus placing at a disadvantage the consumers who connect for service during the winter months. In an attempt to remedy this defect, rulings have been established for the assessment of the demand until the demand has been definitely determined. From the facts and data available to the Commission, it would appear that the assessed demand will not vary greatly from the true or measured demand. It appears also to have been the practice of several of the companies to allow an occasional variation from the maximum demand for power service of about $33\frac{1}{3}$ per cent. The justification for this practice lies in the fact that power service, unlike lighting service, seldom, if ever, occurs upon the winter peak. No objections can be found to this rule if it is consistently applied.

The attention of the Commission has been called to the practice obtaining in isolated instances of billing separate premises belonging to a single owner under a single bill. Such cumulated billing has clearly not been the intent of the schedules as filed with the Commission. From the wording of the schedules a customer must be defined as a single contracting party, since the minimum bills for service are based upon the cost of billing, reading and maintaining of separate meters and the operating and maintaining of separate services. Such an ambiguity has been cleared up in the proposed schedule.

The question how the fixtures and equipment used for lighting or power purposes inside of buildings, or at the place where the energy is used, should be furnished, is of such importance as to occupy a prominent place in practically all rate controversies. In actual practice there are considerable variations as to how fixtures are provided. In some cases the fixtures are furnished and directly paid for by the customer. In other cases, again, they are furnished and paid for either in full or in part by the company. The former practice is the most common; and in this case the fixtures are sometimes purchased from the company and other times again from other dealers. The cost of such fixtures, however, like the costs of other parts of the service, must in the end be borne by the customer. When the fixtures are bought and paid for by the customer, then the

cost falls directly upon him. When they are furnished and paid for by the company, then their cost becomes a part of its fixed charges and operating expenses and in this form is shifted to the customers in their monthly bills.

Everything considered, it seems best that the cost of such fixtures and equipment should be borne directly by the consumers. One reason for this is that these costs are of such nature that they do not fit in with the other charges for the service. That is, they depend on different causes and units than the rest of the costs and for this reason cannot often be equitably distributed among the consumers on the same basis. The cost of fixtures, etc., for instance, is more apt to depend on the character of the building, the taste of the customer, the kind of business, and other local conditions than on the demand and output. These conditions are also aggravated by the fact that these fixtures, being in the buildings of and under the care of the user, are practically out of all control of the company.

Another reason why the fixtures should be paid for by the customer directly at ruling prices is, that any other practice in the struggle for business, especially under such conditions as now prevail in Milwaukee, is apt to lead to all sorts of preferences and irregularities. In order to obtain business, for instance, the companies, if permitted to do so, are almost certain to furnish fixtures free of cost to some, at less than full cost to others, while some will have to pay the full price, depending on the concessions that are necessary to secure the customer. Such practices are discriminatory and unlawful. In order to put a stop to them, it is not only necessary to have proper rules in the matter, but to see to it that these rules are complied with.

For these reasons a rule upon these points has been prepared by us under which the company is required to furnish free extensions to the premises or place of service, including connection with the inside wiring or equipment therein. The companies or utilities may also sell or lease fixtures and equipment at prices that are based on reasonable costs, including a fair amount for interest on such cost. Price lists of the equipment so furnished to be filed with the Commission from time to time. Under this rule the cost of the fixtures and equipment will thus have to be met directly by the consumers.

The provisions in this rule were made known to the companies with requests for criticisms. The comments received indicated very fully how difficult it is to frame a rule that is satisfactory to all. Some objected to it on the ground that some companies can purchase their supplies at lower prices than others. Others regarded it as a handicap against them in the struggle for new business. Many other objections were also raised. Some of these objections were, of course, more important than others. Those which were based on the ground that the differences in the prices at which the different companies can buy their supplies can perhaps be met without much trouble. In the first place such variations in prices are not likely to be as great or as serious as not to permit a cost to be fixed that is fair all around. In the next place the rule simply permits the utilities to furnish fixtures, but does not compel them to do so. As the cost to the consumer is placed at a figure which would yield only the ordinary return in the way of interest, no utility can very well be harmed if it chooses to stay out of this part of the business.

The claim that the rule of the Commission, as outlined above, tends to restrict business getting is more involved. It is quite likely that such rules are more or less of a handicap to those who desire to secure business through special favors. When such favors cannot be held out as inducements for the change, the difficulties involved in persuading customers to give up the services of one company for those of another are naturally increased. But since such rules work both ways and affect one competitor as much as the other, it is hard to find injustice in them. It may, of course, be a fact that younger companies who come into the field later when the business is already developed by another, and who may not be equipped with as many kinds of service as their older competitor, and who also have fewer customers, may feel that such rules tend to increase such disadvantage as they may be under when compared with the position acquired by older and better established companies. One of the companies, namely the Commonwealth Power Company took this position. It especially emphasized the fact that its "direct current" lines did not completely cover the territory in which it was operating, and argued that this disadvantage in particular entitled it to a rule under which, for customers taken from other companies or otherwise having d. c.

service, it could exchange their d. c. equipment for a. c. equipment, when such exchange could be effected without loss to it, and further when the losses from such exchange did not exceed the cost to it of providing the d. c. service. To this end it urged the adoption of the following rule:

“Consumers signing contracts for one year or more and having equipment installed at their own expense, but not of type (a. c. or d. c.) of company’s more available service, may have such equipment exchanged by the company at its expense, when such exchange is made for the convenience and economy of the company and not for the purpose of improving the consumer’s installation for his benefit, in all cases (1) where such exchange can be effected by the company without expense for equipment installed in excess of the amount received for equipment removed, or (2) where the net cost to the company of effecting such exchange is less than the cost of extending the company’s service of the same type as consumer’s existing equipment; provided, that all contracts involving exchange of equipment at company’s expense shall be signed subject to cancellation at any time by the Commission, if found to be unjustly discriminatory, and a copy thereof shall be submitted at once to the Commission, together with a detailed statement of all material facts and circumstances of the case. Any increase in capacity of equipment installed over capacity of equipment removed shall be in all cases paid for by the consumer.”

Rules regulating the furnishing of fixtures are necessary in order to prevent discriminations and to bring about equitable conditions between the utilities and their customers. The scope of such rules must be limited to their purpose. To attempt by such rules to equalize such inequalities in conditions as those alleged by the Commonwealth company is more than likely to defeat the real purpose of such rules and may also result in discriminations as between the competing utility companies.

The rule proposed by the Commonwealth company seems to leave the questions of such exchanges of fixtures optional with the company. Might not this feature lead to discriminations as between customers who are desirable to obtain and customers who are not? The provision in the rule which authorizes the exchange of equipment on equal basis as to cost values is perhaps more objectionable in practice than in principle. Owing to the nature of such exchanges and the uncertainties always involved herein, as well as in the appraisal of property under such conditions, it might offer many opportunities for unfair prac-

tices. This may also be said of the provision under which exchanges may be made when the cost of the same to the company is less than the cost to it of extending its d. c. service to the place. The purpose here also seems to be too broad, and to extend beyond the field that should be covered by such rules. It is also far from clear just how these rules, if adopted, would even tend to relieve the situation. If carried out fairly the customer would be no better off after the change than before, either in a financial way or in the matter of service. In fact, he would have to go through all the annoyances that are incidental to such changes without deriving any material benefits therefrom.

Except insofar as it may be contrary to public interest, public utilities would, as a rule, seem to be entitled to benefits derived from better service, improved methods, and the good will of those served, in the same way as they may have to bear losses due to the lack of such features. If a developed business and complete facilities for service are analogous features and come in the same class as those just mentioned, which is quite likely to be the case, then there is also a question as to how far the advantages derived from these features can be fairly limited by such rules as that proposed by the Commonwealth company. This is a question, however, upon which we are not passing, at this time.

Upon considering the situation as a whole, it is difficult to see how the establishment of the rule prepared by the Commission can work hardship on or result in injustice to anyone. This rule is sound in principle and merely requires similar treatment of all consumers. This rule is also necessary in order to prevent unjust discrimination and similar practices. We can now see no good reasons why this rule, as given in the order, is not just and reasonable under the circumstances.

The remaining rules, as given in the order, will probably not meet with serious objections of any kind. For these reasons detailed explanations of the same are not deemed necessary. This also applies to various other provisions in the order which relate more directly to rates and which have not been explained in detail herein. It is also the intention that the rate schedule provided herein shall supersede the temporary orders in the matter which were issued July 31, 1912. This order was directed to the Commonwealth company and the Railway com-

pany, and was intended to prevent practices as would tend to aggravate the situation.

As the Railway Exchange Building company, the Colby and Abbot Building company, and the Molitor and Hummell Realty company were more indirectly involved in the original proceedings which led to this case, and as the relation of these companies to the issues involved has as yet not been fully investigated, it is thought best, pending the final conclusion in the matter, not to include the above three companies in this order.

It is obvious from what has thus been said, that the findings herein are to the effect that the conditions disclosed by this investigation are such as to require a readjustment of the rates, rules, and regulations of the companies included in the order herein. These conclusions are based not only on the facts presented and discussed in this report, but upon a great deal of other and equally important data which, for lack of space, could not be given in detail. The purpose in this report has been to point out some of the leading features of the case which, among other things, tend to shed light on the conditions which primarily caused the complaints herein; the practices which brought about these conditions, the probable result of the controversy if the rate struggle was permitted to go on, and what in the light of the facts obtained appeared to be the proper kind of rate schedules to put into effect in order that normal conditions might be restored. In our opinion the facts thus brought out clearly show that the following rate schedule should be put into effect for the companies named therein.

IT IS THEREFORE ORDERED, That The Milwaukee Electric Railway and Light Company, the Commonwealth Power Company, the Plankinton Electric Light and Power Company, and the Wells Power Company abandon their present schedule for commercial lighting and power service and, pending further investigation, substitute the following standard rate with accompanying rules and regulations deemed just and reasonable under the provisions of ch. 499, Laws of 1907. Schedules of the above companies now in force for residence lighting service, federal, county and municipal building service, and high tension water power service shall remain unchanged.

STANDARD RATE.

To customers signing the company's standard form of contract providing for service for one year or more, the charge for electric service shall be computed upon the following basis:

Demand Charge:

\$42.00 per year for each kw. of demand of the first 10 kws.
 \$30.00 " " " " " " " " " " 50 "
 \$24.00 " " " " " " " " " " in excess of 60 "

Payable in equal monthly installments, plus an energy charge as follows:

Energy Charge:

4 cts. per kw. hr. for first 1000 kw. hrs. consumption during mo.
 3 " " " " next 3000 " " " "
 2 " " " " " 6000 " " " "
 1½ cts. per kw. hr. for all energy consumed in any month in excess of 10,000 kw. hrs.

The foregoing rate shall apply to all consumers utilizing company's electric service for lighting and receiving free renewals of company's standard lamps.

The foregoing rate, less ½ ct. per kw. hr. shall apply to all customers utilizing company's service and not receiving free renewals of company's standard lamps.

CLASSIFICATION OF SERVICE.

Service under the above rate shall be furnished under one of three classes:

(A) *Electric Lighting:* This service will include electric energy furnished for lamps and other appliances utilized for illumination purposes, except as hereinafter specifically exempted; motors and appliances other than lighting equipment, where provided with a starting apparatus designed to limit the initial or starting current to a value not exceeding $2\frac{1}{2}$ times the full load current, alternating current motors of $\frac{1}{4}$ h. p. when wound for 110 volts, and $\frac{1}{2}$ h. p. when wound for 220 volts, and direct current motors of 1 h. p. rated capacity, the aggregate rated capacity of such appliances not to exceed 2 kws., will be included in this class when used in connection with lighting equipment and when the connected load of such motors

and appliances does not exceed the aggregate rated capacity of lighting equipment.

(B) *Power*: This service will include energy utilized for motive and heating purposes and miscellaneous lighting service, where the demand arising from such miscellaneous lighting service shall not be in excess of 20 per cent of the total simultaneous demand for lighting and power service. Stereopticons, moving picture machines, photographers' arc lamps and rectifiers shall be classed as power equipment.

(C) *Combined Lighting and Power Service*: This service will include electric energy specified as "Lighting" (A), and electric energy specified as "Power" (B), where such combination service is supplied through the same meter.

DEMAND.

The demand is defined as the greatest rate at which electrical energy is used by the customer within any period of fifteen consecutive minutes during the contract year, subject to the methods of determining demand hereinafter specified.

Assessed Demand.

For installations of 2 kws. connected or less, the demand shall be assessed as follows:

For lighting installations of 2 kws. connected or less, 100 per cent of the first 300 watts connected plus $66\frac{2}{3}$ per cent of the connected load in addition to the first 300 watts shall be deemed the demand.

For power installations of 2 kws. or less, 75 per cent of the total connected load, as indicated by the manufacturer's rating, shall be deemed the demand.

Where the demand is assessed all sockets not containing lamps shall either be removed or sealed by the company.

Lighting consumers having installations of 2 kws. or less shall purchase service providing for free lamp renewals.

Measured Demand.

For installations of over 2 kws. the demand shall be measured by permanently installed demand meters, or by monthly readings taken during the normal peak demand of the service. Such readings may be ascertained at the option of the com-

pany by counting revolutions of the wattmeter disc, or by printing quarterly hour readings of wattmeter, or by graphic recording wattmeter, or by the so-called Wright demand meter.

The maximum demand upon which the charge for power service (see B) is based shall be the maximum obtaining during November, December, January, and February, provided that such amount shall not be less than 75 per cent of the demand obtaining during any other month during the contract year.

The demand as measured shall be clearly indicated upon the monthly bill, and all memoranda relating to the original reading be filed and become part of the consumer's record.

Temporarily Assessed Demand Where Actual Demand Cannot Be Determined at Time of Commencement of Service.

Where the customer is connected for service during a month during which the maximum measured demand shall be less than the probable demand obtaining during November, December, January, or February, the demand will be assessed in accordance with the following rules and such assessed demand will be corrected as soon as the actual demand for the year has been measured and the difference in the demand rate billed upon the assessed or estimated demand, and the demand rate based upon the actual or measured demand shall be credited to the consumer or paid by the consumer as the case may be.

(1) In class "1" customers (lighting service) the assessed demand shall be determined as follows:

- 100 per cent of the first 300 watts connected.
- 66 $\frac{2}{3}$ per cent of the next 1700 watts connected.
- 55 per cent for all in excess of the first 2000 watts.

Class 1 customers shall include all lighting customers except those designated as class 2.

(2) In class "2" customers (lighting service) the assessed demand shall be determined as follows:

- 100 per cent of the first 300 watts connected.
- 66 $\frac{2}{3}$ per cent of the next 1700 watts connected.
- 40 per cent for all in excess of the first 2000 watts.

Class "2" customers shall consist of federal and county buildings, churches and missions, hotels and clubs, factories (including small industrial establishments such as machine shops, carpenter shops, blacksmith shops, tin shops, and cigar factories, closing not later than 6 p. m.) private and parochial schools, grain and tobacco elevators and warehouses, freight and storage

warehouses, stables and garages, both private, boarding and livery, and furniture stores occupying two or more floors above street level.

(3) In class "3" (power service) the assessed demand shall be determined as a percentage of the total connected load as indicated by the manufacturers rating:

Where installations are under 10 h. p., 75 per cent.

Where installations are over 10 h. p. and less than 50 h. p., 65 per cent.

Where installations are over 50 h. p., 55 per cent.

MAXIMUM RATE OF CHARGE FOR LIGHTING.

The maximum rate of charge for "Electric lighting service", (see A) under any one month shall not exceed

First 200 kw. hrs. during month 10 cts. per kw. hr.

Next 200 " " " 8 " " "

Next 200 " " " 6 " " "

All over 600 kw. hrs. during month 4 cts. per kw. hr.

The foregoing rate shall include lamp renewals; where consumer purchases electric current without free renewals of incandescent lamps, the foregoing rate shall be reduced $\frac{1}{2}$ cent.

MINIMUM BILL.

A minimum monthly bill shall be charged of \$1 to cover such expenses occasioned by the individual consumer as billing, inspecting and maintaining meter, etc. In addition to such a minimum bill, a charge of 25 cts. per month shall be made for each glower of each Nernst lamp installed, and \$1.50 for each arc lamp installed.

OPTIONAL RATE FOR POWER.

Service specified as "Power" (see B) may be contracted for at the option of the consumer at the following rates:

First 200 kw. hrs. during month 6 cts. per kw. hr.

Next 200 " " " 5 " " "

Next 200 " " " 4 " " "

All energy in excess of 600 kilowatt hours during month 3 cts. per kw. hr.

MINIMUM BILL.

A minimum bill shall be charged under the above rate of \$1.50 for an installation of 2 h. p. or less, nominal rated capacity, plus 75 cts. for each additional h. p. or fraction thereof (or \$1 per kw.) nominal rated capacity.

SPECIAL SERVICE.

Limited or Off-Peak Service. The foregoing rates for "Lighting" service (see A), "Power service" (see B), and "Combined lighting and power service" (see C), less one-half the demand charge, shall apply to customers contracting to utilize and utilizing the service at times during the calendar day other than during the hours of the month, specified as follows:

Month.	Hours during which service shall not be used.
October.....	5:30 p. m. to 7 p. m.
November	5:00 p. m. to 7 p. m.
December.....	4:30 p. m. to 7 p. m.
January.....	4:40 p. m. to 7 p. m.
February.....	5:20 p. m. to 7 p. m.
March.....	6:00 p. m. to 7 p. m.

Customers shall install and maintain in operating condition an automatic time switch of the type approved by the company.

Ten-Seven Service: The foregoing rates for "Power" served (see B), less three-fourths of the demand charge, shall apply to all customers contracting to utilize and utilizing the company's service only during the hours 10:00 p. m. to the following 7:00 a. m. Customer shall install and maintain in operating condition an automatic time switch of the type approved by the company.

Break-down Service. The foregoing rates for "Lighting and power" service (see C) under both unlimited and limited or off-peak service, shall be furnished for break-down or emergency service connections. Since for such service the actual demand is unknown, customers shall contract for any demand, and shall be limited to the demand as contracted for by an automatic circuit breaker, installed and maintained by the customer and approved and controlled by the company. It shall

be set to open when the demand exceeds 125 per cent of the kilowatt-ampere demand contracted for.

Short Time Rate: To customers desiring and obtaining "Lighting" service (see A) for a period less than one year, the maximum rate of charge for lighting service shall apply.

Discount for Prompt Payment and Long Term Contract. Upon both the demand rate and limiting schedules a discount will be allowed for prompt payment aggregating 5 per cent of the first \$25 and 1 per cent of the additional amount in excess of \$25.

Contracts for three years or more will carry in addition a discount of 2 per cent from current monthly bills during the second year, plus 2 per cent on bills paid during the first year; 5 per cent from current monthly bills during the third year, plus 3 per cent paid during the first and second years; 5 per cent from all bills during the fourth and each succeeding year.

FLAT RATE DISPLAY LIGHTING.

Flat rates for display lighting on yearly contracts shall be based on the "Standard demand schedule" of rates and on the estimated time of 1,850 hours from dusk to 11 o'clock p. m., and 2,200 hours from dusk to 12 o'clock midnight. The company is required to compute such flat rates on these bases and within 10 days file the same with the Railroad Commission, and these rates, when so filed with and approved by the Railroad Commission, shall become the lawful rates. Display lighting of this kind shall be controlled by the company.

CONNECTION—FIXTURES.

Company shall connect its service lines with the premises of the customer. It may sell the customer appliances, fixtures and equipment at not less than the cost price thereof, including interest on the same at 6 per cent. It may also lease such appliances, fixtures and equipment to the customer at rentals that do not amount to less than the sum of the ordinary repairs, if borne by the company, and of the depreciation and interest charges thereon. The depreciation charges in this case shall be based on the life of the property as ordinarily estimated. The interest charges in this case shall be based on interest at the

rate of 6 per cent on the cost price of such property. The company may install and remove such property and charge therefor the price not less than cost that is fixed for such service. Statements showing such costs or sale prices and rentals shall be filed with the Commission.

To entitle customers to free renewals of company's standard carbon filament lamps, or to allowances on the renewals of Tungsten or other special lamps, the first installation of such lamps, or any increases thereof, shall be purchased from the company by the customer at the company's published prices.

The ownership of meters and all appliances used in the measurement of demand and energy, except as hereinbefore specifically exempted, shall remain with the company. Additional meters or appliances desired to measure for the convenience of the customers a portion of the demand or energy utilized shall be rented by the customer.

BILLING.

It is the intent of the present schedule that service designated as "Lighting" (see A), "Power" (see B), and "Combined lighting and power" (see C), electric energy furnished by direct current and alternating current, and service of any description furnished to two or more premises and separately metered shall be separately billed. The company shall cease any present practice of cumulatively billing separate services, separate kinds of electrical energy, and separately metered premises where billed to a single consumer.

RECONNECTION OF SERVICE.

For the reconnection of meters for the same consumer upon the same premises a charge of \$1.50 is deemed reasonable.

The above rates shall apply to service billed for the month of September.

CITY OF COLUMBUS

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted Feb. 19, 1912. Decided Aug. 22, 1912.

Petitioner alleges that the crossing of the C. M. & St. P. Ry. with Birdsey street in Columbus, Wis., is dangerous, in that approaching trains cannot be seen until the railroad tracks are reached. Respondent states its willingness to install an alarm bell, but the petitioner objects that a bell would add to the danger, as considerable switching is done in the vicinity and the continuous ringing of a crossing bell would mislead the public.

Held: The crossing in question is dangerous and requires protection. Respondent is ordered to maintain a flagman at the crossing during the day and to install and maintain an automatic alarm bell with an illuminated sign for night indication, the latter to be operative only for trains on the main tracks, and to be so arranged as to be in service at night only, when the flagman is off duty.

Petitioner further alleges that respondent's station facilities are inadequate in that passengers alighting from and boarding west-bound trains have no protection from the weather while waiting on the platform opposite the station. Complaint is also made that the train scheduled to reach Columbus at 10:30 p. m. usually discharges and loads passengers three hundred feet east of the regular platform and Ludington street on a narrow cinder path, where it is difficult for passengers to pass each other.

Held: The station facilities at Columbus are inadequate during stormy weather. To properly accommodate the public, respondent should erect a suitable structure on its west-bound platform that will provide adequate protection for passengers using west-bound trains. The earnings of the station are amply sufficient to justify this expenditure. The platform east of Ludington street should be provided with lights at night and be widened so as to afford a safe walk for passengers. Respondent is ordered to erect a suitable shelter structure, as specified. Sixty days is deemed a reasonable time within which to comply with these orders.

The petition, filed by the city attorney of Columbus in accordance with a resolution passed by the common council of that city, sets forth that the respondent is a common carrier between points in the state of Wisconsin and as such is subject to the laws of the state relative thereto; that the La Crosse division of respondent's railroad passes through Columbus in

an easterly and westerly direction; that Birdsey street crosses three tracks of respondent's line and is dangerous because trains cannot be seen approaching until the railroad tracks are reached; that the respondent is willing to install an electric bell at Birdsey street crossing, but that the petitioner does not deem such protection sufficient, in that the bell would ring continuously while switching was being done and would tend to confuse the public and render the crossing more dangerous. The petition further sets forth that passengers alighting from and boarding west-bound trains have no protection from the weather while waiting on the platform opposite the station; and that local passengers on west-bound train due at 10:35 p. m. are compelled to alight and board where there is no light or protection from the weather, and no platform, only a narrow dirt pathway on the top of a twenty foot embankment with no more than five or six feet between the train and the declivity. Petitioner asks that the respondent be compelled to install a permanent crossing-man at the Birdsey street crossing; to build permanent umbrella sheds opposite the depot for the accommodation of passengers taking or alighting from west-bound trains; and that all trains be compelled to so place coaches when stopping that passengers can alight at the platform built for such purpose.

In answering the petition respondent states that it is willing to install signal bell protection for the Birdsey street crossing sufficient to warn persons on the highway of the approach of trains and that such protection will be sufficient as a public safety precaution; that it is unwilling to maintain a flagman at the crossing and that the maintenance of a flagman would be an unnecessary burden of expense. Respondent further states that as the approach of trains on the west-bound track is announced in the station, it is unnecessary for passengers to be on the west-bound platform more than a few minutes, and that the circumstances and conditions do not warrant the expense of erecting a shelter or structure to house passengers who may be comfortably housed on the opposite side until immediately before the arrival of a west-bound train and who are always given ample notice of its approach. Further answering, the respondent denies each and every allegation in the complaint not admitted, denied, or otherwise answered, and prays that the petition be dismissed.

A hearing was held Feb. 19, 1912, at the city hall in Columbus. *G. E. Buns* appeared for the petitioner and *O. W. Dynes* represented the respondent.

The testimony shows that at the Birdsey street crossing respondent's line runs approximately east and west and the highway in a northeasterly and southwesterly direction. Birdsey street is one of the two roads that lead into the city from the north. It is heavily traveled, especially by teams with loads who use the crossing in preference to the next street which has a viaduct over the tracks with an objectionable grade and which in winter is generally free from snow and thus difficult for loaded teams to travel. About twenty-five school children are compelled to use the Birdsey street crossing four times a day. The ordinary pedestrian and team traffic is increased on Sundays, due to persons attending the Catholic church on the north side of the tracks. One witness estimated that fifty teams and two hundred pedestrians used the crossing both ways on Sundays. When approaching the crossing from the south, the view of trains is obstructed by factory buildings and freight cars until a person is close to the track. Coming from the north, the view is clearer, although east-bound trains are obscured by a cut and cannot be seen until within a short distance of the track. Several accidents and close calls have occurred at the crossing. All the witnesses regarded the crossing as dangerous and expressed the opinion that an alarm bell would not give sufficient protection but would add to the danger, by reason of the fact that considerable switching is done in the vicinity and the continuous ringing of a crossing bell would mislead the public, as it would not indicate whether a train were actually approaching or performing switching movements.

From a further examination of the testimony it appears that the station agent notifies passengers to cross to the opposite platform when an incoming west-bound train is about half a mile or three-quarters of a mile from the station. At times overdue through passenger trains and standing freight trains block the way just previous to the arrival of west-bound passenger trains which make it dangerous for persons, especially women and children, to delay crossing the tracks until the incoming west-bound train is in sight. It was shown that several minutes are necessarily consumed in waiting on the west-bound platform for the arrival of trains and the unloading of passengers be-

fore persons can board the cars, and that incoming passengers are compelled to wait until the train has pulled out before they can cross over to the depot platform. During the time that departing and arriving passengers are waiting on the west-bound platform, which is often for a period of several minutes, they are without shelter of any kind from the inclemencies of the seasons. Emphasis was laid upon the fact that the train known as No. 1, scheduled to reach Columbus at 10:30 p. m., usually discharges and loads passengers three hundred feet east of the regular platform on a narrow cinder path, where it is difficult for passengers to pass each other, and that the train blocks Ludington street, the chief thoroughfare of the city, thus compelling passengers to walk an extra distance and adding to their discomfort in stormy weather. Counsel for petitioner claimed that the respondent has erected shelter sheds at stations of less importance than Columbus and contended that petitioner was entitled to equal consideration. He requested the Commission to investigate the passenger earnings at other stations on the same division where places of shelter were installed and to determine whether Columbus is entitled to similar accommodations.

The respondent introduced no testimony at the hearing but has since furnished the Commission with a statement of the ticket sales for the years 1910 and 1911 at Pewaukee, Oconomowoc, Hartland, Nashotah, and Columbus stations, which is summarized in the following table:

TICKET SALES.

Station.	1910	1911
Pewaukee.....	\$16,991 49	\$18,502 45
Oconomowoc.....	36,257 50	40,611 12
Hartland.....	12,769 39	13,057 71
Nashotah.....	6,988 32	7,810 93
Columbus.....	24,316 48	25,319 86

The above named stations, with the exception of Columbus, are provided with shelter sheds. From a comparison of the ticket sales set forth in the above statement it appears that the passenger earnings of Columbus station are exceeded only by that of Oconomowoc, while the three other stations enumerated show considerably less revenue.

In a letter to the Commission, counsel for respondent offers objections to the erection of shelter sheds at other than junction points and summer resorts, but we cannot see wherein lies the justice of such contention.

After an examination of all the facts in the case, we find that the station facilities at Columbus are insufficient and inadequate during stormy weather and that to properly accommodate the public the respondent should erect a suitable structure on its west-bound platform that will provide adequate protection for passengers using west-bound trains. The construction of a suitable shelter shed is estimated by respondent's engineers to cost between \$750 and \$1000. The earnings of the station are amply sufficient to justify this expenditure. The platform east of Ludington street should be provided with lights at night and be widened so as to afford a safe walk for passengers.

As to the dangerous crossing at Birdsey street, our engineers recommend that a flagman be placed there for the protection of traffic during the day and that an automatic alarm bell with lights for night indication be installed, same to be operative only for trains on the main tracks, and so arranged as to be in service only at night when flagman shall be off duty.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Chicago, Milwaukee & St. Paul Railway Company, maintain a flagman at Birdsey street crossing in the city of Columbus during the day and that it install and maintain an automatic alarm bell with an illuminated sign, same to be operative only for trains on the main tracks, and so arranged as to be in service only at night, when flagman shall be off duty.

IT IS FURTHER ORDERED, That the respondent erect on its west-bound platform at Columbus a suitable shelter structure known as an umbrella shed, having a length of not less than 115 feet.

Sixty days is considered a reasonable time within which to comply with these orders.

INDEX-DIGEST.

Every point taken by the Commission has been included in the INDEX-DIGEST, whether essential to the decision or not. Wherever feasible the exact language used by the Commission, both in the *dicta* and in the decisions, has been embodied in the digest, so that for practical purposes reference back to the decision will in most cases be unnecessary.

ABSORPTION OF CHARGES.

Switching charges, absorption of, see RATES, 44, 61.

ACCOUNTING.

COST ACCOUNTING—ELECTRIC UTILITIES.

Determination of unit costs—Apportionment of value of physical property among the different departments of the service.

1. In the present case the physical property was apportioned as between municipal arc lighting, and commercial light and power. *City of Rhinelander v. Rhinelander Ltg. Co.* 1912, 9 W. R. C. R. 406, 414.

Determination of unit costs—Apportionment of value of physical property among the different departments of the service—Land and plant equipment.

2. In the apportionment of the physical property among the different departments of the service, the company divided the property in proportion to the relative maximum demands of the different departments during the average day. In the Commission's apportionment the items were divided on a basis more dependent on the relative maximum demands during the maximum day. *City of Rhinelander v. Rhinelander Ltg. Co.* 1912, 9 W. R. C. R. 406, 415.

Determination of unit costs—Apportionment of expenses over output, capacity and consumer expenses—Further apportionment among the different departments of the service.

3. The operating expenses in the present case were apportioned between capacity and output expenses and a further separation was made between commercial light and power and street lighting. *City of Rhinelander v. Rhinelander Ltg. Co.* 1912, 9 W. R. C. R. 406, 422.

4. In the present case the capacity expenses have been apportioned to the different classes of service on the basis of the contribution each makes to the station peak, and the output expenses on the basis of the amount of current used by each class. *In re Appl. Village of Whitehall*, 1912, 9 W. R. C. R. 479, 481.

Determination of unit costs—Prorating of output, capacity and consumers' expenses.

5. Dividing the commercial output expenses for the year by the estimated consumption of current for commercial purposes, we find the unit output cost per kw. hr. Dividing the capacity expenses for the year by the active load, the unit capacity expense per active kw. per year is found. This amount divided by 365 gives the cost per kw. hr. for one hour's use of the load per day. Combining the output and capacity expenses gives the total unit cost in the present case. *City of Rhineland v. Rhineland Lt. Co.* 1912, 9 W. R. C. R. 406, 423-424.

COST ACCOUNTING—GAS UTILITIES.

Determination of unit costs—Apportionment of expenses over output, capacity and consumer expenses.

6. In the present case the entire expenses of the plant were apportioned between output and consumer expenses. *Meyer et al. v. Sheboygan G. Lt. Co.* 1912, 9 W. R. C. R. 439, 459.

Determination of unit costs—Prorating of output, capacity and consumer expenses.

7. The units of cost are found by dividing the consumer expenses by the number of annual meter-months and the output expenses by the number of 1000 cu. ft. sold and transferred. When the consumer and output costs are combined in the present case the unit cost of service is found. *Meyer et al. v. Sheboygan G. Lt. Co.* 1912, 9 W. R. C. R. 439, 460, 462.

COST ACCOUNTING—TELEPHONE UTILITIES.

Determination of unit costs—Apportionment of expenses between toll and exchange—Apportionment of exchange expenses among the different exchanges—Apportionment between fixed and variable expenses—Further apportionment among the different departments of the service, urban and rural.

8. In the present case when an equal division is made between local and rural business of the cost of calls from city to rural lines and vice versa, the share which should be borne by rural subscribers, of such expenses as may be apportioned on the basis of the work involved in handling calls, is 16.5 per cent of the 90 per cent apportioned to exchange business. *In re Appl. Mineral Point Tel. Co.* 1912, 9 W. R. C. R. 285, 300.

Determination of unit costs—Apportionment of expenses between toll and exchange—Apportionment of exchange expenses among the different exchanges—Apportionment between fixed and variable expenses—Further apportionment among the different departments of the service, urban and rural—Expenses proportional to central office investment.

9. During, most of the past year there have been twenty rural lines connected to the board in the present case. The average number of all lines connected to the switchboard during the year was 500. On this basis 4 per cent of such expenses as are proportional to central office investment should be borne by rural lines. *In re Appl. Mineral Point Tel. Co.* 1912, 9 W. R. C. R. 285, 300.

Determination of unit costs—Apportionment of expenses between toll and exchange—Apportionment of exchange expenses among the different exchanges—Apportionment between fixed and variable expenses—Further apportionment among the different departments of the service, urban and rural—Expenses proportional to wire plant investment.

10. Of the total investment in wire plant in the present case it appears that between 4 and 5 per cent is used for rural business, and this percentage of wire plant expenses may be apportioned to that class. *In re Appl. Mineral Point Tel. Co. 1912, 9 W. R. C. R. 285, 300.*

Determination of unit costs—Apportionment of expenses between toll and exchange—Apportionment of exchange expenses among the different exchanges—Apportionment between fixed and variable expenses—Further apportionment among the different departments of the service, urban and rural—Salaries for operators.

11. In the present case about 10 per cent of total operators' salaries may be apportioned to the toll business, leaving 90 per cent to be divided between local and rural. *In re Appl. Mineral Point Tel. Co. 1912, 9 W. R. C. R. 285, 299.*

COST ACCOUNTING—WATER UTILITIES.

Determination of unit costs—Apportionment of expenses over output, capacity and consumer expenses.

12. In the present case the total operating expenses of the plant were apportioned over output, capacity and consumer expenses. *West et al. v. City of Eau Claire, 1912, 9 W. R. C. R. 134, 147.*

Determination of unit costs—Apportionment of expenses over output, capacity and consumer expenses—Further apportionment among the different departments of the service.

13. In the absence of reliable and accurate records in the present case the apportionment between fire service and general service must be partly a matter of estimate. Estimates from such information as is available show that 40 per cent of capacity expenses should be apportioned to fire service and 60 per cent to general service. Output expenses may for practical purposes be apportioned entirely to general service. The greater portion of the consumer expenses are directly due to the general service. *West et al. v. City of Eau Claire, 1912, 9 W. R. C. R. 134, 147-148.*

UNIFORM ACCOUNTS—ELECTRIC UTILITIES.

In general—Keeping of accounts—Conformity to Public Utilities Law required.

Rates, reduction in, ordered notwithstanding uncertainty due to failure of utility to keep accounts as required under Public Utilities Law, *see RATES, 10.*

UNIFORM ACCOUNTS—TELEPHONE UTILITIES.

In general—Keeping of accounts—Conformity to Public Utilities Law required.

Rates, advance in, deferred until accounting data of utility conform to the standards prescribed by Commission, *see RATES, 66.*

14. It is the duty of the utility to conform to the uniform classification of accounts prescribed by the Commission. *In re Appl. Plymouth Tel. Exch.* 1912, 9 W. R. C. R. 169, 178.

ADVANCE IN RATES.

See RATES.

ADVANTAGE.

See DISCRIMINATION.

AGREEMENTS.

See CONTRACT OF SHIPMENT; CONTRACTS.

ALLOWANCES.

- Allowance for weight of car stakes, in charging for shipment of poles and posts, *see* RATES, 52.
- Allowance to customer of public utility on account of ownership of instrument or facility, rate concession prohibited, *see* REBATES OR CONCESSIONS, 1.
- Demurrage charges, time allowed for unloading, free time allowance, modification under statute, *see* DEMURRAGE CHARGES, 1.

APPORTIONMENT.

- Apportionment of value of physical property of the plant among the different departments of the service*
 - in the determination of unit costs for electric utilities, *see* ACCOUNTING, 1-2.
 - in the determination of unit costs, for electric utilities, apportionment of land and plant equipment, *see* ACCOUNTING, 2.
- Apportionment of expenses over output, capacity and consumer expenses*
 - in the determination of unit costs for electric utilities, *see* ACCOUNTING, 3-4.
 - for gas utilities, *see* ACCOUNTING, 6.
 - for water utilities, *see* ACCOUNTING, 12-13.
- Apportionment of expenses over output, capacity, and consumer expenses, further apportionment among the different departments of the service*
 - in the determination of unit costs for electric utilities, *see* ACCOUNTING, 3-4.
- Apportionment of expenses between toll and exchange, apportionment of exchange expenses among the different exchanges, further apportionment among the different departments of the service*
 - in the determination of unit costs for telephone utilities, apportionment between fixed and variable expenses, urban and rural, *see* ACCOUNTING, 8-11.
 - urban and rural, apportionment of central office investment expenses, *see* ACCOUNTING, 9.
 - urban and rural, apportionment of salaries for operators, *see* ACCOUNTING, 11.
 - urban and rural, apportionment of wire plant investment expenses, *see* ACCOUNTING, 10.
- Apportionment of expenses for bridges*
 - among different parties in the construction of highway bridges over which railways are operated, *see* BRIDGES, 1.
- Apportionment of expenses for railway crossings*
 - among the different parties, *see* RAILROADS, 1-4, 21, 25.
- Apportionment of expenses for water main extensions*
 - between municipality and new consumers, *see* WATER UTILITIES, 3.

AUTOMATIC CROSSING ALARM.

Installation of, *see* RAILROADS, 10, 12-15, 17, 19-20, 22-23.

AXLES.

Refund on shipment, Racine and Racine Junction to Green Bay and Oshkosh, Wis., *see* RATES, 56; REPAIRATION, 10.

BAGS.

Refund on shipment, Milwaukee to Stevens Point, Granite and Amherst, Wis., *see* RATES, 31; REPAIRATION, 17.

BASCULE BRIDGE.

See BRIDGES.

BEER.

Rates, establishment of joint rates, Highland to Wis. points on the C. & N. W. line, *see* RATES, 32.

BILLING.

Discrimination due to billing separate premises belonging to a single owner under a single bill, *see* DISCRIMINATION, 2.
Telephone switching charges, bills rendered directly to connecting rural companies, *see* RULES AND REGULATIONS, 1.

BLOCK SIGNAL SYSTEM.

Permissive block system, *see* SWITCH CONNECTIONS, 1.
Positive block system, *see* SWITCH CONNECTIONS, 1.

BRICK.

Refund on shipment, Vesper to Grand Rapids, Wis., *see* RATES, 33; REPAIRATION, 28.

BRIDGES.**ESTABLISHMENT, CONSTRUCTION AND MAINTENANCE.***Highway bridges over which railways are operated—Safety of.*

1. On motion of the Commission a rehearing was held on its order requiring the reconstruction of the West Algoma Street bridge in Oshkosh, Wis. (*In re West Algoma Street Bridge in Oshkosh*, 1912, 8 W. R. C. R. 441.) The determination of the type of draw was left to the Commission after the city had submitted plans, specifications and bids for both the bascule and swing types. Owing to the requirement by the federal authorities that but one design shall be submitted for approval with respect to navigation requirements, and to other unforeseen circumstances, a considerable delay must ensue if the original program is followed out. The city also expressed a desire to have the roadway on the bridge made wider than provided in the order. The city's consulting engineers have prepared plans for a swing draw-span, single-leaf bascule draw-span and a double-leaf bascule draw-span bridge. The cost of construction and of operation are practically equal for the three arrangements. *Held*: The former order is so modified as not to require the city of Oshkosh to call for bids on the swing type of draw-span. The double-leaf bascule bridge is preferable under present conditions of

equal initial cost and equal cost of operation, chiefly because it effectually closes both ends of the draw-span when the draw is open, thus affording greater protection to the street traffic than either of the other types. The double-leaf bascule type of draw-span is ordered adopted for the bridge, the draw-span to be arranged for one man operation. It is only just that the city be prepared to meet the increased cost due to its request of increase in width of roadway on the bridge. Seven per cent of the cost of the structure contemplated in the original order, or approximately \$12,000, is a reasonable and fair proportion to lay upon the street railway. It is ordered that the roadway have a clear width of 28 feet, with a 6 foot sidewalk on each side, protected on the outside by a hand rail, as provided in the original order. Complete plans for the structure are to be submitted to the Commission by Sep. 5, 1912; actual construction is to commence within sixty days after the approval thereof and the bridge is to be completed and ready for service within one year from the same date. The provisions of the former order are to hold except as herein modified. *In re West Algoma Street Bridge in Oshkosh*, 1912, 9 W. R. C. R. 357, 363-364.

BUCKWHEAT.

Refund on shipment, Ridgeland to Milwaukee, Wis., see RATES, 34; REPARATION, 25.

CAPACITY EXPENSES.

Apportionment of capacity expenses in the determination of unit costs for electric utilities, see ACCOUNTING, 3-4.
for water utilities, see ACCOUNTING, 12-13.
Prorating of capacity expenses in the determination of unit costs for electric utilities, see ACCOUNTING, 5.

CAR SERVICE.

Adequacy of interurban car service, see INTERURBAN RAILWAYS, 1.
Adequacy of street car service, see STREET RAILWAYS, 1.

CAR SERVICE CHARGES.

See DEMURRAGE CHARGES.

CAR STAKES.

Failure to make allowance for car stakes according to published tariff, as ground for refund, see REPARATION, 19.

CARLOAD WEIGHTS.

See WEIGHTS.

CARRIERS.

See CONNECTING CARRIERS.

CARRIAGE OF GOODS.

Loss or injury to goods—Carrier liable as insurer.

1. We sincerely question the right of a carrier to refuse to carry any specific class of goods which it holds itself out to carry and which it customarily carries, unless the owner, or shipper, agrees to exempt the carrier of its common law liability as an insurer. As a general rule a carrier is not obliged to make provision for carrying property which requires special cars or appliances. However, if it holds itself out as a carrier of such property and customarily carries the same, it must provide itself with necessary cars and facilities for such transportation, although they are of a peculiar or unusual construction, nor can it limit its liability to transport such goods safely except by stipulation

based upon a valid consideration. *Ellman v. I. C. R. Co.* 1912, 9 W. R. C. R. 240, 246.

2. "It is frequently stated in general terms that a common carrier may, by contract, limit its common law liability as an insurer. But, as we have already said, the contract must be reasonable and must have some consideration to support it. The carrier has no right to force such a contract upon the shipper, and the latter must usually have the option of having his goods carried without any such restriction upon the liability of the carrier at a higher rate of freight proportioned to the risk. If he is given such an option, however, a decrease in the rate as an inducement for the special contract reasonably limiting the common law liability of the carrier will be a sufficient consideration to support such contract." (4 Elliott on Railroads, sec. 1504.) *Ellman v. I. C. R. Co.* 1912, 9 W. R. C. R. 240, 246-247.

3. As it is incumbent upon common carriers of property to receive and carry all goods which may be tendered to them for the purpose and which they hold themselves out to carry and undertake to carry, notwithstanding special equipment may be required for the safe transportation thereof, such carriers may not prescribe rules and regulations to the effect that they will not accept such goods for transportation except at owner's risk. *Ellman v. I. C. R. Co.* 1912, 9 W. R. C. R. 240, 247.

4. Having undertaken to carry a particular kind of property which requires an unusual service, common carriers must receive the same when offered for carriage, provided, of course, reasonable notice has been given to them so that they may be prepared to furnish the necessary equipment and that there is sufficient traffic of the character to warrant the service, but they cannot impose upon the shipper a contract exempting themselves from their legal liabilities as common carriers. *Ellman v. I. C. R. Co.* 1912, 9 W. R. C. R. 240, 247-248.

5. By a contract based upon a valuable consideration a carrier may limit its liability for damages resulting from causes other than its own negligence, but the owner has nevertheless the right to determine whether he will enter into such contract whereby his goods are transported at his own risk, or whether he will have his goods transported at the risk of the carrier as insurer. *Ellman v. I. C. R. Co.* 1912, 9 W. R. C. R. 240, 248.

6. In the absence of any published provision in the western classification or in the uniform bill of lading providing for exemption of its liability as an insurer in any case, the carrier could not lawfully impose such stipulation upon the shipper in the present case. Any such provision, if duly published in a schedule, should be an alternative to the right of the shipper to have his goods shipped at the risk of the carrier. *Ellman v. I. C. R. Co.* 1912, 9 W. R. C. R. 240, 248.

CONTROL AND REGULATION OF COMMON CARRIERS.

Power of state to regulate charges, *see* RATES.

Power of state to regulate service and facilities, *see* INTERURBAN RAILWAYS; RAILROADS; STREET RAILWAYS.

CARS.

See INTERURBAN RAILWAYS; RAILROADS; STREET RAILWAYS.

Charges for detention of cars, *see* DEMURRAGE CHARGES, 1.

Minimum carload weights, *see* WEIGHTS, 1-2.

Preference in distribution of various sized cars, *see* DISCRIMINATION, 9.

CENTRAL OFFICE INVESTMENT.

Apportionment of central office investment expenses in the determination of unit costs for telephone utilities, *see* ACCOUNTING, 9.

CHARGES.

See DEMURRAGE CHARGES; MINIMUM CHARGES; RATES; TERMINAL CHARGES.

CHEESE BOXES.

Refund on shipment, Kiel to Fredonia, Wis., see RATES, 35; REPARATION, 3.

Refund on shipment, Richland Center to Lancaster, Wis., see RATES, 36; REPARATION, 14.

CITIES.

See MUNICIPALITIES.

CLASS RATES.

See RATES.

CLASSIFICATION.

CLASSIFICATION IN ELECTRIC SERVICE.

Classification of customers—Customer using current for moving picture arc classified as lighting consumer.

1. Application was made by the Bruce Water and Light Commission for authority to increase electric rates for power service at Bruce, Wis. Applicant wishes to increase the rate for a moving picture arc which has been classified as power and given a low rate. This arc is on the same circuit as the ordinary lighting load and is used at the time of the peak load of the plant. *Held:* The question at issue is one of classification rather than of rates. The cost of service for a moving picture arc is about the same as for general illumination, especially where the electric plant is operated only at night, as in the present case, and where the use of the arc is entirely limited to the hours of commercial lighting. The applicant is authorized to classify moving picture arcs under lighting rates. *In re Appl. Bruce W. and Lt. Comm.* 1912, 9 W. R. C. R. 474, 476.

CLASSIFICATION IN TELEPHONE SERVICE.

Classification of subscribers.

2. Where more than one class of service is offered, patrons may choose which class they will take. *In re Appl. Brodhead Tel. Co.* 1912, 9 W. R. C. R. 383, 388.

COAL.

Refund on shipment, Sparta to Elroy, Wis., see RATES, 37; REPARATION, 9.

COMMERCIAL CONDITIONS.

As matter considered in determining reasonableness of railway rates, see RATES, 28.

COMMISSION.

See RAILROAD COMMISSION.

COMMODITIES.

See various commodity subject headings.

COMMODITY RATES.

See RATES; also various commodity subject headings.

COMMON CARRIERS.

See CARRIERS.

COMMON LAW.

Railroad Commission Act, provisions declaratory of the common law, see RAILROAD LAW, 1.

COMPARISON OF RATES.

Comparative data as matter considered in determining reasonableness of railway rates, see RATES, 24-26.

COMPETITION.

Competitive conditions as matter considered in determining reasonableness of railway rates, see RATES, 24.

Rate wars between competing utilities contrary to public policy, see RATES, 4-5.

Competition not an effective regulator in the public utilities field.

1. Duplication of public service corporation plants is a waste of capital, whenever the services can be adequately furnished by one plant only. It necessarily means that interest and maintenance must be earned on a much greater, if not twice as great, an investment and that the actual cost of operation is likely to be relatively higher. Competition in this service therefore usually means a bitter struggle and low rates, until one of the contestants is forced out of the field, when the rates are raised to the old level if not above it, or to a combination or understanding of some sort between them which also ultimately results in higher rates. In this way it often happens that the means which were thought to be the preventative of onerous conditions become the very agents through which such conditions are imposed. In fact, active and continuous competition between public utility corporations furnishing the same service to the same locality seems to be out of the question. This has been shown by experience. Such competition is also contrary to the very nature of things. Two distinct and separate corporations are not likely to remain separate very long after it becomes clear that the services rendered by both can be more cheaply and more effectively furnished by only one of them. (*In re Appl. La Crosse G. & El. Co.* 1907, 2 W. R. C. R. 3, 5.) *In re Invest. T. M. E. R. & L. Co.* 1912, 9 W. R. C. R. 541, 551-552.

2. A business which supplies to a community a public utility like gas, or electricity for light or power, is one in which free and full competition between two companies engaged in the same business cannot be expected to prevail permanently. Experience has, we think, amply demonstrated the fact that when there is more than one such company in a municipality engaged in the same business, while active competition may prevail for a more or less brief period, the companies generally find it to their interest to reach an understanding either as to prices or division of territory, and in the great majority of cases the two companies either become one or the control of both passes into the hands of the same parties. Undoubtedly municipalities have many times enjoyed periods of better service and lower prices by reason of temporary competition prevailing between two or more companies in the same field. After the almost inevitable consolidation, understanding or division of territory, however, the service often becomes poor, and prices are raised in an effort to make the city and its inhabitants bear the burden involved in paying returns on the unnecessary capital invested in the duplicated plants. (*In the matter of Lockport Lt., Heat & P. Co. et al.* 1907, 1 P. S. C. R. (2nd Dist. N. Y.) 12, 21-22.) *In re Invest. T. M. E. R. & L. Co.* 1912, 9 W. R. C. R. 541, 552-553.

3. Competition, in the very nature of things, cannot be a proper regulator in the public utility field. Competition means duplication of plants, excessive fixed and operating expenses and useless outlay. It stands for unnecessary tearing up and occupation of already overcrowded streets and alleys, the possible duplication of services on customers' premises and for many other inconveniences and costs. (*Worcester El. Lt. Co., Appeal of*, 1893. 9 Mass. G. & El. Lt. Comm. R. 23-26.) (*Haverhill El. Co., Appeal of*, 1903. 19 Mass. G. & El. Lt. Comm. R. 24-25). (*In the matter of Lockport Lt. Heat & P. Co. et al.* 1907, 1 P. S. C. R. (2nd. Dist. N. Y.) 12, 21-22.) *People ex rel. N. Y. Electric Lines Co. v. Ellison*, 1907, 188 N. Y. 523.) (*In re Appl. La Crosse G. & El. Co.* 1907, 2 W. R. C. R. 3, 5.) (*Weld v. G. & El. Lt. Commissioners*, 1908, 197 Mass. 556, 558-559.) (*Matter of Attorney-General* 1908, 124 App. Div. (N. Y.) 401, 406-408.) (*Kenosha El. Ry. Co. v. Kenosha G. & El. Co.* 1911, 8 W. R. C. R. 119.) *In re Invest. T. M. E. R. & L. Co. et al.* 1912, 9 W. R. C. R. 541, 553.

COMPOSITE LIFE.

Of electric plant, *see* DEPRECIATION, 1.

Of gas plant, *see* DEPRECIATION, 2.

Of telephone plant, *see* DEPRECIATION, 3-4.

CONCRETE BLOCKS.

Rates on, Wis. points on the C. St. P. M. & O. and M. St. P. & S. S. M. lines, *see* RATES, 38.

CONNECTING CARRIERS.

Joint or through rates, *see* RATES, 17-21.

Train schedules, adjustment of, between connecting carriers to provide for interchange of traffic, *see* TRAIN SERVICE, 1, 2, 4.

Transfers, interchange of, between interurban and street railway, *see* INTERURBAN RAILWAYS, 2.

Duty of railroad company as to interchange of traffic—Statutory requirements.

1. Sec. 1797-11 of the Wis. Statutes provides that "All railroads shall afford all reasonable and proper facilities for the interchange of traffic between their respective lines for forwarding and delivering passengers and property, and shall transfer, switch for a reasonable compensation, and deliver without unreasonable delay or discrimination, any freight or cars, loaded or empty, destined to any point on its tracks or any connecting lines; provided, that precedence over other freight shall be given to live stock and perishable freight." *Teasdale v. C. & N. W. R. Co. et al.* 1912, 9 W. R. C. R. 66, 70-71.

2. Secs. 1802c and 1802d, being a part of sec. 1 of ch. 302 of the Wis. Laws of 1911, provide that "Every railway corporation whose track crosses the track of any other railway corporation at grade in any town, city or village, or whose tracks and right of way shall be adjacent to the tracks and right of way of any other railway corporation, within the limits of any city or incorporated village, shall, within sixty days after a written request of the railroad commission, or the town board of supervisors, make a track connection between each other within such town, city, or village to afford all reasonable and proper facilities for the interchange of traffic between their respective lines for forwarding and delivering freight, and shall transfer or switch and deliver without unreasonable delay or discrimination any freight or cars, loaded or empty, destined to any point on its tracks or any connecting line, and the expense thereof shall be borne equally between each of the said corporations, unless otherwise ordered by the railroad commission." (Sec. 1802c.) "The railroad commission shall, upon written request of any consignee, upon notice to the applicant and the

said companies, make such reasonable rules and regulations for the switching of cars from one of such connecting railroads to the other as shall be reasonable and proper." (Sec. 1802d.) *Teasdale v. C. & N. W. R. Co. et al.* 1912, 9 W. R. C. R. 66, 71.

3. In *Clark v. C. M. & St. P. R. Co.* 1907, 1 W. R. C. R. 590, it was held that under sec. 1797—11 a railroad company could be required to receive cars from a connecting carrier and deliver them upon its public teaming track for unloading. Ch. 302 of the Laws of 1911 (secs. 1802c to 1802e inclusive) was enacted for the express purpose of removing any doubt as to the authority of the Commission to require such service. *Teasdale v. C. & N. W. R. Co. et al.* 1912, 9 W. R. C. R. 66, 72-73.

Track connections.

4. The petitioner alleges that shipments of wagons from Blanchardville, Wis., on the I. C. R. R. to points on the Mineral Point div. of the C. M. & St. P. Ry. are delayed on account of being transferred at Freeport, Ill., instead of at Dill, Wis., and that the respondents neglect and refuse to provide track connection at Dill. Since the hearing a change in the tariff has been made which provides the desired routing of less than carload shipments. *Held*: There appears to be no immediate necessity for the track connection, and the business offered by petitioner would not seem to justify this expense for some time to come. The petition is dismissed. *National Mfg. Co. v. I. C. R. Co. et al.* 1912, 9 W. R. C. R. 509, 511-512.

CONNECTING LINES.

See CONNECTING CARRIERS.

CONNECTIONS.

See SWITCH CONNECTIONS; TRAIN SERVICE.

Railway connections at crossings, etc., within town, village or city, see CONNECTING CARRIERS, 2, 4.

Telephone lines, physical connection of, see TELEPHONE UTILITIES, 1-3.

CONSTRUCTION OF STATUTES.

Public Utilities Law, sections construed, see PUBLIC UTILITIES LAW.

Railroad Law, sections construed, see RAILROAD LAW.

CONSUMER EXPENSES.

Apportionment of consumer expenses in the determination of unit costs

for gas utilities, see ACCOUNTING, 6.

for water utilities, see ACCOUNTING, 12-13.

Prorating of consumer expenses in the determination of unit costs for gas utilities, see ACCOUNTING, 7.

CONTRACTS.

Liability of carrier as insurer, limitation of, by contract, see CARRIERS, 1-6.

COST ACCOUNTING.

See ACCOUNTING.

COST OF SERVICE.

As matter considered in determining reasonableness of railway rates, see RATES, 27-30.
of telephone rates, see RATES, 71.

*Cost of service*of electric utilities, *see* ACCOUNTING, 1-5.of gas utilities, *see* ACCOUNTING, 6-7.of telephone utilities, *see* ACCOUNTING, 8-11.of water utilities, *see* ACCOUNTING, 12-13.**COUNTERS.**Installation of, on pumps supplying water to distribution system, *see* RATES, 80.**COURTS.**Judicial review of orders of Commission, question of unreasonableness or unlawfulness of order, *see* RAILROAD COMMISSION, 12.**CROSSINGS.***See* RAILROADS.**CRUSHED STONE.***See* GRAVEL AND CRUSHED STONE.**CUMULATIVE BILLING.**Discrimination due to billing separate premises belonging to a single owner under a single bill, *see* DISCRIMINATION, 2.**DAMS.**

ESTABLISHMENT, CONSTRUCTION AND MAINTENANCE.

Repairs—Necessity of repairs—Opinion of Commission on request of company.

1. The Paramount Power and Realty Co. requests an opinion as to the necessity of repairs to its dam at Beaver Dam, Wis., and suggestions as to the procedure in making repairs. Inspection shows that there is very little seepage either through or under the dam, that the sea wall with which the dam is faced has deteriorated so as to be almost worthless, and that parts of the spillway and flume need rebuilding. Below the dam the river passes through the business section of the city, all of which lies several feet below the lake level. Several buildings project over the stream in such manner that any unusually large flow will be obstructed so as to force the water over the streets and flood the lower portion of the city. Residents of Beaver Dam object to any considerable lowering of the level of the lake, such as applicant deems necessary in order that repairs may be made. *Held:* The condition of the dam, spillway, and flume is such that an unusual strain might cause a break which would result in great damage to property. A new concrete sea wall should be built along the entire face of the dam and the spillway should be rebuilt according to specifications prescribed by the Commission. The present flume leading to the wheel house should be strengthened and it would be best to rebuild it entirely of concrete. Five feet will probably be the maximum lowering of the lake's level which repairs will necessitate. Sixty days would seem to be ample time to complete the work and it should be finished in good season if begun by July 15. *In re Request of Paramount P. & Realty Co.* 1912, 9 W. R. C. R. 331, 337-338.

“DEAD WEIGHT.”As matter considered in determining reasonableness of railway rates, *see* RATES, 39.

DEFINITIONS.

See specific headings.

DEMAND.

Assessment of maximum demand, discrimination in assessment, *see* DISCRIMINATION, 1.

DEMURRAGE CHARGES.

Refund from demurrage charge ordered on basis of free time allowance under statute, *see* REPARATION, 7.

Time allowed for unloading—Free time allowance—Modification under statute.

1. Complaint was made of illegal demurrage charges on a carload shipment of hay from Reedsville to Milwaukee, Wis. The petitioner alleges that the C. & N. W. Ry. Co. exacted a charge of \$4 for car service in violation of sec. 1797—10m of the Wis. St., which provides that a "consignee shall be allowed for unloading without car service or demurrage being assessed, additional free time equivalent to the number of days in excess of seventy-five miles per day of twenty-four hours, consumed by the common carrier in transporting freight from point of shipment to point of destination." The car in question was delivered to the carrier on Jan. 5 and did not reach its destination until Jan. 23, 1912. Had the car been transported at the average rate of 75 miles per day, it would have reached its destination within two days after its receipt by the carrier. *Held*: As the delay in unloading, after receipt of the shipment by the consignee, was less than the time the shipment was in transit in excess of the statutory allowance, the demurrage charge exacted of the petitioner was illegal. *Krull Comm. Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 60, 61.

DEPOTS.

See STATION FACILITIES.

DEPRECIATION.**RATE OF DEPRECIATION.**

Rate of depreciation of electric plant.

1. On a straight line basis the composite or average rate of depreciation of the entire property of electric utilities has frequently been found to be from 4.5 to 5.0 per cent. *City of Rhineland v. Rhineland Ltg. Co.* 1912, 9 W. R. C. R. 406, 426.

Rate of depreciation of gas plant.

2. On the 4 per cent sinking fund basis, the rate of depreciation in the present case amounts to 1.675 per cent of the depreciable and 1.461 per cent of the total property, while on the 2 per cent sinking fund basis, the rate amounts to 2.287 per cent of the depreciable and 2.015 per cent of the total property. *Meyer et al. v. Sheboygan G. Lt. Co.* 1912, 9 W. R. C. R. 439, 459.

Rate of depreciation of telephone plant.

3. In the present case, 6½ per cent of the cost new of the telephone plant was used for the rate of depreciation. *In re Appl. Brodhead Tel. Co.* 1912, 9 W. R. C. R. 383, 385.

4. In the present case the rate of increase in the schedule will provide for depreciation at 6½ per cent of the cost new of the property. *In re Appl. Ashland Home Tel. Co.* 1912, 9 W. R. C. R. 489, 496.

DISADVANTAGE.

See DISCRIMINATION.

DISCRIMINATION.**AS BETWEEN CUSTOMERS.**

Electric rates—Discrimination due to assessing the demand on the monthly basis instead of the maximum demand for the year.

1. Complaint was made that discriminatory practices were resorted to among competing companies furnishing electric current in Milwaukee, Wis. The method of determining the demand charge in the present case was questioned. The general practice of companies using the demand schedule is to base the determined demand upon the greatest rate at which electric energy is used by the customers for fifteen consecutive minutes and no objection can be found to this practice if it is uniformly applied. It is the obvious intent of the present schedule that the demand charge be assessed upon the basis of the maximum demand for the year and be payable in twelve monthly installments. Such maximum demand for lighting service usually occurs during the winter months. Where service is connected during the summer months and the demand is unknown, some temporary assessment must be made of the demand charge until the differences between the estimated demand and measured demand can be accurately determined. It appears that it has been the practice of a number of companies in the present case to determine the demand monthly, thus placing at a disadvantage the consumers who connect for service during the winter months. *Held:* Where the intent of the schedule is to base the demand on the maximum demand for the year, the practice of assessing it on the monthly basis results in discrimination. *In re Invest. T. M. E. R. & L. Co.* 1912, 9 W. R. C. R. 541, 562-563, 570.

Electric rates—Discrimination due to cumulative billing.

2. Complaint was made that discriminatory practices were resorted to among competing companies furnishing electric current in Milwaukee, Wis. The practice existed in isolated instances of billing separate premises belonging to a single owner under a single bill. This method caused considerable reduction in the total charge. Practices of this sort as a rule result in unjust discriminations. When contrary to the provisions in the rate schedules and rules they are also unlawful. Cumulative billing has clearly not been the intent of the schedules as filed with the Commission. From the wording of the schedules a customer must be defined as a single contracting party, since the minimum bills for service are based upon the cost of billing, reading and maintaining of separate services. *In re Invest. T. M. E. R. & L. Co. et al.* 1912, 9 W. R. C. R. 541, 563, 575.

Electric rates—Discrimination due to practice of furnishing fixtures, etc., at or below cost in order to secure customers.

3. Complaint was made that discriminatory practices were resorted to among competing companies furnishing electric current in Milwaukee, Wis. Discrimination seems to have resulted in the present case from the practice of furnishing fixtures and other items at or below cost in order to secure customers. The cost of fixtures depends upon the character of the building, the taste of the customer and other local conditions, and after installation this equipment is practically out of the company's control. When the fixtures are furnished by the company the cost becomes a part of fixed charges and

operating expenses and is borne by the consumers irrespective of their individual equipment. *Held*: Since costs for fixtures depend on different causes and units than the other costs of service, they cannot often be equitably distributed among the consumers unless they are paid for directly. In the present case, the fixtures should be paid for by the customer directly at ruling prices. Any other practice in the struggle for business will lead to all sorts of preferences and irregularities. *In re Invest. T. M. E. R. & L. Co. et al.* 1912, 9 W. R. C. R. 541, 563-564.

4. Complaint was made that discriminatory practices were resorted to among competing companies furnishing electric current in Milwaukee, Wis. Objection was made to a rule in the proposed schedule permitting the competing companies to supply customers' appliances, fixtures and equipment at not less than the cost price thereof, including interest at 6 per cent. It was contended that the cost of such supplies to the companies varied, and that new companies would be handicapped in extending their business. *Held*: Rules regulating the furnishing of fixtures are necessary in order to prevent discrimination and to bring about an equitable condition between the utilities and their customers. Variations in the price of fixtures are not likely to be so great as not to admit of a cost that is fair to all. Since the rule in question simply permits the utilities to furnish fixtures, but does not compel them to do so and since the cost to the consumer is placed at a figure which would yield only the ordinary return in the way of interest, no utility can very well be harmed if it chooses to stay out of this part of the business. It is quite likely that such rules are more or less of a handicap to those who desire to secure business through special favors, but since they effect one competitor as much as the other it is hard to find injustice in them. Undoubtedly a new company will be handicapped more than a well-established one, but to attempt to overcome such inequalities in conditions would permit a continuation of present discriminatory practices. The rule in the proposed schedule is just and reasonable under the circumstances in the present case. *In re Invest. T. M. E. R. & L. Co. et al.* 1912, 9 W. R. C. R. 541, 565-567, 574-575.

Electric rates—Discrimination due to the practice of substituting power rates instead of the lighting rates properly applicable under the schedule.

5. Complaint was made that discriminatory practices were resorted to among competing companies furnishing electric current in Milwaukee, Wis. The T. M. E. R. & L. Co., Commonwealth Co. and the Plankinton Co. have a maximum demand schedule which is the same for the three companies and which for each company is limited by increment rate schedules applied as maximum rates. For power these increment or maximum schedules are also the same for all three companies, but for lighting the increment or maximum schedules differ. It appears that during the past few months the Commonwealth Co. has carried on an aggressive campaign for new business. In order to obtain new business, it has so interpreted its rate schedule that it could apply its increment or maximum power rates for lighting as well as power purposes. These increment power rates for certain classes of users are as much as 2 cts. per kw. hr. lower than its own increment lighting rates, and for certain classes 4 cts. lower than the increment lighting rates of the Plankinton Co. and T. M. E. R. & L. Co. The Commonwealth Co. justified this practice by a paragraph in its rate schedules which provides a reduced rate "for the operation of electric motors" or for "any purpose" to customers not receiving free renewals of the company's standard lamps. The position of this paragraph and the circumstances connected with it indicate quite clearly that it was intended as a "joker." The rate schedule in question was undoubtedly built upon the theory that the rates for lighting should be kept at a higher level

than the rates for power. That this is the case is evident not only from the way it is constructed but from the manner in which it was applied until the late campaign for business was begun. Due to the interpretation of the paragraph in question, customers receiving the regular lighting service, except free lamp renewals, were allowed a reduction of 2 cts. per kw. hr. The cost of lamp renewals does not exceed $\frac{1}{2}$ ct. per kw. hr. and it is a serious question whether this practice is not unlawful as well as unjust. Certain other practices were also employed in order to obtain business, not always in line with the provisions in the rate schedule. The T. M. E. R. & L. Co. has in its rate schedule a paragraph identical with the one of the Commonwealth Co. Just how this paragraph may have been used in the past was not fully disclosed. It appears that at present it was not interpreted to permit the substitution of the increment power rates for the increment lighting rates. This company, however, has in effect many rates which appear discriminatory. Concerning the remaining companies little or nothing was brought out that tended to show that, for the present at least, they attempted to secure new business by any such methods as those complained of. *Held*: The practice of substituting power rates instead of the lighting rates properly applicable under the schedules in the present case results in unjust discrimination. *In re Invest. T. M. E. R. & L. Co. et al.* 1912, 9 W. R. C. R. 541, 547-550.

Electric rates—Discrimination in minimum charge on account of ownership of instrument or facility.

6. In the present case consumers whose meters are owned by the utility are required to pay a monthly minimum charge, while those who own their meters are exempted from the payment of any minimum. This feature of the schedule is in violation of the Public Utilities Law. (Wis. St. sec. 1797m-90.) It is the duty of the utility to furnish meters, and no distinction, as far as rates or minimum charges are concerned, can be made between consumers who own their meters and those whose meters are owned by the utility. Steps should be taken to remove this illegal feature of the schedule at once. *In re Appl. Bruce Water and Light Comm.* 1912, 9 W. R. C. R. 474, 476.

Water mains—Extension of—Dissimilarity in treatment of individuals without substantial differences in the circumstances.

7. In the present case, individuals in substantially like circumstances are treated dissimilarly under the ordinances requiring the extension of water mains. This discrimination alone would vitiate such ordinances. In performing its public function, a public utility is obliged, by the common law as well as by express statutory enactments, to treat all patrons with impartiality. Any rule or regulation in violation of this principle would be subversive of natural justice as well as of a wise policy. In the matter of extending the mains of a water system, uniform regulations should be enforced. The persons desiring extensions should be subjected to like terms and conditions. *Beloit W. G. & El. Co. v. City of Beloit*, 1912, 9 W. R. C. R. 250, 260-261.

Water rates—Discrimination due to meter rental paid to utility by consumer.

8. In the present case the proposed schedule imposes a charge for meter rent on consumers who do not own their meters, while those who own their meters are exempt. Such a provision discriminates between consumers and is unlawful. (Wis. St. sec. 1797m-90.) *West et al. v. City of Eau Claire*, 1912, 9 W. R. C. R. 134, 137, 153.

AS BETWEEN SHIPPERS.

Carload minima—Preference in distribution of various sized cars.

9. A minimum based on the length of the car only, where the other dimensions of cars vary greatly, allows discrimination in the distribution of the various sized cars as the small cubic capacity cars are loaded only when the larger size cannot be obtained. A minimum weight based on the cubic capacity instead of on the length only of the cars complained of should result in a more equitable distribution of the cars between shippers and a more satisfactory condition to both the shippers and the railway. *Standard Lime & Stone Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 228, 237.

Trainload rates—Opportunity for unfair practices between shipper and carrier.

10. Trainload rates are at best a form of discrimination in favor of the large shipper and against the small shipper. Their use has often been discouraged by this Commission. And in such a case as the present there is ample opportunity for collusion between the shipper and the carrier when the former alleges and the latter admits that the shipper's failure to comply with the conditions imposed on the use of the trainload rate was the fault of the carrier. These observations are made without any intent to impugn the good faith of the parties to the present proceeding, but their purpose is merely to point out an evil whose possibilities are so great that claims like the present are not always to be looked upon with favor. *Heineman Lbr. Co. v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 281, 283.

DISTANCE TARIFF RATES.

See RATES.

DIVISION OF JOINT RATES.

See RATES.

EARNINGS PER UNIT OF TRAFFIC.

For low grade freight, *see* RATES, 14.

ELECTRIC RAILWAYS.

See INTERURBAN RAILWAYS; STREET RAILWAYS.

ELECTRIC RATES.

See RATES.

ELECTRIC UTILITIES.

Cost of service of electric utilities, determination of unit costs, *see* ACCOUNTING, 1-5.

Depreciation, rate of depreciation of electric plant, *see* DEPRECIATION, 1.

Discrimination as between customers of electric utility, *see* DISCRIMINATION, 1-6.

Minimum charges for electric utilities, *see* MINIMUM CHARGES, 1.

ACCOUNTING.

See ACCOUNTING.

OPERATION.

*Quality of service—Performance of street lighting system—
Comparison of illuminating qualities of 6.6 ampere a. c.
enclosed and 9.6 ampere d. c. open arcs.*

1. Respecting the proposed finding relative to the quality of service of the 6.6 ampere a. c. enclosed arcs as compared with that of the 9.6 ampere d. c. open arcs (*In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 8 W. R. C. R. 586) it was not the purpose of the Commission to attempt the impossible task of fixing a precise money value upon any difference that might result from the difference in quality of the service furnished by the different lamps. The science and art of street illumination is in a transitory state and has not yet developed to such a stage where it is possible to measure and express in numerical units the value of the street illuminating service. The original direct current 9.6 ampere open arc lamp in common use fifteen years ago has given way almost completely to other types of lamps, the most prominent of which is the enclosed alternating current arc. Probably not more than one per cent of the existing street lamps are of the old open arc type, and such open arcs as are still in use are threatened with replacement. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 313.

2. It is a fact universally conceded by those connected with the development of the street illuminating arc that the development of the enclosed type of alternating current arc has involved a sacrifice of efficiency of conversion of electrical energy into light energy. The enclosed alternating arc has a notable advantage over an open arc in that the trimming or replacing of the carbons is necessary only once a week instead of once a day, and this advantage has undoubtedly had much to do with the adoption and increased use of the enclosed arc. The enclosed type of arc lamp has certain advantages which have been specially emphasized as a result of the more recent investigations on illumination matters. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 313-314.

3. The usefulness of a system of street illumination is not capable of exact measurement by means of photometric equipment, as the quality of the service is dependent not only on the intensity of the light, but also upon certain other qualities, such as steadiness and absence of flicker, uniformity of distribution, glare and color. While the intensity can be measured directly, the other qualities can only be approximated. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 314.

4. From observations made by inspectors of the Commission it is shown that there is more unsteadiness in open than in enclosed arcs. While no exact quantitative measurement was made of this factor some data are given from which an approximate estimate may be derived as to fluctuations. The light given out by an arc is dependent upon the energy expended in the arc. In making tests upon 48 lamps of the 6.6 ampere a. c. enclosed type the average fluctuation expressed in per cent of minimum energy is 10.05 per cent. On testing 31 arcs of the 9.6 ampere open d. c. type, the average energy fluctuation was found to be 63.2 per cent, thus indicating a very marked difference in this respect. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 315.

5. It is generally understood that the enclosed arc is superior to the open as regards uniformity of distribution of the light given out by the arcs. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 315.

6. Glare is more pronounced in the 9.6 ampere open arc than in the 6.6 ampere enclosed arc, this being due to the greater intrinsic brilliancy of the arc, the unobstructed passage of the light from the arc,

and the form of the light distribution. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 316.

7. Theoretically there should be no difference between the two types of lamps as far as interruptions of service are concerned, but practical experience has shown that the series arc, the direct current type of lamp, has a larger record of "outages" than has the enclosed type arc lamp. Since the enclosed type of lamp requires far less attention there is less tendency for defects due to the human factor. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 317.

8. In making a judgment as between the open and enclosed types of arc lamps from the public point of view, it appears that the enclosed type is about fifty per cent inferior to the open as regards the total amount of light given out per lamp. On the other hand, the enclosed type is superior as regards uniformity of distribution, as regards steadiness of light, as to glare, and as regards interruptions of service. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 317.

9. Whether these advantages of the enclosed arc type fail to compensate for the disadvantage of low efficiency, or whether they more than compensate cannot be determined numerically by any measurements which are now available. Expert opinion is found supporting either assertion, and it resolves itself at best into a matter of judgment. It can scarcely be denied that the public in making judgment as to service has the opinion that the service which is given today is not inferior to that given twenty years ago. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 317.

10. A most important factor which may be considered is that the direct current open arc light has become practically obsolete in this country. While economy and simplicity of operation have much to do with the introduction of the new types of lamps, it is almost inconceivable that the interests of the public would or could have been sacrificed, in view of the fact that the science of illumination was developing and that fraud would soon be detected. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 317.

11. From the data available it appears that the street illumination service of today, involving as it does the general use of the enclosed 6.6 ampere a. c. arc lamp, is a fair equivalent if indeed not superior to the illumination furnished by the older types of arc lamp. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 318.

Quality of service—Performance of street lighting system—Substitution of 6.6 ampere enclosed for 9.6 ampere open arcs.

12. Application was made by the city of Waupaca, Wis., for a rehearing of the case, *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 8 W. R. C. R. 586, on the grounds that the decision rendered is without the Commission's authority under the stipulation by which this matter was submitted to the Commission. The question was whether the company had substantially performed its contract by substituting 6.6 ampere a. c. enclosed arcs for the 9.6 ampere d. c. open arcs provided for in the contract. The matter was submitted to the Commission upon stipulation of the parties which provided that it be decided "as in the opinion of the said Railroad Commission would be deemed just and legal in view of all the facts and circumstances and within the terms of said contract, and in accordance with the principles of law applicable thereto." The Commission did not confine itself to the rules of evidence applicable to the trial of causes in courts, but made its investigation along its customary lines. It held that the city is not entitled to any refund or reduction of the contract price on the ground that the applicant company would not be earning a fair return on its investment if such refund or reduction were made. Applicant claims that upon the Commission's findings in regard to the relative

value of the open 9.6 ampere d. c. and the enclosed 6.6 ampere a. c. arcs, on the contract under which these services were performed, and under the law it is entitled to a refund on past payments and a reduction of the contract price. *Held*: Both parties to the controversy must have appreciated in transferring the matters at issue in a case pending in a court of record to the Commission as a board of arbitration for determination that the Commission would use all the instrumentalities available for ascertaining every fact bearing directly or indirectly upon the issues and the equities involved in the case. The valuation, cost of operation, etc., ascertained by the Commission, were in no wise fundamental in reaching a conclusion. They were side lights which enabled the Commission to determine the justice of the city's contention. The 6.6 ampere a. c. enclosed arc is fairly equivalent, if not superior, to the older type of arc lamps and no definite damage has resulted from the substitution. The company has substantially performed the contract. Whatever damage the city may have sustained by reason of the failure of the company to fully comply with the contract according to its express terms is covered by the interest that would now be due the company on unpaid installments of the contract price, if full performance of such contract had been made. Under the circumstances, the application of the company for the allowance of interest will be denied. Each party will pay its own costs and disbursements incurred. The application for a rehearing is denied. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 318.

Requirements as to service and facilities—Adequacy of service.

13. Complaint was made that the electric service of the Clifton Light & Power Co. at Prescott, Wis., is inadequate. Respondent furnishes light and power to its consumers from the auxiliary steam station in Prescott, since its hydro-electric station on the Kinnickinnic river was recently swept away by a flood. Only two-thirds of the customers are on a meter basis; part of these meters are burned out, and the company is without new meters. As the company is without a test meter, it is impossible to ascertain the accuracy of the meters installed. Furthermore, it is impossible for the one man on duty to operate the plant and also test meters on consumers' premises. The generator is badly in need of repair. The superintendent of the plant has rarely been in Prescott or even in communication with the plant. No check has been made of collections nor have any records of plant operation been kept. Protective apparatus is needed on outside lines subject to lightning. While the commercial lighting has been reasonably satisfactory, almost every street lamp is in need of repair. *Held*: The inefficient service has been due to a lack of proper supervision. Under the circumstances, too much can not be demanded of the operating company, but it is entirely reasonable that those in charge of the property should be compelled to give more attention to the service rendered than has been the practice in the past. There is enough accumulated work at the present time to make it necessary to have another man to look after the line work, house wiring, meters and collecting, and the services of two men will probably be required until the system is again in first class operating condition. The Clifton Light and Power Co. is ordered to repair and supplement its plant and equipment in the manner specified by the Commission; to install meters on all services and test the same as required by law and the rules of the Commission; to furnish efficient street lamps and keep the same in good operating condition; to keep records of operation; and to comply with all the rules and regulations of the Commission relating to the standard and quality of service. Sixty days is deemed a reasonable time within which to comply with the terms of this order. *Wenzel et al. v. Clifton Lt. & P. Co.* 1912, 9 W. R. C. R. 222, 226-227.

Requirements as to service and facilities—Appliances for the measurement of product or service—Duty of utility to provide meters.

14. It is the duty of the utility to furnish meters. *In re Appl. Bruce W. & Lt. Comm.* 1912, 9 W. R. C. R. 474, 476.

Standards of service—Electric lighting.

Compliance with standards of service ordered, *see ante*, 13.

RATES.

See RATES.

VALUATION.

See VALUATION.

ELM LOGS.

See LOGS.

EMERGENCY RATES.

See RATES.

EVIDENCE.

Rules of evidence—Commission not confined to the rules of evidence applicable to the trial of causes in courts.

1. The Commission upon assuming jurisdiction of the case thoroughly investigated all matters which might have any bearing on the equities involved in the case. It did not deem itself confined to the rules of evidence applicable to the trial of causes in courts, but assumed that its investigation should be made along the lines customarily pursued in cases brought before the Commission in the manner provided by statute. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 312-313.

EXORBITANT RATE.

See RATES.

EXPENSES.

Apportionment of expenses, *see ACCOUNTING*, 3-4, 6, 8-13.

Prorating of expenses, *see ACCOUNTING*, 5, 7.

FACILITIES FOR INTERCHANGE OF TRAFFIC.

See CONNECTING CARRIERS.

FENCE POSTS.

See POSTS.

FIXED EXPENSES.

Apportionment of fixed or capacity expenses, *see ACCOUNTING*, 3-4, 6, 8-13.

Prorating of fixed or capacity expenses, *see ACCOUNTING*, 5, 7.

FIXTURES.

Discrimination due to practice of furnishing electric fixtures, etc. at or below cost in order to secure customers, *see DISCRIMINATION*, 3-4.

FLAMING ARC.

Rates for flaming arc lamps, *see RATES*, 8.

FLAT RATES.

Electric rates, flat rates for electric utility, *see* RATES, 1.

FRANCHISES.

Franchise value as element in the valuation of public utilities, capitalization of value based on estimate of free service to city under original franchise, *see* VALUATION, 1.

Right to occupy streets for interurban railway purposes—Additional servitude upon highway.

1. In the present case, respondent's franchise authorized the use of the two routes for both urban and interurban service. As interurban service would impose an additional servitude upon the highway, such franchises only gave the right to occupy streets for interurban railway purposes as against the public, and it was necessary to acquire the consent of the abutting property owners by mutual agreement, or secure the right through condemnation proceedings. *City of Janesville v. Rockford & Interurban Ry. Co.* 1912, 9 W. R. C. R. 502, 507-508.

FREIGHT RATES.

See RATES.

FRUIT.

Railway car service, refrigerator cars, Madison to Belleville, Monroe, and Monticello, Wis., *see* RAILROADS, 32.

FUEL WOOD.

See WOOD.

GAS RATES.

See RATES.

GAS UTILITIES.

Cost of service of gas utilities, determination of unit costs, *see* ACCOUNTING, 6-7.

Depreciation, rate of depreciation of gas plant, *see* DEPRECIATION, 2.

Minimum charges for gas utilities, *see* MINIMUM CHARGES, 2.

ACCOUNTING.

See ACCOUNTING.

RATES.

See RATES.

VALUATION.

See VALUATION.

GRADE CROSSINGS.

See RAILROADS.

GRAIN.

Refund on shipment, Corning to Milwaukee, Wis., *see* RATES, 41; REPARATION, 18.

Refund on shipment, Stetsonville to Milwaukee, Wis., *see* RATES, 42; REPARATION, 4.

GRAVEL AND CRUSHED STONE.

Rates, reduction of rates, Waukesha to Wis. points on the C. M. & St. P. and the C. & N. W. lines, see RATES, 39, 40.

HAY.

Refund of demurrage charges, Reedsville to Milwaukee, Wis., see REPARATION, 7.

HIGHWAYS.

Crossing by railroads, see RAILROADS, 1-18, 20-29.

ICE.

Rates, reduction of rates and refund on shipment, Silver Springs to Milwaukee, Wis., see RATES, 43; REPARATION, 11.

ILLUMINATED SIGN.

Installation of, for protection of railway crossing, see RAILROADS, 10, 12-15, 17, 19-20, 22-23.

ILLUMINATION MEASUREMENTS.

In testing the performance of street lighting systems. see ELECTRIC UTILITIES, 1, 3-4, 8.

INDUSTRIAL TRACKS.

See SWITCH CONNECTIONS.

INTANGIBLE VALUE.

See VALUATION.

INTERCHANGE OF TRAFFIC.

See CONNECTING CARRIERS.

Adjustment of train schedules between connecting carriers to provide for interchange of traffic, see TRAIN SERVICE, 1-2, 4.
Carload freight, interchange of, see TRAIN SERVICE, 1.
Less than carload freight, interchange of, see TRAIN SERVICE, 1.

INTERSTATE COMMERCE.

Commission without authority over interstate shipments, see RAILROAD COMMISSION, 8.

INTERURBAN RAILWAYS.

See also STREET RAILWAYS.

OPERATION.

Requirements as to service and facilities—Adequacy of service.

1. The M. N. Ry. Co. prays for a modification of the former order, *Chromaster v. M. N. R. Co.* 1912, 8 W. R. C. R. 734. The complaint relates to the requirement for twenty-minute service on Saturday afternoons. *Held*: Thirty-minute service is adequate for the time in question. The former order is modified insofar as it relates to Saturday afternoon traffic, and the company is authorized to establish a thirty-minute service between Milwaukee and Brown Deer on Saturday afternoons during the summer months. *Chromaster v. M. N. R. Co.* 1912, 9 W. R. C. R. 534.

Routing of interurban cars.

2. The city of Janesville alleged that the Rockford and Interurban Ry. Co. abandoned operation within the city on the west side of Rock

river and began operation on the east side contrary to the provisions of the franchise and without the permission of the common council. Petitioner complained that the change decreased the value of property on the west side and caused general inconvenience to the public. Respondent has granted the Janesville Tr. Co. the right to operate its street cars on the west side and while respondent operated its cars once every hour, the traction company has given 20-minute service over the same tracks, except that part which is called "The Loop." The urban service on the west side has greatly increased and it is doubtful if the property has decreased in value as contended by petitioners. The public seems to be reasonably well accommodated by the arrangements of the two companies, except that respondent's ticket office is farther from the depots of the steam roads than formerly. The Janesville Tr. Co. runs its urban cars from the depots to a corner passed by respondent's line, but the companies have not provided for interchange of transfers. *Held*: To obtain the right for interurban operation on the west side would require too great an expenditure. It is not to the interest of the public that the capitalization of the company should be unnecessarily increased in acquiring such rights. The respondent is rendering service in substantial compliance with the terms of its franchises. The part of the former route known as "The Loop," was used primarily for the turning of cars, and would be of no use under present conditions. Completion of the track to the new freight house will remove any cause of inconvenience or interference with street traffic. The interchange of transfers would stimulate traffic and be beneficial for both the company and the traveling public, and it is recommended that the companies make the necessary agreement. The petition is dismissed. *City of Janesville v. Rockford & Interurban Ry. Co.* 1912, 9 W. R. C. R. 502, 507-508.

JOINT RATES.

See RATES.

JOINT USE.

Of telephone lines, *see* TELEPHONE UTILITIES, 1-3.

JUDICIAL REVIEW.

Orders of Commission, judicial review of orders of Commission, question of unreasonableness or unlawfulness of order, *see* RAILROAD COMMISSION, 12.

JURISDICTION.

Commission, jurisdiction of, *see* RAILROAD COMMISSION, 8-11.

KILN WOOD.

See WOOD.

LAND AND PLANT EQUIPMENT.

Apportionment of value of land and plant equipment in the determination of unit costs for electric utilities, *see* ACCOUNTING, 2.

LIFE OF PUBLIC UTILITY PLANT.

Of electric plant, *see* DEPRECIATION, 1.

Of gas plant, *see* DEPRECIATION, 2.

Of telephone plant, *see* DEPRECIATION, 3-4.

LIME.

Rates, reduction of rates, Waukesha to Wis. points on the C. M. & St. P. and the C. & N. W. lines, *see* RATES, 39, 40.

Refund on shipment, Grimms to Wausau, Wis., *see* RATES, 44; REPARATION, 21.

LIVE STOCK.

Refund on shipment, Blue Mounds to Cudahy and to Milwaukee, Wis.,
see RATES, 45; REPARATION, 6, 27.

LOADING.

Minimum carload weights, see WEIGHTS, 1-2.

LOADING PER CAR.

As matter considered in determining reasonableness of railway rates,
see RATES, 29, 38-40, 43, 50, 54.

LOCAL CONDITIONS.

As matter considered in determining reasonableness of telephone rates,
see RATES, 72.

LOCAL RATES.

See RATES.

LOGS.

Refund on shipment,

Cotter, Doering, Heineman and Russian to Wausau, Wis., see
RATES, 46; REPARATION, 8.

Edgewater to Birchwood, Wis., see RATES, 47; REPARATION, 16.

Gagen and Atkins (Siding 234 between) to Crandon, Wis., see
RATES, 48; REPARATION, 15.

Goodman to Pembine, Wis., see RATES, 49; REPARATION, 31.

Wis. points on the C. & N. W. line to Ripon, Wis., see RATES, 50;
REPARATION, 26.

LOW GRADE FREIGHT.

Low rate for carriage of, see RATES, 14.

LUMBER.

Refund on shipment, Oconto to Marinette, Wis., see RATES, 51; REPARATION,
23.

MAINS.

Extension of water mains,

see WATER UTILITIES, 1-4.

adjustment of rates on extensions of mains, see RATES, 80.

terms and conditions of extension, apportionment of expenses between
municipality and new consumers, see WATER UTILITIES, 3.

MAKING RATES.

See RATES.

MANAGEMENT.

Supervision of plant, improvement of, see ELECTRIC UTILITIES, 13.

METER RATES.

Electric utility, meter rates for electric utility, see RATES, 9-10.

METERS.

Discrimination due to meter rental paid to utility by consumer, see
DISCRIMINATION, 6.

Discrimination in rates or minimum charges on account of ownership
of meters, prohibited under Public Utilities Law, see DISCRIMINATION,
6.

- Duty of utility to provide meters, *see* ELECTRIC UTILITIES, 14.
 Meter rental, discrimination due to meter rental paid to utility by consumer, *see* DISCRIMINATION, 6.
 Reduction in rates, on account of the furnishing of meter by consumer, prohibited, *see* RATES, 3.

MINIMUM CARLOAD WEIGHTS.

See WEIGHTS.

MINIMUM CHARGES.

ELECTRIC UTILITIES.

Discrimination in minimum charges, *see* DISCRIMINATION, 6.
Distinction in minimum charge on account of ownership of instrument or facility.

1. No distinction as to minimum charges can be made between consumers who own their meters and those whose meters are owned by the utility. Steps should be taken to remove this illegal feature of the schedule at once. *In re Appl. Bruce Water and Light Comm.* 1912, 9 W. R. C. R. 474, 476.

GAS UTILITIES.

Purpose of minimum charge.

2. Where no minimum bill is provided the company is required to carry on its books and bill from month to month, accounts so small that they do not pay the fixed charges, to say nothing of the cost of gas actually supplied. *Meyer et al. v. Sheboygan G. Lt. Co.* 1912, 9 W. R. C. R. 439, 465.

MINIMUM LOADING REQUIREMENTS.

See WEIGHTS.

MINIMUM RATES.

See RATES.

MINIMUM WEIGHTS.

See WEIGHTS.

MONOPOLY.

Public utilities, monopolistic character of, competition not an effective regulator in public utilities field, *see* COMPETITION, 1-3.

MOVEMENT EXPENSES.

As matter considered in determining reasonableness of railway rates, *see* RATES, 39.

MOVING PICTURE ARC.

Rates for moving picture arc, *see* RATES, 6.

MUNICIPALITIES.

See also CITIES, TOWNS, VILLAGES.

Town board,
 authority over highway and railway crossing, town supervisors the judges, under the statute, of the necessity for a highway, *see* RAILROADS, 8.
 petition of, for alteration in crossing of a highway by a railroad, *see* RAILROADS, 2, 7.
 proceedings of, in laying out highway for railroad crossing, validity of proceedings, question for courts, *see* RAILROAD COMMISSION, 11.

NON-DUPLICATION.

Of telephone lines, *see* TELEPHONE UTILITIES, 1-3.

NUISANCES.

Abatement of—Commission without power to abate nuisances due to switching, etc.

1. Complaint is made that the C. & N. W. Ry. Co. for years has ignored and violated these provisions of the charter or contract which enables it to run trains along the park front of Milwaukee, Wis. Under these provisions neither cars nor engines were to be allowed to stand, nor was switching to be permitted, between Juneau avenue and Wisconsin street. *Held*: The Commission is without jurisdiction in the premises. No specific statute exists conferring upon the Commission power to abate the alleged nuisance of which complaint is made. The general powers vested in the Commission by the Commission Act relate to the regulation of services and rates of railway companies. Petition is dismissed. *Stresen-Reuter et al. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 394, 395.

OPERATION OF TRAINS.

See TRAIN SERVICE.

ORDERS OF COMMISSION.

Judicial review of orders of Commission, question of unreasonableness or unlawfulness of order, *see* RAILROAD COMMISSION, 12.

OUTPUT EXPENSES.

Apportionment of output expenses in the determination of unit costs

for electric utilities, *see* ACCOUNTING, 3-4.

for gas utilities, *see* ACCOUNTING, 6.

for water utilities, *see* ACCOUNTING, 12-13.

Prorating of output expenses in the determination of unit costs

for electric utilities, *see* ACCOUNTING, 5.

for gas utilities, *see* ACCOUNTING, 7.

OVERCHARGES.

See REPARATION.

PARTY LINE RATES.

Party line rates in telephone service, *see* RATES, 76.

PASSENGERS.

Station accommodations, *see* STATION FACILITIES, 1-5.

Trains, stopping of passenger trains at particular station, *see* TRAIN SERVICE, 1, 3.

“PAY WEIGHT.”

As matter considered in determining reasonableness of railway rates, *see* RATES, 39.

PHYSICAL CONNECTION.

Of telephone lines, *see* TELEPHONE UTILITIES, 1-3.

Of telephone lines, right of telephone company to refuse connection with grounded lines, *see* TELEPHONE UTILITIES, 2-3.

Railway connections at crossings, etc. within town, village or city, *see* CONNECTING CARRIERS, 2; SWITCH CONNECTIONS, 3.

POLES.

Refund on shipment, Elmhurst to Clintonville, Wis., *see* RATES, 52;
REPARATION, 19, 20.

POSTS.

Refund on shipment, Bellingier and Gilman (siding between) to Stanley, Wis., *see* RATES, 53; REPARATION, 32.

Refund on shipment, Elmhurst to Clintonville, Wis., *see* RATES, 52;
REPARATION, 19, 20.

POWER RATES.

See RATES.

PREFERENCE OR PREJUDICE.

See DISCRIMINATION.

PRIVATE SIDETRACKS.

See SWITCH CONNECTIONS.

PRORATING OF EXPENSES.

Prorating of expenses in the determination of unit costs
for electric utilities, *see* ACCOUNTING, 5.
for gas utilities, *see* ACCOUNTING, 7.

PUBLIC CONVENIENCE AND NECESSITY.

Telephone utilities, physical connection for public convenience and necessity, *see* TELEPHONE UTILITIES, 1-3.

PUBLIC FRANCHISES.

See FRANCHISES.

PUBLIC POLICY.

Rate wars between competing utilities contrary to public policy, *see* RATES, 4-5.

PUBLIC SERVICE CORPORATIONS.

See ELECTRIC UTILITIES; GAS UTILITIES; INTERURBAN RAILWAYS; RAILROADS; STREET RAILWAYS; TELEPHONE UTILITIES; WATER UTILITIES.

PUBLIC UTILITIES.

See ELECTRIC UTILITIES; GAS UTILITIES; TELEPHONE UTILITIES; WATER UTILITIES.

PUBLIC UTILITIES LAW.**SECTIONS CONSTRUED.**

- Sec. 1797m-46, rates, electric, reasonableness of, *see* RATES.
Sec. 1797m-90, discrimination due to meter rental paid to utility by consumer, *see* DISCRIMINATION.
Sec. 1797m-90, discrimination in minimum charge on account of ownership of instrument or facility, *see* DISCRIMINATION.
Sec. 1797m-90, meter rental, charged to consumer by public utility, prohibited, *see* RATES.
Sec. 1797m-90, rebates or concessions, allowance to customer of public utility on account of ownership of instrument or facility, rate concession prohibited, *see* REBATES OR CONCESSIONS.
Sec. 1797m-99, Commission, power of, to prevent rate wars between competing utilities, *see* RAILROAD COMMISSION; RATES.

PULP.

Refund on shipment, Rothschild to Brokaw, Wis., *see* RATES, 54; REPARATION, 13.

PULP WOOD.

See WOOD.

PUMPAGE.

Installation of counters on pumps supplying water to distribution system, *see* RATES, 80.

PURPOSE OF LAW.

See PUBLIC UTILITIES LAW; RAILROAD LAW.

RAILROAD COMMISSION.

Authority of Commission in awarding reparation—Commission without authority to order reparation for expenses incurred on account of failure of carrier to keep schedules for connections.

1. The Commission has no authority under the law to order reparation for expenses incurred on account of the failure of the carrier to keep schedules for connections. *Burrill v. I. C. R. Co.* 1912, 9 W. R. C. R. 319, 321.

Commission without power to abate nuisances due to switching, etc.

2. The Commission is without jurisdiction to abate nuisances due to switching, etc. *Stresen-Reuter et al. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 394, 395.

Duty of Commission to apportion expenses for railway crossings.

3. The statute provides that the Commission shall apportion the cost and expense of a new crossing between the railway company and the town. (Wis St. sec. 1797—12e.) *Town of Gillett v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 535, 537.

Duty of Commission to regulate rates.

4. An examination of the Public Utilities Law will disclose that it is among the duties of this Commission to investigate complaints as to rates, to determine and fix reasonable rates; to discover and prevent unjust discriminations of all kinds; and, when deemed necessary, to prevent injury to property employed in public service and affected with public interest, to temporarily alter and amend existing rates, rules and regulations. *In re Invest. T. M. E. R. & L. Co.* 1912, 9 W. R. C. R. 541, 557.

Duty of Commission to regulate service and facilities.

5. An examination of the Public Utilities Law will disclose that it is among the duties of this Commission to investigate complaints as to services and facilities; to investigate the services rendered and facilities afforded and to see to it that these are reasonably adequate under the circumstances; to discover and prevent unjust discriminations of all kinds; and, when deemed necessary, to prevent injury to property employed in public service and affected with public interest, to temporarily alter and amend existing rules and regulations. *In re Invest. T. M. E. R. & L. Co.* 1912, 9 W. R. C. R. 541, 557.

Evidence, rules of—Commission not confined to the rules of evidence applicable to the trial of causes in courts.

6. The Commission upon assuming jurisdiction of the case thoroughly investigated all matters which might have any bearing on the equities involved in the case. It did not deem itself confined to the rules of evidence applicable to the trial of causes in courts, but assumed that its investigation should be made along the lines customarily pursued in cases brought before the Commission in the manner provided by statute. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 312-313.

Investigation by Commission—Use of all the instrumentalities available for ascertaining facts.

7. The Commission upon assuming jurisdiction of a case will use all the instrumentalities available for ascertaining every fact bearing directly or indirectly upon the issues and the equities involved in the case. *In re Joint Appl. Waupaca El. Lt. & R. Co. and Waupaca*, 1912, 9 W. R. C. R. 310, 312-313.

Jurisdiction of Commission—Commission without authority over interstate shipments.

8. This Commission is without jurisdiction over the rates and charges on interstate shipments. *National Mfg. Co. v. I. C. R. Co. et al.* 1912, 9 W. R. C. R. 509, 511.

Jurisdiction of Commission—Over railway crossings—Actual laying out of highway not a condition precedent.

9. The mode and manner of the crossing of the respondent's tracks by the proposed highway can be determined independently of the question whether the highway has been lawfully established or not, for the actual laying out of a highway is not a condition precedent to the jurisdiction of the Commission. *Town of Gillett v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 535, 536.

Jurisdiction of Commission—Over railway crossings—Alteration of.

10. Sec. 1797-12e, provides that when a petition is lodged with the Commission by the town board of any town to the effect that public safety requires an alteration in the crossing of a highway by a railroad, or its approaches, the closing of a highway crossing and the substitution of another therefor, the Commission shall determine what alteration in such crossing, approaches, etc., shall be made and by whom made, and shall fix the proportion of cost and expense of such alteration, removal and new crossing, including the damages to any person whose land is taken, to be paid by the railroad company and the municipality in interest. *Town of Westport v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 218, 220-221.

Jurisdiction of Commission—Over railway crossings—Installation of—Commission without authority in laying out highways.

11. The Commission cannot pass upon the validity of the proceedings of the board of supervisors in laying out a highway for a railroad crossing. Whether the necessary steps were taken to lay out the highway in the manner prescribed by statute, can only be determined by the courts. *Town of Gillett v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 535, 536.

Orders of Commission—Judicial review—Question of unreasonableness or unlawfulness of order.

12. The determination of the validity of a statute is a judicial and not an administrative function. Tribunals such as this Commission should not attempt to set at naught legislation, even though convinced of its invalidity, unless the enforcement of the same would result in some irreparable injury. No such consequence can result from any order of the Commission requiring compliance with the particular statute whose validity is challenged, for in a proper proceeding any order of the Commission based upon the statute may be reviewed in court and the validity of the statute tested. *Teasdale v. C. & N. W. R. Co. et al.* 1912, 9 W. R. C. R. 66, 73.

Power of Commission—General powers.

13. The general powers vested in the Commission by the Commission Act relate to the regulation of services and rates of railway companies. The duties of such companies generally prescribed by the statute, which is declaratory of the common law, are contained in section 1797—3. "Every railroad is hereby required to furnish reasonably adequate service and facilities, and the charges made for any service rendered, or to be rendered, in the transportation of passenger or property or for any service in connection therewith, or for the receiving, switching, delivering, storing and handling of such property, shall be reasonable and just, and every unjust and unreasonable charge for such service is prohibited and declared to be unlawful." *Stresen-Reuter et al. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 394, 395.

Power of Commission to prevent rate wars between competing utilities.

14. That rate wars are against public policy is recognized in the Public Utilities Law, for it is clearly in order to enable this Commission to prevent or stop such struggles that sec. 1797m—99 was included therein. *In re Invest. T. M. E. R. & L. Co.* 1912, 9 W. R. C. R. 541, 551.

RAILROAD COMMISSION ACT.

See RAILROAD LAW.

RAILROAD COMMISSION LAW.

See RAILROAD LAW.

RAILROAD CROSSINGS.

See RAILROADS.

RAILROAD LAW.

CONSTRUCTION OF LAW.

Provisions declaratory of common law rights.

1. The general powers vested in the Commission by the Commission Act relate to the regulation of services and rates of railway companies. The duties of such companies generally prescribed by the statute, which is declaratory of the common law, are contained in section 1797—3. *Stresen-Reuter et al. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 394, 395.

SECTIONS CONSTRUED.

Sec. 1797—3, Commission, general powers, over services and rates, *see* RAILROAD COMMISSION.

Sec. 1797—3, railway services and rates, regulation of, under Railroad Commission Act, provisions declaratory of the common law, *see* RAILROADS.

- Sec. 1797—10m (Laws 1911, ch. 358), demurrage charges, free time allowance under, *see* DEMURRAGE CHARGES.
- Sec. 1797—10m, demurrage charge, refund from demurrage charge on basis of free time allowance under statute, *see* REPARATION.
- Sec. 1797—11, connecting carriers, duty of railroad companies as to interchange of traffic, *see* CONNECTING CARRIERS.
- Sec. 1797—11, railroads, interchange of traffic, *see* SWITCH CONNECTIONS.
- Sec. 1797—11m, switch connections, spur track, construction of, bond securing railroad against loss, *see* SWITCH CONNECTIONS.
- Sec. 1797—12e, Commission, jurisdiction of, over railway crossings, *see* RAILROAD COMMISSION.
- Sec. 1797—12e, railway crossings, installation of, *see* RAILROADS.
- Sec. 1797—12e, railway crossings, mode and manner of crossing, determination of, *see* RAILROADS.
- Sec. 1797—28, railway rates, emergency rates, power of Commission to establish, *see* RATES.
- Sec. 1802c, connecting carriers, duty of railroad companies as to interchange of traffic, *see* CONNECTING CARRIERS; SWITCH CONNECTIONS.
- Sec. 1802d, connecting carriers, duty of railroad companies as to interchange of traffic, *see* CONNECTING CARRIERS; SWITCH CONNECTIONS.
- Sec. 1802e, connecting carriers, duty of railroad company as to interchange of traffic, penalty for failure to provide transfer switching service, *see* SWITCH CONNECTIONS.

RAILROADS.

See CARRIERS; CONNECTING CARRIERS; INTERURBAN RAILWAYS; STREET RAILWAYS.

Track connection with other lines, *see* CONNECTING CARRIERS, 4; SWITCH CONNECTIONS, 2-4.

CONSTRUCTION, MAINTENANCE AND EQUIPMENT.

Crossings—Alteration of.

1. Petitioner alleges that the crossing of the C. & N. W. Ry. in the town of Westport, a quarter of a mile north of the station of Mendota, Wis., is unsafe and dangerous to human life. At the crossing in question, the railway tracks extend through a rock cut. The overhead bridge for team traffic is constructed at an angle with the highway and as a result the highway makes a very short curve at the east end of the bridge. There is also a steep grade on the east approach. *Held:* The conditions of the crossing should be improved. A larger span can be put in on the correct line of the highway, thus avoiding curves in the roadway; or the approaches and roadway can be widened and graded so as to make the approach on an easy curve instead of a sharp one as at present. The former is the more permanent and desirable method, and appears warranted on account of the importance of the highway. However, such structure is not absolutely necessary to render the highway safe for public travel, and it is left to the town authorities and the railway company to determine which plan shall be adopted. If no agreement can be reached between the parties, the Commission will then decide the question. The C. & N. W. Ry. Co. is ordered to render the crossing under consideration safe and suitable for public travel, to submit to the Commission for approval such plans and specifications for the changes required as it may agree upon with the town authorities of Westport, and to report to the Commission forthwith in the case of failure to enter into such an agreement. The C. & N. W. Ry. Co. is ordered to furnish all material and labor and perform all of the work necessary in making the changes required. The town of Westport is to pay 20 per cent of the actual cost of labor and material and the C. & N. W. Ry. Co. the remainder. Sixty days is deemed a reasonable time within which changes in the crossing shall

be made and the highway opened to the use of the public. *Town of Westport v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 218, 221.

2. Sec. 1797—12e, provides that when a petition is lodged with the Commission by the town board of any town to the effect that public safety requires an alteration in the crossing of a highway by a railroad, or its approaches, the closing of a highway crossing and the substitution of another therefor, the Commission shall determine what alteration in such crossing, approaches, etc., shall be made and by whom made, and shall fix the proportion of cost and expense of such alteration, removal and new crossing, including the damages to any person whose land is taken, to be paid by the railroad company and the municipality in interest. *Town of Westport v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 218, 220—221.

Crossings—Apportionment of cost among parties.

3. The statute provides that the Commission shall apportion the cost and expense of a new crossing between the railway company and the town. (Wis. St. sec. 1797—12e.) *Town of Gillett v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 535, 537.

Crossings—Change of location.

4. Complaint was made that the construction of a siding to a gravel pit in the town of Osceola, Polk Co., one mile southeast of Dresser Jct., Wis., by the M. St. P. & S. S. M. Ry. Co. rendered a highway crossing at the east end of the pit unsafe and interfered with the grade of the highway. Subsequently, an agreement was entered into by the town board and the railroad company for the elimination of the causes of complaint. *Held:* In accordance with the request of the parties, the agreement should be approved. The M. St. P. & S. S. M. Ry. Co. is ordered to change the location of the crossing in the manner specified by the Commission, to pay the town board of the town of Osceola \$300 and furnish 100 cubic yards of gravel, if required. The town board is ordered to legally close and abandon part of the present highway, to furnish the right of way, and to do the grading for the new highway in accordance with the Commission's specification. Thirty days is deemed a reasonable time within which to comply with this order. *In re M. St. P. & S. S. M. R. Crossing near Dresser Jct.* 1912, 9 W. R. C. R. 339, 341.

Crossings—Installation of.

5. The petitioner, the town of Gillett, Oconto Co., Wis., alleged that a new highway, beginning near the southwest corner of sec. 14, town 28 N., range 18 E., running in a northerly direction, is intersected by the C. & N. W. Ry. Complaint was made that the railway company refuses to install the required crossing and refuses to allow the petitioner to install the same. The respondent railway company challenged the validity of the action of the town board of supervisors in laying out the new highway, and the necessity of the highway was also questioned. *Held:* Whether the necessary steps were taken to lay out the highway in the manner prescribed by statute can only be determined by the courts. The town supervisors are the judges, under the statute, of the necessity for the highway. The Commission, however, may determine the manner and mode of crossing prior to the actual establishment of the highway and independently of the question whether the highway has been lawfully established or not. (Wis. St. sec. 1797—12e.) *Town of Gillett v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 535, 536—537.

Crossings—Mode and manner of crossing—Determination of.

6. The mode and manner of the crossing of the respondent's tracks by the proposed highway can be determined independently of the ques-

tion whether the highway has been lawfully established or not, for the actual laying out of a highway is not a condition precedent to the jurisdiction of the Commission. *Town of Gillett v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 535, 536.

7. The statute contemplates the determination of the manner and mode of crossing of new highways prior to their actual establishment. The language material and applicable to the situation here under consideration is as follows: "Whenever a petition is lodged with the commission by * * * the town board of any town * * * within * * * which a highway * * * is proposed to be laid out across a railroad * * * to the effect that public safety * * * required the determination of the mode and manner of making such new crossing, and praying that the same may be ordered, * * * the commission shall determine what alteration in such crossing, approaches, mode of crossing, location of highway crossing, closing of highway crossing, and the substitution of another therefor not at grade, or removal of obstructions to sight at crossing, if any, shall be made, and by whom made, and in case of new crossings the mode and manner of making them. (Wis. St. sec. 1797—12e.) *Town of Gillett v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 535, 536—537.

Crossings—Necessity for highway and crossing—Question of, vested in town supervisors.

8. Under the statute the town supervisors are the judges of the necessity of the laying out of a highway. *Town of Gillett v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 535, 536.

Crossings—Protection of.

9. Petitioners allege that the grade crossing of the tracks of the C. & N. W. Ry. with the Prairie du Sac road in the village of Merrimac, Wis., is dangerous. *Held:* Some additional protection is required. The respondent is ordered to station a flagman at the crossing. *Blackman et al. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 50, 55—56.

10. The Commission, on its own motion, investigated a highway crossing of the C. M. & St. P. Ry. two miles east of Camp Douglas, Wis. The highway in question is the main road from New Lisbon to Camp Douglas. *Held:* The crossing should be improved and given adequate protection. The C. M. & St. P. Ry. Co. is ordered to install an automatic alarm with illuminated signal for night indication. It is further ordered to establish a 4 per cent grade on the approaches, to give the roadway a width of 32 feet, and to protect it by a fence as specified by the Commission. Sixty days is deemed a reasonable time within which to comply with this order. *In re C. M. & St. P. R. Crossing Near Camp Douglas*, 1912, 9 W. R. C. R. 328, 329—330.

11. Petitioner alleges that the grade crossing of the C. & N. W. Ry. tracks with the Rapids road in the city of Racine, Wis., is unsafe and dangerous to public travel and prays that respondent be ordered to provide a subway. *Held:* The crossing in question is a dangerous one, but until the city decides upon permanent pavement for the Rapids road, or street cars are operated on the road, or the traffic largely increases, grade separation would not be warranted. Under present conditions, crossing gates giving continuous protection should eliminate the present dangerous condition. Respondent is ordered to maintain continuous gate protection at the crossing in question. *City of Racine v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 354, 356.

12. The Commission, on its own motion, investigated the C. & N. W. Ry. grade crossing at Mount Morris avenue in Wautoma, Wis. *Held:* The existing protection at this crossing is not sufficient and public safety requires the installation of a warning signal. Respondent is ordered to install and maintain an electric crossing bell with an illuminated sign or flash light for night indication. Sixty days is deemed a rea-

sonable period within which to comply with this order. *In re Mount Morris Avenue Crossing at Wautoma*, 1912, 9 W. R. C. R. 365, 366.

13. The Commission, on its own motion, investigated the grade crossing of the I. C. R. R. with Division street in the city of Dodgeville, Wis. Obstructions interfere with an adequate view of the tracks from the approaches of the highway. *Held*: The crossing is dangerous to public travel. Respondent is ordered to install and maintain an electric alarm bell with an illuminated sign or electric flash light for night indication. Sixty days is deemed a reasonable time within which to comply with this order. *In re Division Street Crossing in Dodgeville*, 1912, 9 W. R. C. R. 367, 368.

14. The Commission, on its own motion, investigated the Nelson highway crossing of the C. & N. W. Ry. one mile north of Milton Jct., Wis. *Held*: The crossing is dangerous to public travel and requires additional protection. Respondent is ordered to install and maintain an electric crossing alarm bell, with illuminated sign or electric flash light for night indication. Sixty days is deemed a reasonable time within which to comply with this order. *In re C. & N. W. R. Crossing near Milton Jct.* 1912, 9 W. R. C. R. 379, 380.

15. The Commission, on its own motion, investigated the crossing of the Juneau-Leipsic road with the C. & N. W. Ry. in Beaver Dam, Wis. *Held*: The crossing is dangerous and requires protection. The C. & N. W. Ry. Co. is ordered to install and maintain an electric alarm bell, supplemented by an illuminated sign, or electric flash light, for night indication. Sixty days is considered a reasonable period of time within which to comply with this order. *In re C. & N. W. R. Crossing in Beaver Dam*, 1912, 9 W. R. C. R. 381, 382.

16. Petitioner complains of a dangerous grade crossing at the intersection of the tracks of the C. M. & St. P. Ry. Co. with Muskego ave. in Milwaukee, Wis. Respondent is willing to provide adequate protection at the point in question. *Held*: The crossing is unsafe and respondent is ordered to install and continuously maintain crossing gates, and to employ a gateman to operate them. Thirty days is deemed a reasonable time within which to comply with this order. *City of Milwaukee v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 515, 516.

17. Complaint having been made, the Commission, on its own motion, investigated two highway crossings of the C. & N. W. Ry. Co. near Dodgeville, Wis. The Reeson crossing, about 2½ miles west of Dodgeville, consists of a highway running east and west, and another running south therefrom, with the railroad tracks crossing both in a northeasterly and southwesterly direction. View of approaching trains is obstructed by an upgrade, and also by a cut. The Larson crossing, about ¼ of a mile southwest of the Reeson crossing, is formed by the intersection of a north and south highway with the tracks of the C. & N. W. Ry. *Held*: Traffic at the Larson crossing is not heavy enough to warrant the installation of any safety device. At the Reeson crossing, respondent is ordered to install and maintain an automatic alarm bell with a light for night indication, and to fill all holes in the highway within its right of way. Sixty days is considered a reasonable time within which to comply with this order. *In re C. & N. W. R. Crossings near Dodgeville, Wis.* 1912, 9 W. R. C. R. 520, 522.

18. On motion of the Commission investigation was made of the C. M. & St. P. Ry. crossing at Spring street in Beaver Dam, Wis., at which point an accident had occurred. Four tracks of the respondent railway cross this thoroughfare. Several buildings obstruct the view of approaching trains. Cars standing on sidetracks and considerable switching in the vicinity increase the danger. Because of the extensive traffic, night as well as day protection appears to be necessary. *Held*: The crossing in question is dangerous. Respondent is ordered to maintain a flagman on duty, so that the crossing shall have con-

tinuous protection. *In re C. M. & St. P. R. Crossing at Beaver Dam*, 1912, 9 W. R. C. R. 523, 524.

19. Upon complaint, the Commission on its own motion investigated the crossing of the Green Bay road with the tracks of the Sheboygan Ry. & El. Co. in the village of Sheboygan Falls, Wis. The interurban cars run at a high rate of speed over the crossing in question and the view of approaching cars is obstructed by buildings and trees. The selection of the type of bell especially adapted to operation on electric roads was carefully considered and the necessity of continual attention to the upkeep of the bell was emphasized. *Held*: A warning signal is necessary for day and night protection at the crossing. Respondent is ordered to install and maintain an automatic alarm with illuminated sign for night indication, the type and details of such protective device to be approved by the Commission. Sixty days is deemed a reasonable time within which to comply with this order. *In re Crossing on the Sheboygan Ry. & El. Co.* 1912, 9 W. R. C. R. 525, 527.

20. Complaint was made of a dangerous crossing one mile east of Schleisingerville, Wis., on the lines of the C. M. & St. P. R. Co. and the M. St. P. & S. S. M. R. Co. The crossing is locally known as Mud Lake crossing, and is located in the town of Polk, Washington county. *Held*: The crossing in question is dangerous to human life and requires protection. It is ordered that the C. M. & St. P. R. Co. and the M. St. P. & S. S. M. R. Co. each install and maintain an automatic, electric alarm bell with an illuminated sign for night indication. The alarms are to be installed according to the specifications of the Commission. It is further ordered that each of the railway companies widen the highway and grade the space between the two tracks in the manner prescribed. Sixty days is deemed a reasonable time within which to comply with these orders. *In re Crossing near Schleisingerville*, 1912, 9 W. R. C. R. 528, 529.

21. At a hearing relating to the installation of a crossing in the town of Gillett, Oconto Co., Wis., the question of the protection of the crossing was brought before the Commission. The crossing is formed by the intersection of the C. & N. W. Ry. with a highway beginning near the southwest corner of sec. 14, town 28 N., range 18 E., and running in a northerly direction. *Held*: The desired location of the crossing is the only practical one. The crossing does not require protection. It is ordered that the crossing of the proposed highway be constructed at grade, and that the town of Gillett and the railway company each bear one-half of the cost of construction. *Town of Gillett v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 535, 536-537.

22. Complaint was made by the town board of Buffalo of the M. S. & N. W. Ry. crossing known as Graham's crossing and located in sec. 14, town 14, range 10 east, in the town of Buffalo, Marquette county, Wis. The petitioner alleges that trains approaching from the east cannot be seen from either approach to the crossing and that the crossing is unsafe for travel. *Held*: The crossing in question is dangerous and requires protection. Respondent is ordered to install and maintain an automatic electric crossing alarm bell, with an illuminated sign for night indication. Plans showing the circuit arrangement for the bell and light are to be submitted to the Commission for approval. Sixty days is deemed a reasonable time within which to comply with this order. *Town of Buffalo v. M. S. & N. W. R. Co.* 1912, 9 W. R. C. R. 538, 539-540.

23. Petitioner alleges that the crossing of the C. M. & St. P. Ry. with Birdsey street in Columbus, Wis., is dangerous, in that approaching trains cannot be seen until the railroad tracks are reached. Respondent states its willingness to install an alarm bell, but the petitioner objects that a bell would add to the danger, as considerable switching is done in the vicinity and the continuous ringing of a crossing bell would mislead the public. *Held*: The crossing in question is dangerous and requires protection. Respondent is ordered to maintain a flagman

at the crossing during the day and to install and maintain an automatic alarm bell with an illuminated sign for night indication, the latter to be operative only for trains on the main tracks, and to be so arranged as to be in service at night only, when the flagman is off duty. *City of Columbus v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 576, 580.

Crossing—Restoration and maintenance of highway.

24. Respondent complains of the Commission's order (*Town of Wauwatosa v. C. & N. W. R. Co.* 1911, 7 W. R. C. R. 709) requiring the construction of a bridge at the intersection of respondent's tracks with North avenue about 475 feet west of the north and south section line road. Respondent alleges that the 6 per cent grade of the approaches required in the order necessitates the raising of the section line highway 14.9 feet at the intersection with North avenue. In respondent's opinion the change involves such large expenditures as to be inadvisable. Other witnesses testified that the highway should be widened. Investigation proves it practicable to reduce the distance from the top of the bridge floor to the bottom of the low steel of the girders by a re-design of the floor system, and also to reduce the amount of clearance above the top of the rail. *Held:* The bridge should be reset so as to place the entire structure on the grade ascending toward the west. The floor should be re-designed and the clearance above the rail reduced. The grade on the bridge is not to exceed 6 per cent and the approaches are not to exceed a grade of 6.85 per cent. The roadway is to be widened to not less than 32 feet, and is to be protected where necessary as specified by the Commission. *Town of Wauwatosa v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 262, 265-266.

Crossings—Separation of grades.

25. Petitioner alleges that public safety requires the separation of the grades of the tracks of the C. M. & St. P. Ry. Co. and the C. & N. W. Ry. Co. from the grades of certain streets in Milwaukee, Wis., and prays for an order to that effect. Some of the streets are main arteries of travel between the various parts of the city, and the others are busy thoroughfares. All are crossed by two or more steam railway tracks. A portion of the tracks enumerated form freight yards, and in addition to the main line traffic there is a constant switching movement along the various tracks at all hours of the day and night. Blockades of the crossings, with consequent interruptions of street traffic, occur frequently and vary from a few seconds to many minutes. The crossings are often blockaded when the apparatus of the fire department is called into service. *Held:* Besides being a great inconvenience, inimicable to the general welfare, the blockades are a direct source of danger. The large number of tracks involved, the many trains, the great amount of switching across the streets and the heavy traffic thereon, all unite to render a separation of grades imperative. In view of certain changes in track arrangement contemplated by the steam railways, the change of grades is confined for the present to the south side of the Milwaukee river. The limits of the rights of way of the railways are natural lines of separation between the portions of the work to be laid upon the city and the respective steam railways. The precedent seems fairly well established of having the city assume the expense arising from damage suits. The part of the work falling naturally to the street railway company is the changing of its tracks and appurtenances where necessary and the reconstruction of that part of the roadway occupied by its tracks. If, on completion of the work, it appears that substantial justice has not been done under this apportionment, this matter will then be taken up again, and, if necessary, a new apportionment will be made. The C. & N. W. Ry. Co. and the C. M. & St. P. Ry. Co. are ordered to elevate the planes of their respective roadbeds and tracks as specified by the Commission and to construct subways beneath their tracks at certain cross-

ings. If it becomes necessary to disturb any property belonging to any public utility company, the interested company is to make the required changes within ten days after the receipt of notification from respondent steam railways. The T. M. E. R. & L. Co. is to make all necessary changes to its tracks, poles, overhead equipment and conduits, and do all necessary grading and paving on that part of the roadway included between the outside rail of its tracks and a strip one foot wide on each side thereof. The C. M. & St. P. Ry. Co. and the C. & N. W. Ry. Co. are to do that part of the work lying within the limits of their respective rights of way, and also that lying within the portions of the public thoroughfares included between the portals of the subways, or, where no subway is provided, between the boundary lines of the elevation work extended across such thoroughfares, except such work as is herein laid upon other companies. The city of Milwaukee is to do the remainder of the work and to assume responsibility for any alleged damages to adjacent property or business resulting from this order. Upon the completion of the work herein ordered, the parties shall submit separate, complete, itemized and sworn statements of the actual cost of the work. All the work within the portals of the subways, and all that in connection with the public streets is to be performed under the superintendence of the commissioner of public works, to whom plans and specifications thereof are to be submitted at least ten days prior to commencing the work. If found to be in accordance with the provisions of this order, or, in the absence of specific provisions, if satisfactory to the commissioner of public works, such plans are to be approved by him and the work outlined to be constructed in strict conformity therewith. The Railroad Commission will maintain general supervision over the work and reserves the right to decide any matters of difference between the parties. Any of the parties may at any time refer to the Commission for consideration questions that may arise during the progress of the work. The city is to pass appropriate ordinances to change the grade of all streets, avenues and alleys necessary, and as a condition precedent to the obligations of the railway companies or other parties under this order, to speedily vacate the portions of streets, avenues and alleys specified. Work is to commence upon the elevation of tracks on or before July 1, 1912, is to be continuous, and to be finally completed on or before Dec. 31, 1914. If the work be interrupted by the matters specified as outside the control of respondents, the time during which respondents are so interrupted is to be added to the time given for the completion of the work. When the roadbeds and tracks are elevated and ready for use, all the ordinances of Milwaukee relating to the protection of the public at grade crossings are to cease to be applicable within the limits of the tracks in question, except where grade crossings are still maintained within those limits. Nothing in this order is to be construed as a waiver or surrender by the city of Milwaukee of any of its police powers or of the right at any time hereafter to properly exercise such powers. *City of Milwaukee v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 193, 200-217.

26. Respondent complains against that part of the Commission's order in *Town of Wauwatosa v. C. & N. W. R. Co.* 1911, 7 W. R. C. R. 455, which provides that the approaches to the overhead bridge carrying the North Town Line highway across respondent's tracks in the town of Wauwatosa, Wis., shall not exceed a 5 per cent grade. If the western approach were constructed in accordance with the order the North Town Line road would cross a north and south highway 13½ feet above the present elevation. Investigation shows that if the bridge were moved to a point about 332 feet east of the east line of the north and south highway, a 6 per cent grade for the western approach would be at an elevation hardly noticeable at the intersection of the roads. *Held:* The bridge should be moved as specified and the western approach constructed at a 6 per cent grade. There is no ne-

cessity for changing the grade of the east approach. *Town of Wauwatosa v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 267, 269.

27. Petitioner complains against the order of the Commission in *Town of Wauwatosa v. C. & N. W. R. Co.* 1911, 7 W. R. C. R. 737, which provides that respondent lower the South Town Line road, the boundary between the towns of Greenfield and Wauwatosa, Wis., to a further depth of two feet, under the overhead crossing of respondent's Milwaukee-Sparta extension. An excavation of several feet had been made here to procure a thirteen foot headway, and petitioner alleges that further depression of the highway will greatly increase objectionable conditions of drainage. Petitioner prays that respondent be required to construct a passageway for foot travelers and to submit plans for draining the roadway to the Commission. *Held:* The order complained of is vacated and the C. & N. W. R. Co. is ordered to so depress the highway at the intersection mentioned as to provide an overhead clearance of fourteen feet. It is further ordered that the roadway be graded and maintained as set forth in plans submitted by respondent, that the natural and artificial drainage be restored and maintained in its original condition according to these plans, and that a sidewalk be constructed as specified by the Commission. *Town of Greenfield v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 270, 273.

28. Application was made by the W. & N. R. Co. for approval of its plans and specifications for the proposed extensions to its line of railroad from Western Siding to Antigo, and Shawano to Menasha, Wis., authorized by a certificate of public convenience and necessity. The C. & N. W. Ry. Co. opposes applicant's plan of crossing its tracks at North Kaukauna and East Appleton at grade, and submitted plans for the elimination of these grade crossings. A depression of the C. & N. W. Ry. tracks to allow an overhead crossing of applicant's line at East Appleton would also permit of a separation of grade at two highway crossings. *Held:* In view of all matters involved, overhead crossings at the intersections of applicant's line with Newberry and Walter ave. and with the C. & N. W. Ry. at East Appleton are necessary for public safety. There is no necessity of a change in the method of crossing the C. & N. W. Ry. at North Kaukauna. With the exception of the plan for a grade crossing at East Appleton, the applicant's plans and specifications are approved. Whenever the applicant constructs its proposed line, it is ordered to construct overhead crossings at East Appleton at its intersections with the highways in question and with the C. & N. W. Ry. *In re Appl. W. & N. R. Co. for Approval of Plans*, 1912, 9 W. R. C. R. 322, 326-327.

Crossings—Separation of grades—Overhead bridge.

29. The town board of Beaver Dam alleges that the M. S. & N. W. Ry. Co. maintains a dangerous crossing at the intersection of the east and west center lines of sections 20 and 21 in town 11 north, range 14 east, town of Beaver Dam, Dodge county, Wis. There are two highways at this point, one extending north and south, the other east and west, which intersect and are crossed at their intersection by the railroad running in a northwesterly direction. *Held:* The crossing in question is dangerous. The respondent is ordered to construct and maintain an overhead bridge and the approaches, or those portions of the highways of which the bridge forms a part, within respondent's right of way, according to the plan approved by the Commission. Four months is deemed a reasonable time within which to comply with this order. *Town Board of Beaver Dam v. M. S. & N. W. R. Co.* 1912, 9 W. R. C. R. 471, 473.

CONTROL AND REGULATION IN GENERAL.

Regulation of services and rates under Railway Commission Act—Provisions declaratory of the common law.

30. The general powers vested in the Commission by the Commission Act relate to the regulation of services and rates of railway companies.

The duties of such companies generally prescribed by the statute, which is declaratory of the common law, are contained in section 1797—3. "Every railroad is hereby required to furnish reasonably adequate service and facilities, and the charges made for any service rendered, or to be rendered, in the transportation of passengers or property or for any service in connection therewith, or for the receiving, switching, delivering, storing and handling of such property, shall be reasonable and just, and every unjust and unreasonable charge for such service is prohibited and declared to be unlawful." *Stresen-Reuter et al. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 394, 395.

OPERATION.

Requirements as to service and facilities.

See also STATION FACILITIES; SWITCH CONNECTIONS; TRAIN SERVICE.

Requirements as to service and facilities—Railway car service—Refrigerator cars.

31. Refrigerator car service, being a special service and requiring special equipment and facilities, is of necessity a limited service. The carrier may make reasonable regulations as to the time when the same may be granted and also restrict the service to such lines and between such termini as the traffic conditions warrant. Unless there is sufficient traffic of the kind upon any line requiring the service to pay the expense thereof when rates are assessed which are not prohibitive, the carrier could probably be justified in refusing to install the service. Each case must be determined upon all the facts and circumstances surrounding it. *Ellman v. I. C. R. Co.* 1912, 9 W. R. C. R. 240, 248.

32. Petitioner alleges that the I. C. R. Co. refuses to accept perishable goods for shipment from Madison to Belleville, Monticello and Monroe, Wis., except at owner's risk. Refrigerator cars, iced in warm weather and heated in cold weather, are received at Madison and are available for shipments out of Madison at least four days per week. A rule of the Railroad Refrigerator Service Association, effective on respondent's line, provides that agents must not accept less than carload shipments of perishable freight (except subject to tariff rules as to minimum weights), when such freight is liable to be damaged by heat or cold on days when scheduled refrigerator cars are not run, nor on any days for points to which no scheduled refrigerator service is provided, unless shippers make written demand to forward the property in cars without special protection in transit. Respondent's tariff provides that the carrier will furnish ice for the protection of certain products in less than carload lots, when charges are paid on a minimum weight of 10,000 lbs., but there is no provision showing under what conditions ice is furnished for less than carload shipments of fruit and vegetables nor for any perishable freight in less than carload lots other than those named. In order to get an iced car for freight not provided for by this provision of the tariff, shippers must pay carload rate and minimum weight except where there is a regular scheduled service. Another rule of the American Refrigerator Service Association provides that artificial heat, if necessary, should be given at any point when available, governed by rules herein, but subject to the rules and regulations of and charges, if any, published by the individual carriers. There is nothing in the tariff or on file with the Commission that would indicate that there is any charge to shippers for heated car service furnished by carriers. *Held:* It is incumbent upon common carriers of property to receive and carry all goods which may be tendered to them for the purpose and which they hold themselves out to carry and undertake to carry, notwithstanding special equipment may be required for the safe transportation thereof. Having undertaken to carry a particular kind of property which requires an unusual service, they must receive the same when offered for carriage,

provided, of course, reasonable notice has been given to them so that they may be prepared to furnish the necessary equipment and that there is sufficient traffic of the character to warrant the service, but they cannot impose upon the shipper a contract exempting themselves from their legal liabilities as common carriers. The carrier may charge for the special service rendered compensatory rates which cover both the cost of the service and the risk incurred on account of the nature of the goods carried. In the absence of any published provision in the western classification or in the uniform bill of lading providing for exemption of its liability as an insurer in any case, the respondent could not lawfully impose such stipulation upon a shipper. Any such provision, if duly published in a schedule, should be an alternative to the right of the shipper to have his goods shipped at the risk of the carrier. Respondent's service in transporting fruit and perishable freight from Madison to the points in question is inadequate. The I. C. R. Co. is ordered to provide iced car service during summer months and heated car service during winter months, when weather conditions require it, for the transportation of fruit and other like perishable commodities from Madison to Belleville, Monticello and Monroe. *Ellman v. I. C. R. Co.* 1912, 9 W. R. C. R. 240, 247-249.

Requirements as to service and facilities—Special equipment.

33. Wherever the territory served by the railroad produces commodities in sufficient quantities which require special equipment for their proper shipment, such equipment should be provided. (1 Wyman, Public Service Corporations, sec. 796) *Ellman v. I. C. R. Co.* 1912, 9 W. R. C. R. 240, 247.

RATES.

See RATES.

RATE ADJUSTMENT.

See RATES.

RATE WARS.

Between electric utilities, effect on utilities and on public, see RATES, 4-5.

Power of Commission to prevent rate wars between competing utilities, see RAILROAD COMMISSION, 5.

RATES—ELECTRIC.

See also MINIMUM CHARGES.

Discrimination in electric rates, see DISCRIMINATION, 1-6.

Flat rates.

1. Discrimination among flat rate consumers may arise from the tendency of consumers to extend their installations or to increase the sizes of their lighting units without the knowledge of the company. *City of Rhinelander v. Rhinelander Ltg. Co.* 1912, 9 W. R. C. R. 406, 435.

Making rates—Elements considered—Cost of service—Wages and salaries.

2. Analysis of comparative data shows that the normal amount expended for wages and salaries is about 40 to 45 per cent of the total operating expenses, modified in individual instances by local conditions. *City of Rhinelander v. Rhinelander Ltg. Co.* 1912, 9 W. R. C. R. 406, 431-432.

Meter rates.

See post, 9-10.

Minimum rates.

3. No distinction as to minimum charges can be made between consumers who own their meters and those whose meters are owned by the utility. Steps should be taken to remove this illegal feature of the schedule at once. *In re Appl. Bruce W. and Lt. Comm.* 1912, 9 W. R. C. R. 474, 476

Power Rates.

Discrimination due to the practice of substituting power rates instead of the lighting rates properly applicable under the schedule, see DISCRIMINATION, 5.

Rate wars—Effect on utilities and on public.

4. Rate wars mean lower than paying rates, failure to keep the property in proper operating condition, and inadequate service. It usually results in the financial ruin to one or more of the contestants, the crippling of the rest, and in the ultimate consolidation of the remnants into one concern. When peace has thus been restored, the rates are advanced, not only to the level that prevailed before the contest, but to even higher figures. This is often necessary, because it is frequently the only way in which the public can secure adequate service. This has been the history of rate wars since their beginning and there is nothing to indicate that history would not, in a measure, repeat itself in this case. These results, if the war were permitted to go on, could not be prevented or more than tempered under the Public Utilities Law, for the only way bankrupt corporations in the hands of receivers can be made to furnish adequate service to the public is through the additional investment of enough capital to restore the plants to efficient operating condition and by fixing rates that are high enough to yield reasonable returns for operating expenses, including repairs, depreciation and interest charges on the entire investment. In one way or another losses and destruction due to rate wars are almost certain to fall on the public; and in the end the customers of such utilities will lose more through such losses and through bad service than they gained through the temporary reductions in the rates while the war was on. Rate wars also have a demoralizing effect upon business methods and practices and usually result in future dissatisfaction and strife. In the public utility field they are so clearly against public policy that they should under no circumstances be permitted. (*Kenosha El. Ry. Co. v. Kenosha G. & El. Co.* 1911, 8 W. R. C. R. 119, 121-122.) *In re Invest. T. M. E. R. & L. Co. et al.* 1912, 9 W. R. C. R. 541, 551.

5. That rate wars are against public policy is recognized in the Public Utilities Law, for it is clearly in order to enable this Commission to prevent or stop such struggles that sec. 1797m-99 was included therein. *In re Invest. T. M. E. R. & L. Co.* 1912, 9 W. R. C. R. 541, 551.

Reasonableness of advance in rates in particular cases.

6. Application was made by the Bruce W. and Lt. Comm. for authority to increase electric rates for power service at Bruce, Wis. Applicant wishes to increase the rate for a moving picture arc which has been classified as power and given a low rate. This arc is on the same circuit as the ordinary lighting load and is used at the time of the peak load of the plant. *Held:* The question at issue is one of classification rather than of rates. The cost of service for a moving picture arc is about the same as for general illumination, especially where the electric plant is operated only at night, as in the present case, and where the use of the arc is entirely limited to the hours of commercial lighting. The applicant is authorized to classify moving picture arcs under lighting rates. *In re Appl. Bruce W. and Lt. Comm.* 1912, 9 W. R. C. R. 474, 476.

7. Application was made by the village of Whitehall, Wis., for authority to increase rates for electric current. Applicant's electrical

property consists of electrical equipment and a distribution system. Hydraulic power to generate current is purchased of the Whitehall Mill and Power Co. Revenues and expenses were examined and operating expenses were apportioned over capacity and output expenses. Capacity expenses were further apportioned to the different classes of service on the basis of the contribution each makes to the station peak, and the output expenses on the basis of the amount of current used by each class. Based upon data submitted by the utility and comparison with other plants, total expenses were apportioned among metered consumers, flat rate consumers, and street lighting. *Held*: An advance in rates is reasonable and applicant is ordered to amend its present schedule and to put in effect the rates prescribed by the Commission. *In re Appl. Village of Whitehall*, 1912, 9 W. R. C. R. 479, 481.

8. Application was made by the Chippewa Valley Ry. Lt. & P. Co. for an amendment of its schedule to provide a higher rate for flaming arc lamps. The applicant has its chief place of business in Chippewa Falls and operates in Eau Claire, Menomonie, Elk Mound and Altoona, Wis. The flaming arc lamp is a novelty lamp for advertising purposes. The carbons are a patented product more expensive than for the ordinary lamp, and more labor is required in trimming. The cost of maintenance and operation is nearly six times as much as for the standard enclosed arcs and the amount of current consumed is less, due to the greater efficiency of the lamp. The lighting rate is only a little more than pays for the carbons used. At present the company furnishes lamps, lamp maintenance, and carbons. The desired rate for the flaming arc lamp is the regular lighting rate with the provision that the consumers purchase and install the lamps and furnish all carbons used in their operation, or pay the cost price to the company. *Held*: The regular lighting rate does not meet the greater cost to the company of the flaming arc lamps. Applicant is authorized to put in effect the proposed amendment. *In re Appl. Chippewa Valley Ry. Lt. & P. Co.* 1912, 9 W. R. C. R. 500, 501.

Reasonableness of rates in particular cases.

9. Application is made by the Chippewa Valley Ry. Lt. & P. Co. for authority to put all its consumers of electricity in Elk Mound, Wis., on a meter basis. At present commercial consumers alone are allowed a meter rate. As no financial and statistical report has ever been made for this village, no data are available on which to base an estimate of the reasonableness of the proposed rates. *Held*: When compared with schedules the company has in force in other cities, the proposed schedule does not seem to be unreasonable. As petitioner is not endeavoring to increase its revenue, but is merely seeking to level out certain inequalities in the present rate and to establish a meter rate for all consumers, there seems to be no reason why the petition should not be granted. Petitioner is authorized to substitute the proposed schedule for its present system of rates. *In re Appl. Chippewa Valley Ry. Lt. & P. Co.* 1912, 9 W. R. C. R. 305, 309.

10. Petitioner alleges that the electric rates of the Rhinelander Lighting Co. for light, power and other purposes in the city of Rhinelander, Wis., are unreasonably high. Respondent leases power for electric current from the Rhinelander Power Co. and pays a fixed annual amount. The contract limits the sale of current by respondent to lighting purposes and to use for electric fans at lighting rates and the power company reserves the right to sell current for power and to furnish its power customers with current for light. Operating data, desirable for rate-making purposes, were found to be incomplete and it was necessary to resort to estimates to a considerable degree. Operating expenses seem to have been about normal. Consumer data available indicate that the flat rate consumers, while using over twice as much current as the metered consumers, furnish little more than one-third of the total commercial revenue. Data also show discrimination that may exist

even among the flat rate consumers. The situation is not entirely the fault of the company, but grows to some extent from the tendency of consumers to extend their installations without notifying the company. On account of the difficulties of formulating equitable flat rates and of the greater difficulties of formulating such rates side by side with equitable meter rates, the cost analysis is based on the assumption that all commercial service is to be metered. Free service is eliminated. Operating expenses and revenues determined upon were apportioned between output and capacity expenses and further apportioned between commercial service and municipal arc lighting. Earnings from street lighting appear to be about normal. *Held*: The absence of certain information can hardly be permitted to stand in the way of adjustments which apparently will lead to greater equity between the utility and the public and between the different classes of consumers. To completely prevent adjustment and reduction of rates would add an incentive for failure to provide for ordinary utility records. A more equitable adjustment of the rate schedule, the elimination of waste of current and a substantial reduction in charges will result if all service is metered. Respondent is therefore ordered to install integrating meters within 90 days on all commercial service, except for patrolled sign, outline and window lighting, and on the main circuits going out from the substation. It is further ordered that respondent put in effect the rate schedule provided by the Commission and the meter rates therein established shall become effective for metered use of current for the month of August 1912. Inasmuch as the power company is not prepared, or has not taken the steps necessary to supply general power service, it appears to be unjust to the public to permit the agreement between the parties to the lease to so operate as to place beyond the reach of the public the rates to which it is entitled. The utility which is ostensibly serving the community should be required to furnish that service at reasonable rates or the concern, which reserves the right to the business, should be ordered to furnish it. Rates for power service are included in the prescribed schedule. *City of Rhineland v. Rhineland Lt. Co.* 1912, 9 W. R. C. R. 406, 436-438.

11. Complaint was made that discriminatory practices were resorted to among competing companies furnishing electric current in Milwaukee, Wis. The T. M. E. R. & L. Co. petitioned for the establishment of such rates, rules and regulations for the utilities involved as would put a stop to the practices complained of. The Plankinton Lt. & P. Co. made a similar complaint and asked for authority to put in effect a lower rate schedule whenever necessary to protect its business from the encroachment of the Commonwealth P. Co. It was found that unjust discriminatory practices had brought about a situation that verged upon a destructive rate war. The Commission on its own motion investigated the rates, rules and regulations of the T. M. E. R. & L. Co., Commonwealth P. Co., Plankinton El. Lt. & P. Co., Wells P. Co., Railway Exchange Bldg. Co., Colby & Abbott Bldg. Co., and the Molitor & Hummell Realty Co. Pending the investigation an order was directed to the Commonwealth Co. and the T. M. E. R. & L. Co. suspending such practices as would tend to aggravate the situation. The franchise of the T. M. E. R. & L. Co. covers the entire city and this company comes in competition with all the other companies named. The franchises or rights of the other companies appear to be limited to certain sections of the city. The companies maintain separate schedules and sets of rules and regulations. The T. M. E. R. & L. Co. is so situated that when all the factors are taken into consideration, such as reserve requirements, size of its business, and provision for extra demand that may arise, it is quite obvious that the plant and equipment cannot be much, if any, smaller than would be required if it had to furnish all the services for the entire city. The city, however, adopted the policy of permitting other companies to come in and share or compete for the business. The result is that in this city much more property, supplies, labor and serv-

ices of all kinds are employed in furnishing electric energy for light and power than would be the case if one company with one set of organizations gave this service. These duplications cost money, cause greater depreciation and interest charges as well as higher operating expenses than would otherwise be needed, which falls as an increased burden on the people served. Before being in a position to remedy the complaints in the present case it was necessary to obtain some idea of the approximate cost-value of the plants involved and the amounts which in each case appear to constitute the earnings and operating expenses. *Held:* Public interests require that the rates, rules and regulations complained of should, temporarily at least and pending further investigation, be so altered and amended as to, as far as is both just and practicable, place the contending utilities in relatively the same position with reference to their customers or the business to be had, and so as to eliminate as far as possible such discriminations as between customers and others which are unjust and inimical to public interests. On the whole the present schedules of the companies are fully as high as they should be. Certain reductions and modifications should be made in the demand and other rates insofar as they effect business lighting and power. Such reductions in the rates for the three companies which are mostly concerned in these proceedings, the Railway, the Commonwealth and the Plankinton, would seem to be justified by the facts. The rates as thus reduced would also seem to apply to the Wells P. Co., although in this case it would result in about as many increases as decreases in the rates, neither of which would seem to be serious or out of line with conditions. As the Railway Exchange Bldg. Co., the Colby & Abbot Bldg. Co., and the Molitor & Hummell Realty Co. were more indirectly involved in the original proceeding which led to this case, and as the relation of these companies to the issues involved has as yet not been fully investigated, it is thought best, pending the final conclusion in the matter, not to include these three companies in this order. It is ordered that the T. M. E. R. & L. Co., the Commonwealth P. Co., the Plankinton El. Lt. & P. Co., and the Wells P. Co. abandon their present schedule for commercial lighting and power service and, pending further investigation, substitute the approved standard rate with accompanying rules and regulations, deemed just and reasonable under the provisions of ch. 499, Laws of 1907. Schedules of the above companies now in force for residence lighting service, federal, county and municipal building service and high water power service are to remain unchanged. This order is to apply to service billed for the month of September, and is to supersede the temporary orders in the matter. *In re Invest. T. M. E. R. & L. Co. et al.* 1912, 9 W. R. C. R. 541, 568-575.

RATES—GAS.

See also MINIMUM CHARGES.

Minimum rates.

12. Where no minimum bill is provided, the company is required to carry on its books and bill from month to month accounts so small that they do not pay the fixed charges, to say nothing of the cost of gas actually supplied. *Meyer et al. v. Sheboygan G. Lt. Co.* 1912, 9 W. R. C. R. 439, 465.

Reasonableness of rates in particular cases.

13. Complaint was made that respondent's rates for gas in Sheboygan, Wis., are unreasonably high. Although the investment is not more than might be expected for a city of the size of Sheboygan, it is much higher than normally prevails when measured by the amount of business transacted, due to the relatively poor development of the business. Analysis of operating statistics shows that, while the number of gas consumers per 100 population is a little less than the average and median values for class A utilities, the sales per capita and per con-

sumer and the amount of mains per 100 population are much below normal. Expenses and revenues were analyzed and compared with those of other Wisconsin gas utilities. Operating expenses of the last three years were apportioned between consumer and output costs, and variable unit costs of consumer, output and total expenses for consumers using different amounts of gas per month, were ascertained. Estimates were made of the gas revenues that respondent would have received during the year ending June 30, 1911, for rates placed at several different amounts. To what extent the under-development of respondent's business is due to the present rate schedule, the management of the utility or the character of the business which it supplies, is not determined in the present case. *Held:* In the present case conditions over which the utility has little control materially affect the quantities in which gas is used. They are something for which the utility is no more responsible than the users. While on the one hand these conditions affect the costs to the consumer, they seem, on the other, to affect the value of the investment and what it may equitably earn under the circumstances. In view of these facts, something of a reduction should be made in the rates charged by respondent. A minimum monthly charge should be established to return to the utility at least a reasonable portion of the costs it must bear even when the consumer uses no gas. Respondent is ordered to substitute for its present rate schedule a schedule of reduced rates fixed by the Commission. *Meyer et al. v. Sheboygan G. Lt. Co.* 1912, 9 W. R. C. R. 439, 466-467.

RATES—RAILWAYS.

See REPARATION; TERMINAL CHARGES; various commodity subject headings; WEIGHTS.

Commission, duty of Commission to regulate rates, see RAILROAD COMMISSION, 4.

Minimum carload weights, see WEIGHTS, 1-2.

Unreasonable rates, reparation for charging, see REPARATION, 1-32.

Commodity rates—Low grade commodities.

14. It is better for both carriers and shippers that low grade freight should be carried at rates which will contribute but little in the way of return upon the investment, than that the traffic should be lost altogether. *Waukesha Lime & Stone Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 87, 96.

Distance rates—Unloading points within a city.

15. Request was made that the rates on crushed stone, gravel, lime and sand on the C. M. & St. P. Ry. from Lannon to all points within the city of Milwaukee be made equal, instead of varying with the length of the haul inside of the city. The C. M. & St. P. Ry. Co. calculates the actual distance to its particular stations in Milwaukee, while the C. & N. W. Ry. bills its shipments only to Milwaukee proper, without differentiating between its various unloading points. *Held:* So strict an application of the distance principle as has been made by the St. Paul road would seem to be inadvisable. The real receiving point is the city of Milwaukee and not the particular street within that city where the haul happens to end. The power of the Commission in fixing rates is not restricted to a strict distance basis in a case where all of the points grouped together are within one city and the maximum variation in distance is so small as in the present case. In fact, the Commission's distance rates themselves are made in five-mile groups, and it has never been suggested that this method of fixing distance rates is improper because the Commission has no authority to make groups of that size. It would seem fair, therefore, to designate the station of Milwaukee, as named in the distance tables of the respondent companies, as the point to which all rates for hauls terminat-

ing within the city limits of Milwaukee should be computed and it is ordered that in the application of the tariff upon shipments to points within the limits of the city of Milwaukee, the rates be governed by the distances from the points of origin to the station of Milwaukee as named in the respondent's tables of distances. *Waukesha Lime & Stone Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 347, 352.

Emergency rates—Power of Commission to establish.

16. Under sec. 1797—28 of the statutes the Commission is empowered to authorize the establishment of emergency rates that are reasonable under the circumstances. *Elmore-Benjamin Coal Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 396, 399.

Joint or through rates.

17. In the present case the respondent company points out that the lack of joint rates does not place the petitioner at an unfair advantage as against any competing seller in the same territory. However, discriminatory conditions are not the only ones justifying the establishment of joint rates in a given case. Where the other circumstances, chief among which is the cost of the service to the carrier, make the assessment of the sum of the local rates unreasonable, joint rates may properly be established without reference to the existence or absence of direct competition between shippers. *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 9 W. R. C. R. 127, 131.

18. Since the primary basis for the fixing of reasonable rates is the cost of the service to the carrier or carriers, it is plain that a reasonable joint rate between two carriers operating under substantially similar conditions should be equal to the single line rate for the total distance, plus the cost of transferring the shipments from the initial to the receiving line. What this transfer cost is, is a matter capable of fairly close approximation, although in any given case it may depend largely on local conditions at the point of transfer. *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 9 W. R. C. R. 127, 131-132.

Joint or through rates—Elements of cost.

19. A joint haul over two or more lines of railway necessarily involves elements of expense not found in a haul of the same distance over only one line. This greater expense is generally not sufficient, however, to warrant the exaction of the sum of the two local rates applying to and from the junction point of the connecting lines, and joint rates are therefore generally fixed considerably lower than the sum of the locals. When the traffic is moved on a distance tariff basis, as in the present case, joint rates should ordinarily be fixed at a reasonable distance rate for the combined distance over the two roads, plus the reasonable cost of transfer between the two railways. *Semrad Bros. & Pusch Brwg. Co. v. C. & N. W. R. Co. et al.* 1912, 9 W. R. C. R. 76, 79.

Joint or through rates—Establishment of—Statutory requirements relating to.

20. While it does not always follow from the fact that a shipper desires to make shipments over two lines of railway, that the carriers should be required to make joint rates lower than the sum of the local rates, the law makes it the duty of the Commission to establish such joint rates when a proper occasion presents itself. *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 9 W. R. C. R. 127, 130.

Joint or through rates—Establishment of joint rates.

Joint rates on beer, Highland to Wis. points on the C. & N. W. line, see post, 32.

Joint rates on wood, Bagdad to Rothschild, Wis., see post, 60.

Joint or through rates—On raw materials manufactured on originating line.

21. The natural aversion of the railway companies to the movement of raw materials off of their own lines must sometimes yield to the right of the public to rates which are, under all the circumstances, reasonable. *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 9 W. R. C. R. 127, 130.

Lowest rate applicable.

22. It is the duty of the railway company, in the absence of any specific direction to the contrary, to route shipments over lines whereby the freight charges will be least. *Owen & Bro. Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 43, 44.

23. The lowest rate in effect should have been used in computing the charge. *Bacon & Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 62, 63.

Reasonableness of rates—Matters considered in determining reasonableness.

24. In determining what rates are reasonable in the present case the various conditions surrounding the business, both as to the character of the commodity, the method of handling the traffic, and the competition which the petitioner meets, are important and have received due consideration. Attention has also been given to comparative rates although the weakness of comparative data as a criterion for rate making is always to be kept in mind. But in this as in most cases, the principal basis for computing a reasonable rate is the cost of the service to the carrier, and this cost has been ascertained in the present case by the methods often explained in decisions of this Commission. *Wis. Lakes Ice & Cartage Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 101, 109.

Reasonableness of rates—Matters considered in determining reasonableness—Comparative data.

25. In determining what rates are reasonable in the present case attention was given to comparative rates but the weakness of comparative data as a criterion for rate making is always to be kept in mind. *Wis. Lakes Ice & Cartage Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 101, 109.

26. While rate comparisons are dangerous as a measure of the absolute reasonableness of a proposed rate, for the reason that the rates with which comparison is made are not proved to be reasonable and are sometimes the result of peculiar conditions, yet the comparison made in the present case is of considerable value in finding a rate that is reasonable under all the circumstances. *Wausau Paper Mills Co. v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 400, 404.

Reasonableness of rates—Matters considered in determining reasonableness—Cost of service.

27. While comparative rates are sometimes of value as indicating what the competitive situation is in a given industry and what the customary practices of carriers are, the primary basis of properly constructed rate schedules is the cost of performing the service, including a reasonable return upon the capital invested. (*Ringle et al. v. C. M. & St. P. R. Co. et al.* 1911, 7 W. R. C. R. 598, 600.) *Eau Claire Concrete Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 82, 85.

28. Although adjustments and modifications are sometimes necessitated by the existence of peculiar commercial or traffic conditions, these circumstances are very seldom so important as to deflect the rates to any great extent from the cost curve. (*Ringle et al. v. C. M. & St. P. R. Co. et al.* 1911, 7 W. R. C. R. 598, 600.) *Eau Claire Concrete Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 82, 85.

29. Among the facts which are material in determining the cost of the service are the loading per car and the average value of the products shipped. *Waukesha Lime & Stone Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 87, 95.

30. The principal basis for computing a reasonable rate is the cost of the service to the carrier. *Wis. Lakes Ice & Cartage Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 101, 109.

Reasonableness of rates—Matters considered in determining reasonableness—Value of articles carried.

See post, 38-40, 43, 54-55, 60, 64.

Reasonableness of rates in particular cases—Axles, Racine and Racine Junction to Green Bay and Oshkosh, Wis.

See post, 56.

Reasonableness of rates in particular cases—Bags, Milwaukee to Stevens Point, Granite and Amherst, Wis.

31. Petitioner alleges excessive charges on carload shipments of burlap bags from Milwaukee to Stevens Point, Granite and Amherst, Wis., respectively, on which respondent railway exacted the fourth class rate. At the time the shipments moved respondent had in effect a rate of 15 cts. per cwt. on burlap bags from Chicago to the points named, while on other lines this rate was in effect from Milwaukee to those points. Later respondents established this rate from Milwaukee to the points in question. The rate exacted was due to an error in the publication of respondent's tariff. *Held:* Four of the cars in question arrived at their destination more than a year before the petition was filed, and they are therefore excluded by the statute. The class rate exacted of petitioner was unusual and exorbitant and the reasonable rate applicable to such shipments is 15 cts. per cwt., as subsequently made effective. *Milwaukee Bag Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 9 W. R. C. R. 182, 184.

Reasonableness of rates in particular cases—Beer, Highland to Wisconsin points on the C. & N. W. line.

32. Petitioner alleges that there are no joint rates in effect upon less than carload shipments of beer between Highland, Wis., on the line of the M. Pt. & N. Ry. Co. and certain stations on the C. & N. W. Ry. Co.'s line. Up to May 1, 1911, the single distance tariff rate was applied upon through shipments over the two lines, but since then petitioner has been charged the sum of the two local rates. The C. & N. W. Ry. Co. offers to establish joint distance rates with the M. Pt. & N. Ry. Co. from Highland equal to 125 per cent of the straight Wisconsin distance tariff rates. Petitioner claims that the proposed rates as well as present rates are unreasonable and prays that the rate be restored to its former basis by applying the single distance tariff directly from Highland. The single distance tariff contended for is in effect between Highland and points on the C. M. & St. P. line and also to more distant points on the C. & N. W. line. *Held:* Under the circumstances of the present case the third class rates, applied under the Wisconsin distance tariff, are sufficiently high so that they may fairly be applied for the joint haul from Highland to C. & N. W. points. Respondents are ordered to discontinue their present less than carload rates on beer from Highland to all points on the C. & N. W. line within Wisconsin as to which the third class Wisconsin distance tariff rates if applied directly from Highland would be lower than the rates at present in force, and to substitute in lieu thereof the third class rates of the Wisconsin distance tariff, applied to the total distance from Highland to the points of destination. *Semrad Bros. & Pusch Brwg. Co. v. C. & N. W. R. Co. et al.* 1912, 9 W. R. C. R. 76, 81.

Reasonableness of rates in particular cases—Brick, Vesper to Grand Rapids, Wis.

33. Petitioner alleges exorbitant charges on three carload shipments of brick from Vesper to Grand Rapids, Wis., upon which respondent exacted a distance rate of 3 cts. per cwt. At the time the shipments moved the M. St. P. & S. S. M. Ry. Co. had in effect a distance rate of 2 cts. per cwt. for ten miles. This rate was subsequently established by respondent in accordance with an order of the Commission. *Held:* The respondent could not have participated in the traffic upon its lawfully published rate in view of the fact that a competing line had in effect a lower rate. The rate charged was unusual under the circumstances, and the reasonable rate that should have been in effect and applicable to the shipments is 2 cts. per cwt. *Rowland & Son v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 163, 164.

Reasonableness of rates in particular cases—Buckwheat, Ridgeland to Milwaukee, Wis.

34. Petitioner alleges that the rate of 16 cts. per cwt., exacted for the shipment of a carload of buckwheat from Ridgeland to Milwaukee, Wis., was exorbitant. At the time the shipment moved the respondent had in effect a joint rate of 12½ cts. per cwt. on carload lots with the C. & N. W. Ry. Co. Subsequent to the shipment this rate was made effective on the M. St. P. & S. S. M. Ry. *Held:* It is the duty of the railway company, in the absence of any specific directions to the contrary, to route shipments over lines whereby the freight charges will be least. The charge exacted was unusual and exorbitant and a reasonable charge would have been 12½ cts. per cwt., as subsequently made effective. *Owen & Bro. Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 43, 44.

Reasonableness of rates in particular cases—Cheese boxes—Kiel to Fredonia, Wis.

35. Petitioner alleges overcharges on a shipment of cheese boxes from Kiel to Fredonia, Wis., for which respondent was unable to furnish the car ordered. Instead, it furnished two smaller capacity cars and charged the petitioner upon the minimum weight of 20,000 lbs. for each car, whereas the total weight of the shipment did not exceed 15,700 lbs. The tariff applicable to the shipment provided that, in case of the carrier's inability to supply the car asked for, two cars might be furnished, charge to be assessed on the basis of lowest rate and highest minimum weight for the one car ordered. At the time the shipment moved this rule did not apply where the combined length of the two cars exceeded 80 feet. Later the rule was changed, so that it now applies where the combined length of the cars does not exceed 83 feet. The combined length of the cars used for the petitioner's shipment was 81 feet. *Held:* The overcharge in question was a result of respondent's inability to furnish the car ordered, coupled with the accidental circumstance that the cars actually furnished exceeded in combined length the limit which was soon after abandoned by the carrier. Under the circumstances the charge based upon minimum weights of 20,000 lbs. each, for two cars, was exorbitant, and a reasonable charge would have been based upon that weight for one car. *Kiel Wooden Ware Co. v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 278, 279-280.

Reasonableness of rates in particular cases—Cheese boxes, Richland Center to Lancaster, Wis.

36. Petitioner alleged that the rate on a carload shipment of cheese boxes from Richland Center to Lancaster, Wis., was excessive. The rate exacted was the sum of the locals. The C. M. & St. P. Ry. Co. reduced the minimum weight of 15,000 lbs. to 13,650 lbs., according to a rule of the western classification. The C. & N. W. Ry. Co. did not

allow for the reduction. There was no commodity rate in effect, doubtless due to the fact that there was no demand for such a rate. A through commodity rate of 20 cts. per cwt. was subsequently established with a minimum weight of 15,000 lbs., subject to the deduction provided by the western classification. *Held:* The rate exacted was unusual and exorbitant and the reasonable rate that should have been in effect and applicable to such shipments was the rate subsequently established. *The A. C. Parfrey Mfg. Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 517, 519.

Reasonableness of rates in particular cases—Coal, Sparta to Elroy, Wis.

37. Petitioner alleges excessive charges on a shipment of soft coal from Sparta to Elroy, Wis. The class D distance tariff rate was charged. Class D rates apply on coal, generally, between stations in Wisconsin where no specific rate is published. Specific rates are published, generally, to apply from regular coal shipping points only. It is not likely that there is any regular movement of coal from Sparta to Elroy and a specific rate on coal between those points would probably not be justified. The shipment in question may be said to have been an emergency case for which the railroads usually provide a rate that expires with the shipment, thus keeping the regular tariff issues free from useless items. *Held:* Under the circumstances the rate exacted was unusual and exorbitant and a reasonable charge would have been at the rate of 75 cts. per ton. In the present case it is unnecessary for the Commission to follow its usual custom of establishing a rate in lieu of the one complained of. *Elmore-Benjamin Coal Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 396, 399.

Reasonableness of rates in particular cases—Concrete blocks, Wis. points on the C. St. P. M. & O. and M. St. P. & S. S. M. lines.

38. Petitioner, a manufacturer of concrete blocks at Eau Claire, Wis., prays that the distance rates on brick, established by respondent railway companies pursuant to the Commission's order in *Ringle et al. v. C. M. & St. P. R. Co. et al.* 1911, 7 W. R. C. R. 598, be applied to concrete blocks, which are a building material competitive with brick. Previous to the Commission's order, concrete blocks were subject to the same rates as brick. Through an error, the C. M. & St. P. Ry. Co. made the Commission's brick rates applicable to concrete blocks also, but its intention is to restore concrete blocks to the old basis. Concrete blocks are somewhat lower in value per 100 lbs., they are loaded at about the same average weight per car, and they do not seem to involve any greater risk in handling. The competitive situation as between the two commodities makes the application of lower rates to brick than to concrete blocks a serious handicap to the manufacturer of concrete blocks. *Held:* Since the Commission's rates on brick are based primarily on the cost of service and are believed to be sufficiently remunerative to respondents, concrete blocks should be placed upon the same basis of rates. As the only legally effective rate of the C. M. & St. P. Ry. Co. on concrete blocks within Wisconsin is the brick rate for which the petitioner prays, the petition is dismissed as regards that company. The C. St. P. M. & O. Ry. Co. and the M. St. P. & S. S. M. Ry. Co. are ordered to discontinue their present rates on concrete blocks between points within Wisconsin, and to substitute therefor the rates named upon brick in the Commission's order in *Ringle et al. v. C. M. & St. P. R. Co. et al.* 1911, 7 W. R. C. R. 598. *Eau Claire Concrete Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 82, 85-86.

Reasonableness of rates in particular cases—Crushed stone, gravel and lime, Waukesha to Wis. points on the C. M. & St. P. and the C. & N. W. lines.

39. Complaint was made of unreasonable and discriminatory rates on gravel, crushed stone and lime between Waukesha and other Wisconsin points. Comparisons were made of the rates on these commodities in Wisconsin and neighboring states and the terminal and movement costs of transporting them were analyzed. The value of gravel is so low in proportion to its weight that, under present rates, a carload cannot be moved at all without paying freight charges which exceed the value of the shipment. A carload of crushed stone can be moved only forty miles before its value is equaled by the freight charges. Although lime is more valuable than gravel or crushed stone, it still ranks as a low grade commodity. *Held:* Gravel and crushed stone must be given very low rates in order to move at all and it would seem that a rate sufficient to cover the actual cost of operation plus a comparatively small rate of return upon the capital invested would be as high as the traffic can stand. There are a number of factors which result in a comparatively low cost of transporting gravel and crushed stone, and which constitute a further justification for a low basis of rates. The heavy loading of gravel and crushed stone reduces the proportion of "dead" weight to "pay" weight. These commodities can be loaded in gondola or open cars and therefore do not involve as high interest charges as must be made when a more expensive type of freight car is used. The risk of handling gravel and crushed stone is very slight. The shippers themselves load and unload the cars, so that the railway's service consists only in moving the loaded car. Due to their difference in value there is some doubt as to the wisdom of placing gravel and crushed stone under the same rate, and if occasion should demand it the separation may be made later. The somewhat perishable nature of lime and its comparatively light loading are elements tending to increase the cost of transportation. As the result of these factors, together with the low value of lime, it would seem that the rate should be about sufficient to cover the actual expenses of operation plus a rate of return on the investment which is a little lower than the average for all traffic. The C. M. & St. P. Ry. Co. and the C. & N. W. Ry. Co. are ordered to discontinue their present rates on gravel, crushed stone and lime, from Waukesha to points on their respective lines within Wisconsin, and to substitute therefor the rates prescribed by the Commission. Any existing commodity rates that are lower than the rates provided in this order are to be retained. *Waukesha Lime & Stone Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 87, 99-100.

Reasonableness of rates in particular cases—Crushed stone, gravel, lime and sand, Waukesha to Wis. points on the C. M. & St. P. and the C. & N. W. lines.

40. Respondent carriers complain that the distance tariff rates established by the Commission on gravel, crushed stone and lime, to be applied from Waukesha, Wis. (*Waukesha Lime & Stone Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 87) are unreasonably low and discriminatory. At their request the Commission discontinued the tariffs named in its order pending the rehearing. At the rehearing petitioner claimed that the original petition was intended to cover rates on sand as well as gravel and crushed stone. The lime rate situation is so complicated as to necessitate an extended investigation and will not be determined in this proceeding. Respondents maintain that discrimination against other shipping points will result if the Commission's gravel and crushed stone rates are made effective to any one point such as Waukesha and that an unreasonable reduction will result if the Commission's rates are put into effect at all points. A shipper at

Lannon, Wis., alleges unjust discrimination unless his rate on gravel and crushed stone be reduced to the level of the new Waukesha rates. *Held*: The low value of gravel and crushed stone, the heavy loading per car, the ease of handling and the practical immunity from damage in transit are factors conducive to a very low cost of transportation. It is ordered that respondents reestablish the rates complained of on shipments from Waukesha to points on respondent's lines within the state of Wisconsin, so far as such rates apply to gravel and crushed stone. There appears to be no valid objection to the inclusion of sand in the tariff fixed by the Commission; its value, loading per car, and conditions of shipment are very similar to those of gravel, and the application of these rates is extended to include sand. The distance rates herein ordered are not intended to supersede lower commodity rates. No reason has been suggested why the rates at other gravel pits and stone quarries should not be the same as at Waukesha. The Commission's investigation in the previous proceeding covered conditions for the state as a whole as well as for Waukesha. While there is every reason to believe that the facts are such as to have justified the Commission in making the order general, it is thought best under the circumstances to confine further action at this time to a recommendation that the rates herein ordered for Waukesha be made effective generally on the respondent's intrastate traffic. This leaves the matter open to further proceedings on complaint of shippers or on motion of the Commission in case the railway companies do not see fit to comply with the Commission's present recommendation. *Waukesha Lime & Stone Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 347, 353.

Reasonableness of rates in particular cases—Grain, Corning to Milwaukee, Wis.

41. Petitioner alleges unreasonable and exorbitant charges on a carload shipment of rye from Corning to Milwaukee, Wis. At the time the shipment moved the respondent had in effect a rate of 10 cts. per cwt. on rye in carloads from Portage to Milwaukee, applicable as the maximum at intermediate points. Since Corning is intermediate between Portage and Milwaukee, this rate was applicable to the shipment in question. *Held*: The rate exacted was unusual and exorbitant and 10 cts. per cwt. would have been the reasonable and proper rate under the circumstances. *Bacon & Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 62, 63.

Reasonableness of rates in particular cases—Grain, Stetsonville to Milwaukee, Wis.

42. Petitioner complains of the charges exacted on a mixed carload shipment of rye and barley from Stetsonville to Milwaukee, Wis., made for the purpose of clearing out petitioner's warehouse and weighing 25,960 lbs. Charges were assessed on a basis of 44,000 lbs. minimum weight. Petitioner alleges that other railways in the state have in effect a rule providing that, at the close of the shipping season each year, the carload rate and actual weight, subject to minimum of 20,000 lbs., may be applied on one straight carload or one mixed carload of grain, or grain and seeds, for the purpose of cleaning out houses and elevators. Petitioner asked that settlement be made on the basis of 24,000 lbs. minimum weight and that this rule be fixed for future shipments under the same conditions. *Held*: The rule in question has been enforced for many years on other railways in Wisconsin and has applied jointly by way of the respondent line and the line of the C. M. & St. P. Ry. Co. Under date of May 28, 1912, respondent made application for the approval of this rule to be put in force locally over its line. The application was approved June 1, and was duly ordered to take effect August 1, 1912. There is therefore no call for the establish-

ment of the rule by order of the Commission. *Bacon & Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 468, 470.

Reasonableness of rates in particular cases—Gravel, Waukesha to Wis. points on the C. M. & St. P. and the C. & N. W. lines.

See ante, 39, 40.

Reasonableness of rates in particular cases—Ice, Silver Springs to Milwaukee, Wis.

43. Petitioner complains that the rate of 2 cts. per cwt. on ice from petitioner's plant at Silver Springs to Milwaukee, Wis., is unreasonable and discriminatory and prays for the establishment of a reasonable rate. The ice shipped from Silver Springs is of a comparatively low grade. The loading averages about 50,000 lbs. per car. Testimony was admitted showing the cost per ton of ice delivered at various points in Milwaukee and the average profit to the petitioner at each point. Comparisons were made with other short distance rates on ice in Wisconsin and neighboring states and the cost of the service to the carrier was ascertained. *Held*: In determining what rates are reasonable for the traffic involved in this case, the various conditions surrounding the petitioner's business, both as to the character of the commodity, the method of handling the traffic, and the competition which the petitioner meets are important. Attention has also been given to comparative rates, although they are at best an unsatisfactory indication as to what rates would be reasonable in the case under consideration. The principal basis for computing the reasonable rate is the cost of the service to the carrier. In view of the fact that ice is of comparatively low value in proportion to its weight, is transported in regular movements and is subject to little risk in transit, and in consideration also of the rather heavy loading of ice and the fact that no extra equipment of any kind is necessary in handling it, this commodity is entitled to a comparatively low rate. While the rate must necessarily be sufficient to cover the actual expense of the service, the traffic is of a kind that should not be expected to contribute as much in the way of interest upon the railway company's investment as does the average traffic on the line. The present rate of 2 cts. per cwt. is higher than the petitioner should be required to pay and the respondent is ordered to substitute therefor a rate of 1.7 cts. per cwt. *Wis. Lakes Ice & Cartage Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 101, 110.

Reasonableness of rates in particular cases—Lime, Grimms to Wausau, Wis.

44. Petitioner alleges that the switching charge of \$2 per car, in addition to the regular freight rate, exacted by respondent on sixteen carload shipments of lime from Grimms to Wausau, Wis., is unjust and unreasonable. Previous to the shipments respondent's tariff had provided for the absorption of these switching charges and this rule was subsequently reestablished. *Held*: The overcharge in question was due to an error in the publication of the tariffs. The charge exacted was unusual and exorbitant and, under the circumstances, no charge should have been made for the switching service rendered. *Paff v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 160, 162.

Reasonableness of rates in particular cases—Lime, Waukesha to Wis. points on the C. M. & St. P. and the C. & N. W. lines.

See ante, 39, 40.

Reasonableness of rates in particular cases—Live stock, Blue Mounds to Cudahy and to Milwaukee, Wis.

45. Petitioner alleges excessive charges on a carload shipment of live stock from Blue Mounds to Cudahy, Wis., and on one from Blue Mounds to Milwaukee, Wis. The rates exacted were found to be excessive and ordered reduced in the case of *Arries & Packham et al. v. C. & N. W. R. Co.* 1911, 7 W. R. C. R. 131. The substitute rate therein ordered was lawfully in effect when the shipment to Milwaukee was made, but the shipment to Cudahy was made before the order became effective. *Held:* The excessive charge on the shipment to Milwaukee was unlawful and therefore may be refunded without an order. The rate exacted on the shipment to Cudahy was unusual and a reasonable charge would have been 11 cts. per cwt. plus \$2 for a stop to finish loading. *Mason & Martin v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 74, 75.

Reasonableness of rates in particular cases—Logs, Cotter, Doering, Heineman and Russian to Wausau, Wis.

46. Petitioner alleges overcharges upon a large number of shipments of logs from Heineman, Cotter, Addleman, Doering, Russian, and Bellemeyer, to Wausau, Wis. As the respondent could not furnish petitioner sufficient cars to make up trainloads of 20 cars or more, the latter was unable to take advantage of the trainload rate. A majority of the claims are already barred by limitation of the statute. These include all of the shipments from Addleman and Bellemeyer, and all but two of the cars from Russian. *Held:* The present case is one of a class in which the Commission is reluctant to grant relief. When the rights of the public in general are considered it is plain that circumstances such as those here involved present much opportunity for unfair practices between shipper and carrier. Trainload rates are at best a form of discrimination in favor of the large shipper and against the small shipper. Their use has often been discouraged by the Commission. In such a case as the present, there is ample opportunity for collusion between the shipper and the carrier when the former alleges and the latter admits that the shipper's failure to comply with the conditions imposed on the use of the trainload rate was the fault of the carrier. In the instant case, however, there is nothing in the situation to indicate that the claim is not made in good faith and that the petitioner is not entitled to a refund. Taken by itself, the failure of the carrier to furnish the kind of equipment which enables the shipper to take advantage of a rate should not operate to the prejudice of the shipper. The Commission has in several cases granted refunds because of the inability of the shipper to load the cars furnished to the minimum weight specified in the tariff, and the principle here involved is similar. Under the facts appearing in the present case the total charge collected of the petitioner on the shipments in question is unreasonable and exorbitant, and a reasonable charge would have been based upon the trainload rate. *Heineman Lbr. Co. v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 281, 283-284.

Reasonableness of rates in particular cases—Logs, Edgewater to Birchwood, Wis.

47. Petitioner alleges excessive charges on fifty-three carload shipments of logs from Edgewater to Birchwood, Wis. The rate contended for had previously been in force but through an error in the publication of the tariff a higher rate was in legal effect at the time the shipments moved. Subsequently the former rate of 1.2 cts. per cwt. was reestablished. *Held:* The rate exacted was unusual and the reasonable charge that should have been effective and applicable to the shipments in question is the rate of 1.2 cts. per cwt. *Ahnapee Veneer & Seat-ing Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 482-483.

Reasonableness of rates in particular cases—Logs, Gagen and Atkins (Siding 234 between) to Crandon, Wis.

48. Petitioner alleges excessive charges on shipments of thirty-two carloads of logs from Siding 234, on the line of the M. St. P. & S. S. M. Ry. Co. between Gagen and Atkins, to Crandon, Wis. The rate contended for had previously been in effect and was subsequently reestablished. The increase was evidently the result of an oversight in the publication of the tariff. *Held*: The rate exacted was unusual and a reasonable rate would have been \$1.95 per cwt. as subsequently reestablished. *Keith & Hiles Lbr. Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 9 W. R. C. R. 57, 59.

Reasonableness of rates in particular cases—Logs, Goodman to Pembine, Wis.

49. Petitioner alleges unreasonable charges on a shipment of two carloads of elm logs from Goodman to Pembine, Wis. The rate contended for was made effective after the shipments had moved. *Held*: The rate exacted was unusual and exorbitant and the reasonable rate for such shipments would have been 2½ cts. per cwt., as subsequently made effective. *Goodman Lbr. Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 41, 42.

Reasonableness of rates in particular cases—Logs, Wis. points on the C. & N. W. line to Ripon, Wis.

50. Complaint was made that since November, 1909, the C. & N. W. Ry. Co. has charged lumber rates on shipments of logs from various points on its line to Ripon, Wis. Petitioner alleges that the product of such logs, insofar as practicable, has been shipped out over respondent's line and that lumber rates on such shipments are excessive. Investigation shows that the product of these logs, berry boxes and crates, amounts to about one carload for each three cars of logs shipped in, and that only about one-half the total product is shipped out via the respondent's line. *Held*: The facts presented do not indicate that the shipments complained of were entitled to the rates on logs for manufacture and reshipment. The lumber rates were therefore properly applicable according to published tariffs. Lumber rates applied to similar shipments of logs were quite fully investigated in *Gablowsky et al. v. C. & N. W. R. Co. et al.* 1912, 8 W. R. C. R. 544, in which instance logs were shipped in to be manufactured into cheese boxes and a small part of the products were shipped out over respondent railway. The Commission held that petitioner was not entitled to a rate conditioned on the shipment of the product out, but that a reasonable rate based on the value of the logs, the loading per car, etc., would be the rates on pulp wood as established in *In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168. The circumstances in the present case are parallel, and there is no reason why a like order should not be made. It is recommended that the pulp wood distance rates be generally established on logs not subject to reshipment of product conditions. Such rates for the distances involved in the present case are the reasonable rates that should have been in effect and applicable to the shipments in question. *Ripon Veneer & Box Works v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 484, 488.

Reasonableness of rates in particular cases—Lumber, Oconto to Marinette, Wis.

51. Petitioner alleges overcharge on a shipment of two carloads of lumber from Oconto to Marinette, Wis. The rate of 3 cts. per cwt. which was contended for was in effect on respondent's line from Marinette to Oconto and was later made effective on shipments in the opposite direction. The same rate was also in effect in both directions

upon the C. & N. W. line. *Held:* The rate charged was unusual and unreasonable, and a reasonable charge would have been 3 cts. per cwt. *Marinette & Menominee Box Co. v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 37, 38.

Reasonableness of rates in particular cases—Poles and posts, Elmhurst to Clintonville, Wis.

52. Complaint was made of the rate of 5½ cts. per cwt. exacted by respondent railway on four carload shipments of poles and posts from Elmhurst to Clintonville, Wis., for concentration and reshipment. The western trunk line rules, which govern respondent's tariff, provide for an allowance of 500 lbs. per car for standards, strips and supports. This allowance was not made in the present case. At the time the shipments moved, respondent had in effect a rate of 4½ cts. on poles and posts for concentration and reshipment from Pratt Junction to Clintonville, to which Elmhurst is intermediate. *Held:* There appears to be no reason whatever why the Pratt-Clintonville rate of 4½ cts. per cwt. should not be made the maximum at all intermediate points, including Elmhurst. An allowance of 500 lbs. on each car for stakes should have been made. *Torrey Cedar Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 185, 188.

Reasonableness of rates in particular cases—Posts, Bellinger and Gilman (siding between) to Stanley, Wis.

53. Petitioner alleges excessive and discriminatory charges on a carload shipment of fence posts from a siding between Bellinger and Gilman to Stanley, Wis. The rate contended for was made effective after the shipment had moved. *Held:* The rate exacted was unusual under the circumstances and a reasonable rate would have been 3 cts. per cwt., as subsequently made effective. *Schneider v. S. M. & P. R. Co.* 1912, 9 W. R. C. R. 64, 65.

Reasonableness of rates in particular cases—Posts, Elmhurst to Clintonville, Wis.

See ante, 40.

Reasonableness of rates in particular cases—Pulp, Rothschild to Brokaw, Wis.

54. Petitioner alleges that several months after it had applied for a reduction, respondent's rate on ground wood pulp from Rothschild to Brokaw, Wis., was reduced from 4.3 to 3 cts. per cwt. Request is made for a further lowering of the rate to 1.5 cts. per cwt. While wet pulp does not belong in the very lowest grade of commodities shipped, its loading is sufficiently heavy and its value is small enough so that it should perhaps be moved at rates netting the carrier a little less than the average return on all carload traffic moved. Added to the moderately low value and heavy loading is the fact that it can be handled in almost any kind of cars that happen to be available, involves little risk of loss or damage, and is loaded and unloaded promptly. Another element of importance is that the haul is in reality only a part of a complete shipment of pulp in and paper out. It is, therefore, perhaps not unjust to make the margin of profit to the carrier a little narrower than it would be if the haul were a single one without any resulting out-haul. *Held:* While a rate of 1.5 cts. per cwt. is hardly high enough to yield the carrier the return to which it is entitled, the present rate of 3 cts. per cwt. is somewhat higher than conditions warrant. A comparison of similar rates, together with the cost data, would justify a 2 ct. rate between Rothschild and Brokaw. That rate would also do justice as between the petitioner and the competing pulp and paper mills of the Wisconsin and Fox river valleys, and it is accordingly or-

dered substituted for the present rate. *Wausau Paper Mills Co. v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 400, 405.

Reasonableness of rates in particular cases—Sand, Waukesha to Wis. points on the C. M. & St. P. and the C. & N. W. lines.

See ante. 40.

Reasonableness of rates in particular cases—Slabs, Ingram to Ladysmith, Wis.

55. Petitioner alleges overcharge on a shipment of eleven carloads of slabs from Ingram to Ladysmith, Wis. The rate contended for was made effective after the shipments had moved. Respondent contends that petitioner made the shipments in question merely to test the market, but facts indicate that there has been a constant shipment of slabs by petitioner from Ingram. *Held:* The rate exacted was excessive when the value of the commodity as well as other elements are considered. The reasonable rate for such shipments would have been 2½ cts. per cwt. as subsequently made effective. *Menasha Paper Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 39, 40.

Reasonableness of rates in particular cases—Springs and axles, Racine and Racine Junction to Green Bay and Oshkosh, Wis.

56. Complaint was made of exorbitant charges on shipments of vehicle springs and axles in less than carload lots from Racine and Racine Junction to Green Bay and Oshkosh, Wis., on which respondent railway exacted the class rate applicable thereto. For several years previous, respondent had in effect a commodity rate of 16½ cts. per cwt. and subsequently this rate was reestablished. *Held:* The rate exacted was exorbitant and a reasonable rate would have been 16½ cts. per cwt. *Higgins Spring & Axle Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 180, 181.

Reasonableness of rates in particular cases—Stone, Waukesha to Milwaukee, Wis.

57. Complaint was made of overcharge on a shipment of three carloads of stone from Waukesha to Milwaukee, Wis. The rate of 1¾ cts. per cwt. contended for, was in effect upon competing lines and was subsequently established by respondent. *Held:* The charge exacted was unusual and 1¾ cts. would have been a reasonable rate. *Waukesha Lime & Stone Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 167, 168.

Reasonableness of rates in particular cases—Switching charges—Substitution of switching charge for distance tariff rates—All commodities—Sparta, Wis. (Transfer switching service for team track delivery, between C. & N. W. and C. M. & St. P. lines.)

58. Petitioner alleges that the C. & N. W. Ry. Co. and the C. M. & St. P. Ry. Co. refuse to establish a switching charge for the service rendered in switching cars from one line to points on the other, within the city of Sparta, Wis., for team track delivery. Respondents have made a physical connection of their tracks at Sparta. They charge \$2 per car for switching cars from one line to the other to and from industries located along their spur tracks, but the regular distance tariff rates are charged for the transfer of cars from the team tracks

of one road to those of the other. The latter service is regarded as an independent movement. It is more convenient and less expensive for certain shippers and receivers of freight to load and unload cars at the teaming tracks of the C. M. & St. P. Ry. Co. than at those of the C. & N. W. Ry. Co. *Held*: The distance tariff rates now applicable to the switching service required for team track delivery are prohibitive of the service. The switching of cars for team track delivery or from team tracks when loaded thereon is similar in character to the service now furnished industries located in Sparta along spur tracks of either road, and unless the same charge is made a discrimination would exist between shippers. It is ordered that in lieu of the distance tariff now exacted, respondents establish a switching rate of \$2 per car for transferring intrastate freight in carload lots from the line of one to the teaming or spur track of the other for team track delivery, or from such teaming or spur tracks, when cars are furnished for team track loading to the line of the other carrier. *Teasdale v. C. & N. W. R. Co. et al.* 1912, 9 W. R. C. R. 66, 70, 73.

Reasonableness of rates in particular cases—Vehicle springs, Racine and Racine Junction to Green Bay and Oshkosh, Wis.
See ante, 56.

Reasonableness of rates in particular cases—Wagons, Blanchardville to Wis. points on the Mineral Point division of the C. M. & St. P. and on the I. C. lines.

59. Complaint is made of excessive rates on shipments of wagons from Blanchardville to points on the Mineral Point division of the C. M. & St. P. Ry. and to Wisconsin points on the I. C. R. R. Investigation shows that the complaints were due to an erroneous application of the rates and of the classification requirements for crating. The shipments were inspected in transit and a higher rate charged by reason of imperfect crating. *Held*: Since the rates in question were applied on interstate shipments the Commission is without jurisdiction in the matter. *National Mfg. Co. v. I. C. R. Co. et al.* 1912, 9 W. R. C. R. 509, 511-512.

Reasonableness of rates in particular cases—Wood, Bagdad to Rothschild, Wis.

60. Petitioner complains of a lack of joint rates on pulp wood on the lines of the respondents between Bagdad and Rothschild, Wis. The present rate is made up of the sum of the local distance rates to and from Heafford Junction as fixed by the Commission *In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168. Much emphasis is laid by the petitioner upon the joint rates in effect on pulp wood between the "Soo" line and the C. & N. W. and C. M. & St. P. lines from various "Soo" line points to Appleton, Kaukauna and other Fox river valley points as set forth in *Rhinclander Paper Co. v. M. St. P. & S. S. M. R. Co.* 1911, 8 W. R. C. R. 105, 109. Although the petitioner is not attempting to sell at those points, and the rates are of no avail to anyone competing with the petitioner in selling at Rothschild, it is contended that if the buying associations supplying the Fox river valley mills with pulp wood are entitled to joint rates lower than the sum of the locals, the petitioner is equally entitled to joint rates in the particular territory in which it desires to sell, though it is not in direct competition with the buyer who is accorded joint rates. The market for pulp wood on the "Soo" line is, in general, quite remote from Bagdad and is limited to a small number of manufacturing points. Further, most of the larger paper mills are so situated, by reason of contracts or ownership of timber lands, that they are not likely to be in the mar-

ket for the petitioner's pulp wood. *Held*: It would be hardly reasonable that the petitioner's market should be restricted, by lack of joint rates alone, to the distant paper mills in the Fox river valley or in the neighborhood of Grand Rapids and Nekoosa. Under the circumstances, petitioner has a right to joint rates to a market point as conveniently located as Rothschild. The freight rate is a large element in the selling price of a low grade commodity like pulp wood, and if the timber owner is entitled to the additional profit caused by joint rates to the Fox river valley mills, the petitioner should be entitled to a similar additional profit on its sales at Rothschild. Moreover, discriminatory conditions are not the only ones justifying the establishment of joint rates in a given case. Where the other circumstances, chief among which is the cost of the service to the carrier, make the assessment of the sum of the local rates unreasonable, as appears to be the case here, joint rates may properly be established without reference to the existence or absence of direct competition between shippers. The M. St. P. & S. S. M. Ry. Co. and the C. M. & St. P. Ry. Co. are ordered to discontinue their present rate on carload shipments of pulp wood from Bagdad to Rothschild, Wis., and to substitute in lieu thereof a joint rate of 4.60 cts. per cwt. *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 9 W. R. C. R. 127, 131-133.

Reasonableness of rates in particular cases—Wood, Unity to Waukesha, Wis.

61. Petitioner complains of unusual and exorbitant switching charges, exacted by the respondent on four carload shipments of wood from Unity to Waukesha, Wis. In addition to the freight charges, respondent had charged \$4 per car for switching charges of the connecting line at Waukesha. Previous to the movement of the shipments in question, the respondent's tariff had provided for the absorption of the connecting line switching charges on carload shipments on which the freight charges were \$15 or more per car, and this rule was subsequently reestablished. *Held*: The charges exacted were unusual and a reasonable rate would have provided for the switching charges on the basis of the rule previously in effect and subsequently made effective. *Morgan v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 165, 166.

Reasonableness of rates in particular cases—Wood, Wis. points to Fond du Lac, Wis.

62. Petitioner, a manufacturer of lime, etc., at Fond du Lac, Wis., complains of overcharge on a large number of carload shipments of kilnwood, due to the fact that respondents' tariff and classification provide minimum weights per car on wood for fuel that are much higher than the actual weight of such fuel wood that can be loaded. Petitioner subsequently admits that the minimum weight of 36,000 lbs., charged by the C. & N. W. R. and the M. St. P. & S. S. M. R. can be loaded and as regards these respondents the complaint is dismissed. The complaint against the C. M. & St. P. R. is only in reference to cars measuring 34 ft. in length which are not of sufficient cubical capacity to permit the loading of kilnwood to the required minimum weight of 40,000 lbs. An analysis of the box and stock car equipment of the C. M. & St. P. R. shows that the maximum space capacity of the cars complained of cannot exceed 1,800 cu. ft. Inspection of the loading of kilnwood at shipping points shows excess charges due to insufficient space in the cars to load the minimum weight. The maximum dimensions of respondents' cars 34 ft. and under in length, having a space capacity of less than 1,860 cu. ft., are 8 ft. in width, 7 ft. 2½ in. in height. *Held*: The minimum weight rule should represent as closely as possible the actual minimum weight that can be loaded in a car. A minimum based on the length of the car only, as provided by the C. M. & St. P. R. Co's tariff, where the other dimensions of cars

vary greatly, allows discrimination in the distribution of the various sized cars, as the small capacity cars are loaded only when the larger size cannot be obtained. A minimum weight based on the cubic capacity instead of on the length only of the cars complained of should result in a more equitable distribution of the cars between shippers. It is impossible to load the minimum weight of 40,000 lbs. required by the C. M. & St. P. R. Co. in certain cars having a length of 34 feet and under. The company is ordered to provide a minimum weight of 36,000 lbs. in cars having a length not exceeding 34 ft. when the other dimensions do not exceed 8 ft. in width and 7 ft., 2½ in. in height. *Standard Lime & Stone Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 228, 237-239.

Reasonableness of rates in particular cases—Wood, Wis. points to Rhinelander, Grand Rapids, Port Edwards, Nekoosa, Menasha and Neenah.

63. Petitioner and intervener complain that the rates established by the Commission in *Rhinelander Paper Co. v. M. St. & S. S. M. R. Co.* 1911, 8 W. R. C. R. 105, are excessive and discriminatory. Respondent was therein given the option of lowering the petitioner's rates on pulp wood from Wisconsin points to Rhinelander, Wis., or raising the rates of petitioner's competitors to Nekoosa, Port Edwards and Fox river points to equal those fixed in *In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168. Respondent chose the second alternative. The original petitioner prays that instead of having an option respondent be required to reduce the petitioner's rates about 20 per cent. The intervener asks that the Commission restore the situation as it existed prior to the Commission's order, when a lower basis of special rates was applied to Nekoosa. The intervener claims that petitioner has so great an advantage in rates on its raw materials that, even when Nekoosa enjoys the lower special pulp wood rates, there is no ground for a further concession to Rhinelander. A comparison of Rhinelander's average advantage in rates on shipments of raw materials in with Nekoosa's average advantage on shipments of paper out, shows that under present rates petitioner's mill at Rhinelander is still under a burden of 0.5 cts. per cwt. of paper. The restoration of the former system of rates would result in a net disadvantage to Rhinelander, on the total movement of pulp wood, fuel and paper of about 0.67 cts. per cwt. of paper. The application of the Commission's pulp wood rates to Nekoosa has resulted in an increase of about 20% in rates. The intervener acquired large timber interests and made contracts for the purchase of pulp wood upon the basis of the special pulp wood rates formerly in effect. *Held:* There is nothing in the competitive situation or in any of the other factors entering into the determination of reasonable rates, which warrants a lower basis of rates on pulp wood for Nekoosa than for Rhinelander. A marked increase in rates on a commodity supplied to the intervener under contracts and timber purchases already made for some time in the future, is to be avoided, unless the former rates were so low as not to be reasonable from the point of view of the carrier. The special pulp wood rates granted in the past to the Nekoosa mills are shown by an analysis of the cost figures to be sufficiently high so that their reestablishment under the present circumstances would not seem to work an injustice to the railway company. The pulp wood rates to Rhinelander on the respondent's line should be proportionately reduced. Respondent is ordered to reestablish in its entirety its tariff G. F. D. No. 13692, originally effective Aug. 16, 1911, and canceled by the respondent company on Nov. 30, 1911. It is further ordered that upon carload shipments of pulp wood to Rhinelander, Wis., from Wisconsin points, and to Grand Rapids, Port Edwards, Nekoosa, Menasha and Neenah, Wis., from all Wisconsin points not affected by the first part of this order,

the respondent company establish maximum distance rates as prescribed by the Commission. *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 111, 125-126.

Special service rates.

64. A carrier may charge for the special service rendered in transporting goods which require unusual facilities and equipment, compensatory rates which cover both the cost of the service and the risk incurred in the service growing out of the nature of the goods carried. *Ellman v. I. C. R. Co.* 1912, 9 W. R. C. R. 240, 248.

Through rates.

See ante, Joint or through rates.

Trainload rates.

65. Trainload rates are at best a form of discrimination in favor of the large shipper and against the small shipper. Their use has often been discouraged by the Commission. And in such a case as the present there is ample opportunity for collusion between the shipper and the carrier when the former alleges and the latter admits that the shipper's failure to comply with the conditions imposed on the use of the trainload rate was the fault of the carrier. These observations are made without any intent to impugn the good faith of the parties to the present proceeding, but their purpose is merely to point out an evil whose possibilities are so great that claims like the present are not always to be looked upon with favor. *Heineman Lbr. Co. v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 281, 283.

RATES—TELEPHONE.

Reasonableness of advance in rates in particular cases.

66. Application was made by the Plymouth Telephone Exchange of Plymouth, Wis., for authority to increase its rates. A valuation of the physical property of the plant was made and the result of the financial operations examined. The records of the utility give little information as to the actual cost of operation. Accordingly, a summary was made of central office and total operating expenses for exchanges operating under substantially similar conditions. Applicant's operating expenses and probable revenues under present and proposed rate schedules were estimated on the basis of the installation of Jan. 1, 1912. The annual rates for the 18 Wisconsin Telephone Co's exchanges considered were compared with applicant's proposed rates. *Held*: It is the duty of the utility to conform to the uniform classification of accounts prescribed by the Commission, and until this is done no increase in rates will be authorized. The reasonableness of the suggested schedule should be determined with reference to local conditions and actual cost of operation. Under the circumstances existing in this case, however, the only method of testing the reasonableness of the prospective increase in rates is to assume that expenses are about the same as normal expenses of other utilities under substantially similar operating conditions. While the utility is not in need of rates as high as those proposed, some increase seems to be needed. Applicant is ordered to make such changes in its methods of accounting as may be necessary to conform to the standards prescribed by the Commission. When such changes have been made, applicant may discontinue its present schedule of rates, tolls and charges and substitute therefor the schedule prescribed by the Commission. *In re Appl. Plymouth Tel. Exch.* 1912, 9 W. R. C. R. 169, 178-179.

67. Application was made by the Farmers' Telephone Exchange of Richland Center, Wis., for authority to make a charge for switching service, to establish a rate for extension bells, to charge subscribers

within the city limits for messages to rural lines, and to revise its rate schedule, on the ground that present rates yield inadequate revenue. Investigation of revenues and expenses, together with a valuation of applicant's plant, show that the utility is running at a deficit. In order to ascertain which classes of service are responsible for the deficit, a traffic analysis was made and revenues and expenses were apportioned between toll and local, and rural business. Revenues and expenses for rural business were further apportioned between subscribers who are connected to lines owned by the utility and those who receive switching service only. Estimates were made of the total revenues which would accrue under the rates established by the Commission in this proceeding. *Held*: All lines connected with the switchboard, over which subscribers can receive exchange service, may best be treated, so far as the central office is concerned, as a single system. The switching service is of value to parties on rural lines as well as to those in the city or on rural lines owned by the applicant, and they should bear their fair share of the cost of the service. If a proper rate is made for switching, it is not necessary to impose a message charge between city and rural stations. A rate of 15 cts. per month is authorized for extension bells. Instead of the same party rate for both business and residence phones, there should be a rate for one-party business, two-party business, etc., and a rate for residences similarly applied. In case of a business place and a residence on the same line, each should pay the two-party rate for the class of service supplied to it. Present revenues are not sufficient to meet the reasonable needs of the utility and applicant is authorized to discontinue its present schedule of rates, tolls, and charges and substitute therefor the schedule authorized by the Commission. *In re Appl. Farmers' Tel. Exch. of Richland Center, 1912, 9 W. R. C. R. 369, 378.*

68. Application is made by the Brodhead Tel. Co. for authority to install two and four-party service in Brodhead, Wis., and to charge for four-party service at the present single-line rates, and at a higher rate for single and two-party service. The application is made on the ground that present rates are inadequate to yield a proper return on investment. A valuation of applicant's property was made, and the earnings and expenses investigated. *Held*: Investigation shows an adequate return on investment. Any further development of single-party service will necessitate additions and extensions to the wire plant which can be avoided if party service is offered. The introduction of such service with the attendant increase in the number of subscribers, will cut down expenses per phone, as the amount of plant and equipment required per phone will be decreased. There will be an over-investment available to meet the expenses of additional business. There seems to be no need of two-party business service and no immediate need for four-party residence service. Applicant is authorized to establish a two-party residence class of service, also two-party business service, if it chooses to do so, provided the rate is lower than the rate for one-party business service, the rate to be fixed in the first instance by the utility. Applicant is ordered to put into effect the schedule of rates authorized by the Commission. *In re Appl. Brodhead Tel. Co. 1912, 9 W. R. C. R. 383, 387-388.*

69. Application is made by the Ashland Home Tel. Co. for authority to increase its telephone rates in Ashland, Wis. The applicant gives, among the reasons for the advance in rates, the increased value of the service to the customers, growing cost of repairs and maintenance, failure of the income of the exchange to meet the expenses for the past two years, and the proposed enlargement and improvement of the plant. A valuation was made and the operating expenses and revenues of the exchange were investigated. *Held*: The utility is in need of more revenue than can reasonably be expected from the present schedule of rates, but not as much as would be available from the proposed schedule. Applicant is authorized to substitute for its present rates a schedule ap-

proved by the Commission. *In re Appl. Ashland Home Tel. Co.* 1912, 9 W. R. C. R. 489, 496.

70. Application is made by the Midway Tel. Co. for authority to increase its rate for multi-party residence phones from \$0.75 to \$1.00 per month in the villages of Stetsonville and Dorchester, Wis. On account of the 55 hour law an additional operator is necessary at each exchange and applicant proposes to give continuous service if increase in rates is permitted. Investigation shows that the requested change will effect a total increase of a little more than the estimated increase of expenses. *Held*: As both the expenses and the investment appear to have been conservative, the amount of the increase and the rate of return which will be available do not appear to be unreasonable. The application is granted. *In re Appl. Midway Tel. Co.* 1912, 9 W. R. C. R. 497, 499.

Reasonableness of rates—Matters considered in determining reasonableness—Cost of service.

71. The reasonableness of a schedule must be determined with reference to the actual cost of operation. *In re Appl. Plymouth Tel. Exch.* 1912, 9 W. R. C. R. 169, 177.

Reasonableness of rates—Matters considered in determining reasonableness—Local conditions.

72. The reasonableness of a schedule must be determined with reference to local conditions. *In re Appl. Plymouth Tel. Exch.* 1912, 9 W. R. C. R. 169, 177.

Reasonableness of rates in particular cases.

73. In an application before the Commission relating to rates, the Mineral Point Telephone Co. of Mineral Point, Wis., stated that it proposed to build metallic circuits for rural subscribers with not more than ten parties on a line, furnish the instruments, keep everything in repair and charge a yearly rate of \$18 per subscriber. This is a class of service not furnished at present. As long as the proposed rate is not prima facie unreasonable, its promulgation may be left, in the first instance, to the utility itself, subject to review by the Commission in case of complaints. *In re Appl. Mineral Point Tel. Co.* 1912, 9 W. R. C. R. 285, 304.

Special service rates—Business and residence rates—Telephones on same line.

74. Where a business and a residence phone are on the same line, it seems that the two-party business and residence rates may be applied, rather than a special rate dealing with such service as a separate class. *In re Appl. Plymouth Tel. Exch.* 1912, 9 W. R. C. R. 169, 177.

75. The rate for a business place and a residence on the same line and belonging to the same party should be the two-party rate for the class of service supplied. *In re Appl. Farmers' Tel. Exch. of Richland Center,* 1912, 9 W. R. C. R. 369, 377.

Special service rates—Extension rates.

Extension bells, rates for, *see ante*, 67.

Special service rates—Party line rates.

76. There seems to be no reason why party line service should not be offered, provided patrons are allowed to choose what class of service they shall have. The effect of the introduction of such service, with the attendant increase which may be expected in the number of subscribers, will be to cut down the interest and depreciation and some of the other expenses per phone installed, as the amount of plant and equipment required per phone will be decreased. *In re Appl. Broadhead Tel. Co.* 1912, 9 W. R. C. R. 383, 386.

Special service rates—Switching service rates.

77. As far as the switching service is concerned, all lines connected with the switchboard, over which subscribers can receive exchange service, may best be treated, so far as the central office is concerned, as a single system. If no charge is made for switching, the applicant is either to receive nothing for the work involved, or it must make subscribers on its own lines bear this expense. The switching service is of value to parties on rural lines as well as to those in the city or on rural lines owned by the applicant, and they should bear their fair share of the cost of the service. *In re Appl. Farmers' Tel. Exch. of Richland Center, 1912, 9 W. R. C. R. 369, 376.*

78. If a proper rate is made for switching, it is not necessary to impose a message charge between city and rural stations. *In re Appl. Farmers' Tel. Exch. of Richland Center, 1912, 9 W. R. C. R. 369, 377.*

Special service rates—Switching service rates for connecting rural lines.

79. Application is made by the Mineral Point Telephone Co. of Mineral Point, Wis., for authority to increase rates charged subscribers of connecting rural lines for switching service. It appears that the applicant is giving switchboard connections to nineteen rural lines, each owned by the subscribers served, for an annual switching fee of \$1.50 per subscriber. Since this rate was made the service has increased from 350 to over 800 telephones to each subscriber. The connecting rural lines are grounded, overloaded and not properly maintained. Owing to their poor condition much time is required in handling rural business. *Held:* A rate of \$2 per year will not yield revenue sufficiently above the cost of service to be unreasonable. Applicant is authorized to substitute this annual rate for the present rate for switching service. *In re Appl. Mineral Point Tel. Co. 1912, 9 W. R. C. R. 285, 304.*

RATES—WATER.

Discrimination in water rates, *see* DISCRIMINATION, 8.

Reasonableness of rates in particular cases.

80. Complaint was made that the rates charged for water by the city of Eau Claire, Wis., are unreasonably high and that the flat rates largely prevailing in the city are unjust and discriminatory. A new schedule of rates subsequently filed and made effective provides a considerable reduction of meter rates and a reduction of a number of the flat rates. Comparison of the utility's income accounts for the last two years and a report filed with the Commission show a reduction of the total and net operating revenues under the new schedule of rates, but petitioners are still desirous of a formal investigation of the matters in complaint. A cost analysis was made on the basis of the reported expenses for the last fiscal year and an apportionment was made between fire and general service. The estimated pumpage for 1911 indicates a great deal of waste and leakage. In accordance with the expressed intention of the city water works department, 257 meters were added during the year 1910-1911 and the policy of metering is being carried still further. *Held:* The present method of allowing the water department \$21,000 for all water used by the city may well be discontinued. The city should pay a definite amount for fire protection and for water used for flushing purposes. An allowance of \$15,000 appears to be reasonable for these services. For all other water the city should pay at regular rates. All public buildings should be metered as soon as possible and until such time as a rate can be fixed for sprinkling and for fountains the city should make an allowance to the water department for these uses. The necessity of making extensions and installing a great many meters and the consequent uncertainty concerning the amount of water used makes it inadvisable to reduce rates to a point where estimated revenues

would barely cover operating expenses. With the metering of police and fire stations and the extension of the meter system along lines outlined by the city water works department, many of the flat rates will become, to all intents and purposes, obsolete. The city of Eau Claire is ordered to discontinue its present rates and charges for metered water and substitute therefor the schedule of lower rates prescribed by the Commission. Rules relating to time of payment, penalties and charges for additional customers are to remain as at present. Flat rates are to remain as at present. All public buildings are to be metered and charged for at regular rates. Counters are to be installed on pumps supplying water to the distribution system and a record of day and night pumpage kept in permanent record form. This decision is made with the understanding that the completion of the policy of metering and further records of operation may make it advisable to re-open the case. *West et al. v. City of Eau Claire*, 1912, 9 W. R. C. R. 134, 153-155.

RAW MATERIALS.

Rates, joint or through rates on raw materials manufactured on originating line, *see* RATES, 21.

REASONABLENESS OF RATES.

See RATES.

REBATES OR CONCESSIONS.

Allowance to customers of public utility on account of ownership of instrument or facility—Rate concession prohibited.

1. It is the duty of the utility to furnish meters, and no distinction, as far as rates or minimum charges are concerned, can be made between consumers who own their meters and those whose meters are owned by the utility. (Wis. St. sec. 1797m-90) *In re Appl. Bruce W. and Lt. Comm.* 1912, 9 W. R. C. R. 474, 476.

RECOVERY.

See REPARATION.

REDUCTION OF RATES.

Reduction of rate not to be construed as an admission of prior unreasonableness, *see* REPARATION, 2.

Reduction on account of the furnishing of facilities by consumer prohibited, *see* RATES, 3.

REFRIGERATOR CARS.

Refrigerator car service, *see* RAILROADS, 31-32.

REFUNDS.

Refund from charges collected, *see* REPARATION, 3-32.

REGULATIONS.

See RULES AND REGULATIONS.

RELATION OF RATES.

See RATES.

REPARATION.

IN GENERAL.

Charge in excess of lawful rate—Right to refund excess, without authority from the Commission.

1. An excessive charge which was unlawful may be refunded by the railway company without an order. *Mason & Martin v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 74, 75.

GROUND FOR RECOVERY.

Reduction of rate not to be construed as an admission of prior unreasonableness.

2. It does not always follow from the reduction of a rate that a refund may properly be granted, and each case depends largely upon its own peculiar circumstances. *Wausau Paper Mills Co. v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 400, 404.

REFUNDS.

Refund from charge based on minimum weight of smaller capacity cars furnished at the convenience of the carrier instead of the minimum weight of the cars ordered by the shipper.

3. Petitioner alleges overcharges on a shipment of cheese boxes from Kiel to Fredonia, Wis., for which respondent was unable to furnish the car ordered. Instead it furnished two smaller capacity cars and charged the petitioner upon the minimum weight of 20,000 lbs. for each car, whereas the total weight of the shipment did not exceed 15,700 lbs. The tariff applicable to the shipment provided that, in case of the carrier's inability to supply the car asked for, two cars might be furnished, charge to be assessed on the basis of lowest rate and highest minimum weight for the one car ordered. At the time the shipment moved this rule did not apply where the combined length of the two cars exceeded 80 feet. Later the rule was changed, so that it now applies where the combined length of the cars does not exceed 83 feet. The combined length of the cars used for the petitioner's shipment was 81 feet. *Held:* The overcharge in question was a result of respondent's inability to furnish the car ordered, coupled with the accidental circumstance that the cars actually furnished exceeded in combined length the limit which was soon after abandoned by the carrier. Under the circumstances the charge based upon minimum weights of 20,000 lbs. each, for two cars, was exorbitant, and a reasonable charge would have been based upon that weight for one car. Refund is ordered on this basis. *Kiel Wooden Ware Co. v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 278, 279-280.

Refund from charge based on minimum weight rule for close of shipping season.

4. Petitioner complains of the charges exacted on a mixed carload shipment of rye and barley from Stetsonville to Milwaukee, Wis., made for the purpose of clearing out petitioner's warehouse and weighing 25,960 lbs. Charges were assessed on a basis of 44,000 lbs. minimum weight. Petitioner alleges that other railways in the state have in effect a rule providing that, at the close of the shipping season each year, the carload rate and actual weight, subject to minimum of 20,000 lbs., may be applied on one straight carload or one mixed carload of grain, or grain and seeds, for the purpose of cleaning out houses and elevators. Petitioner asked that settlement be made on the basis of 24,000 lbs.

minimum weight and that this rule be fixed for future shipments under the same conditions. *Held:* The rule in question has been enforced for many years on other railways in Wisconsin and has applied jointly by way of the respondent line and the line of the C. M. & St. P. Ry. Co. Under date of May 28, 1912, respondent made application for the approval of this rule to be put in force locally over its line. The application was approved June 1, and was duly ordered to take effect August 1, 1912. There is therefore no call for the establishment of the rule by order of the Commission. Refund is ordered on the basis of the rule in question. *Bacon & Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 468, 470.

Refund from charge based on minimum weight which cannot be loaded.

5. Petitioner, a manufacturer of lime, etc., at Fond du Lac, Wis., complains of overcharge on a large number of carload shipments of kilnwood, due to the fact that respondent's tariff and classification provide minimum weights per car on wood for fuel that are much higher than the actual weight of such fuel wood that can be loaded. Petitioner subsequently admits that the minimum weight of 36,000 lbs., charged by the C. & N. W. R. and the M. St. P. & S. S. M. R. can be loaded and as regards these respondents the complaint is dismissed. The complaint against the C. M. & St. P. R. is only in reference to cars measuring 34 ft. in length which are not of sufficient cubical capacity to permit the loading of kilnwood to the required minimum weight of 40,000 lbs. An analysis of the box and stock car equipment of the C. M. & St. P. R. shows that the maximum space capacity of the cars complained of cannot exceed 1,800 cu. ft. Inspection of the loading of kilnwood at shipping points shows excess charges due to insufficient space in the cars to load the minimum weight. The maximum dimensions of respondents' cars 34 ft. and under in length, having a space capacity of less than 1,860 cu. ft., are 8 ft. in width, 7 ft. 2½ in. in height. *Held:* The minimum weight rule should represent as closely as possible the actual minimum weight that can be loaded in a car. A minimum based on the length of the car only, as provided by the C. M. & St. P. R. Co's tariff, where the other dimensions of cars vary greatly, allows discrimination in the distribution of the various sized cars, as the small capacity cars are loaded only when the larger size cannot be obtained. A minimum weight based on the cubic capacity instead of on the length only of the cars complained of should result in a more equitable distribution of the cars between shippers. It is impossible to load the minimum weight of 40,000 lbs. required by the C. M. & St. P. R. Co. in certain cars having a length of 34 feet and under. The company is ordered to provide a minimum weight of 36,000 lbs. in cars having a length not exceeding 34 ft. when the other dimensions do not exceed 8 ft. in width and 7 ft. 2½ in. in height. Refund is ordered on the basis of the new minimum weight, including an excess charge on one of the shipments due to an error in the rate. *Standard Lime & Stone Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 228, 238-239.

Refund from charge in excess of transit rate subsequently made effective on order of the Commission.

6. Petitioner alleges excessive charges on a carload shipment of live stock from Blue Mounds to Cudahy, Wis. The rates exacted were found to be excessive and ordered reduced in the case of *Arries & Packham et al. v. C. & N. W. R. Co.* 1911, 7 W. R. C. R. 131. The shipment was made before the order became effective. *Held:* The rate exacted on the shipment was unusual and a reasonable charge would have been 11 cts per cwt. plus \$2 for a stop to finish loading. Refund is ordered on this basis. *Mason & Martin v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 74 75.

Refund from demurrage charge ordered on basis of free time allowance under statute.

7. Complaint was made of illegal demurrage charges on a carload shipment of hay from Reedsville to Milwaukee, Wis. The petitioner alleges that the C. & N. W. Ry. Co. exacted a charge of \$4 for car service in violation of sec. 1797—10m of the Wis. St., which provides that a "consignee shall be allowed for unloading without car service or demurrage being assessed, additional free time equivalent to the number of days in excess of seventy-five miles per day of twenty-four hours, consumed by the common carrier in transporting freight from point of shipment to point of destination." The car in question was delivered to the carrier on Jan. 5 and did not reach its destination until Jan. 23, 1912. Had the car been transported at the average rate of 75 miles per day, it would have reached its destination within two days after its receipt by the carrier. *Held*: As the delay in unloading, after receipt of the shipment by the consignee, was less than the time the shipment was in transit in excess of the statutory allowance, the demurrage charge exacted of the petitioner was illegal. Refund is ordered. *Krull Commission Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 60, 61.

Refund from excess charge based on carload rates instead of trainload rates, on account of failure of carrier to furnish sufficient cars.

8. Petitioner alleges overcharges upon a large number of shipments of logs from Heineman, Cotter, Addleman, Doering, Russian, and Bellemeyer, to Wausau, Wis. As the respondent could not furnish petitioner sufficient cars to make up trainloads of 20 cars or more, the latter was unable to take advantage of the trainload rate. A majority of the claims are already barred by limitation of the statute. These include all of the shipments from Addleman and Bellemeyer, and all but two of the cars from Russian. *Held*: The present case is one of a class in which the Commission is reluctant to grant relief. When the rights of the public in general are considered it is plain that circumstances such as those here involved present much opportunity for unfair practices between shipper and carrier. Trainload rates are at best a form of discrimination in favor of the large shipper and against the small shipper. Their use has often been discouraged by the Commission. In such a case as the present, there is ample opportunity for collusion between the shipper and the carrier when the former alleges and the latter admits that the shipper's failure to comply with the conditions imposed on the use of the trainload rate was the fault of the carrier. In the instant case, however, there is nothing in the situation to indicate that the claim is not made in good faith and that the petitioner is not entitled to a refund. Taken by itself, the failure of the carrier to furnish the kind of equipment which enables the shipper to take advantage of a rate should not operate to the prejudice of the shipper. The Commission has in several cases granted refunds because of the inability of the shipper to load the cars furnished to the minimum weight specified in the tariff, and the principle here involved is similar. Under the facts appearing in the present case the total charge collected of the petitioner on the shipments in question is unreasonable and exorbitant, and a reasonable charge would have been based upon the trainload rate. Refund is ordered on this basis. *Heineman Lbr. Co. v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 281, 283-284.

Refund from excess charge based on class rates and in excess of commodity rates for emergency cases.

9. Petitioner alleges excessive charges on a shipment of soft coal from Sparta to Elroy, Wis. The class D distance tariff rate was charged. Class D rates apply on coal, generally, between stations in Wisconsin

where no specific rate is published. Specific rates are published, generally, to apply from regular coal shipping points only. It is not likely that there is any regular movement of coal from Sparta to Elroy and a specific rate on coal between those points would probably not be justified. The shipment in question may be said to have been an emergency case for which the railroads usually provide a rate that expires with the shipment, thus keeping the regular tariff issues free from useless items. *Held:* Under the circumstances the rate exacted was unusual and exorbitant and a reasonable charge would have been at the rate of 75 cts. per ton. In the present case it is unnecessary for the Commission to follow its usual custom of establishing a rate in lieu of the one complained of. Refund is ordered on the basis of the rate found reasonable under the circumstances. *Elmore-Benjamin Coal Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 396, 399.

Refund from excess charge based on class rates and in excess of commodity rates previously in effect and subsequently made effective.

10. Complaint was made of exorbitant charges on shipments of vehicle springs and axles in less than carload lots from Racine and Racine Junction to Green Bay and Oshkosh, Wis., on which respondent railway exacted the class rate applicable thereto. For several years previous, respondent had in effect a commodity rate of 16½ cts. per cwt. and subsequently this rate was reestablished. *Held:* The rate exacted was exorbitant and a reasonable rate would have been 16½ cts. per cwt. Refund is ordered on this basis. *Higgins Spring & Axle Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 180, 181.

Refund from excess charge based on rates higher than the rates prevailing under substantially similar conditions, and also higher than the cost of transportation warrants.

11. Petitioner complains that the rate of 2 cts. per cwt. on ice from petitioner's plant at Silver Springs to Milwaukee, Wis., is unreasonable and discriminatory and prays for the establishment of a reasonable rate and for a refund of the excess above such reasonable rate upon all shipments from Silver Springs to Milwaukee within a year of the filing of the complaint. The ice shipped from Silver Springs is of a comparatively low grade. The loading averages about 50,000 lbs. per car. Testimony was admitted showing the cost per ton of ice delivered at various points in Milwaukee and the average profit to the petitioner at each point. Comparisons were made with other short distance rates on ice in Wisconsin and neighboring states and the cost of the service to the carrier was ascertained. *Held:* In determining what rates are reasonable for the traffic involved in this case, the various conditions surrounding the petitioner's business, both as to the character of the commodity, the method of handling the traffic, and the competition which the petitioner meets are important. Attention has also been given to comparative rates, although they are at best an unsatisfactory indication as to what rates would be reasonable in the case under consideration. The principal basis for computing the reasonable rate is the cost of the service to the carrier. In view of the fact that ice is of comparatively low value in proportion to its weight, is transported in regular movements and is subject to little risk in transit, and in consideration also of the rather heavy loading of ice and the fact that no extra equipment of any kind is necessary in handling it, this commodity is entitled to a comparatively low rate. While the rate must necessarily be sufficient to cover the actual expense of the service, the traffic is of a kind that should not be expected to contribute as much in the way of interest upon the railway company's investment as does the average traffic on the line. The present rate of 2 cts. per cwt. is higher than

the petitioner should be required to pay and the respondent is ordered to substitute therefor a rate of 1.7 cts. per cwt. Refund is ordered of the amount collected on shipments of ice from Silver Springs to Milwaukee, arriving at destination since Jan. 10, 1911, in excess of the rates herein found reasonable. *Wis. Lakes Ice & Cartage Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 101, 110.

12. Petitioner and intervener complain that the rates established by the Commission in *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co.* 1911, 8 W. R. C. R. 105, are excessive and discriminatory. Respondent was therein given the option of lowering the petitioner's rates on pulp wood from Wisconsin points to Rhineland, Wis., or raising the rates of petitioner's competitors to Nekoosa, Port Edwards and Fox river points to equal those fixed in *In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168. Respondent chose the second alternative. The original petitioner prays that instead of having an option respondent be required to reduce the petitioner's rates about 20 per cent. The intervener asks that the Commission restore the situation as it existed prior to the Commission's order, when a lower basis of special rates was applied to Nekoosa. The intervener claims that petitioner has so great an advantage in rates on its raw materials that, even when Nekoosa enjoys the lower special pulp wood rates, there is no ground for a further concession to Rhineland. A comparison of Rhineland's average advantage in rates on shipments of raw materials in with Nekoosa's average advantage on shipments of paper out, shows that under present rates petitioner's mill at Rhineland is still under a burden of 0.5 cts. per cwt. of paper. The restoration of the former system of rates would result in a net disadvantage to Rhineland on the total movement of pulp wood, fuel and paper of about 0.67 cts. per cwt. of paper. The application of the Commission's pulp wood rates to Nekoosa has resulted in an increase of about 20 per cent in rates. The intervener acquired large timber interests and made contracts for the purchase of pulp wood upon the basis of the special pulp wood rates formerly in effect. *Held*: There is nothing in the competitive situation or in any of the other factors entering into the determination of reasonable rates, which warrants a lower basis of rates on pulp wood for Nekoosa than for Rhineland. A marked increase in rates on a commodity supplied to the intervener under contracts and timber purchases already made for some time in the future, is to be avoided, unless the former rates were so low as not to be reasonable from the point of view of the carrier. The special pulp wood rates granted in the past to the Nekoosa mills are shown by an analysis of the cost figures to be sufficiently high so that their reestablishment under the present circumstances would not seem to work an injustice to the railway company. The pulp wood rates to Rhineland on the respondent's line should be proportionately reduced. Respondent is ordered to reestablish in its entirety its tariff G. F. D. No. 13692, originally effective Aug. 16, 1911, and canceled by the respondent company on Nov. 30, 1911. It is further ordered that upon carload shipments of pulp wood to Rhineland, Wis., from Wisconsin points, and to Grand Rapids, Port Edwards, Nekoosa, Menasha and Neenah, Wis., from all Wisconsin points not affected by the first part of this order, the respondent company establish maximum distance rates as prescribed by the Commission. Respondent is directed to refund to the intervener the amount collected upon shipments of pulp wood from Wisconsin points to the intervener at Grand Rapids, Port Edwards and Nekoosa, in excess of the rates herein ordered, between Nov. 30, 1911, and the date of the effectiveness of this order and to refund to the petitioner the amount collected upon shipments of pulp wood from Wisconsin points to Rhineland, in excess of the distance rates herein ordered, between Jan. 3, 1911, and the date of the effectiveness of this order. *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 111, 125-126.

13. Petitioner alleges that several months after it had applied for a reduction, respondent's rate on ground wood pulp from Rothschild to Brokaw, Wis., was reduced from 4.3 to 3 cts. per cwt. Request is made for a further lowering of the rate to 1.5 cts. per cwt. Refund is asked of the charges exacted in excess of 3 cts. per cwt. since petitioner's application for a reduction was made. While wet pulp does not belong to the very lowest grade of commodities shipped, its loading is sufficiently heavy and its value is small enough so that it should perhaps be moved at rates netting the carrier a little less than the average return on all carload traffic moved. Added to the moderately low value and heavy loading is the fact that it can be handled in almost any kind of cars that happen to be available, involves little risk of loss or damage, and is loaded and unloaded promptly. Another element of importance is that the haul is in reality only a part of a complete shipment of pulp in and paper out. It is, therefore, perhaps not unjust to make the margin of profit to the carrier a little narrower than it would be if the haul were a single one without any resulting out-haul. *Held:* While a rate of 1.5 cts. per cwt. is hardly high enough to yield the carrier the return to which it is entitled, the present rate of 3 cts. per cwt. is somewhat higher than conditions warrant. A comparison of similar rates, together with the cost data, would justify a 2 ct. rate between Rothschild and Brokaw. That rate would also do justice as between the petitioner and the competing pulp and paper mills of the Wisconsin and Fox river valleys, and it is accordingly ordered substituted for the present rate. As it seems to be entirely warranted by the facts, refund is ordered of the difference between the charges actually made and those which would have been charged under a rate of 3 cts. per cwt., made effective after the shipments in question had moved. *Wausau Paper Mills Co. v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 400, 405.

Refund from excess charge based on the sum of the locals instead of the through commodity rates subsequently made effective.

14. Petitioner alleged that the rate on a carload shipment of cheese boxes from Richland Center to Lancaster, Wis., was excessive. The rate exacted was the sum of the locals. The C. M. & St. P. Ry. Co. reduced the minimum weight of 15,000 lbs. to 13,650 lbs., according to a rule of the western classification. The C. & N. W. Ry. Co. did not allow for the deduction. There was no commodity rate in effect, doubtless due to the fact that there was no demand for such a rate. A through commodity rate of 20 cts. per cwt. was subsequently established with a minimum weight of 15,000 lbs., subject to the deduction provided by the western classification. *Held:* The rate exacted was unusual and exorbitant and the reasonable rate that should have been in effect and applicable to such shipments was the rate subsequently established. Refund is ordered on this basis. *The A. C. Parfrey Mfg. Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 517, 519.

Refund from excess charge caused by failure through inadvertence to put in legal effect a lower rate previously in effect and subsequently made effective.

15. Petitioner alleges excessive charges on shipments of thirty-two carloads of logs from Siding 234, on the line of the M. St. P. & S. S. M. Ry. Co. between Gagen and Atkins, to Crandon, Wis. The rate contended for had previously been in effect and was subsequently reestablished. The increase was evidently the result of an oversight in the publication of the tariff. Owing to the fact that the minimum weight provisions of the marked capacity of cars used were ignored, and that several errors in extensions were made in freight bills, there was an undercharge of \$8.18, according to the published tariff. *Held:* The rate

exacted was unusual and a reasonable rate would have been \$1.95 per cwt. as subsequently reestablished. Refund is ordered on this basis. The undercharge is to be deducted from the amount of reparation claimed by the petitioner. *Keith & Hiles Lbr. Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 9 W. R. C. R. 57, 59.

16. Petitioner alleges excessive charges on fifty-three carload shipments of logs from Edgewater to Birchwood, Wis. The rate contended for had previously been in force but through an error in the publication of the tariff a higher rate was in legal effect at the time the shipments moved. Subsequently the former rate of 1.2 cts. per cwt. was reestablished. *Held*: The rate exacted was unusual and the reasonable charge that should have been effective and applicable to the shipments in question is the rate of 1.2 cts. per cwt. Refund is ordered. *Ahnapee Veneer & Seating Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 482-483.

Refund from excess charge caused by failure through inadvertence to put in legal effect a lower rate subsequently made effective.

17. Petitioner alleges excessive charges on carload shipments of burlap bags from Milwaukee to Stevens Point, Granite and Amherst, Wis., respectively, on which respondent railway exacted the fourth class rate. At the time the shipments moved respondent had in effect a rate of 15 cts. per cwt. on burlap bags from Chicago to the points named, while on other lines this rate was in effect from Milwaukee to those points. Later respondents established this rate from Milwaukee to the points in question. The rate exacted was due to an error in the publication of respondent's tariff. *Held*: Four of the cars in question arrived at their destination more than a year before the petition was filed, and they are therefore excluded by the statute. The class rate exacted of petitioner was unusual and exorbitant and the reasonable rate applicable to such shipments is 15 cts. per cwt., as subsequently made effective. Refund is ordered on this basis upon those items of the claim which have not been barred. *Milwaukee Bag Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 9 W. R. C. R. 182, 184.

Refund from excess charge caused by failure to apply the lowest rate applicable to intermediate point.

18. Petitioner alleges unreasonable and exorbitant charges on a carload shipment of rye from Corning to Milwaukee, Wis. At the time the shipment moved the respondent had in effect a rate of 10 cts. per cwt. on rye in carloads from Portage to Milwaukee, applicable as the maximum at intermediate points. Since Corning is intermediate between Portage and Milwaukee, this rate was applicable to the shipment in question. *Held*: The rate exacted was unusual and exorbitant and 10 cts. per cwt. would have been the reasonable and proper rate under the circumstances. Refund is ordered on this basis. *Bacon & Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 62, 63.

Refund from excess charge caused by failure to make allowance for car stakes according to published tariff.

19. Complaint was made of excessive charges on four carload shipments of poles and posts from Elmhurst to Clintonville, Wis., for concentration and reshipment. The western trunk line rules, which govern respondent's tariff, provide for an allowance of 500 lbs. per car for standards, strips and supports. This allowance was not made in the present case and petitioner asks for a further refund on this basis. *Held*: An allowance of 500 lbs. on each car for stakes should have been made and a further refund is ordered to cover this allowance. *Torrey Cedar Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 185, 188.

Refund from excess charge caused by failure to protect an intermediate point.

20. Complaint was made of the rate of 5½ cts. per cwt. exacted by respondent railway on four carload shipments of poles and posts from Elmhurst to Clintonville, Wis., for concentration and reshipment. At the time the shipments moved, respondent had in effect a rate of 4½ cts. on poles and posts for concentration and reshipment from Pratt Junction to Clintonville, to which Elmhurst is intermediate. *Held*: There appears to be no reason whatever why the Pratt-Clintonville rate of 4½ cts. per cwt. should not be made the maximum at all intermediate points, including Elmhurst. Refund is ordered on this basis. *Torrey Cedar Co. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 185, 188.

Refund from excess charge caused by failure to provide for the absorption of switching charges as previously in effect and subsequently made effective.

21. Petitioner alleges that the switching charge of \$2 per car, in addition to the regular freight rate, exacted by respondent on sixteen carload shipments of lime from Grimms to Wausau, Wis., is unjust and unreasonable. Previous to the shipments respondent's tariff had provided for the absorption of these switching charges and this rule was subsequently reestablished. *Held*: The overcharge in question was due to an error in the publication of the tariffs. The charge exacted was unusual and exorbitant and, under the circumstances, no charge should have been made for the switching service rendered. Refund is ordered on this basis. *Paff v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 160, 162.

22. Petitioner complains of unusual and exorbitant switching charges, exacted by the respondent on four carload shipments of wood from Unity to Waukesha, Wis. In addition to the freight charges, respondent had charged \$4 per car for switching charges of the connecting line at Waukesha. Previous to the movement of the shipments in question, the respondent's tariff had provided for the absorption of connecting line switching charges on carload shipments on which the freight charges were \$15 or more per car, and this rule was subsequently reestablished. *Held*: The charges exacted were unusual and refund is ordered on the basis of the rule previously in effect and subsequently made effective. *Morgan v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 165, 166.

Refund from excess charge ordered on basis of commodity rates in effect in the opposite direction and subsequently made effective.

23. Petitioner alleges overcharge on a shipment of two carloads of lumber from Oconto to Marinette, Wis. The rate of 3 cts. per cwt. which was contended for was in effect on respondent's line from Marinette to Oconto and was later made effective on shipments in the opposite direction. The same rate was also in effect in both directions upon the C. & N. W. line. *Held*: The rate charged was unusual and unreasonable, and a reasonable charge would have been 3 cts. per cwt. Refund is ordered on this basis. *Marinette & Menominee Box Co. v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 37, 38.

Refund from excess charge ordered on basis of joint commodity rates established by order of the Commission.

24. Petitioner complains of a lack of joint rates on pulp wood on the lines of the respondents between Bagdad and Rothschild, Wis. The present rate is made up of the sum of the local distance rates to and from Heafford Junction as fixed by the Commission *In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168. Much emphasis is laid by the petitioner

upon the joint rates in effect on pulp wood between the "Soo" line and the C. & N. W. and C. M. & St. P. lines from various "Soo" line points to Appleton, Kaukauna and other Fox river valley points as set forth in *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co.* 1911, 8 W. R. C. R. 105, 109. Although the petitioner is not attempting to sell at those points, and the rates are of no avail to anyone competing with the petitioner in selling at Rothschild, it is contended that if the buying associations supplying the Fox river valley mills with pulp wood are entitled to joint rates lower than the sum of the locals, the petitioner is equally entitled to joint rates in the particular territory in which it desires to sell, though it is not in direct competition with the buyer who is accorded joint rates. The market for pulp wood on the "Soo" line is, in general, quite remote from Bagdad and is limited to a small number of manufacturing points. Further, most of the larger paper mills are so situated, by reason of contracts or ownership of timber lands, that they are not likely to be in the market for the petitioner's pulp wood. *Held*: It would be hardly reasonable that the petitioner's market should be restricted, by lack of joint rates alone, to the distant paper mills in the Fox river valley or in the neighborhood of Grand Rapids and Nekoosa. Under the circumstances, petitioner has a right to joint rates to a market point as conveniently located as Rothschild. The freight rate is a large element in the selling price of a low grade commodity like pulp wood, and if the timber owner is entitled to the additional profit caused by joint rates to the Fox river valley mills, the petitioner should be entitled to a similar additional profit on its sales at Rothschild. Moreover, discriminatory conditions are not the only ones justifying the establishment of joint rates in a given case. Where the other circumstances, chief among which is the cost of the service to the carrier, make the assessment of the sum of the local rates unreasonable, as appears to be the case here, joint rates may properly be established without reference to the existence or absence of direct competition between shippers. The M. St. P. & S. S. M. Ry. Co. and the C. M. & St. P. Ry. Co. are ordered to discontinue their present rate on carload shipments of pulp wood from Bagdad to Rothschild, Wis., and to substitute in lieu thereof a joint rate of 4.60 cts. per cwt. Refund is ordered on this basis for the shipments coming within the limitation of the statute. *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 9 W. R. C. R. 127, 132-133.

Refund from excess charge ordered on basis of joint rate in effect on a competing line and subsequently made effective.

25. Petitioner alleges that the rate of 16 cts. per cwt., exacted for the shipment of a carload of buckwheat from Ridgeland to Milwaukee, Wis., was exorbitant. At the time the shipment moved the respondent had in effect a joint rate of 12½ cts. per cwt. on carload lots with the C. & N. W. Ry. Co. Subsequent to the shipment this rate was made effective on the M. St. P. & S. S. M. Ry. *Held*: It is the duty of the railway company, in the absence of any specific directions to the contrary, to route shipments over lines whereby the freight charges will be least. The charge exacted was unusual and exorbitant and a reasonable charge would have been 12½ cts. per cwt., as subsequently made effective. Refund is ordered on this basis. *Owen & Bro. Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 43, 44.

Refund from excess charge ordered on basis of lower commodity rate.

26. Complaint was made that since November, 1909, the C. & N. W. Ry. Co. has charged lumber rates on shipments of logs from various points on its line to Ripon, Wis. Petitioner alleges that the product of such logs, insofar as practicable, has been shipped out over respondent's line and that lumber rates on such shipments are excessive. Investi-

gation shows that the product of these logs, berry boxes and crates, amounts to about one carload for each three cars of logs shipped in, and that only about one-half the total product is shipped out via the respondent's line. Refund is asked on six shipments from Oshkosh, Glenbeulah, and Stratford to Ripon, Wis. *Held*: The facts presented do not indicate that the shipments complained of were entitled to the rates on logs for manufacture and reshipment. The lumber rates were therefore properly applicable according to published tariffs. Lumber rates applied to similar shipments of logs were quite fully investigated in *Gablowsky et al. v. C. & N. W. R. Co. et al.* 1912, 8 W. R. C. R. 544, in which instance logs were shipped in to be manufactured into cheese boxes and a small part of the products were shipped out over respondent railway. The Commission held that petitioner was not entitled to a rate conditioned on the shipment of the product out, but that a reasonable rate based on the value of the logs, the loading per car, etc. would be the rates on pulp wood as established in *In re Rates on Pulp Wood*, 1908, 2 W. R. C. R. 168. The circumstances in the present case are parallel, and there is no reason why a like order should not be made. It is recommended that the pulp wood distance rates be generally established on logs not subject to reshipment of product conditions. Such rates for the distances involved in the present case are the reasonable rates that should have been in effect and applicable to the shipments in question and refund is ordered on this basis. *Ripon Veneer & Box Works v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 484, 488.

Refund from excess charge ordered on basis of rate in legal effect.

27. Petitioner alleges excessive charges on a carload shipment of live stock from Blue Mounds to Milwaukee, Wis. The rates exacted were found to be excessive and ordered reduced in the case of *Arries & Packham et al. v. C. & N. W. R. Co.* 1911, 7 W. R. C. R. 131. The substitute rate therein ordered was lawfully in effect when the shipment was made. *Held*: The excessive charge on the shipment was unlawful and therefore may be refunded without an order. *Mason & Martin v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 74, 75.

Refund from excess charge ordered on basis of reasonable rate in effect on a competing line and subsequently made effective.

28. Petitioner alleges exorbitant charges on three carload shipments of brick from Vesper to Grand Rapids, Wis., upon which respondent exacted a distance rate of 3 cts. per cwt. At the time the shipments moved the M. St. P. & S. S. M. R. Co. had in effect a distance rate of 2 cts. per cwt. for ten miles. This rate was subsequently established by respondent in accordance with an order of the Commission. *Held*: The respondent could not have participated in the traffic upon its lawfully published rate in view of the fact that a competing line had in effect a lower rate. The rate charged was unusual under the circumstances, and the reasonable rate that should have been in effect and applicable to the shipments is 2 cts. per cwt. Refund is ordered on this basis. *Rowland & Son v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 163, 164.

29. Complaint was made of overcharge on a shipment of three carloads of stone from Waukesha to Milwaukee, Wis. The rate of 1¾ cts. per cwt., contended for, was in effect upon competing lines and was subsequently established by respondent. *Held*: The charge exacted was unusual and 1¾ cts. would have been a reasonable rate. Refund is ordered on this basis. *Waukesha Lime & Stone Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 167, 168.

Refund from excess charge ordered on basis of reasonable rate subsequently made effective.

30. Petitioner alleges overcharge on a shipment of eleven carloads of slabs from Ingram to Ladysmith, Wis. The rate contended for was

made effective after the shipments had moved. Respondent contends that petitioner made the shipments in question merely to test the market, but facts indicate that there has been a constant shipment of slabs by petitioner from Ingram. *Held*: The rate exacted was excessive when the value of the commodity as well as other elements are considered. The reasonable rate for such shipments would have been 2½ cts. per cwt. as subsequently made effective. Refund is ordered on this basis. *Menasha Paper Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 39, 40.

31. Petitioner alleges unreasonable charges on a shipment of two carloads of elm logs from Goodman to Pembine, Wis. The rate contended for was made effective after the shipments had moved. *Held*: The rate exacted was unusual and exorbitant and the reasonable rate for such shipments would have been 2½ cts. per cwt., as subsequently made effective. Refund is ordered on this basis. *Goodman Lumber Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 41, 42.

32. Petitioner alleges excessive and discriminatory charges on a carload shipment of fence posts from a siding between Bellinger and Gilman to Stanley, Wis. The rate contended for was made effective after the shipment had moved. *Held*: The rate exacted was unusual under the circumstances and a reasonable rate would have been 3 cts. per cwt., as subsequently made effective. Refund is ordered on this basis. *Schneider v. S. M. & P. R. Co.* 1912, 9 W. R. C. R. 64, 65.

Refunds ordered on specific shipments.

Refunds of demurrage charges, *see ante*, 7.

Refund on shipment of axles, *see ante*, 10.

of bags, *see ante*, 17.

of barley, *see ante*, 4.

of brick, *see ante*, 28.

of buckwheat, *see ante*, 25.

of cheese boxes, *see ante*, 3, 14.

of coal, *see ante*, 9.

of elm logs, *see ante*, 31.

of fence posts, *see ante*, 32.

of grain, *see ante*, 4, 18.

of hay, *see ante*, 7.

of ice, *see ante*, 11.

of kiln wood, *see ante*, 5.

of lime, *see ante*, 21.

of live stock, *see ante*, 6, 27.

of logs, *see ante*, 8, 15, 16, 26, 31.

of lumber, *see ante*, 23.

of poles, *see ante*, 19, 20.

of posts, *see ante*, 19, 20, 32.

of pulp, *see ante*, 13.

of pulp wood, *see ante*, 12, 24.

of rye, *see ante*, 4, 18.

of slabs, *see ante*, 30.

of springs, *see ante*, 10.

of stone, *see ante*, 29.

of vehicle springs, *see ante*, 10.

of wood, *see ante*, 5, 12, 22, 24.

of wood pulp, *see ante*, 13.

RISK.

Risk involved in transportation as matter considered in determining reasonableness of rates for railways, *see RATES*, 38-40, 43, 54, 64.

ROUTING.

Of interurban cars, *see INTERURBAN RAILWAYS*, 2.

Of street cars, *see STREET RAILWAYS*, 1.

Routing of shipments—Duty of railway company to route shipments over lines whereby the freight charges will be least.

1. It is the duty of the railway company, in the absence of any specific direction to the contrary, to route shipments over lines whereby the freight charges will be least. *Owen & Bro. Co. v. M. St. P. & S. S. M. R. Co.* 1912, 9 W. R. C. R. 43, 44.

RULES AND REGULATIONS.

Requirements as to payment of rates for services rendered by public utilities—Telephone switching rates—Bills rendered directly to connecting rural companies.

1. The Mineral Point Tel. Co. of Mineral Point, Wis., asks that it be permitted to render bills for switching service directly to the rural companies concerned, instead of to the subscribers of those companies, as at present. *Held:* Inasmuch as the applicant has not the means of compelling payment by individual subscribers of rural lines because it cannot disconnect them as in the case of local subscribers, and as no injustice would appear to result from the proposed change, it is believed to be a reasonable regulation. The applicant is authorized to render bills for switching service directly to the companies for whom the service is performed, instead of to the patrons of those utilities. *In re Appl. Mineral Point Tel. Co.* 1912, 9 W. R. C. R. 285, 304.

RYE.

See GRAIN.

SAFETY.

Safety of bridges connecting highways upon which railways are constructed, *see* BRIDGES, 1.

SAFETY APPLIANCES.

Automatic crossing alarm for protection of railroad crossings, *see* RAILROADS 10, 12-15, 17, 19-20, 22-23.

SALARIES.

Apportionment of salaries of operators in the determination of unit costs for telephone utilities, *see* ACCOUNTING, 11.

SAND.

Rates, reduction of, Waukesha to Wis. points on the C. M. & St. P. and the C. & N. W. lines, *see* RATES, 40.

SCHEDULES.

Street car schedules, *see* STREET RAILWAYS, 1.

Train schedules, *see* TRAIN SCHEDULES, 1.

SCOPE OF LAW.

See PUBLIC UTILITIES LAW; RAILROAD LAW.

SERVICE AND FACILITIES.

Bridges,

highway bridges over which railways are operated, safety of, *see* BRIDGES, 1.

Dam,

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Electric utilities,

quality of service, performance of street lighting system, *see* ELECTRIC UTILITIES, 1-12.

requirements as to service and facilities, adequacy of service, *see* ELECTRIC UTILITIES, 13.

Interurban railways,

requirements as to service and facilities, adequacy of service, *see* INTERURBAN RAILWAYS, 1.

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Railroads,

requirements as to service and facilities, railway car service, refrigerator cars, *see* RAILROADS, 31-32.

requirements as to service and facilities, special equipment, *see* RAILROADS, 33.

station facilities, adequacy of, *see* STATION FACILITIES, 1-5.

switch connections, *see* SWITCH CONNECTIONS, 1-4.

track connections, *see* CONNECTING CARRIERS, 4; SWITCH CONNECTIONS, 2-4.

traffic, interchange of, *see* CONNECTING CARRIERS, 1-4; SWITCH CONNECTIONS, 2-4.

train service, adequacy of, *see* TRAIN SERVICE, 1-4.

Street railways,

requirement as to service and facilities, adequacy of service, *see* STREET RAILWAYS, 1.

Telephone utilities,

physical connection, establishment of, *see* TELEPHONE UTILITIES, 1.

physical connection, right to refuse connection with grounded lines, *see* TELEPHONE UTILITIES, 2-3.

Water utilities,

requirements as to service and facilities, extension of mains, *see* WATER UTILITIES, 1-4.

requirements as to service and facilities, extension of mains, for domestic service only, *see* WATER UTILITIES, 1.

SERVICE CHARGE.

See MINIMUM CHARGES.

SERVITUDE.

Additional servitude upon highway occupied for interurban operation, *see* FRANCHISES, 1.

Compensation for additional servitude, *see* FRANCHISES, 1.

SHIPPING FACILITIES.

See STATION FACILITIES; SWITCH CONNECTIONS.

SIDETRACK FACILITIES.

See SWITCH CONNECTIONS.

SLABS.

Refund on shipment, Ingram to Ladysmith, Wis., *see* RATES, 55; REPARATION, 30.

SPECIAL EQUIPMENT.

Railway service and facilities, provision for special equipment, *see* RAILROADS, 33.

SPECIAL SERVICE RATE.

Special service rate, different rates for different classes
of railway service, *see* RATES, 64.
of telephone service, *see* RATES, 74-79.

SPRINGS.

Refund on shipment, Racine and Racine Junction to Green Bay and Oshkosh, Wis., *see* RATES, 56; REPARATION, 10.

SPUR TRACKS.

See SWITCH CONNECTIONS.

STATION FACILITIES.

See also SWITCH CONNECTIONS.

Adequacy of station facilities.

1. Complaint was made of inadequate station facilities on the C. & N. W. Ry. line in the village of Merrimac, Wis. Petitioners alleged that the northbound platform at the station is without shelter to protect passengers in bad weather and that in going to and coming from trains passengers are obliged to cross a sidetrack located between the depot and the main track. *Held*: Better station facilities are required. Respondent is ordered to provide a shelter upon the northbound platform and to move the depot up to the main line and throw the passing track, which now lies between the main line and the depot, to a position in the rear of the depot. *Blackman et al. v. C. & N. W. R. Co.* 1912, 9 W. R. C. R. 50, 55-56.

2. Petitioner alleges that the C. M. & St. P. Ry. Co. does not provide adequate station facilities at Tomah, Wis., and prays for an order requiring an adequate overhead protection on the north and westbound platform at the station. *Held*: Public necessity requires provision for adequate shelter and the passenger earnings at Tomah justify the expenditure necessary for the erection of a suitable shed. Respondent is ordered to erect and maintain a suitable and adequate overhead covering on its north or westbound platform according to the specifications of the Commission. Three months is deemed a reasonable time within which to comply with this order. *Croty et al. v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 274, 277.

3. Petitioners allege that M. St. P. & S. S. M. Ry. Co. and the S. M. & P. Ry. Co. do not furnish adequate station facilities in the village of Polley, or Lusk, Wis. The M. St. P. & S. S. M. Ry. Co. has no building for housing freight or accommodating passengers, while the caboose car, which is used by the S. M. & P. Ry. Co. as a shelter for passengers, is in a dilapidated condition and has no caretaker. *Held*: Present passenger and freight facilities of respondent railroads at Polley are inadequate. The amount of business justifies the small expense necessary to provide and maintain adequate shelter. It is ordered that respondents each provide, or, at their option, jointly provide, a proper and sufficient waiting room for passengers and an adequate storeroom for freight, and that they place such station in charge of a caretaker who will heat and light the waiting room and keep it in a sanitary condition. Sixty days is deemed a sufficient time within which to comply with this order. *McKee et al. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 9 W. R. C. R. 342, 345-346.

4. Complaint was made that the C. St. P. M. & O. Ry. Co. does not provide any depot service either for the accommodation of passengers or for the storing and protection of freight at South Range, Wis. At the hearing the respondent conceded the necessity for better station facilities and subsequently submitted plans for approval. *Held*: Station facilities are necessary. Respondent is required to construct a station building according to the plans approved by the Commission and to provide a station agent. Sixty days is deemed a reasonable time within which to comply with the terms of this order. *Christenson et al. v. C. St. P. M. & O. R. Co.* 1912, 9 W. R. C. R. 477-478.

5. Petitioner alleges that respondent's station facilities at Columbus, Wis., are inadequate in that passengers alighting from and boarding

westbound trains have no protection from the weather while waiting on the platform opposite the station. Complaint is also made that the train scheduled to reach Columbus at 10:30 p. m. usually discharges and loads passengers three hundred feet east of the regular platform and Ludington street on a narrow cinder path, where it is difficult for passengers to pass each other. *Held*: The station facilities are inadequate during stormy weather. To properly accommodate the public, respondent should erect a suitable structure on its westbound platform that will provide adequate protection for passengers using westbound trains. The earnings of the station are amply sufficient to justify this expenditure. The platform east of Ludington street should be provided with lights at night and be widened so as to afford a safe walk for passengers. Respondent is ordered to erect a suitable shelter structure, as specified. Sixty days is deemed a reasonable time within which to comply with these orders. *City of Columbus v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 576, 580.

STATIONS.

See STATION FACILITIES.

STOCK.

See LIVE STOCK.

STONE.

Refund on shipment, Waukesha to Milwaukee, Wis., *see* RATES, 57; REPARATION, 29.

STORAGE FACILITIES.

See STATION FACILITIES; SWITCH CONNECTIONS.

STREET LIGHTING.

Quality of service, performance of street lighting system, comparison of illuminating qualities of 6.6 ampere a. c. enclosed and 9.6 ampere d. c. open arcs, *see* ELECTRIC UTILITIES, 1-11.

STREET RAILWAYS.

See also INTERURBAN RAILWAYS.

OPERATION.

Requirements as to service and facilities—Adequacy of service.

1. Petitioner alleges that the street car service of the So. Wis. Ry. Co. in Madison, Wis., is inadequate, due to the low speed at which the cars are operated; neglect to operate a sufficient number of cars to adequately serve the public, and the insufficient capacity of the cars now used; congested cars during rush hours; unnecessary delays, in particular by reason of respondent's requirement that patrons both enter and alight from the rear door of the cars; failure to keep cars clean or adequately heated; and inadequate brakes, making it practically impossible to avoid collisions. *Held*: The street car service of the respondent in Madison, Wis., is at present inadequate. The following changes are ordered for the improvement of the service: In order to facilitate the movement of passengers, the company is required to allow exit through both front and rear right hand vestibule doors and to direct the attention of the public to the front exit. Passengers are not to be permitted to stand on the front platform while the car is in motion. The left hand front and rear doors are to remain closed at all times. The Wingra Park and the South Madison cars are both to give service between Mills street and capitol park in both directions. Cars are to proceed on schedule and the practice of holding them at the entrance to double track is to be discontinued. When two cars

are operated on the same schedule, the first car, except with full load, is not to run by prospective passengers if by so doing the extra car following is overloaded. Conductors are to announce street crossings. The company is required to establish a 10 minute schedule on the Wingra Park-Fair Oaks line instead of the present 12 minute schedule, and a 20 minute schedule on the South Madison line instead of the present 24 minute schedule. This is to be accomplished by decreasing the running time between switches, using the same number of regular cars for the schedule. The preceding provisions are to be made effective within ten days after the service of this notice and the company is to notify the public of the changes in schedule at least five days before they go into effect. The company is further ordered to make such extensions or additions to double track or sidings, overhead and other equipment as may be approved by the Commission in order that a 5 minute service may be maintained between Baldwin street and Breeze Terrace on the Fair Oaks-Wingra Park line, and a 10 minute schedule on the South Madison line. Such service is to go into effect not later than July 1, 1912. The subject of brakes, size and types of cars, later schedule or owl service, ventilation, smoking and other matters pertaining to the operation of cars and adequacy of the service are still before the Commission for further investigation and may be made the subject of a further order. *Elwer v. Sq. Wis. Ry. Co.* 1912, 9 W. R. C. R. 1, 34-36.

STUB TRACK.

See SWITCH CONNECTIONS.

SWITCH CONNECTIONS.

RIGHT OF SHIPPER TO SWITCH CONNECTIONS.

Spur track, construction of, ordered by Commission.

1. Petitioner owns a tract of land near Palmyra, Wis., largely composed of sand and gravel deposit. He has organized a corporation and desires to construct a plant on these premises for the manufacture of cement products. Because of the expense of hauling the sand and gravel three-quarters of a mile to Palmyra by team, it will be impossible to construct or operate the plant or ship the sand and gravel to market unless sidetrack facilities are provided. Wherefore, petitioner prays that respondent be required to construct a spur track connecting with its main line at a point near the tract of land in question. *Held:* The installation of a siding at the gravel pit side would be dangerous to trains controlled by a permissive block, which method of control is used at present. The danger, however, can be completely eliminated by operating trains between Palmyra and North Prairie controlled by positive block. All trains picking up or setting out cars at the gravel pit should be controlled by positive block between such stations. To protect trains against an open switch, an automatic switch protection against facing point switch should be installed and to provide against cars drifting onto the main line, the switch should be connected with a derail. The respondent is ordered to construct a spur track from a point on its main line to the sand and gravel pit in question. The petitioner is ordered to deposit the sum of \$1,339 with the respondent to pay for the construction of the spur track, or, in lieu thereof, to give bond in accordance with the provisions of ch. 481, Laws of 1909. Upon agreement of the parties, this order may be modified by the Commission. Thirty days is deemed a reasonable time within which to comply with this order. *Thorne v. C. M. & St. P. R. Co.* 1912, 9 W. R. C. R. 156, 159.

Track connections.

2. The petitioner alleges that shipments of wagons from Blanchardville, Wis., on the I. C. R. R. to points on the Mineral Point div.

of the C. M. & St. P. Ry. are delayed on account of being transferred at Freeport, Ill., instead of at Dill, Wis., and that the respondents neglect and refuse to provide track connection at Dill. Since the hearing a change in the tariff has been made which provides the desired routing of less than carload shipments. *Held*: There appears to be no immediate necessity for the track connection, and the business offered by petitioner would not seem to justify this expense for some time to come. The petition is dismissed. *National Mfg. Co. v. I. C. R. Co. et al.* 1912, 9 W. R. C. R. 509, 511-512.

*Track connections at crossings within town, village or city—
Transfer switching service.*

3. Secs. 1802c and 1802d, being a part of sec. 1 of ch. 302 of the Laws of 1911, provide that "Every railway corporation whose track crosses the track of any other railway corporation at grade in any town, city or village, or whose tracks and right of way shall be adjacent to the tracks and right of way of any other railway corporation, within the limits of any city or incorporated village, shall, within sixty days after a written request of the railroad commission, or the town board of supervisors, make a track connection between each other within such town, city, or village to afford all reasonable and proper facilities for the interchange of traffic between their respective lines for forwarding and delivering freight, and shall transfer or switch and deliver without unreasonable delay or discrimination any freight or cars, loaded or empty, destined to any point on its tracks or any connecting line, and the expense thereof shall be borne equally between each of the said corporations, unless otherwise ordered by the railroad commission" (sec. 1802c). "The railroad commission shall, upon written request of any consignee, upon notice to the applicant and the said companies, make such reasonable rules and regulations for the switching of cars from one of such connecting railroads to the other as shall be reasonable and proper" (sec. 1802d). *Teasdale v. C. & N. W. R. Co. et al.* 1912, 9 W. R. C. R. 66, 71.

4. In *Clark v. C. M. & St. P. R. Co.* 1907, 1 W. R. C. R. 590, it was held that under sec. 1797-11 a railroad company could be required to receive cars from a connecting carrier and deliver them upon its public teaming track for unloading. Ch. 302 of the Laws of 1911 (secs. 1802c to 1802e inclusive) was enacted for the express purpose of removing any doubt as to the authority of the Commission to require such service. *Teasdale v. C. & N. W. R. Co. et al.* 1912, 9 W. R. C. R. 66, 72-73.

SWITCHING CHARGES.

See TERMINAL CHARGES.

As matter considered in making joint rates, *see* RATES, 18-19.
Reasonableness of switching charges, *see* RATES, 44, 58, 61.
Switching service rates for telephone utilities, *see* RATES, 77-79.

TEAM TRACK.

Transfer switching service for team track delivery, *see* CONNECTING CARRIERS, 3; SWITCH CONNECTIONS, 4.

TELEPHONE UTILITIES.

Classification in telephone service, *see* CLASSIFICATION, 2.
Cost of service of telephone utilities, determination of unit costs, *see* ACCOUNTING, 8-11.
Depreciation, rate of depreciation of telephone plant, *see* DEPRECIATION, 3-4.
Rules and regulations as to switching rates, bills rendered directly to connecting rural carriers, *see* RULES AND REGULATIONS, 1.

ACCOUNTING.

See ACCOUNTING.

OPERATION.

Physical connection—Establishment of.

1. Applicant, the Linzy-Brook Telephone Association, alleges that public convenience and necessity require a physical connection of its system with the system of the Cecil-Green Valley Telephone Co. The applicant furnishes service in and about the villages of Suring, Hintz, Gillett, Moseley and Underhill in Oconto county, and the village of Cecil in Shawano county. The Cecil-Green Tel. Co. operates a system in and about the village of Cecil, Shawano county. Both parties desire the physical connection of their systems, but they refrain from making it without an order of the Commission, because they fear that the Wis. Tel. Co. will sever its connections with their lines. This right is reserved to the Wis. Tel. Co. by its contract with the applicant. *Held:* Under the circumstances there seems to be no reason why the order asked for should not be issued. It is ordered that the desired physical connection be established. Sixty days is deemed a reasonable amount of time for compliance with this order. *In re Appl. Linzy-Brook Tel. Assn.* 1912, 9 W. R. C. R. 189, 191-192.

Physical connection—Right to refuse connection with grounded lines.

2. The Mineral Point Tel. Co. asks for a ruling with regard to the reconnection to its board of the rural grounded line of the New Union Tel. Co. between Dodgeville and Mineral Point, Wis. It appears that up to the time that the New Union Tel. Co. discontinued connections for its rural grounded line with the Mineral Point switchboard a great deal of toll business which should have been handled over the metallic toll line of the New Union Tel. Co. was sent over its rural grounded line and thus escaped payment of the toll rate and increased the amount of business which had to be handled without charge by the Mineral Point company. *Held:* The Mineral Point company should not be required to make reconnections unless the rural line of the New Union Tel. Co. is made full metallic. When this requirement has been complied with, and the patrons of that line have made application for reconnection, the Mineral Point Tel. Co. is to reestablish connections and is to furnish service under the same conditions that service is furnished to other rural lines which are at present connected. No toll service is to be furnished over this line except in cases where the regular toll charge is imposed. *In re Appl. Mineral Point Tel. Co.* 1912, 9 W. R. C. R. 285, 301-302, 304.

3. The right of a telephone company to refuse to do switching for any rural lines which may hereafter wish to connect with its switchboard, unless such lines are full metallic, was brought before the Commission by the Mineral Point Tel. Co. of Mineral Point, Wis. For practical purposes rural and local lines constitute one system. If any part is defective or antiquated, it has its effect upon the system as a whole. It is hardly possible to furnish reasonably adequate service over grounded lines, especially when these lines are overloaded and poorly maintained, as they are almost certain to be unless controlled by the regulations of the switching company. The proposed regulation that the Mineral Point Tel. Co. will not extend its switching service to other rural lines unless the lines are full metallic and with not more than ten parties on a line appears to be no more than a reasonable requirement in the interest of good service. Applicant is authorized to refuse connection to its switchboard to rural lines not now connected, except upon compliance with this regulation. *In re Appl. Mineral Point Tel. Co.* 1912, 9 W. R. C. R. 285, 302-304.

RATES.*See RATES.***TELEPHONE COMPANIES.**

Right of telephone company to refuse physical connection with grounded lines, *see ante*, 2-3.

VALUATION.*See VALUATION.***TERMINAL CHARGES.**

Reasonableness of charge.

absorption of switching charge, on lime, Grimms to Wausau, Wis., *see RATES*, 44.

absorption of switching charge of connecting line, on wood, Unity to Waukesha, Wis., *see RATES*, 61.

substitution of switching charge for distance tariff rates, all commodities, Sparta, Wis. (Transfer switching service for team track delivery, between C. & N. W. and C. M. & St. P. lines) *see RATES*, 58.

TERMINAL EXPENSES.

As matter considered in determining reasonableness of railway rates, *see RATES*, 39.

TERMINAL FACILITIES.

See STATION FACILITIES; SWITCH CONNECTIONS.

THROUGH LINES.

See CONNECTING CARRIERS.

THROUGH RATES.

Joint or through rates, *see RATES*, 17-21.

TOWNS.

See MUNICIPALITIES.

Town board,

authority over highway and railway crossing, town supervisors the judges under the statute of the necessity for a highway, *see RAILROADS*, 8.

petition of, for alteration in crossing of a highway by a railroad, *see RAILROADS*, 2, 7.

proceedings of, in laying out highway for railroad crossing, validity of proceedings question for courts, *see RAILROAD COMMISSION*, 11.

request for track connections within town, village or city, *see CONNECTING CARRIERS*, 2; *SWITCH CONNECTIONS*, 3.

TRACK CONNECTIONS.

See CONNECTING CARRIERS; SWITCH CONNECTIONS.

TRAFFIC.

Carload freight, interchange of, *see TRAIN SERVICE*, 1.

Interchange of, *see CONNECTING CARRIERS*, 1-4.

Less than carload freight, interchange of, *see TRAIN SERVICE*, 1.

TRAIN SCHEDULES.

See also TRAIN SERVICE.

Adjustment of train schedules between connecting carriers to provide for interchange of traffic, *see* TRAIN SERVICE, 1-2, 4.

Car schedules for street railways, *see* STREET RAILWAYS, 1.

Car schedules for interurban railways, *see* INTERURBAN RAILWAYS, 1.

Commission without authority to order reparation for expenses incurred on account of failure of carrier to keep schedule for connections.

1. Petitioner demands reparation for expenses, caused by the late arrival of respondent's train at Dodgeville, Wis., which made it impossible for him to make connections with a C. & N. W. Ry. train for Madison. Complaint is also made of the habitual lateness of the train in question. Recently the service has been much improved; the delays average only one hour, and have not prevented passengers from connecting with the C. & N. W. train at Dodgeville. *Held:* As this is a mixed train, delays cannot always be avoided. Since the objections complained of have been overcome and since the Commission has no authority under the law to order respondent to make reparation for expenses incurred by failure to make connections, the petition is dismissed. *Burrill v. I. C. R. Co.* 1912, 9 W. R. C. R. 319, 321.

TRAIN SERVICE.

See also TRAIN SCHEDULES.

Adequacy of train service.

1. Complaint was made of inadequate train service and facilities at an intersection of respondents' lines east of Laona Jct., Wis., due to the failure of the M. St. P. & S. S. M. R. Co. to stop its trains for the accommodation of passengers and the refusal of the C. & N. W. R. Co. and the M. St. P. & S. S. M. R. Co. to transfer freight from one road to the other. While the former company maintains a station at this point, the latter does not, but stops its trains at Laona Jct., three-quarters of a mile west. Under present conditions persons residing at points on the C. & N. W. R. Co's. line north as well as south of the crossing have difficulty in going to and from Crandon, the county seat of Forest county, and Rhinelander, the principal city and market of this section of the state. As regards the interchange of carload freight, it appears that the principal carload shipments consist of forest products and are naturally destined to mills situated upon the line on which they originate. It would be practically impossible to secure remunerative rates for shipments of forest products in the present case if they were to be transferred from one line to another. If there were any necessity for the shipment of carload freight from the territory here involved to points on the "Soo" line, a joint arrangement could be made whereby the same could be taken to Laona and there routed by way of the L. & N. R. Co's line. As regards less than carload shipments, while not a great number would be inconvenienced by the stopping of local freight trains of the M. St. P. & S. S. M. R. Co. for the purpose of receiving and discharging freight in less than carload lots, yet those who actually require such service are greatly inconvenienced and put to an unnecessary expense in shipping and receiving freight under existing conditions. *Held:* The present train service and facilities of the M. St. P. & S. S. M. R. Co. at the point in question are inadequate. Inconvenience to passengers could be obviated by stopping trains at the crossing of the two roads, where one of the roads maintains a station. Under existing circumstances there is no present necessity for facilities for transferring freight in carload lots at the crossing in question, but it seems only reasonable that the transfer of freight

in less than carload lots should be made at this point. It is ordered that the M. St. P. & S. S. M. R. Co. stop its local passenger and freight trains at the crossing in question, on signal, every day except Sunday, for the taking on or letting off of passengers and for the receiving or discharging of freight in less than carload lots. *Rogers v. C. & N. W. R. Co. et al.* 1912, 9 W. R. C. R. 45, 49.

2. Complaint is made that, by reason of a change in the schedule of trains on the New Glarus branch of the C. M. & St. P. Ry., passengers on that branch are unable to make connections with the trains of the Illinois Central Railroad at Monticello. It is also alleged that the freight service is inadequate. Petitioners request the restoration of the train service formerly rendered. The train schedule complained of by the petitioners is occasioned by a change in time of the Chicago and Milwaukee time freight. Since this change the train leaving Janesville with the combined Chicago and Milwaukee time freight destined for points west of Janesville, including the New Glarus branch, has been scheduled to arrive at Brodhead later than formerly. After the change in arrival at Brodhead, it was impossible for the mixed freight and passenger train for New Glarus to connect with the main line time freight out of Brodhead. The result was the abandonment of the New Glarus train as the amount of passenger business alone did not warrant its continuation. *Held*: Most of the cars consist of interstate shipments and unless the schedule of the time freight out of Chicago is changed, the petitioners will be unable to obtain the relief prayed for. The intrastate freight train moving out of Janesville to all stations on the Mineral Point division has not sufficient traffic to warrant changing the schedule of the Milwaukee freight so as to reach Brodhead on the former scheduled time. Petitions are dismissed. *In re Train Service Brodhead-New Glarus Branch C. M. & St. P. R.* 1912, 9 W. R. C. R. 339, 393.

3. Petitioner alleges that passenger service has been discontinued at Kurth, Wis. There is no station or village at the place in question but for a number of years the respondent has stopped its day passenger trains on signal. This practice has been discontinued as it is only a short distance to a regular station at Granton. A majority of the trains on this line carry interstate traffic and in the interest of through passenger service all unnecessary stops have been eliminated. *Held*: The circumstances do not justify the stop in question. Petition is dismissed. *Widing v. C. St. P. M. & O. R. Co.* 1912, 9 W. R. C. R. 513, 514.

4. The petitioner, a wholesale grocer at Milwaukee, alleges that the freight movements from Milwaukee to Black Creek, Shiocton, and Seymour, Wis., are unreasonably slow, while competitors in other cities are given more expeditious service. Wholesale grocers of Green Bay compete with petitioner and have a natural advantage in being able to supply these points directly over the G. B. & W. R. R. Milwaukee freight must be transferred to the G. B. & W. R. R. in order to reach the same territory. *Held*: Milwaukee merchants are entitled to have their goods transported without unnecessary delay. Respondents are ordered to so arrange their schedules that goods shipped by petitioner in less than carload lots over the route in question shall reach their destination within eighty-four hours from the time they are delivered to the carrier at Milwaukee. *John Hoffman & Sons Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 530, 533.

Freight service.

See ante, 1-2, 4.

Passenger service.

See ante, 1-3.

TRAINLOAD RATES.*See RATES.***TRANSFER OF FREIGHT.***See CONNECTING CARRIERS; SWITCH CONNECTIONS.***TRANSFER SWITCHING SERVICE.***See CONNECTING CARRIERS; SWITCH CONNECTIONS.***TRANSFERS.**

Interchange of transfers between interurban and street railway, recommendation for, *see* INTERURBAN RAILWAYS, 2.

UNDUE PREFERENCE.*See DISCRIMINATION.***UNIFORM ACCOUNTING.***See ACCOUNTING.***UNIT COSTS.**

Determination of unit costs

for electric utilities, *see* ACCOUNTING, 1-5.

for gas utilities, *see* ACCOUNTING, 6-7.

for telephone utilities, *see* ACCOUNTING, 8-11.

for water utilities, *see* ACCOUNTING, 12-13.

UNJUST DISCRIMINATION.*See DISCRIMINATION.***UNJUST RATES.***See RATES.***UNREASONABLE RATE.***See RATES.***UTILITIES.***See PUBLIC UTILITIES.***VALUATION.**

DETERMINATION OF THE VALUE OF PROPERTY OF PUBLIC UTILITIES—ELEMENTS CONSIDERED.

Contract value.

Value of contract, capitalized on basis of estimated savings due to the use of water power instead of steam power, *see post*, 2.

Franchise values—Capitalization based on estimate of free service to city under original franchise.

1. In the present case a claim was made for a franchise value based on an estimate of the free service rendered according to the original franchise. The franchise has been given up for an indeterminate period and reliable records of free service during the life of the franchise are not available. Upon the surrender of respondent's original franchise, obligations to supply the city with free service ceased, and the value of such service as may have been subsequently rendered can hardly be made now the basis of a franchise value. It does not appear that a very material sum may be properly added to the valuation on

account of operating expenses incurred for free service under the earlier franchise provisions. *City of Rhinelander v. Rhinelander Ltg. Co.* 1912, 9 W. R. C. R. 406, 428-429.

Water power rights—Capitalization of estimated savings due to use of water power instead of steam power.

2. In the determination of a basis for rate-making purposes, a claim was made for certain intangible values not named in the Commission's valuation. Water power has been substituted for steam power and respondent contended that the saving resulting from hydraulic generation represented a contract value. *Held:* The title of the owners in utility business to the entire savings due to use of water power instead of steam power has not been clearly demonstrated. To preclude the public from any share in economical methods of service and to place upon consumers the burden of maximum costs of operation results in costs that are not dependent upon reasonable efficiency, normal investments and local advantages. The welfare of the utility requires that mutual benefit arise from supplying the public from natural power. In the present case, comparison of respondent's contract for hydraulic current with contracts of other local consumers does not seem to indicate that, from the lessor's point of view, the water power is of more value than the lighting company's rate provided in the original lease. The terms of the lease are such as to reduce the worth materially below that for power to which exclusive right may be had and on which no restriction of disposal may be made. *City of Rhinelander v. Rhinelander Ltg. Co.* 1912, 9 W. R. C. R. 406, 424, 426.

DETERMINATION OF THE VALUE OF PROPERTY OF PUBLIC UTILITIES—VALUATION IN PARTICULAR CASES.

Electric utilities—Bruce W. and Lt. Comm., Bruce, Wis.—Appraisal as of April 8, 1912.

3. Valuation of the plant, as of April 8, 1912, shows a cost new of \$8,706 and a present value of \$7,725. *In re Appl. Bruce W. & Lt. Comm.* 1912, 9 W. R. C. R. 474, 475.

Electric utilities—Rhinelander Ltg. Co. Rhinelander, Wis.—Appraisal as of July 15, 1911.

4. Valuation of respondent's physical property as of July 15, 1911, shows a cost of reproduction new of \$35,747 and a present value of \$28,942. *City of Rhinelander v. Rhinelander Ltg. Co.* 1912, 9 W. R. C. R. 406, 413.

Gas utilities—Sheboygan Gas Light Co., Sheboygan, Wis.—Appraisal as of June 30, 1911.

5. The revised valuation as of June 30, 1911, showed a cost of reproduction of respondent's physical property of \$301,386, including a small amount for non-operating property, and a present value of \$250,383. No more has been invested in the business than is represented by the present value, and consequently no addition was made for going value. *Meyer et al. v. Sheboygan G. Lt. Co.* 1912, 9 W. R. C. R. 439, 441.

Telephone utilities—Ashland Home Tel. Co. Ashland, Wis.—Appraisal as of May 1, 1912.

6. According to the valuation, as of May 1, 1912, the cost new of the Ashland exchange system is \$78,320, and the present value, \$42,341. *In re Appl. Ashland Home Tel. Co.* 1912, 9 W. R. C. R. 489, 490.

Telephone utilities—Brodhead Tel. Co. Brodhead, Wis.—Appraisal as of May 1, 1912.

7. Valuation of the property of the utility was made by the Commission, as of May 1, 1912. The cost of reproduction was found to be \$44,176 and the present value, \$29,249. *In re Appl. Brodhead Tel. Co. 1912, 9 W. R. C. R. 383, 384.*

Telephone utilities—Farmers' Tel. Exch. Richland Center, Wis.—Appraisal as of June 1, 1912.

8. A valuation of the plant made by the Commission, as of June 1, 1912, shows a cost new of \$41,726 and present value of \$28,123. *In re Appl. Farmers' Tel. Exch. of Richland Center, 1912, 9 W. R. C. R. 369, 372.*

Telephone utilities—Plymouth Tel. Exch. Plymouth, Wis.—Appraisal as of Nov. 1, 1911.

9. A valuation of the property made by the Commission as of Nov. 1, 1911, showed a cost of reproduction new of \$18,831 and a present value of \$15,345. *In re Appl. Plymouth Tel. Exch. 1912, 9 W. R. C. R. 169, 171.*

VALUE OF ARTICLES CARRIED.

As matter considered in determining reasonableness of railway rates, *see RATES, 38-40, 43, 54-55, 60, 64.*

VARIABLE EXPENSES.

Apportionment of variable expenses, *see ACCOUNTING, 3-4, 6, 8-13.*
Prorating of variable expenses, *see ACCOUNTING, 5, 7.*

VEHICLE SPRINGS.

See SPRINGS.

VILLAGES.

See MUNICIPALITIES.

WAGES AND SALARIES.

As element considered in making rates for electric utilities, *see RATES, 2.*

WAGONS.

Rates on, Blanchardville to Wis. points on the Mineral Point division of the C. M. & St. P. and the I. C. lines, *see RATES, 59.*

WATER POWER RIGHTS.

As element in the valuation of public utilities, capitalization of estimated savings due to use of water power instead of steam power, *see VALUATION, 2.*

WATER RATES.

See RATES.

WATER UTILITIES.

Cost of service of water utilities, determination of unit costs, *see ACCOUNTING, 12-13.*

Discrimination as between customers of water utility, *see DISCRIMINATION, 8.*

ACCOUNTING.

See ACCOUNTING.

ESTABLISHMENT, CONSTRUCTION AND MAINTENANCE.

*Extension of water mains—Duty of utility to extend mains—
For domestic service only.*

1. To be just and effective an order, requiring an extension of water mains to be made for domestic service alone, should be made with due regard for the magnitude of both the investment necessary and the probable additional earnings to be gained thereby, including the return on the additional investment. Whether or not the laying of small pipe, inadequate to give both domestic service and fire protection, is wise or not, must be decided on the basis of a forecast of the future growth and demands along that line, and in this the judgment of the owners or management of a utility must, in general, at least be permitted to govern. *Beloit W. G. & El. Co. v. City of Beloit*, 1912, 9 W. R. C. R. 250, 258-259.

Extension of water mains—Reasonableness of municipal ordinance ordering extension.

2. Complaint was made by the Beloit W. G. & El. Co. that certain ordinances of the city of Beloit, Wis., ordering the extension of certain water mains, were unreasonable for the reason that such extensions are not necessary for fire protection; that the number of prospective consumers is not large enough to make the same reasonably remunerative; that the time set for completing the work is unreasonably short; and that the penalties prescribed are unreasonable and excessive. The terms of the ordinances are contrary to the regularly established rules of the company for the extension of mains. *Held*: The company's rules in reference to the making of extensions to its water system, including the practice of fixing the rate of \$1.25 per foot for the excess of length over 50 feet per consumer on any extension as the basis of determining the sum to be advanced by the applicant to the company, are believed to be reasonable and should be approved. This practice, however, should be established by amendment to the rules so that no departure therefrom will be permissible and that the public will at all times be advised of its scope. The extensions ordered in the ordinances under consideration can therefore be made only in accordance with such rules and practice. While it is true that a public utility is under some obligation to furnish its service to all inhabitants of a community, it is also true that the patrons are under equal obligations to meet the operating expense and provide a return upon the capital necessarily invested in the property of the utility. No utility can extend its mains or other service lines indefinitely to reach a single new consumer or a small number of new consumers and at the same time furnish service to all at the same average unit cost. It is therefore necessary either to establish some rule or rules fixing equitable terms under which extensions of its pipe or other lines will be made for new consumers beyond the limits of its system, or to make frequent readjustments of rates to all consumers to fit the changed conditions. There seems to be little if any ground on which to adopt the latter in preference to the former plan. Since there must be rules governing the making of extensions of mains or other supply lines of a utility for the reasons indicated, it follows that orders of a city council for extensions made without due regard for existing reasonable and valid rules cannot be justly upheld. The ordinance in question, requiring the Beloit W. G. & El. Co. to extend its mains in Central avenue and White avenue, respectively, in the city of Beloit, are unreasonable, and the same are hereby declared null and void. *Beloit W. G. & El. Co. v. City of Beloit*, 1912, 9 W. R. C. R. 250, 259-261.

*Extension of water mains—Terms and conditions of extension—
Apportionment of expenses between municipality and new
consumers.*

3. Another plan of providing for water main extensions apportions the expense between the municipality and new consumers. Under this plan the charge for fire protection is divided between the cost of service exclusive of hydrants, plus the expense due to hydrants, and is determined by a stated sum per mile of mains and another small sum per hydrant. One advantage of the plan is that the investment made for and chargeable to fire protection, in property exclusive of hydrants, is supported whether the municipality orders an adequate number of hydrants from which to take service from the mains or not. The charge due to hydrants is a small sum per hydrant, amounting to \$5 or \$8 annually, to cover the maintenance cost and the return on the investment therein. By this plan the city council, in ordering a main extension without hydrants thereon, is obliged to assume an additional expense for fire protection to support a portion of the investment in such extension, and the new consumers reached by it are not burdened with the support of all of an investment made large enough in the first instance to provide for their future fire protection when the city orders hydrants installed. *Beloit W. G. & El. Co. v. City of Beloit*, 1912, 9 W. R. C. R. 250, 259-260.

*Extension of water mains—Terms and conditions of extension—
Enforcement of uniform regulations.*

4. In the matter of extending the mains of a water system, uniform regulations should be enforced. The persons desiring the extension of a main should be subjected to like terms and conditions. *Beloit W. G. & El. Co. v. City of Beloit*, 1912, 9 W. R. C. R. 250, 261.

RATES.

See RATES.

VALUATION.

See VALUATION.

WEIGHT OF ARTICLES CARRIED.

As matter considered in determining reasonableness of railway rates, see RATES, 38-40, 43, 50, 54.

WEIGHTS.

MINIMUM CARLOAD WEIGHTS.

Carload minimum,

- on barley, see RATES, 42; REPAIRATION, 4.
- on cheese boxes, see RATES, 35, 36; REPAIRATION, 3, 14.
- on grain, see RATES, 42; REPAIRATION, 4.
- on rye, see RATES, 42; REPAIRATION, 4.
- on wood, see RATES, 62; REPAIRATION, 5.

Basis of minimum weights—Minima should be based upon practical loading capacity.

1. The minimum weight rule should represent as closely as possible the actual minimum weight that can be loaded in a car. *Standard Lime & Stone Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 228, 237.

2. A minimum based on the length of the car only, where the other dimensions of cars vary greatly, allows discrimination in the distribution of the various sized cars as the small cubic capacity cars are loaded only when the larger size cannot be obtained. A minimum





OPINIONS AND DECISIONS

OF THE

RAILROAD COMMISSION

STATE OF WISCONSIN

VOLUME X

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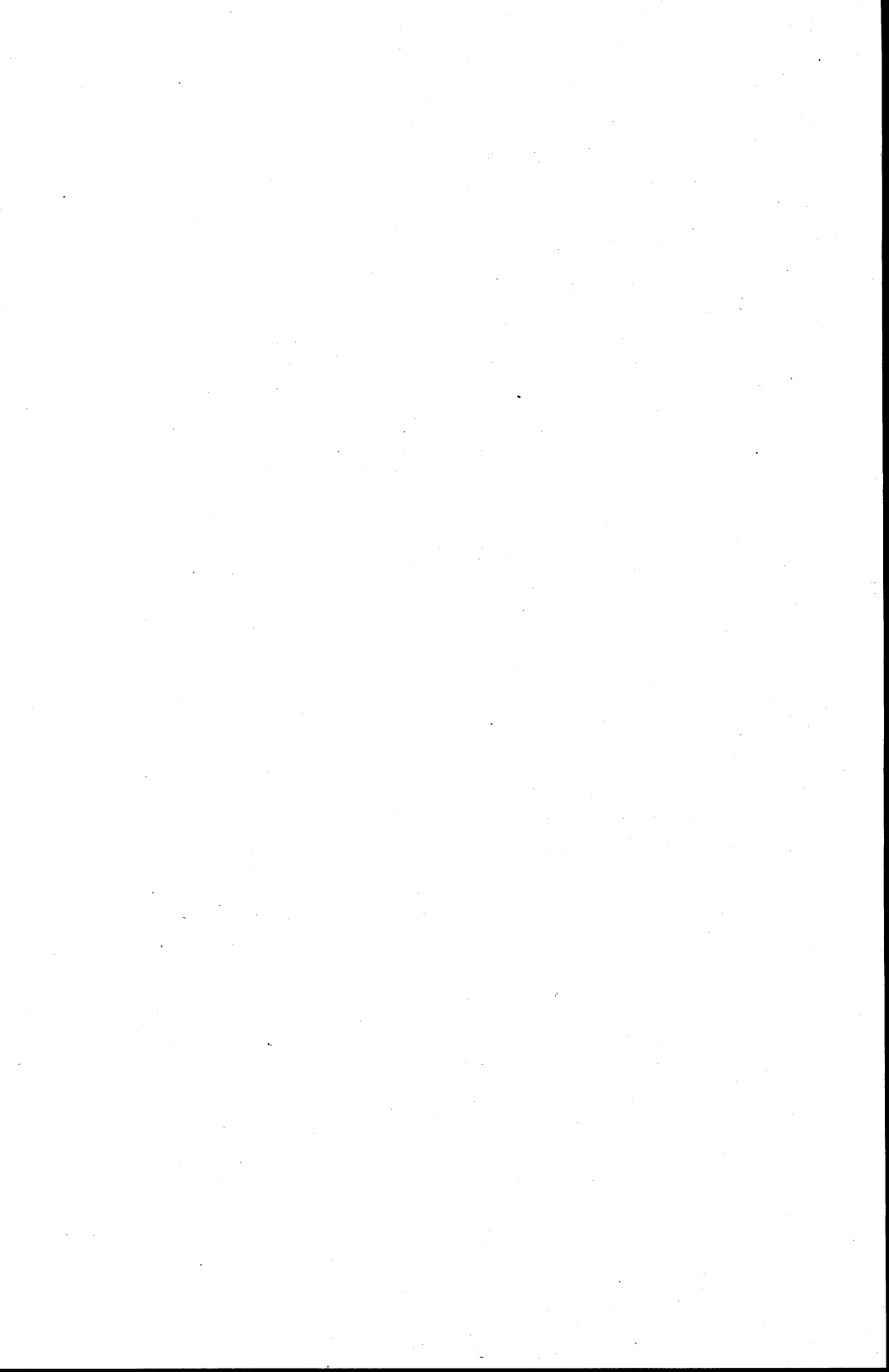
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Secretary



MADISON, WIS.

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1913.



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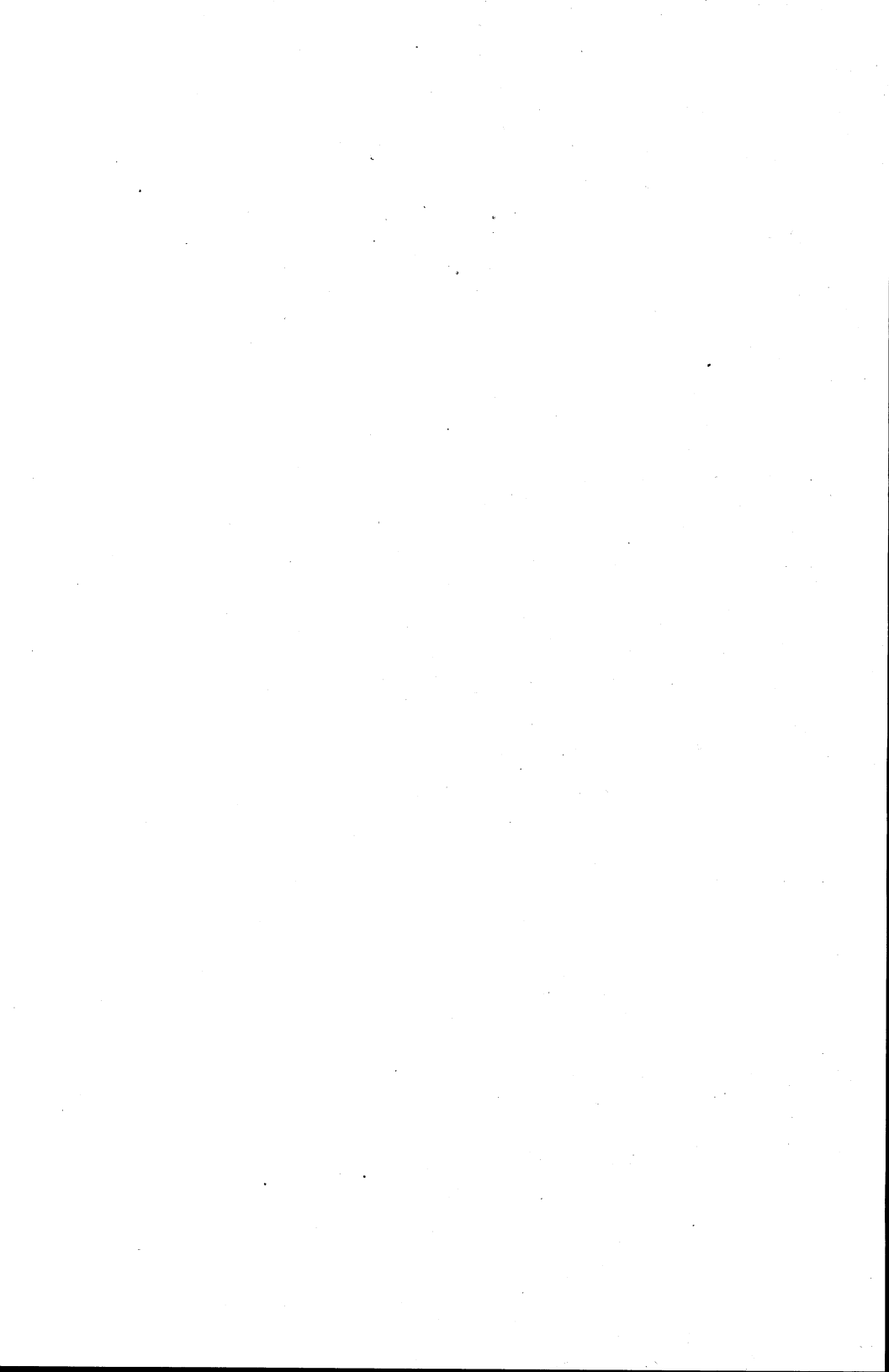


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OPINIONS AND DECISIONS

OF THE

Railroad Commission of Wisconsin

CITY OF MILWAUKEE

vs.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.

Decided Aug. 23, 1912.

Complaint was made by the city of Milwaukee that the rates of fare charged by the T. M. E. R. & L. Co. are unreasonable. The complaint as originally filed also involved adequacy of service. A decision in the matter of service was rendered July 1, 1907, 1 W. R. C. R. 662, and the matter of reasonableness of fares was reserved for subsequent hearings. A second complaint filed by the city on May 13, 1908, related entirely to reasonableness of rates of fare. It alleged in substance that the charge of 5 cts. for a single cash fare, 6 tickets for 25 cts. or twenty-five tickets for \$1, with the privilege of one transfer within the city limits, is unreasonable. The petitioner prayed that a 3 ct. fare be established. Respondent denied that the rates of fare are unreasonable and alleged that the laws and ordinance constituting the franchises are such that any order requiring the respondent to charge lower rates would constitute impairment of the obligation of contracts, deprive the respondent of property without due process of law, deny the equal protection of the laws, and therefore be unconstitutional and void, violating particularly art. 1, sec. 10, and amendt. art. 14, sec. 1 of the Federal Constitution. Several other complaints against respondent and its constituent company, the M. L. H. & T. Co., involving reasonableness of rates and service for Waukesha, West Allis, Wauwatosa, and the village of East Milwaukee, were held in abeyance and decided on the basis of the findings in the complaint of the city of Milwaukee. The ownership of the properties of the T. M. E. R. & L. Co. and the M. L. H. & T. Co. is practically identical. Both the city and interurban systems are operated by the same management, and both companies are credited with earnings and charged with expenses arising from urban, suburban, and interurban business. A valuation of the property was made and the revenues and expenditures were investigated. An apportionment of the entire properties was made among the electric lighting,

power, heating, and railway businesses. An apportionment for the railway was made as between the T. M. E. R. & L. Co. and the M. L. H. & T. Co., and a further apportionment as between the different classes of service and the different systems involved.

Some issue was raised as to whether the city ordinance, granting an extension of franchise to 1934 and providing a rate of charge of six tickets for a quarter or twenty-five tickets for a dollar, is not a contract between the city and company which cannot be violated, altered, or amended without the consent of both parties. This issue is, however, not pressing in view of the decisions of our supreme court that the provisions of such ordinances relating to limitations of rates of fare are subject to the determination as to reasonableness by the Railroad Commission as provided by ch. 362, Laws of 1905. (*Manitowoc v. Manitowoc & N. Tr. Co.* 1911, 145 Wis. 13; 129 N. W. 925.)

The value of the property used and useful for street railway purposes in Milwaukee upon which the company is entitled to a fair return, is the most important single factor affecting the determination of whether the company's present rate of fare is unreasonable and excessive. A valuation for the T. M. E. R. & L. Co. as of Jan. 1, 1910, showed that the cost of reproduction new of the physical property aggregated about \$9,942,125 and the total value of the plant and its business, about \$10,300,000. This sum would not seem to be far away from the amount upon which the respondent is entitled to reasonable returns. Certain adjustments for the period subsequent to 1910 brought the cost of reproduction new, at Jan. 1, 1911, up to \$10,514,201 and the total value of the plant and its business up to \$10,900,889. In connection with the case of *Cusick et al. v. T. M. E. R. & L. Co. et al.* 1912, 11 W. R. C. R. 314, a valuation was made for the M. L. H. & T. Co. The appraisal of Jan. 1, 1910, showed a cost of reproduction new, inclusive of materials and supplies, of \$6,133,033, and it would seem that the cost-value of this plant and its business cannot greatly exceed this value.

The value of a plant and its business that is ultimately found to be fair and equitable under the circumstances, may not agree either with the original cost or with the cost of reproduction, but in most instances it is likely to be found at some figure in the neighborhood of these costs. Operators in public utilities who fail to use ordinary business judgment either in the location, construction or management of the same, or who incur unnecessary and excessive obligations in other ways, should not be permitted to shift such extra costs upon the public. It is, in fact, to prevent such shifting and other unfair practices of this kind, which are possible under monopolistic conditions, that public utilities have been placed under government regulation.

In the present case, capitalized value was suggested by the respondent as a probable test of the value of the property. It is well known from experience that public utilities are mostly over-capitalized, and that the par value of their outstanding securities usually exceeds the actual investment in the property that is used and useful in connection with the services they render to the public. In fact, the bonds alone often amount to more than the cost-value of this property. The reasons for this are easily explained. They are found in the fact that in

capitalizing the plants, whether for purposes of consolidation or otherwise, securities are often issued not only against actual and other costs, but against estimated monopoly profits, future increases in the business, estimated savings in expenses and many other elements of this nature. Not only this, but investigators of such matters feel that the greater proportions of the consolidation of business interests during the past three decades have had their sources in the opportunities for private gains that were offered to insiders in connection therewith, through unlimited security issues and the rigging of the markets by which these securities were unloaded upon the public at prices that netted such insiders large profits. In the public utility field, where monopolistic conditions largely obtain, the opportunities for such practices have been relatively large. That security issues, based on such conditions, cannot often fairly measure either actual investments in, or fair value of, the property they represent, is rather obvious. It is equally clear that excessive capital issues of this sort cannot ordinarily constitute a fair and equitable basis for the valuation upon which the rates charged for the services rendered to the public should be fixed.

Since the earning value of a plant and the rates the plant charges for the services it renders depend upon each other, it is clear that the earnings cannot be a fair or equitable basis for any valuation upon which rates must be based.

The appraised value for purposes of taxation may similarly lead to erroneous conclusions when used as a basis for rate making. Such values are frequently based upon net earnings or the ability of the company to carry a portion of the general burden of taxation and involve a capitalization of net profits, even though such profits arise from excessive rates.

The respondent also claimed a certain amount of value for certain patent rights. Such rights may, undoubtedly, have values; but it would hardly seem that such values can properly be considered as permanent capital charges. Rights of this kind are, as a rule, secured because they are profitable or because, in one way or another, they tend to increase the net earnings. The prices paid for such rights would seem to be operating expenses rather than capital charges. If regarded as capital charges at all, they should be written off during the life of these rights from the profits for which they are responsible. In the present case the facts presented in relation to these rights are rather indefinite and it is difficult to say just how much importance, if any, should be given to them in the appraisal.

The company contended that the entire cost of pavement laid above conduit and track should be included in the valuation upon the basis of cost of reproduction new, irrespective of whether such paving has been laid by the city or by the company. Heretofore, in cases before the Commission, only the actual paving laid by the company has been included in the value for rate-making purposes and we see no reason for departure from that rule in the present case. "Every legitimate expenditure in adapting the utility to the demands of progress and community growth is a proper charge to construction and as such the investment therefor is entitled to participate in the distribution of the earnings from operation. Obviously expenditures for pavement incurred by the utility in response

to assessments levied therefor by the city, or the cost of cutting through such pavement for construction purposes and its replacement, are proper capital charges. It does not necessarily follow that the utility is to capitalize expenses for municipal betterment in which it has not participated and where such accruing benefits to the utility are remote and incidental, and thus compel the subscribers for utility service to pay increased rates because of public improvements. The improvement is not a proper element of value where the pavement has not been paid for by the utility, nor any expense in connection with it directly incurred, in determining a value which shall serve as the basis for an adjustment in rates." (*City of Ripon v. Ripon Lt. & W. Co.* 1910, 5 W. R. C. R. 1, 10.)

Apart from the expense of labor and material incurred in constructing the plant, many additional costs must be met which do not appear in the appraiser's inventory of tangible property. Among these are the expenses of organization preliminary to the construction of the property, usually consisting of engineering and legal expenses; the expenses of supervising, including the wages of all contractors, superintendence and necessary administrative organization; contingent costs due to loss in time and material, and unexpected obstacles occurring during the progress of construction; and, finally, the expense of financing the construction, consisting principally of interest on money advanced prior to operation. Allowances for such expenditures are usually made in appraisals of public utility properties and have in all instances been made by this Commission. The amount for such a percentage allowance has frequently been made a matter of dispute and is a controverted point in the present case. In previous decisions as to the appraised value of property involved in cases relating to compensation at time of purchase, valuation for stocks and bonds and for reasonable rates, the addition has not exceeded 12% of the priced inventory. (*Hill et al. v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 685; *State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 540; *In re Fond du Lac W. Co.* 1910, 5 W. R. C. R. 482, 500. In general this percentage consists of four items: 4% for engineering and superintendence; 2% for organization and legal expenses; 3% for interest during construction; and 3% for contingencies. Under the conditions in the present case, 3% is a sufficient allowance to add to the cost of physical property to cover contingencies. As regards the allowance for interest, 3% is not unreasonable in the light of the allowance for working capital and of the fact that construction has been piecemeal and has frequently been placed in operation during the year of construction. No serious question is raised as to the allowance of 4% to cover engineering and superintendence, and the allowance of 2% to cover organization and legal expenses. In examination of the book-figures these additions appear to be ample. The objection that the Commission's allowance of 12% excluded contractor's or organizer's profits, working capital, discount on bonds, etc. is not valid in view of the fact that these items are included in the unit prices employed by the Commission or otherwise provided for in the valuation made by the Commission.

It is conceded that in addition to the value of the tangible property some allowance is properly made for the cost of building up the business, or the losses sustained before the property has been placed upon a paying basis. Previous decisions of this Commission have recognized the necessity of compensating for such early losses and the existence of a going value is recognized by both parties to the complaint in the present case. The cost-value of the business alone is usually determined from the original cost of the business, as well as from the cost of reproducing it. In the present case, however, its normal original cost is hidden in the rather obscure figures which relate to the value of the plants in 1891; to the additions to the property from that year up to 1897; and to the earnings and the operating expenses during this period. Some idea of the cost of building up the business may be had when depreciation and interest are allowed on the present value of the property plus something for contingencies, and plus further, from year to year, the annual proportion of the estimated cost of the new additions from 1891 up to 1897, and when the net earnings which have thus been found to be required for depreciation and interest are compared with the actual net earnings of the company during this period.

Two methods are proposed for the measurement of going value in the present case. One of these is a continuation of the cost or investment theory of value and is based upon the actual losses sustained by the utility in the past, and its subsequent earnings as an offset to such losses. Under the cost method the going value of the enterprise is properly the difference between gross earnings and operating expenses plus depreciation and interest upon the investment. In determining what expenditures listed as operating are to be included, the distinction as to what are revenue and what are depreciation and capital expenditures should be carefully maintained. A question of equal importance is whether expenditures have been wisely and necessarily incurred. The cost basis of estimating going value has been variously criticised, by many upon the ground that its estimates are too liberal, by others that it results in negative values and takes recognition of the utility's past financial history. Its obvious merit lies in the fact that it assumes that the relations of users and utility have at all times been placed upon an equitable basis. The comparative plant method of estimating going value is a continuation of the appraisal or cost of reproduction theory of value and is based upon the assumption that an identical utility property shall have been reproduced at the present time, and estimates the expenditures probably made before the hypothetical or comparative plant shall have been placed upon an earning basis identical with the present property. The comparative plant basis is open to the objection that it is based upon a large number of varying assumptions, involving practically every factor in the calculation. Its greatest point of weakness is the assumption made with regard to earning power. It is not certain that gross earnings will show a uniform increase year by year. We are not warranted in assuming that rates will remain the same or that the company will increase its net earnings until they yield present revenues. In fact, in a determination of whether present earning power is equitable, no portion of the rate should be based upon pres-

ent earning power as a factor. There is no reason for assuming, moreover, that gross earnings will not continue to increase when present earnings have been reached and continue to offset the earlier losses.

Aside from an arbitrary percentage which must have some basis in fact, the measure of going value must be made either upon the basis of cost or upon the basis of an estimate of a reproductive value. Upon the basis of cost, instances frequently occur where past surpluses have offset and wiped out past losses. Upon the basis of a reproduced plant a going value will be developed in every case dependent largely upon the liberality of the estimate. In the present case, no going value is developed upon the "losses or deficits" or net cost-value basis as followed in previous decisions of the Commission, as the company has had opportunity to recoup itself for those allowances for losses which the circuit court included as elements of added value in 1897. On the other hand, when the estimates for the obscure financial transactions in the period from 1891 to 1897 are considered, and an allowance is made on the comparative plant basis, a going value aggregating about \$450,000 may be said to represent the maximum amount which in the light of the company's past financial condition may properly be permanently placed as a part of the value of the property used and useful for rate-making purposes.

It has been claimed by the company that expenditures necessary to the organization and financing of the property are properly a part of the investment and must be so considered, and attention is called particularly to the excluded items of bond discount. It is urged by the city in its brief that the discount or premium is virtually a part of the interest to be paid on the bonds and that the value of the investment for rate-fixing purposes should be limited to the value of the property devoted to the public use without regard to the sources from which the money to develop the property was derived. Respondent claimed discount on bonds should be considered as part of the company's investment and laid stress upon the necessity of a bond discount in issuing securities. Respondent further claimed that any law or regulation which would make it impossible to pay a bond discount and compensate for carrying an enterprise through the doubtful years would make it impossible to float new enterprises. Under certain circumstances a discount on bonds should undoubtedly be included as a portion of the intangible value of the property. An examination of the amounts realized from the sale of securities by the company in the present case, however, discloses instances of sale at a premium as well as sale at a discount. Whether or not the discount rate is to be included as a portion of the property account will depend upon the interest rate allowed the utility. It is obvious that a 4% bond cannot be expected to sell at the same premium as a 6% security, and the amount of the interest rate allowed the utility must determine whether or not the discount is to be included. In the present case it appears that the allowance for interest and profit is ample to allow for all expenses of the sales and discount upon the securities issued.

It is conceded that the respondent company is entitled to an allowance for working capital in order to economically carry on its

business. The only question in dispute is the amount of such an allowance. It is apparent that such an amount is dependent largely upon the nature of the business. The electric railway is unlike the water, gas, and telephone utility in that it has no monthly bills but receives a large portion of its transportation revenues daily. The electric railway also has the advantage of selling a part of its transportation service in advance in the form of blocks of tickets or mileage books. The money as received is at the company's disposal as working capital prior to the time when it is necessary for current expenses. In the present case, an amount was allowed for stores and supplies on hand, which item includes material necessary for a reasonable amount of new additions. A further allowance was made to cover other additional working capital for operation and construction purposes.

The determination of what is a proper rate of return upon the reasonable value of the property is dependent largely upon local conditions which surround the plant and may be expected to vary with each particular case. The courts hold, in substance, that the investor is entitled to a reasonable return or reward for his enterprise, his risk and the devotion of his capital to the service of the public. The return or profit under this definition appears to include interest, or the share of the investor, as well as profits, or the share of the entrepreneur. The interest proper should include only the amount that is paid for the use of the capital employed. The profits consist of the wages of management, broadly interpreted, of compensation for the risks and responsibilities that must be borne by the employers, and of such other compensation, if any, as may be demanded by the conditions. Each of these elements, in the long run, must be high enough to attract capital and business ability into such utility enterprises, and it is the duty of the Commission, in passing upon matters in which interest and profits are involved, to determine in each particular case how much is to be allowed for each of these elements. (*Hill et al. v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 751, 764.) In the present case, an allowance for interest of from 5 per cent to 6 per cent cannot be said to be unreasonably low to compensate for the cost of securing capital. Such amount is considerably above the figure at which bonds have been disposed of in the past and will care for such discount as it has been necessary to give to make the securities saleable. If to this is added an allowance of from 1½ per cent to 2 per cent to cover profits, the total rate of return is sufficient to cover such risks as are evidently inherent in the business and for which the owners are entitled to compensation.

The contention was made that, in determining reasonable rates, the value of the service to the users should be considered aside from the determination of what is a reasonable return upon the investment. It was further urged that the 5 ct. fare is the customary fare and that the present commutation rate of six tickets for 25 cts. and twenty-five tickets for \$1 is unusually low. Definite conclusions as to what constitutes the customary charge or the value of the service, when based upon generalized data of the character presented in the present case, are always difficult. Comparisons are likely to be

misleading unless they are accompanied by a careful consideration of conditions and facts in each particular case. Service and fares in the traction business are dependent upon the size of the community, the area served, the track mileage, the density of traffic, and other factors. Sufficient variation is shown to justify the conclusion that operating conditions in Milwaukee are sufficiently dissimilar to require a more detailed examination into the reasonableness of the rate of fare than could be afforded by a mere comparison of what is the customary or usual charge.

The question of a paying haul and the extension of single fare limits was considered by the Commission. The actual and paying haul per revenue passenger and per car were investigated. A division was made between movement and terminal costs, or the costs affected by the length of haul per passenger and the costs for each passenger irrespective of his haul. It was found that an average increased haul is possible for a single fare under the reduced ticket rate prescribed by the Commission. The adjustment of the different hauls was considered in relation to the entire system. In a measure the entire city traction system is a single unit and it cannot be said that each line must be self-sustaining. Where new extensions are made or new lines built these cannot be expected to pay as well during the first years as the older and more traveled routes, and where single deficits occur, other lines must show compensating surpluses. It is desirable to know, however, in any careful study of traffic conditions, the comparative distance it is profitable to haul a car or carry a passenger. Frequently routes are too long and extend into territory which cannot reasonably be expected to grow and become self-sustaining. The elimination of surplus transportation facilities where such facilities are not needed is of as great an interest to the public as it is to the company's management.

Concerning the question of zone system rates, the conclusion has been reached that, for a city and its suburbs which does not cover a greater area than Milwaukee and in which the population and industries are distributed as in this city, the best system of rates, for the present at least, is probably a system under which there is but one fare zone for an area varying from about four to five miles from the business center of the city, and under which only one fare, based on the average cost, is charged within this zone. On the whole such a system would seem to meet the present needs of the city somewhat more fully than is likely to be the case for a system made up of a single restricted $3\frac{1}{2}$ mile central zone and outlying one mile zones. It is questionable also whether it is desirable or necessary to place the single fare points in a symmetrical manner around the center of town. The analysis of cost by lines indicates, for example, that the traffic conditions are such as to permit extensions to the north and west and still maintain a paying haul, which are somewhat beyond extensions which would pay toward the south and southwest. It appears to be more equitable to apply the rule of cost to single areas and lines, with such limitations and qualifications as local circumstances and the need for interrelation of service dictate, rather than to endeavor to merge and equalize the claims of all communities situated a stated distance from the center of the city.

In the matter of reasonableness of rates, the Commission has always held that public utilities, for adequate service and under normal conditions, are ordinarily entitled to rates that will cover reasonable amounts for operating expenses, including depreciation, and interest and profit on a fair valuation of the property used and useful in serving the public. In the present case, the surplus available for return upon investment shows that a reduction in rates is possible. In determining this reduction the Commission considered the additional expenses contingent upon the claims of employes for standard wages, the claims of the city for fulfillment of franchise and other regulative restrictions, claims of suburban patrons for extension of service and the constantly recurring need for service betterment. Under all the circumstances in the present case a reduction of fares has only been made possible in the last year of operation. The rates of fare should be readjusted and the extensions of the single fare limits as provided in the orders relating to West Allis, Wauwatosa, and to East Milwaukee should be made. The Milwaukee El. Ry. & Lt. Co. is ordered to discontinue the present ticket rate of twenty-five for \$1 and to sell through its conductors tickets in packages of thirteen for 50 cts., and each ticket is to entitle the bearer to one continuous passage in the same general direction, with privilege of usual transfers between the single fare points upon the city lines of the respondent. Thirty days is deemed sufficient time to comply with the above order.

The question of the improvements in the service will be fully dealt with in a separate report.

The complaint in the above entitled matter was originally filed by the city of Milwaukee on Nov. 28, 1906, and involved adequacy of service as well as the reasonableness of rates of fare. A decision in the matter of service was rendered on July 11, 1907, 1 W. R. C. R. 662, and the matter of reasonableness was reserved for subsequent hearings.

A second complaint filed by the city of Milwaukee on May 13, 1908, related entirely to reasonableness of rates of fare. It alleges in substance that the charges made by respondent, 5 cts. for a single cash fare, six tickets for 25 cts., or twenty-five tickets for \$1.00, with the privilege of one transfer within the city limits of Milwaukee, are unreasonable and unjust and more than the reasonable worth of such service, and the prayer is made that the Commission institute a hearing and investigation and determine what the reasonable and lawful charge for transporting passengers from place to place within the city of Milwaukee should be, and by due order put into effect such just and reasonable charge.

The answer of the respondent company, dated May 25, 1908, sets forth the laws and ordinances constituting the franchises

of the respondent, sets forth the organization of the Milwaukee traction companies and alleges the laws and ordinances in the premises to be such that any decision, rule, order, regulation, or requirement that said respondent charge less than the above rates would constitute impairment of the obligation of contracts, would deprive the respondent of property without due process of law, would deny respondent the equal protection of the law, and therefore would be unconstitutional and void, violating particularly sec. 10, article 1, of the Constitution of the United States and sec. 1, article 14, of the amendments thereto. Respondent also denied the allegation that the present rates are in themselves unreasonable and unjust. The prayer is made that the complaint be dismissed.

A public hearing was held at the city hall in Milwaukee on June 8, 1908, and was continued and resumed thereafter from time to time. The following appearances were noted: *John T. Kelley*, city attorney, *Lester C. Manson* and *Walter H. Bender*, for petitioner. *Miller, Mack & Fairchild* and *W. J. Curtis* for respondent.

Briefs were submitted by the city attorney, by counsel for the respondent company, and by *Mr. John Humphrey*, of the Wisconsin state board of arbitration, on behalf of the employes of The Milwaukee Electric Railway and Light Company.

Several other complaints against the same respondent and its constituent company, the Milwaukee Light, Heat and Traction Company, involving the question of reasonableness of rates and service in West Allis, Wauwatosa, Waukesha, and East Milwaukee were filed, but the complaint of the city of Milwaukee was made the basis for the first hearing and investigation, the others being held in abeyance pending investigation and determination of the questions involved herein.

Fully four years have elapsed since the filing of the original complaint. From June 8, 1908, to April 2, 1909, was devoted to hearings. Briefs were not submitted by the counsel for the city until Nov. 26, 1910, and by counsel for company until June 7, 1911. Final hearings and oral arguments were not held until June 15, 1911. These facts are mentioned not in criticism of the able counsel employed in the case nor in apology of the delays necessarily incurred before a definite decision upon the involved issues in the case could be reached. The transcript of testimony alone covers 1,814 printed pages. The tran-

script in the case *The Milwaukee Electric Railway & Light Co. v. City of Milwaukee*, 1898, 87 Fed. Rep. 577, all of which was entered in evidence, comprises an additional 1,639 pages. Both city and company have employed the highest accounting skill to prepare financial exhibits, and months have been spent in elaborate and careful audit of the company's books. The determination of the value of the railway property used and useful to the public, comprising as it does some fourteen power plants and substations, some 598 cars and some 350 miles of single track, much of which has been put to uses other than urban transportation business in Milwaukee, has been an exceedingly difficult task. In parts the testimony has been involved, obscure, and frequently contradictory, and this has necessitated further examination and sifting by the accountants and engineers of the Commission. Much of the thorough preparation, it must be stated, has been made possible by the assistance and coöperation of the company's officials.

The effect of the determination of these questions is of great importance to both the city of Milwaukee and the company. The city in its brief admits that a 3 ct. fare would result in an annual decrease in company's revenues of \$723,000. The company claims that the substitution of a schedule of seven tickets instead of six tickets for a quarter will reduce revenues \$380,000 per annum. Nor can the importance of the case be measured by the amount of money involved. Counsel for the company in their pleading point out, and rightly so, the danger of jeopardizing good service with lower fares; counsel for the city lay stress upon the effects on the public health and well-being, of relieving the congestion of population and distributing the people in the roomy outskirts of the city.

The jurisdiction of the Commission in this matter is not disputed. Ch. 362 of the Laws of 1905, known as the Railroad Commission Law, provides that the charge made for any service rendered or to be rendered in the transportation of persons or property or for any service in connection therewith, shall be reasonable and just, and prohibits and declares unlawful every unjust and unreasonable charge for such service. The Railroad Commission is empowered to carry out the provisions of this law by holding hearings, conducting investigations, and determining and establishing reasonable charges. Ch. 582 of the

Laws of 1907 makes electric railways particularly subject to the Railroad Commission Law. Some issue is raised as to whether the city ordinance, granting an extension of franchise to 1934 and providing a rate of charge of six tickets for a quarter or twenty-five tickets for a dollar, is not a contract between the city and company which cannot be violated, altered or amended without the consent of both parties. This issue is, however, not pressing in view of the decisions of our supreme court that the provisions of such ordinances relating to limitations of rates of fare are subject to the determination as to reasonableness by the Railroad Commission as provided by ch. 362, Laws of 1905. *Manitowoc v. Manitowoc and Northern Traction Co.* 1911, 145 Wis. 13; 129 N. W. 925.

ORGANIZATION.

Respondent company, The Milwaukee Electric Railway and Light Company, was organized on Feb. 1, 1896, and succeeded to the property of the Milwaukee Street Railway Company, following a foreclosure sale, on Jan. 29, 1896, when the property was acquired by a purchasing committee and by them transferred on Feb. 1, 1896, to The Milwaukee Electric Railway and Light Company. The books of the new company were opened on Jan. 1, 1897.

It appears that the North American Company of New Jersey was the principal stockholder of the Milwaukee Street Railway Company and The Milwaukee Electric Railway and Light Company and that the foreclosure sale was a part of the plan of reorganization found necessary because of the financial embarrassment of the Milwaukee Street Railway Company. Since the company's early history reflects, in a general way, the difficulties under which the urban traction business was originally developed in Milwaukee and since frequent reference is made in the testimony to the securities and the financial and operating conditions of the predecessor companies, there have been briefly summarized the principal facts relating to the franchises and terms of acquisition of the earlier properties.

The Milwaukee Street Railway Company was organized on Dec. 22, 1890, and purchased at various times between December 1890 and December 1893, the property of the Milwaukee

City Railroad Company, the Cream City Railway Company, the West Side Railroad Company, the Milwaukee and Whitefish Bay Railway Company, the Milwaukee Street Railway Company, the Edison Electric Illuminating Company, the Badger Illuminating Company, and the Milwaukee Electric Light Company.

The Milwaukee City Railroad Company was incorporated Dec. 1, 1888, and was itself the successor of the Milwaukee City Railway Company incorporated March 28, 1865, by special act of the legislature and granted a twenty-five year franchise on May 29, 1865, to operate on certain streets of the east, west and south sides. The contract of purchase between the City Railroad and the Street Railway companies stipulates for an assignment of the City Railroad's property free of encumbrance; except a mortgage to the Central Trust Company of New York securing bonds outstanding to the amount of \$1,000,000, upon the payment of the purchase price of \$400,000 in full paid capital stock of the Milwaukee Street Railway Company out of an issue not to exceed \$1,000,000 and of \$1,560,000 in thirty year 5 per cent gold bonds to the amount at par of \$1,950,000 out of an issue not to exceed \$10,000,000. It is provided further that bonds to the value of \$1,000,000 shall be executed for the purpose of retiring outstanding bonds of the City Railroad Company and that an amount in bonds to at least \$550,000 shall also be used to meet the cost of electrifying the line of the City Railroad Company. This purchase was made possible through a series of contracts entered into between Henry Villard and Thomas F. Ryan, dated May 27, 1890, and July 30, 1890, and assigned by Mr. Villard, on Aug. 1 of that year, to the North American Company, the principal stockholder of the Milwaukee Street Railway Company, the consideration in this case being \$5,000 upon notice that the stock was ready for delivery, \$850,000 in first mortgage bonds and 20 per cent of the capital stock of the Milwaukee Street Railway Company which issue, as shown in the contract of the Milwaukee City Railroad Company with the Milwaukee Street Railway Company, does not exceed \$1,000,000.

The Cream City Railway Company, incorporated April 22, 1890, was the successor of the Cream City Railroad Company, incorporated Aug. 18, 1874, which in turn succeeded an association consisting of Frank B. Van Valkenburg, James H.

Hoes, Ed. C. Wall, H. S. Mack, and James Turck, who had obtained a fifty year franchise on July 1, 1874, to operate on streets on the west and south sides. The deal in this case was negotiated by Henry Villard and Sproul & Lawrence of Pittsburg, under contract dated June 20, 1890, which contract was assigned by Mr. Villard to the North American Company on Aug. 5, 1890. The consideration here, as affecting the North American Company, was \$50,000 cash on or before July 15, 1896, \$850,000 in 7 equal monthly payments thereafter upon the 15th of each month, and \$300,000 par value of capital stock of the Milwaukee Street Railway Company. The purchase also included securities aggregating at par \$1,000,000, being the entire stock and bonds or mortgage liabilities outstanding of the Cream City Railway Company. The North American Company, as sole shareholder of the Cream City Railway Company, caused a contract to be entered into between that company and the Milwaukee Street Railway Company, under date of Feb. 19, 1891, whereby the Milwaukee Street Railway Company succeeded to all the assets and property of the latter company in consideration of \$1,142,000 par value of consolidated mortgage bonds of the Milwaukee Street Railway Company, taken at par, 4,000 shares of capital stock, and \$54.10 in cash. The property was conveyed by deed dated Feb. 18, 1891.

The West Side Railroad Company was incorporated June 5, 1899, and was itself the successor of the West Side Railway Company incorporated Dec. 17, 1888, which in turn succeeded the West Side Street Railway Company incorporated July 29, 1875, which likewise succeeded to an association consisting of John H. Tesch, John Plankinton, Samuel L. Greene, Sherburn S. Merrill, and Stephen A. Harrison, to whom had been granted on June 1, 1874, a fifty year franchise to operate on certain streets on the west side. The entire capital stock of the West Side Railroad Company, \$300,000, was purchased by the North American Company from Washington Becker, under contract dated Sep. 29, 1891, the consideration being \$970,000, in three payments, the first \$300,000 cash on or before Oct. 28, 1891, with interest thereon from Oct. 1, the second \$335,000 cash payable Oct. 1, 1892, with interest payable quarterly, the third \$335,000 cash payable April 1, 1897, with interest payable quarterly, in addition to which an encumbrance was assumed of \$500,000 first mortgage 5 per cent gold bonds. This property

in turn was sold by the North American Company to the Milwaukee Street Railway Company, on Nov. 25, 1893, the consideration in this case being \$167,000 par value first consolidated mortgage bonds of the Milwaukee Street Railway Company taken at 80, and \$1,275,000 par value or the entire issue of second consolidated mortgage bonds of that company taken at practically 75, subject again to the \$500,000 5 per cent first mortgage gold bonds of the West Side Railroad Company held by the Farmers' Loan and Trust Company.

The Milwaukee and Whitefish Bay Railway Company was incorporated May 24, 1886, securing a thirty year franchise on June 1 of that year. Of the total capitalization of 2,400 shares of capital stock, 2,196 were purchased by the Milwaukee Street Railway Company of New Jersey from Mr. Charles F. Pfister of Milwaukee, under contract dated June 1, 1891. Later the remaining shares were acquired from other individuals. The entire purchase price paid in cash amounted to \$241,849.27.

The Milwaukee Electric Street Railway Company, incorporated July 10, 1893, was itself the successor of the Milwaukee Electric Railway Company incorporated Dec. 19, 1889, which in turn succeeded through Mr. C. F. Pfister to the Milwaukee Cable Railway Company incorporated May 26, 1887, which latter company had, on Dec. 19, 1887, been granted a franchise to operate upon certain streets in the Third ward. This property was purchased by the Milwaukee Street Railway Company of New Jersey from Mr. Pfister on June 2, 1894, and the consideration paid was \$350,000 par value of consolidated mortgage bonds of the Milwaukee Street Railway Company of Wisconsin, taken at 85, making the contract price of purchase \$297,500.

The Edison Electric Illuminating Company, incorporated Aug. 20, 1889, was established by the Edison General Electric Company, of New York, and was purchased on Jan. 31, 1890, by the North American Company. This purchase included the subscriptions to the capital stock of the Edison Electric Illuminating Company held by the Edison General Electric Company and in addition the open account, current, of the General Electric Company against the Edison Electric Illuminating Company. The consideration involved in these transactions, three in number, dated March 26, Jan. 31, and March 25, 1891, ag-

gregated \$213,483.70, \$103,600.00, and \$86,516.30, respectively. Subsequently the remaining stock, which was subscribed for by certain people of Milwaukee, was purchased by the North American Company. The property was transferred to the Milwaukee Street Railway Company of Wisconsin, the consideration in this case being \$50,000 in full paid capital stock of an issue not to exceed \$1,000,000 and \$536,800 consolidated mortgage gold bonds of the railway company to the amount at par of \$671,000.

The Badger Electric Illuminating Company, incorporated July 20, 1885, was originally purchased by Henry Villard from John A. Hinsey, under contract dated June 18, 1890, the consideration being \$310,000, and the purchase including the capital stock of the Badger Illuminating Company, amounting at par to \$200,000, and all the bonds of that company, amounting at par to \$140,000. This contract was assigned by Mr. Villard to the North American Company, on July 7, 1890. The North American Company, as sole stockholder of the Badger Electric Illuminating Company, caused a contract to be entered into between that company and the Milwaukee Street Railway Company on Dec. 22, 1890, the consideration in this case being \$150,000 in full paid common capital stock of the railway company, of an issue not to exceed \$1,000,000, and \$387,500 in bonds of the railway company to the amount of \$484,373, out of an issue not to exceed \$10,000,000.

The property of the Milwaukee Electric Light Company, the entire capital stock and \$30,000 bonds, was purchased by the North American Company under contract dated Oct. 8, 1890, from Charles A. Brown, of Chicago, for \$20,000. It was subsequently transferred by the North American Company to the Milwaukee Street Railway Company of Wisconsin in consideration of \$77,000 par value of consolidated mortgage bonds of the Milwaukee Street Railway Company, taken at 80, and \$63,600.

The interrelation of the organization of these companies and their successor is given upon the accompanying chart which will serve to make clear the separate successions to the ownership of the traction property.

The Milwaukee Light, Heat and Traction Company, incorporated Dec. 14, 1896, has title to the traction, lighting and

heating properties situated outside of the city of Milwaukee and has, since its organization, been operated in connection with The Milwaukee Electric Railway and Light Company. It acquired at various times the property of the Pabst Light, Heat and Power Company, the Milwaukee and Wauwatosa Motor Company, the Waukesha Beach Electric Railway, the Milwaukee, Racine and Kenosha Electric Railway, the Belle City Electric Company, the Milwaukee and Waukesha Electric Railway, the Badger Electric Company, the South Milwaukee Light and Power Company, the Chicago, Waukegan and North Shore Railway, and the Chicago, Kenosha and Milwaukee Railway. The consideration involved in the transfer of these properties has been traced by the company's accountants and made the matter of separate report.

It appears that the Pabst Light, Heat and Power Company was acquired for \$678,805.61, of which \$100,000 was cash, \$100,000 bonds of The Milwaukee Electric Railway and Light Company, \$280,400 real estate, and a mortgage note given for the balance aggregating \$198,405.61. These amounts were received by the Milwaukee Light, Heat and Traction Company from The Milwaukee Electric Railway and Light Company in payment of the subscription of the latter company for capital stock. A portion of the property, comprising a power house on Broadway, a lighting distribution system, and underground tunnels for a steam heating system, was transferred in 1899 to The Milwaukee Electric Railway and Light Company for the sum of \$300,000, leaving a balance of \$378,805.61 on the books of the Milwaukee, Light, Heat and Traction Company. The remaining portion consisted of the Wauwatosa railway extending from 27th and Walnut streets in Milwaukee to Wauwatosa, a distance of approximately five miles, and a power house and lighting system in the town of Wauwatosa.

The Milwaukee and Wauwatosa Motor Company consisted of a steam dummy line operating over three miles from 36th and Wells streets in the city of Milwaukee to Wauwatosa, and of the two miles from 59th and Wells streets to North Greenfield. This property included the viaduct, three dummy engines and five cars. The Waukesha Beach Electric Railway comprised five miles of track from Waukesha to Waukesha Beach, a power plant at Waukesha, and some six or seven cars. Both of these

properties were acquired in 1897 for a single payment of \$150,755.30.

The Milwaukee, Racine and Kenosha Electric Railway property consisted of thirteen miles of electrically operated line from South Milwaukee to Racine and ten miles of line from Racine to Kenosha, together with machinery of an estimated value of \$30,000 installed in the power house of the Belle City Electric Railway at Racine under agreement with that company. This road was acquired in 1897 for the sum of \$429,308.75.

The Belle City Electric Railway property consisted of thirteen and one-half miles of street railway system in the city of Racine, a power house and two car houses, all of which were acquired in 1899 through the purchase of outstanding stocks and bonds for \$299,120.70.

The Badger Electric Company, an electric lighting utility doing business exclusively in Racine, owned a power house and electric line construction. It was acquired in 1899 for the sum of \$144,586.91.

The Milwaukee and Waukesha Electric Company was acquired largely for its right of way between West Allis and Waukesha, a distance of approximately ten miles. The purchase price amounted to \$133,000.

The South Milwaukee Light and Power Company property consisted of a power plant and lighting system in the city of South Milwaukee. This company was purchased in 1899 for \$15,000.

The Chicago, Waukegan and South Shore, and the Chicago, Kenosha and Milwaukee railways were acquired in 1906 by a stock purchase for the sum of \$125,487.38.

All of these conveyances and franchises, except those relating to the Milwaukee Light, Heat and Traction Company and those relating to the transfer to the West Side Street Railway and Cream City Railway Company by individuals to whom the franchises were originally granted, are submitted in evidence and constitute a part of the record in this case.

The line of demarcation between The Milwaukee Electric Railway and Light Company, known as the city company, and the Milwaukee Light, Heat and Traction Company, known as the traction company, as to ownership, operation and service has evidently not been clearly drawn and much testimony is devoted to definitely establishing the distinction.

It appears to have been the original purpose of this dual corporation to keep entirely separate the traction business within the city of Milwaukee from that conducted without the geographical limits of Milwaukee, and with many of the changes of city limits there is noted a transfer of property from the traction to the city company. With the extension of single fare limits beyond the city limits, it again seems to have been the purpose to restrict what is the traction company to property owned beyond such limits. This distinction has, however, not been closely adhered to, for the inventory of property of date Jan. 1, 1910, clearly shows property, the title of which is vested in the traction company, within the single fare limits and property belonging to the city company outside of the single fare limits.

The ownership of the two properties is practically identical. Originally the city company held \$500,000 or all of the capital stock of the traction company, this stock being paid for by the transfer to the traction company of \$1,000 in bonds and \$280,400 in real estate, and the balance in cash. From time to time money was advanced for construction purposes by the city company, these obligations later being exchanged for traction company bonds. In 1905 the stock of the traction company was increased to \$1,000,000, the city company taking the additional \$500,000 in stock in payment for a transfer of outlying railway lines. In 1907 the capital stock of the traction company was again increased from \$1,000,000 to \$10,000,000, the additional \$9,000,000 being transferred to the North American Company for \$9,000,000 stock in the city company. In addition, the North American Company received \$5,000,000 of bonds of the traction company. At the present time the traction company owns all of the common stock and control of the city company. The city company in turn owns one-tenth of the common stock of the traction company, and the North American Company of New Jersey owns nine-tenths of the common stock and control of the traction company. Where formerly the city company was the parent organization, it is now a subsidiary corporation.

As an operating concern the two properties may be said to be identical. Both the city and interurban systems are operated by the same management. By the provisions of a

traffic agreement entered into by the two companies on March 15, 1899, the city company operates all the railway, light and power plants, equipment and rolling stock, and guarantees the prompt and punctual payment of the traction bonds; the traction company shares its earnings from the joint use of track upon an equitable basis, and all surplus remaining after the payment of all outlays, expenses and appropriations are to be divided equally between the two companies. By the arrangements here entered into, a single fare is credited to the city company from all traction company cars operated within the single fare limits and this is alleged to cover the cost of operation within the city, rent of joint trackage, car houses, etc., of the interurban or traction company cars. Expenses are pooled and arbitrarily apportioned upon the car-hour basis. In short, both companies are credited with earnings and charged with expenses arising from interurban, suburban and urban business.

The provisions of the agreement as to the division of profits have not been maintained. While it appears that from the date of its organization in 1897 until 1903 the traction company transferred half of its net earnings to the city company, since that time it has paid dividends upon the stock held by the city company, reserving the undivided profits as surplus. The traction company has, however, always paid interest upon money advanced.

Whether or not these arrangements as to property ownership, control and operation are prejudicial to the interests of the Milwaukee urban passenger is an open question and one of considerable importance in this case. If the corporate income account and balance sheet of the city company accurately reflect all earnings accruing from city service, all expenses occasioned by city service, and all property used and useful for such city service, our inquiry is confined to the evidence relating to the respondent, The Milwaukee Electric Railway and Light Company, and to that alone. If, however, such arrangements are not equitable, our determination of the facts must include the business of both city and traction company.

RATES OF FARE.

By the original franchise, passed May 29, 1865, the rates of fare of the Milwaukee City Railway Company were limited

to 5 cts. for any distance. Similar provisions are found in the original franchises of the Cream City Railway Company, passed June 8, 1874, of the West Side Street Railway Company, passed June 1, 1874, and of the Milwaukee Cable Railway Company, passed Dec. 19, 1887. This limitation, moreover, is repeated in the extension franchises of these companies. The original franchise of the White Fish Bay Railway Company, a suburban dummy line, passed Sep. 23, 1887, provided a maximum 5 ct. fare within the city limits.

It is gathered from the testimony that, prior to the consolidation of these companies, commutation tickets were issued by the Milwaukee Street Railway Company at a rate of 25 for \$1, with the privilege of transfer upon three transfer points maintained by the companies. The maximum length of the ride was four and one-half miles. The Cream City Railway Company also issued commutation tickets at 25 for \$1. The maximum ride in this case was also four and one-half miles. The West Side Railway Company issued commutation tickets of twelve for 50 cts. with the privilege of one transfer upon the three transfer points. The rate of fare charged by the Milwaukee Electric Street Railway Company was 5 cts. with the privilege of one transfer.

The sale of commutation tickets at what was practically a 4 ct. rate was discontinued on Aug. 1, 1894, by the consolidated, or Milwaukee Street Railway Company and a universal 5 ct. fare substituted, this action, it is alleged, being necessitated by the fact that the company had just sustained an increased tax assessment, was then defaulting upon its bond interest, and only kept from bankruptcy by favor of its creditors. Much opposition, it appears, was encountered because of this change and after considerable negotiation between the company and the committee of the common council, the 5 ct. fare was sanctioned with the provision that the transfer system should be universal.

The reorganization and change of ownership of the combined properties from the Milwaukee Street Railway Company to The Milwaukee Electric Railway and Light Company occurred on Jan. 29, 1896. On June 8, 1896, an ordinance was passed by the common council requiring the sale of tickets good for one fare, including transfer, in packages of 6 for 25 cts.,

12 for 50 cts., and 25 for \$1. The validity of this ordinance was questioned by the company in the case *The Milwaukee Electric Railway & Light Co. v. City of Milwaukee*, 1898, 87 Fed. 577, and a perpetual injunction restraining its enforcement was granted by the circuit court of the United States, May 31, 1898, on the ground that such ordinance was unreasonable and did not properly compensate the company for service rendered.

By the provisions of a franchise granted Jan. 2, 1900, known as the "blanket" franchise, all rights to occupy certain streets then occupied by the respondent company were extended until Dec. 31, 1934. Provision was made for the sale of tickets in packages of 25 for \$1 or 6 for 25 cts., usable only between the hours of 5:30 to 8:00 a. m. and 5:00 to 7:00 p. m. until Jan. 1, 1905, and usable at any hour after that date. These constitute the prevailing rates of fare and are those complained of in the petition in this case.

The submitted records disclose an average fare per revenue passenger, exclusive of transfers, for the city company of 4.95 cts. in 1897 and of 4.26 cts. in 1910. The percentage of revenue passengers riding on transfers was 25.52 per cent in 1897 and has increased steadily to 36.49 per cent in 1910. The average fare, including transfers, aggregated 3.94 cts. in 1897 and 3.12 cts. in 1910.

Counsel for the city claims that the determination of whether such fares are a reasonable charge for street railway service within the city of Milwaukee will depend upon the present value of the investment in property devoted to the public use within the city of Milwaukee, the rate of return which would be reasonable compensation for the use of this investment, and the cost of operating the system, involving the determination of operating expenses and depreciation.

Counsel for the company suggests that, aside from the determination of what is a reasonable return upon the investment, some regard is to be had for the value of the service to the user. It is urged that the 5 ct. fare is practically universal throughout the United States; that the sale of commutation tickets of six for 25 cts. and 25 tickets for \$1 is exceptional; that the average rate of fare including transfers is unusually low; that the percentage of use of transfers, despite cross-town routing, is very large; that the service is good; that the man-

agement of the company, as reflected in the ratio of operating expenses to gross earnings, has been unusually efficient; and that the company ought not to be penalized for this efficiency by a further reduction of fares.

The *dicta* of JUDGE SEAMAN in his opinion in 1898 is cited that "commutation rates are exceptional in cities of a like class and arise out of exceptional conditions which are not fairly applicable here." Reference is likewise made to published statements by Mr. BION J. ARNOLD that a 3 ct. fare is impossible if adequate service is to be conserved; to the average fare determined by the special investigation of the census bureau in 1907 of 5.17 cts. (evidently including suburban and interurban traffic); and to the last annual report of the railroad commission of Massachusetts, showing gross earnings for passengers in that state of 5.12 cts. for nine months of the year 1910. It is urged that the *customary* charge is a fair standard of reasonableness.

Whatever the application of the customary charge to the determination of the rate of fare adjudicated in 1898, it cannot be said to apply with equal force to the present case. Changes in operating conditions and development of the traction business since that time have brought about many instances of reduction from the usual 5 ct. fare and it is noted that many companies have themselves voluntarily split the nickel. It is noted from the United States census to which reference is made, 1902, pages 39-41, that more than one-third of all operating companies in the United States offer fares of less than 5 cts. to all patrons under certain conditions and that more than 200 companies, or 25 per cent, offer tickets at approximately 4 cts. each. The following localizations in regard to these reductions are noted: Forty railways in Pennsylvania offer approximately a 4 ct. fare; twenty-five street railways in Ohio offer six tickets for 25 cts.; about a dozen cities in Iowa have approximately a 4 ct. fare; and tickets at six for 25 cts. are common in Michigan, Indiana, Illinois, and Wisconsin. From the data furnished in the report of the public service commission of Connecticut to the assembly in 1909 it is noted that out of seventy-seven companies operating in cities of from 46,000 to 132,000 population, 38 per cent have a 5 ct. straight fare, while 62 per cent have a rate below 5 cts. in one form or another.

Definite conclusions as to what constitutes the customary charge or the value of the service, when based upon generalized data of this character, are always difficult. Comparisons are likely to be misleading unless they are accompanied by a careful consideration of conditions and facts in each particular case. Service and fares in the traction business are dependent upon the size of the community, the area served, the track mileage, the density of traffic, and other factors. Such comparison of Milwaukee and other large cities is made in the report of Mr. BION J. ARNOLD on the "Pittsburg transportation problem", to which reference is made by counsel for respondent in its brief; and a summarized statement of such factors is reproduced below:

COMPARATIVE TRAFFIC STATISTICS.

FIFTEEN SELECTED CITIES.

Compiled from Data and Maps Reported in "Pittsburg Transportation Problem."
By Bion J. Arnold.

Cities.	1909					
	Miles of track within city limits.	Area served in square miles.	Car-miles per mile of track.	Cars per mile of track.	Total passengers per car-mile.	Car-miles per car.
Chicago.....	648.39	179.50	128,800	4.85	8.91	26,570
Brooklyn.....	467.71	77.61	128,500	5.70	7.30	22,540
Philadelphia.....	514.73	127.90	113,000	5.48	6.10	21,340
Boston.....	441.92	38.25	105,200	7.12	8.63	14,760
St. Louis.....	345.41	61.40	85,400	2.67	8.43	27,670
Baltimore.....	234.42	30.20	67,700	4.72	7.47	14,340
Pittsburg.....	260.35	41.00	61,450	2.84	6.28	21,600
Cleveland.....	220.00	39.60	95,400	3.29	7.85	28,980
Buffalo.....	216.04	42.00	52,250	2.47	7.14	21,120
San Francisco....	209.80	46.50	48,120	2.43	12.03	20,380
Cincinnati.....	219.85	42.50	94,200	5.42	5.77	18,180
Detroit.....	202.00	35.80	65,310	2.71	6.72	22,200
New Orleans.....	185.25	41.00	94,700	2.88	5.16	33,100
Washington.....	155.92	60.00	.....	6.06	.....	.....
Milwaukee.....	152.80	22.00	245,100	21.48	27.46	230,320
Milwaukee.....	.....	137.96	384,344	32.35	38.48	430,758

Map page 123. Table 121.

¹Single fare area.

²Includes M. L. H. & T. Co.

³Excludes M. L. H. & T. Co.

⁴Excludes M. L. H. & T. Co. and single truck cars.

It will be noted from the above table that of the fifteen cities cited, Milwaukee has the lowest miles of track operated within the city limits and serves the third lowest area in square miles. In density of car operation, as measured by annual car-miles per mile of track, Milwaukee ranks ninth. In cars operated

per mile of track, a measure of equipment service, Milwaukee ranks lowest. In passengers per car-mile, illustrating in a measure the passenger density, Milwaukee ranks fourth. In car-miles per car, illustrating the extent of the use of equipment, Milwaukee ranks second highest. This high figure, however, is partly due to the fact that closed cars are operated throughout the entire year.

These figures are merely illustrative and it is recognized that they may not be entirely authoritative. Sufficient variation is shown, however, to justify the conclusion that operating conditions in Milwaukee are sufficiently dissimilar to require a more detailed examination into the reasonableness of the rate of fare than could be afforded by a mere comparison of what is the customary or usual charge.

THE DEVELOPMENT OF COMPANY'S BUSINESS.

A general survey of increase in the respondent company's business since its organization and the change in its financial condition, as reflected by comparative yearly statements, may be obtained from the summary tables 1 to 10. The income accounts and balance sheets are those appearing upon the company's books, with slight changes in arrangement to secure uniformity. As the inquiry in this case is directed primarily to an analysis of company's net earnings, these statements are necessarily referred to from time to time in discussing the evidence and facts in the case.

In table 1 are summarized the balance sheets of the Milwaukee Electric Railway and Light Company for each Dec. 31, in the period 1898 to 1910, inclusive. An analysis of the annual changes in these balance sheets is indicated in table 1a.

The total assets in 1898 are \$17,174,713.47, of which \$14,405,899.91 represents "real estate, plants, franchises, licenses, etc."; \$1,995,101.48 treasury securities and bonds held in trust; \$605,361.10 bills and accounts receivable; and \$113,959.91 materials and supplies. The liabilities in 1898 show \$3,500,000 of preferred, and the same amount of common stock, and \$9,403,000 of funded indebtedness made up of Milwaukee City Railroad Company 5 per cent bonds, aggregating \$1,000,000.00; West Side Railroad Company 5 per cent bonds, \$500,000.00;

consolidated 5 per cent bonds \$7,803,000.00; and mortgage notes to the amount of \$100,000.00. Bills and accounts payable totaled \$296,689.04, reserves \$237,094.97, and the profit and loss surplus \$61,777.78.

By Dec. 31, 1910, the total assets had increased to \$34,768,596.63, an increase of slightly over 100 per cent. The book value of "property" has increased from \$14,405,899.91 to \$27,631,828.19, an increase of 92 per cent in twelve years. Redemption bonds to the amount of \$1,500,000 were carried in trust from 1898 to 1908, and again in 1910 to the amount of \$1,000,000. Milwaukee Light, Heat and Traction Company stock, held in the treasury by The Milwaukee Electric Railway and Light Company, was increased from \$484,900 to \$1,000,000 during the twelve year period. In 1907, \$500,000 of Milwaukee Central Heating Company stock was acquired and is one of company's present investments. In 1906 the company acquired \$449,716.66 of Milwaukee Light, Heat and Traction Company bonds at 90, this amount being increased in 1907 to \$887,000 but decreased to \$125,100 by 1910. The "Reserve fund" investment held in 1898 consisted of \$15,000 of surety funds. By 1910 the "Surety fund" investment had increased to \$50,000, and in addition there were invested funds of \$500,000 each for injuries and damages, and insurance reserves. "Cash on hand" fluctuated somewhat from year to year but showed no clear tendency to increase proportionately with the growth of business. "Accounts receivable" for electric current increased 75 per cent; "Accounts receivable" from the Milwaukee Light, Heat and Traction Company increased from \$527,722.70 to \$1,983,971.17 or 280 per cent; while "Accounts receivable" from Milwaukee Central Heating Company, aggregating \$218,163.77 in 1906, increased to \$338,099.51 in 1910. The "Materials and supplies" accounts show marked fluctuations, varying from the minimum of \$23,360.99 in 1904, to the maximum of \$555,181.57 in 1910.

Of the liabilities, preferred stock was increased from \$3,500,000 to \$4,500,000, an increase of 28 per cent, this increased amount being disposed of during 1900 and 1901. Common stock during the same time was increased from \$3,500,000 to \$9,000,000, an increase of 157 per cent. The funded debt shows decided increase within the period. The Milwaukee City

Railroad Company bonds were refunded in 1908, and the West Side Railroad Company bonds in 1909. The consolidated bonds, of which there were \$7,803,000 in 1898 were increased to \$8,000,000 in the succeeding year, but refunded so as to aggregate \$6,500,000 in 1909. Refunding and extending bonds were issued to the amount of \$3,000,000 in 1906, and increased to \$7,728,000 by 1910. "Accounts payable," totaling \$91,689.04 in 1898, increased to \$2,464,876.82 in 1910. A large portion of these amounts are payable to the North American Company. "Accrued liabilities", while varying from year to year, increased from \$162,440.93 in 1898 to \$330,026.31 in 1910, the largest increase being due to "Taxes accrued", which increased from \$6,145.46 in 1898 to \$148,799.09 in 1910. "Reserve liabilities" increased from \$237,094.97 in 1898 to \$2,781,745.50 in 1910, the largest increase being in the depreciation reserves. The "Amortization reserve" was discontinued after 1899. Large increases are noted in the reserves for injuries and damages and insurance. The "Profit and loss account" surplus amounting to \$61,777.78 in 1898, increased to \$1,161,774.84 by 1910.

TABLE 1.
BALANCE SHEETS.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.
As of December 31, after closing books.

Italic figures denote credits.

ASSETS.	1898	1899	1900	1901	1902	1903
Real Estate, Plants, Franchises, Licenses, etc., close of year.	\$14,405,899 91	\$15,107,881 08	\$ 5,838,916 45	\$19,198,534 94	\$10,151,739 56	\$21,361,211 31
Consolidated Bonds in Trust to Redeem Underlying Bonds..	1,500,000 00	1,500,000 00	1,500,000 00	1,500,000 00	1,500,000 00	1,500,000 00
Securities in Treasury—						
M. L. H. & T. Co. stock at par.....	484,900 00	500,000 00	500,000 00	500,000 00	500,000 00	500,000 00
M. C. H. Co. stock at par.....						
M. L. H. & T. Co. ref. & ext. mtg. 5% bonds at 90.....						
Int. receivable on securities in treasury.....						
Sundry securities in treasury.....						
Bond and stock scrip.....	10,201 48	14,790 26				
Reserve Fund Investment—						
Injuries and damages.....				100,000 00	100,000 00	122,000 00
Insurance.....				44,000 00	45,000 00	300,000 00
Surety.....	15,000 00	15,000 00	16,000 00	25,000 00	25,000 00	25,000 00
Interest receivable on reserve fund investments.....						
Cash on Hand and in Bank.....	39,157 60	71,078 21	42,058 75	273,835 54	184,758 24	3,550 63
Bills Receivable.....	12,509 00					
Accounts Receivable—						
Electric current.....	55,020 58	65,692 52	65,350 85	62,728 36	73,351 61	70,409 52
Merchandise and miscellaneous.....	10,117 82	16,208 25	29,737 94	12,849 35	47,959 03	46,371 25
M. L. H. & T. Co.....	527,722 70	227,537 03	98,970 08	16,834 37	172,420 68	357,663 56
M. C. H. Co.....						
Materials and Supplies—						
Railway and lighting.....	109,337 23	144,984 53	120,730 94	127,021 25	252,261 80	31,941 01
Employees' uniforms.....	3,568 63	1,630 12	1,396 24	5,900 85	3,770 15	1,300 53
Power plants and car house supplies.....	1,054 05	1,488 09	4,573 10	5,400 16	8,069 46	11,701 63
Prepaid Accounts.....	203 47	920 10	139 89	312 67	396 67	320 77
Open Accounts.....						
Total.....	\$17,174,713 47	\$17,667,210 19	\$18,217,924 24	\$21,872,387 49	\$23,064,727 20	\$24,328,869 15

TABLE 1—Continued.

Italic figures denote credits.

ASSETS.	1904	1905	1906	1907	1908	1909	1910
Real Estate, Plants, Franchises, Licenses, etc., close of year.....	\$22,517,633 08	\$23,400,922 79	\$24,523,577 69	\$25,227,201 65	\$25,670,593 26	\$26,650,175 72	\$27,631,828 19
Consolidated Bonds in Trust to Redeem Underlying Bonds.....	1,500,000 00	1,500,000 00	1,500,000 00	1,500,000 00	1,500,000 00	.....	1,000,000 00
Securities in Treasury—							
M. L. H. & T. Co. stock at par.....	500,000 00	1,030,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00
M. C. H. Co stock at par.....				500,000 00	500,000 00	500,000 00	500,000 00
M. L. H. & T. Co. ref. & ext. mtg. 5% bonds at 90.....			449,716 66	887,000 00	305,100 00	125,100 00	125,100 00
Int. receivable on securities in treasury.....				7,391 68	537 50	579 17	
Sundry securities in treasury.....							
Bond and stock scrip.....							
Reserve Fund Investment—							
Injuries and damages.....	200,000 00	200,000 00	250,000 00	350,000 00	450,000 00	500,000 00	500,000 00
Insurance.....	325,000 00	325,000 00	375,000 00	450,000 00	500,000 00	500,000 00	500,000 00
Surety.....	35,000 00	35,000 00	35,000 00	50,000 00	50,000 00	50,000 00	50,000 00
Interest receivable on reserve fund investments.....					2,916 63	4,375 00	4,054 17
Cash on Hand and in Bank.....	472,056 43	61,418 28	7,679 39	45,825 72	65,312 38	21,210 94	44,925 67
Bills Receivable.....			11,552 70	29,000 00	211,493 80	114,819 93	305,131 08
Accounts Receivable—							
Electric current.....	63,137 78	67,229 43	138,679 33	72,996 91	64,738 21	75,806 52	96,266 37
Merchandise and miscellaneous.....	60,159 60	82,485 39	93,911 47	105,346 62	91,306 34	134,295 53	102,884 20
M. L. H. & T. Co.....	125,504 41	945,505 54	669,032 45	1,058,953 28	1,000,054 20	2,166,366 32	1,983,971 17
M. C. H. Co.....		5 75	218,165 77	162,074 78	225,550 48	267,269 55	338,099 51
Materials and Supplies—							
Railway and lighting.....	9,786 00	174,134 13	286,360 09	98,908 66	23,212 86	73,991 32	547,562 35
Employees' uniforms.....	3,048 18	2,353 31	2,992 92	6,728 47	2,260 51	9 98	7,670 22
Power plants and car house supplies.....	10,526 81	8,873 68	7,966 00	7,124 25	6,814 24	6,749 76	.....
Prepaid Accounts.....		706 23	1,024 58	541 77	393 85	390 72	2,872 23
Open Accounts.....							25,382 47
Total.....	\$25,827,852 29	\$27,806,664 53	\$29,624,671 21	\$31,550,093 79	\$31,700,987 29	\$32,271,170 10	\$34,768,796 63

TABLE 1.—Continued.
BALANCE SHEETS.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY

LIABILITIES.	1898	1899	1900	1901	1902	1903
Capital Stock—						
Preferred.....	\$3,500,000 00	\$3,500,000 00	\$3,986,200 00	\$4,500,000 00	\$4,500,000 00	\$4,500,000 00
Common.....	3,500,000 00	3,500,000 00	3,500,000 00	6,500,000 00	7,000,000 00	8,013,500 00
Funded Debt—						
Milwaukee City Railroad Co. 5% bonds.....	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00
West Side Railroad Co. 5% bonds.....	500,000 00	500,000 00	500,000 00	500,000 00	500,000 00	500,000 00
Consolidated 5% bonds.....	7,803,000 00	8,000,000 00	8,000,000 00	8,000,000 00	8,000,000 00	8,000,000 00
Refunding and extending 4½% bonds.....						
Mortgage notes.....	100,000 00	298,405 61	278,405 61	278,405 61	198,405 61	198,405 61
Bills Payable.....	205,000 00	5,000 00	105,000 00			
Accounts Payable—						
Audited vouchers.....	86,657 76	98,895 28	200,172 52	105,014 84	209,725 70	132,818 18
Unclaimed wages.....	1,079 30	1,246 49	2,363 75	2,548 24	2,804 24	3,207 97
Tickets outstanding.....	1,367 37	4,222 84	9,777 98	12,779 33	16,383 93	19,616 63
Matured interest on funded debt unpaid The North American Co.....		33,000 00				
Sundry accounts payable.....	2,584 61	12,500 61				
Surety Deposits—						
Customers.....	574 75	463 46	868 69	1,124 98	1,561 83	1,774 67
Employees.....	14,730 00	16,223 00	18,998 03	19,163 00	19,013 00	20,638 00
Interest, premium, etc., realized on surety deposits.....	406 00	1,156 00	3,193 20	4,204 03	5,454 03	6,704 03
Accrued Liabilities—						
Interest accrued, funded debt not due.....	154,051 72	153,300 86	149,184 11	146,586 71	146,866 71	159,161 70
Interest accrued, temporary loans.....	243 75	124 33	69 44			
Taxes accrued.....	6,145 46	8,831 89	7,947 62	14,640 27	28,719 19	16,321 89
Water rent accrued.....						
Dividends accrued, preferred stock.....			39,862 00	45,000 00	45,000 00	45,000 00
Dividends accrued, common stock.....						80,135 00

Reserves—						
Depreciation, railway.....	182,764 41	112,848 01	89,697 37	124,716 06	232,363 72	470,670 26
Depreciation, lighting.....			40,527 44	40,506 68	66,118 53	101,794 58
Storage battery, maintenance.....						8,721 63
Injuries and damages.....	18,309 48	6,760 63	20,203 58	49,629 32	109,008 48	135,496 03
Fire insurance.....	2,263 99	5,888 56	10,166 95	19,156 27	48,330 60	314,983 93
Fire insurance.....	13,757 09	33,206 50	18,350 92	35,054 09	40,234 77	39,105 73
Legal expenses.....						
Advertising and attractions, railway.....						
Promotion of business, lighting.....						
Uncollectible accounts, lighting.....						
Contingencies.....						
Utility service repairs.....						
Amortization (sinking fund).....	120,000 00	240,000 00				
Depreciation, power plant.....				2,684 96	6,831 09	
Open Accounts.....						
Profit and Loss.....	61,777 78	235,136 12	236,365 03	471,173 10	887,885 77	530,813 31
Total.....	\$17,174,713 47	\$17,667,210 19	\$18,217,924 24	\$21,872,387 49	\$23,064,727 20	\$24,328,869 15

¹Includes lighting.

Reserves—							
Depreciation, railway.....	668,125 68	555,435 62	593,554 72	764,873 65	925,631 87	1,082,909 04	1,016,862 51
Depreciation, lighting.....	138,484 01	193,556 61	248,249 89	264,578 53	317,005 68	381,151 85	396,984 45
Storage battery, maintenance.....	16,749 51	23,327 89	29,428 57	38,603 67	48,110 85	57,612 47	36,054 40
Injuries and damages.....	191,503 03	246,596 47	289,480 64	367,555 41	468,014 92	528,390 18	569,029 16
Fire insurance.....	338,894 16	369,186 23	387,117 71	416,186 39	474,050 55	504,713 81	539,653 77
Legal expenses.....	103,068 21	130,635 16	162,459 02	191,327 84	67,963 61	55,054 93	40,664 46
Advertising and attractions, railway.....	497 67	1,347 67	2,547 67	5,687 75	4,947 67	12,559 19	.....
Promotion of business, lighting.....					7,736 39	18,967 76	29,841 75
Uncollectible accounts, lighting.....					870 87	3,493 03	6,583 82
Contingencies.....					125,540 74	141,940 60	150,646 66
Utility service repairs.....						1,971 28	4,575 98
Amortization (sinking fund).....							
Depreciation, power plant.....							
Open Accounts.....							
Profit and Loss.....	681,643 18	492,859 75	578,987 11	535,823 03	534,025 85	660,032 41	1,161,774 84
Total.....	\$25,827,852 29	\$27,806,664 53	\$21,624,671.21	\$31,559,093 79	\$31,700,287 29	\$32,271,150 50	\$34,768,596 63

TABLE 1a
ANALYSIS OF CHANGES IN BALANCE SHEETS.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.

ACCOUNT		1898-1899	1892-1900	1900-1901	1901-1902	1902-1903	1903-1904
<i>Assets</i>							
Assets.	Increase Property.....	\$701,981 17	\$731,035 37	\$3,359,618 49	\$953,204 62	\$1,209,471 75	\$1,156,421 77
	.. Treasury securities.....	19,688 78					
	.. Reserve fund investment.....			169,000 00	1,000 00	277,000 00	113,000 00
	.. Cash.....	31,890 61		231,746 79			
	.. Bills receivable.....						
	.. Accounts receivable.....				201,319 24	180,713 01	468,605 80
	.. Materials and supplies.....	34,142 83		11,621 98	125,779 15		
	.. Miscellaneous assets.....	716 63		172 78	84 00		
Liabilities.	Decrease Funded debt.....		20,000 00				
	.. Bills payable.....	200,000 00		105,000 00	80,000 00		
	.. Accounts payable.....			91,971 84		73,271 09	8,343 49
	.. Accrued liabilities.....						
	.. Reserve liabilities.....		119,757 44				
	.. Miscellaneous liabilities.....						
	.. Surplus.....						
Total.....		\$988,420 02	\$370,792 81	\$3,969,131 88	\$1,361,387 01	\$2,097,528 31	\$1,746,271 06
<i>Liabilities</i>							
Liabilities.	Increase Preferred stock.....		\$486,200 00	\$513,800 00			
	.. Common stock.....			3,000,000 00	\$500,000 00	\$1,013,500 00	\$986,500 00
	.. Funded debt.....	\$395,405 61					
	.. Bills payable.....		100,000 00				
	.. Accounts payable.....	58,176 18	62,449 03				
	.. Accrued liabilities.....	3,947 86	40,023 55	10,595 90	108,571 46		
	.. Reserve liabilities.....	61,608 73		92,801 12	15,915 77	83,100 53	16,441 60
	.. Miscellaneous liabilities.....				231,139 81	597,884 97	353,555 16
	.. Surplus.....	173,358 34	1,793 91	234,238 07	416,712 67		150,829 87
Assets.	Decrease Treasury securities.....						
	.. Cash.....		13,790 26	16,000 00			
	.. Bills receivable.....		29,019 46		89,047 30	181,207 61	
	.. Accounts receivable.....	12,500 00					
	.. Materials and supplies.....	283,423 30	115,328 93	101,686 79			
	.. Miscellaneous assets.....		21,402 46			221,759 30	219,642 54
			780 21			75 90	18,981 12
Total.....		\$988,420 02	\$870,792 81	\$3,969,131 88	\$1,361,387 01	\$2,097,528 31	\$1,746,271 06

TABLE 1a—Concluded.

ACCOUNT.		1904-1905	1905-1906	1906-1907	1907-1908	1908-1909	1909-1910	1898-1910
Assets.	Increase							
	Property	\$383,289 71	\$1,122,654 90	\$703,623 96	\$443,394 61	\$1,009,579 46	\$951,652 47	\$13,225,928 28
	Treasury securities	500,000 00	449,716 66	944,675 02			999,420 83	2,913,501 29
	Reserve fund investment		100,000 00	150,000 00	152,916 66	51,458 34	579 17	1,054,954 17
	Cash			28,146 33	19,486 66		25,714 73	815,490 92
	Bills receivable		11,552 70	17,447 30	212,493 80		190,281 15	431,774 85
	Accounts receivable	840,424 32	84,560 81	175,135 45	25,817 32	1,297,163 08		2,805,153 53
	Materials and supplies	162,030 13	105,942 65			48,443 49	476,922 70	964,852 33
	Miscellaneous assets	706 23	318 35	43,968 31		14,922 48	9,556 70	70,443 48
						1,239,000 00		1,339,000 00
Liabilities.	Decrease							
	Funded debt		1,460,369 78	385,000 00	100,000 00			2,250,369 78
	Bills payable				1,077,992 03			1,251,578 45
	Accounts payable			60,348 86	16,614 15			143,620 37
	Accrued liabilities	66,657 36					3,016 08	122,773 52
	Reserve liabilities				20,496 60	1,552 87		22,048 87
	Miscellaneous liabilities				1,797 23			590,817 15
	Surplus	188,733 43		43,164 03				
Total	\$2,641,891 18	\$3,335,115 35	\$2,601,507 26	\$3,071,608 46	\$3,662,119 72	\$2,657,143 83	\$28,002,316 89	
Liabilities.	Increase							
	Preferred stock							\$1,000,000 00
	Common stock							5,500,000 00
	Funded debt		\$2,801,594 39	\$1,000,000 00	\$957,000 00		\$1,000,000 00	6,164,000 00
	Bills payable	\$1,945,369 78					250,000 00	2,295,369 78
	Accounts payable	232,125 01	122,782 40	1,043,843 74		\$1,295,550 74	680,077 65	3,603,546 21
	Accrued liabilities		65,919 65	335,975 02	351,092 91	45,033 55	68,489 95	349,448 16
	Reserve liabilities	56,758 24	201,952 66	43,116 71				2,647,624 05
	Miscellaneous liabilities						152 18	43,268 89
	Surplus		86,127 36			126,006 56	501,742 43	1,620,814 21
Assets.	Decrease							
	Treasury securities				588,754 18	1,679,958 33		2,298,502 77
	Cash	407,638 15	56,738 89			44,101 44		87,752 85
	Bills receivable					126,643 87		139,143 87
	Accounts receivable			178,571 79			156,681 62	876,773 18
	Materials and supplies				80,473 77			521,188 44
	Miscellaneous assets				43,687 60			44,864 48
Total	\$2,641,891 18	\$3,335,115 35	\$2,601,507 26	\$2,071,608 46	\$3,662,119 72	\$2,657,143 83	\$28,002,316 89	

CITY OF MILWAUKEE v. T. M. E. R. & L. CO.

Tables 2 and 2a disclose similar balance sheets of the Milwaukee Light, Heat and Traction Company and an analysis of the changes during the period Dec. 31, 1898, to Dec. 31, 1910.

It will be noted that in 1898 the total assets, aggregating \$1,228,723.43, included \$1,213,198.58 as the value of real estate, plants, franchises, licenses, etc. The liabilities disclose an issue of \$500,000 of common stock, a funded debt of \$198,405.61, and accounts payable to The Milwaukee Electric Railway and Light Company aggregating \$527,722.70.

By 1910 the total assets had increased to \$24,467,599.25, or approximately twenty times the amount of the assets in 1898. The value of plants and franchises increased annually, reaching \$9,360,251.84 in 1910. Treasury securities, however, account for \$14,989,175, or over half of the increase in assets, the more important increases among these being the acquisition of \$13,500,000 of The Milwaukee Electric Railway and Light Company stock and premium in 1907, and of securities of public service corporations in Racine, Kenosha, and Watertown.

An examination of the liabilities shows an increase in common stock from \$500,000 to \$10,000,000. The funded debt likewise has increased from \$198,405.61 in 1898 to \$11,189,000 in 1910. This increase in stocks and bonds was in large part necessitated by the purchase of The Milwaukee Electric Railway and Light Company stock in 1907. "Accounts payable" increased from \$527,722.70 in 1898 to \$2,382,921.17 in 1910, "Reserves" from nothing to \$189,709.48 in 1910, and the "Profit and loss" account from nothing at the beginning of the period to \$562,330.33 in 1910.

Table 3 shows the comparative income account, railway and lighting, for The Milwaukee Electric Railway and Light Company from 1897 to 1910, inclusive.

It will be noted that the total earnings have increased from \$1,658,694.99 in 1897 to \$4,694,391.79 in 1910, an increase of 183 per cent, while operating expenses have increased 167 per cent, and the surplus over operating expenses 204 per cent. The income from sources other than operation has increased 684 per cent, the income from all sources 213 per cent, taxes and depreciation have increased 294 per cent, and the net income available for return to capital has increased from \$531,006.90 to \$1,496,318.85, or 182 per cent. A comparison of the

proportionate amount of earnings derived from the railway and the lighting services shows that the lighting business is increasing in relative importance. The surplus over operating expenses shows a tendency to increase in proportion to the total revenues during the first few years, but a decrease is noted in the later years. Taxes have increased from 7.09 per cent to 14.25 per cent of the income from all sources, and this tends to explain the decline, in the latter part of the period, of the proportionate amount of income available for return to capital.

Table 4 shows the comparative income account, railway and lighting, of the Milwaukee Light, Heat and Traction Company, 1897 to 1910, inclusive.

The railway business of this company was developed almost entirely within this period. The railway operating earnings show a steady growth from 1897, when they were \$10,194.26 or 15.28 per cent of the total business of the company, to 1910, when they were \$862,031.40 or 81.57 per cent of the total. The earnings of the lighting department have increased steadily since 1899, the net increase for the entire period being 245 per cent. Since 1906 the lighting earnings have been furnishing an increasing proportion of the total earnings. Operating expenses have shown the same tendencies as earnings. The percentage increase in railway expenses has been about half of the earnings increase, while the percentage increase in lighting expenses has been nearly two-thirds of the earnings increase. The surplus over operating expenses has increased from 32.65 per cent of the total earnings to 56.20 per cent. The income from sources other than operation has increased greatly in recent years, totaling \$791,038.40 in 1910, being largely derived from the stocks and bonds of other companies held by the Milwaukee Light, Heat and Traction Company. Deductions from income have increased from 4.52 per cent to 13.16 per cent of the income from all sources. The net income available for return to capital has increased from \$21,518.42 to \$1,202,618.61, though decreasing from 95.48 per cent of the income from all sources to 86.84 per cent.

TABLE 2.
BALANCE SHEETS.
MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.
As of December 31, after closing books.

ACCOUNT.	1898	1899	1900	1901	1902	1903
<i>Assets.</i>						
Real Estate, Plants, Franchises, Licenses, etc.....	\$1,213,198 58	\$2,242,182 70	\$2,348,059 68	\$2,523,819 68	\$2,982,283 16	\$3,181,710 82
Bonds Issued for Acquisition of Stocks and Bonds of Other Companies.....						
Securities in Treasury—						
Racine Gas Co.....	15,100 00					500,000 00
First mortgage bonds in treasury.....				1,000 00		
Kenosha Gas Light Co.....						
Watertown Gas & Electric Co.....						
T. M. E. R. & L. Co. stock and premium.....						
Interest receivable on treasury securities.....						
Reserve Fund Investment—						
Insurance.....						
Racine Gas Light Co. 5% bonds.....						
Interest receivable on above investments.....						
Cash in Bank and in Safe.....		1,715 35	2,044 63	5,567 92	3,841 08	5,085 77
Accounts Receivable—						
Racine Gas Light Co.....						30,000 00
Kenosha Gas & Electric Co.....						
Miscellaneous.....	200 00					
Prepaid Accounts—						
Fire insurance.....	224 85	186 45	17 23	21 25	116 06	13 44
Preliminary and experimental work.....						
Open Accounts.....						
Total.....	\$1,228,723 43	\$2,244,084 50	\$2,350,121 54	\$2,530,408 85	\$2,986,240 30	\$3,716,810 03

<i>Liabilities.</i>							
Capital Stock—		\$500,000 00	\$500,000 00	\$500,000 00	\$500,000 00	\$500,000 00	\$500,000 00
Common.....							
Temporary, common.....							
Funded Debt—			1,500,000 00	1,731,000 00	1,974,000 00	2,249,000 00	2,526,000 00
First mortgage.....							
Bond and mortgage (Pabst Brewing Co.).....	198,405 61						
Temporary refund, 5% gold bonds.....							
Bills Payable—Notes to Others.....							
Accounts Payable—							
Audited vouchers on account.....							
T. M. E. R. & L. Co. on account.....	527,722 70	227,537 03	98,970 08	16,834 37	172,420 68	357,663 56	
The North American Co.....							
Matured interest on funded debt unpaid.....							
Accrued Liabilities—							
Interest accrued.....	1,653 38	13,500 00	15,275 00	19,941 66	21,066 66	22,850 00	
Taxes accrued.....	139 43	902 60	486 59	1,377 55	2,326 03	1,661 36	
Fire insurance.....	802 31	2,144 87	4,389 87	4,222 32	6,991 71	7,885 61	
Reserves—							
Depreciation reserve, railway.....							18,268 87
Depreciation reserve, lighting.....							3,626 70
Depreciation reserve, power plant.....				211 61	750 49		
Profit and Loss—Surplus.....				13,121 34	33,684 73	278,853 93	
Total.....	\$1,228,723 43	\$2,244,084 50	\$2,350,121 54	\$2,530,408 85	\$2,986,240 30	\$3,716,810 03	

TABLE 2—Concluded.
BALANCE SHEETS.
MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.
As of December 31, after closing books.

ACCOUNT.	1904	1905	1906	1907	1908	1909	1910
<i>Assets.</i>							
Real Estate, Plants, Franchises, Licenses, etc.....	\$3,685,962 87	\$4,351,372 17	\$5,756,283 15	\$6,869,519 07	\$7,905,648 75	\$9,154,950 42	\$9,380,251 84
Bonds Issued for Acquisition of Stocks and Bonds of Other Companies.....				504,270 00	504,275 00	504,275 00	504,275 00
Securities in Treasury—							
Racine Gas Co.....	500,000 00	500,000 00	500,000 00	500,000 00	500,000 00	500,000 00	500,000 00
First mortgage bonds in treasury.....							
Kenosha Gas Light Co.....		295,000 00	295,000 00	295,000 00	300,000 00	300,000 00	300,000 00
Watertown Gas & Electric Co.....		100,000 00	100,000 00	200,000 00	200,000 00	200,000 00	200,000 00
T. M. E. R. & L. Co. stock and premium.....				13,500,000 00	13,500,000 00	13,500,000 00	13,500,000 00
Interest receivable on treasury securities.....					250 00		
Reserve Fund Investment—							
Insurance.....							50,000 00
Racine Gas Light Co. 5% bonds.....					50,000 00	50,000 00	50,000 00
Interest receivable on above investments.....					1,250 00		1,234 31
Cash in Bank and in Safe.....							
Accounts Receivable—							
Racine Gas Light Co.....	60,000 00	90,000 00	120,000 00	150,000 00	30,000 00	30,000 00	
Kenosha Gas and Electric Co.....					45,000 00		
Miscellaneous.....							
Prepaid Accounts—							
Fire insurance.....		100 00	146 84	156 12	82 00	85 21	150 00
Preliminary and experimental work.....					557 04		
Open Accounts.....						6,133 20	1,658 10
Total.....	\$4,245,962 87	\$5,639,472 17	\$6,771,429 99	\$22,018,945 19	\$23,037,062 79	\$24,245,443 83	\$24,467,599 25

<i>Liabilities.</i>							
Capital Stock—							
Common.....	\$500,000 00	\$1,000,000 00	\$1,000,000 00	\$1,000,000 00	\$10,000,000 00	\$10,000,000 00	\$10,000,000 00
Temporary, common.....				9,000,000 00			
Funded Debt—							
First mortgage.....	3,223,000 00	3,223,000 00	4,319,000 00	5,000,000 00	5,000,000 00	5,000,000 00	5,000,000 00
Bond and mortgage (Pabst Brewing Co.).....							
Temporary refund, 3% gold bonds.....				5,000,000 00	6,189,000 00	6,189,000 00	6,189,000 00
Bills Payable—Notes to Others.....			240,000 00	200,000 00			
Accounts Payable—							
Audited vouchers on account.....							
T. M. E. R. & L. Co. on account.....	125,504 41	945,505 54	669,032 45	1,058,953 28	1,000,054 20	2,166,366 32	1,983,971 17
The North American Co.....							390,000 00
Matured interest on funded debt unpaid.....				8,900 00	5,050 00	8,075 00	8,950 00
Accrued Liabilities—							
Interest accrued.....	30,533 34	30,683 34	40,516 66	62,499 99	67,454 17	67,454 16	67,454 16
Taxes accrued.....	2,633 17	4,117 83	6,471 05	14,451 21	8,546 44	9,788 64	11,671 28
Fire insurance.....	9,487 61	14,256 88	23,251 94	33,920 76	46,439 36	55,522 35	64,512 83
Reserves—							
Depreciation reserve, railway.....	33,112 59	57,979 40	63,805 99	74,841 32	114,415 03	130,126 13	121,253 81
Depreciation reserve, lighting.....	8,304 73	14,284 48	20,789 96	28,721 39	40,946 85	55,588 22	63,455 67
Depreciation reserve, power plant.....							
Profit and Loss—Surplus.....	313,386 93	349,614 70	385,561 94	536,647 24	555,156 74	563,523 01	562,330 33
Total.....	\$1,245,962 87	\$5,639,472 17	\$6,771,429 99	\$22,018,945 19	\$23,037,062 79	\$24,245,443 83	\$24,467,599 25

TABLE 2a.
ANALYSIS OF CHANGES IN BALANCE SHEETS.
MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

ACCOUNT.		1898-1899	1899-1900	1900-1901	1901-1902	1902-1903	1903-1904	
<i>Assets.</i>								
Assets	Increase							
		Property.....	\$1,028,984 12	\$105,876 98	\$175,760 00	\$458,463 48	\$199,427 66	\$504,252 05
		Treasury securities.....			1,000 00		500,000 00	
		Reserve fund investments.....						
		Cash.....	1,715 35	329 28	3,523 29		1,244 89	
		Accounts receivable.....					30,000 00	30,000 00
		Miscellaneous assets.....			4 02	94 81		
Liabilities	Decrease	Bills payable.....						
		Accounts payable.....						
		Miscellaneous liabilities.....	300,185 67	128,566 95	82,135 71			232,159 15
		Surplus.....						
		Total.....	\$1,330,885 14	\$234,773 21	\$262,423 02	\$458,558 29	\$730,672 35	\$766,411 20
<i>Liabilities.</i>								
Liabilities	Increase	Common stock.....						
		Funded debt.....	\$1,301,594 39	\$231,000 00	\$243,000 00	\$275,000 00	\$277,000 00	\$697,000 00
		Bills payable.....						
		Accounts payable.....	12,609 79	1,358 99	5,557 62	2,073 48	1,118 67	8,655 15
		Reserve liabilities.....	1,342 56	2,245 00	744 06	2,608 27	22,038 98	21,123 84
		Miscellaneous liabilities.....				155,586 31	185,242 88	
		Surplus.....			13,121 34	20,563 39	245,169 20	34,533 00
Assets	Decrease	Treasury securities.....	15,100 00			1,000 00		
		Cash.....				1,726 84		5,085 77
		Accounts receivable.....	200 00					
		Reserve fund investments.....						
		Miscellaneous assets.....	38 40	169 22				
		Total.....	\$1,330,885 14	\$234,773 21	\$262,423 02	\$458,558 29	\$730,672 35	\$766,411 20

TABLE 2a—Concluded.

ACCOUNT.			1914-1915	1915-1916	1916-1917	1917-1918	1918-1919	1919-1910	1898-1910
<i>Assets.</i>									
Assets	Increase	Property.....	\$963,409 30	\$1,101,910 98	\$1,113,235 92	\$1,036,129 68	\$1,249,301 67	\$205,301 42	\$8,147,053 26
	"	Treasury securities.....	395,000 00		14,104,270 00	5,255 00			15,005,525 00
	"	Reserve fund investments.....				51,250 00		51,564 31	102,514 31
	"	Cash.....							6,812 61
	"	Accounts receivable.....	30,000 00	30,000 00	30,000 00				150,000 00
	"	Miscellaneous assets.....	100 00	46 84	9 28	482 92	5,579 37		6,317 24
Liabilities	Decrease	Bills payable.....			40,000 00	200,000 00			240,000 00
	"	Accounts payable.....				950 59			950 59
	"	Miscellaneous liabilities.....		276,473 49		58,899 08			1,078,420 05
	"	Surplus.....					1,633 73	1,192 68	2,826 41
		Total.....	\$1,393,509 30	\$1,408,431 31	\$15,287,515 20	\$1,352,967 27	\$1,256,514 77	\$257,758 41	\$24,740,419 47
<i>Liabilities.</i>									
Liabilities	Increase	Common stock.....	\$500,000 00		\$9,000,000 00				\$9,500,000 00
	"	Funded debt.....		\$1,096,000 00	5,681,000 00	\$1,189,000 00			\$10,990,594 79
	"	Bills payable.....		240,000 00					240,000 00
	"	Accounts payable.....	1,634 66	12,185 54	29,963 49		\$1,242 19	\$1,882 64	78,283 22
	"	Reserve liabilities.....	35,615 74	24,327 53	389,920 83	60,457 77	42,460 46	13,860 61	618,745 65
	"	Miscellaneous liabilities.....	\$20,001 13	35,545 58	35,545 58		1,166,312 12	207,604 85	2,570,292 87
	"	Surplus.....	26,237 77	35,917 24	151,085 30	28,509 50			665,156 74
Assets	Decrease	Treasury securities.....					250 00		16,350 00
	"	Cash.....							6,812 61
	"	Accounts receivable.....				75,000 00	45,000 00	30,000 00	150,000 00
	"	Reserve fund investments.....					1,250 00		1,250 00
	"	Miscellaneous assets.....						4,410 31	4,733 99
		Total.....	\$1,393,509 30	\$1,408,431 31	\$15,287,515 20	\$1,352,967 27	\$1,256,514 77	\$257,758 41	\$24,740,419 47

TABLE 3
COMPARATIVE INCOME ACCOUNT
THE MILWAUKEE ELECTRIC RAILWAY & LIGHT COMPANY

ACCOUNT	1897	1898	1899	1900	1901	1902	1903
<i>Earnings</i>							
Railway	\$1,408,417 04	\$1,520,751 58	\$1,668,962 87	\$1,850,086 10	\$2,032,208 07	\$2,302,514 14	\$2,558,459 03
Lighting	250,277 95	263,709 75	327,643 43	354,450 26	385,225 58	434,807 33	472,017 78
Total earnings	\$1,658,694 99	\$1,784,461 33	\$1,996,606 30	\$2,204,536 36	\$2,417,434 65	\$2,737,321 47	\$3,030,476 81
<i>Operating Expenses</i>							
Railway	\$811,257 98	\$822,762 45	\$846,362 30	\$855,193 31	\$1,012,547 67	\$1,081,901 47	\$1,291,832 13
Lighting	124,539 64	120,632 70	180,040 35	174,593 26	173,186 72	204,133 95	235,077 51
Total operating expenses	\$935,797 62	\$943,395 15	\$1,026,402 65	\$1,129,786 57	\$1,185,734 39	\$1,286,035 42	\$1,526,909 64
Surplus over operating expenses	\$722,897 37	\$841,066 18	\$970,203 65	\$1,074,749 79	\$1,231,700 26	\$1,451,286 05	\$1,503,567 17
<i>Income from Other Sources</i>							
Rentals	\$600 00	\$635 00	\$162 00	\$378 00	\$360 00	\$1,897 49	\$2,169 32
Stocks and bonds of other Cos	9,361 43	22,800 67	4,628 47	8,785 24	13,121 33	20,563 38	50,000 00
Interest on deposits	843 61	369 12	1,439 74	1,295 91	1,229 37	1,261 78	489 66
Net from merchandise sales	2,831 28	2,583 90	4,302 35	5,702 54	5,928 30	8,760 52	6,920 55
Net from isolated work and wiring					4,268 78	6,489 25	6,237 61
Miscellaneous income							
Total income from other sources	\$13,636 32	\$26,359 69	\$10,532 56	\$16,161 69	\$24,907 78	\$38,972 42	\$65,847 14
Income from all sources	\$736,533 69	\$867,595 87	\$980,736 21	\$1,090,911 48	\$1,256,808 04	\$1,490,258 47	\$1,569,414 31
<i>Deductions from Income</i>							
Taxes accrued	\$52,218 11	\$63,357 70	\$82,497 53	\$87,451 22	\$102,740 95	\$123,179 44	\$166,676 21
Depreciation	153,308 68	324,000 00	324,000 00	324,000 00	241,743 43	273,732 14	303,047 70
Total deductions	\$205,526 79	\$387,357 70	\$406,497 53	\$411,451 22	\$344,484 38	\$396,911 58	\$469,723 91
Net income available for return to capital	\$531,006 90	\$480,238 17	\$574,238 68	\$679,460 26	\$912,323 66	\$1,093,346 89	\$1,099,690 40

TABLE 3—Concluded

ACCOUNT	1904	1905	1906	1907	1908	1909	1910
<i>Earnings</i>							
Railway	\$2,668,640 79	\$2,669,846 60	\$2,973,443 17	\$3,221,912 44	\$3,223,179 82	\$3,466,684 94	\$3,787,323 15
Lighting.....	520,053 79	556,688 20	549,495 24	601,470 41	675,359 18	800,834 21	907,068 64
Total earnings.....	\$3,218,694 58	\$3,226,534 80	\$3,523,438 41	\$3,823,382 85	\$3,898,539 00	\$4,267,519 15	\$4,694,391 79
<i>Operating Expenses</i>							
Railway	\$1,372,299 71	\$1,313,051 42	\$1,455,763 88	\$1,684,066 73	\$1,678,704 88	\$1,760,723 17	\$2,086,343 44
Lighting.....	220,113 81	238,411 64	278,823 03	290,654 63	305,099 94	358,178 96	403,776 44
Total operating expenses.....	\$1,592,413 52	\$1,551,463 06	\$1,734,586 91	\$1,974,721 36	\$1,983,804 82	\$2,118,902 13	\$2,490,119 88
Surplus over operating expenses.....	\$1,626,281 06	\$1,675,071 74	\$1,788,851 50	\$1,848,661 49	\$1,914,734 18	\$2,148,617 02	\$2,199,271 91
<i>Income from Other Sources</i>							
Rentals.....	\$2,646 28	\$5,027 67	\$4,255 69	\$12,873 93	\$14,166 79	\$17,365 23	\$13,279 10
Stocks and bonds of other Cos.....	50,000 00	100,000 00	100,000 00	.....	35,000 00	35,000 00	62,588 53
Interest on deposits.....	335 76	1,511 10	21,658 77	33,432 20	17,387 82	6,839 52	.....
Net from merchandise sales.....	8,223 89	10,819 74	15,357 25	18,102 51	12,405 90	14,316 89	15,779 64
Net from isolated work and wiring.....	5,477 48	6,802 75	14,518 85	15,396 10	11,297 85	12,785 41	13,141 09
Miscellaneous income.....	.....	.....	.....	478 87	2,307 35	1,160 88	2,043 16
Total income from other sources	\$66,683 41	\$122,161 26	\$153,790 56	\$83,283 63	\$92,565 71	\$87,467 93	\$106,829 52
Income from all sources.....	\$1,692,964 47	\$1,797,233 00	\$1,944,642 06	\$1,931,945 15	\$2,007,299 89	\$2,235,104 95	\$2,306,101 43
<i>Deductions from Income</i>							
Taxes accrued.....	\$177,028 19	\$193,592 08	\$211,406 26	\$229,402 90	\$233,912 35	\$298,727 73	\$328,677 44
Depreciation	321,869 42	322,653 49	352,343 84	382,338 30	389,853 93	426,753 93	481,175 14
Total deductions.....	\$498,897 61	\$516,245 57	\$563,750 10	\$611,741 20	\$623,766 28	\$725,481 66	\$809,782 58
Net income available for return to capital	\$1,194,066 86	\$1,280,987 43	\$1,380,891 96	\$1,320,203 95	\$1,383,533 61	\$1,510,623 29	\$1,496,318 85

TABLE 4.
COMPARATIVE INCOME ACCOUNT.
MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

ACCOUNT.	1897	1898	1899	1900	1901	1902	1903
<i>Earnings.</i>							
Railway	\$10,194 26	\$55,022 74	\$170,545 03	\$238,836 29	\$264,122 59	\$291,103 23	\$352,618 97
Lighting	56,507 31	52,067 22	20,305 32	53,809 61	61,108 12	63,658 58	70,282 81
Total earnings	\$66,701 57	\$107,089 93	\$190,850 35	\$292,645 90	\$325,230 71	\$354,761 81	\$422,901 78
<i>Operating Expenses.</i>							
Railway	\$3,668 41	\$32,084 94	\$120,261 13	\$159,610 05	\$157,657 98	\$159,803 52	\$167,203 41
Lighting	33,246 14	45,020 05	11,863 50	32,106 72	38,782 01	41,611 96	45,816 88
Total operating expenses	\$44,914 55	\$77,104 99	\$132,124 43	\$191,716 77	\$196,439 99	\$201,415 48	\$213,020 29
Surplus over operating expenses	\$21,787 02	\$29,984 97	\$58,725 92	\$100,929 13	\$128,790 72	\$153,346 33	\$209,881 49
<i>Income from Other Sources.</i>							
Rentals	\$750 00	\$3,600 00		\$75 00	\$75 00	\$7 50	
Stocks and bonds of other companies							30,000 00
Interest on deposits			266 17	42 59	71 49	32 81	9 16
Net from mdse. sales							
Net from isolated work and wiring							
Misc. income							
Total income from other sources	\$750 00	\$3,600 00	\$266 17	\$117 59	\$146 49	\$40 31	\$30,029 16
Income from all sources	\$22,537 02	\$33,584 97	\$58,992 09	\$101,046 72	\$128,937 21	\$153,386 64	\$239,910 65
<i>Deductions from Income.</i>							
Taxes accrued	\$1,018 60	\$1,564 02	\$1,363 62	\$5,477 52	\$7,317 67	\$7,982 14	\$16,916 03
Depreciation							21,145 08
Total deductions	\$1,018 60	\$1,564 02	\$1,363 62	\$5,477 52	\$7,317 67	\$7,982 14	\$38,061 14
Net income available for return to capital	\$21,518 42	\$32,020 95	\$54,628 47	\$95,569 20	\$121,619 54	\$145,404 50	\$201,849 51

TABLE 4—Concluded.

ACCOUNT.	1904	1905	1906	1907	1908	1909	1910
<i>Earnings.</i>							
Railway.....	\$383,986 67	\$523,576 31	\$605,583 97	\$704,556 84	\$730,472 31	\$779,921 93	\$862,031 40
Lighting.....	77,968 37	65,423 96	96,633 64	121,573 81	122,254 63	147,702 79	194,718 44
Total earnings.....	\$461,955 04	\$609,000 27	\$702,222 61	\$826,130 65	\$852,726 97	\$927,624 72	\$1,056,749 84
<i>Operating Expenses.</i>							
Railway.....	\$172,255 72	\$208,840 05	\$229,860 43	\$268,822 50	\$1,9,562 10	\$323,389 59	\$369,557 99
Lighting.....	44,708 63	43,716 71	47,556 01	60,618 76	61,509 69	68,688 44	93,322 33
Total operating expenses.....	\$216,964 38	\$252,556 76	\$277,416 44	\$329,441 35	\$371,071 79	\$392,078 03	\$462,880 32
Surplus over operating expenses.....	\$244,990 66	\$356,443 51	\$424,806 17	\$496,689 30	\$481,655 18	\$535,546 69	\$593,869 52
<i>Income from Other Sources.</i>							
Rentals.....		\$128 00	\$526 00	\$399 33	\$558 63	\$1,140 73	\$1,181 33
Stocks and bonds of other companies.....	\$30,000 00	30,000 00	30,000 00		615,000 00	591,000 00	789,817 07
Interest on deposits.....	273 44				3,191 67		
Net from mdse. sales.....							
Net from isolated work and wiring.....						15 09	40 00
Misc. income.....				447 88			
Total income from other sources.....	\$30,273 44	\$30,128 00	\$31,826 00	\$1,147 21	\$618,750 30	\$592,155 73	\$791,038 40
Income from all sources.....	\$275,264 10	\$386,571 51	\$455,632 17	\$497,836 51	\$1,100,405 48	\$1,127,702 42	\$1,334,907 92
<i>Deductions from Income.</i>							
Taxes accrued.....	\$23,097 75	\$36,540 00	\$42,133 36	\$49,567 83	\$51,163 61	\$64,933 72	\$73,972 48
Depreciation.....	27,717 30	42,650 02	56,177 80	74,351 72	85,272 69	92,762 47	108,316 83
Total deductions.....	\$50,815 05	\$79,190 02	\$98,311 16	\$123,919 55	\$136,436 30	\$157,696 19	\$182,289 31
Net income available for return to capital.....	\$224,449 05	\$307,401 49	\$357,321 01	\$343,916 96	\$963,969 18	\$970,006 23	\$1,202,618 61

¹Includes \$2,641 83 contingencies in 1910.

Table 5 shows the disposition of the net income of The Milwaukee Electric Railway and Light Company available for return to capital. It is to be noted that net income has almost trebled within the period, while the interest on funded debt has nearly doubled. The dividends on preferred stock have claimed \$270,000 yearly since 1902, while the dividends on common stock, commencing in 1903 with \$589,802 or 7.36 per cent, increased to \$697,500 or 7.75 per cent in 1910, and reached the maximum in 1905, when 9 per cent was paid. The usual rate has been 6 per cent. The balance carried to the profit and loss account has varied greatly from year to year, reaching a minimum of a deficit of \$357,072.46 in 1903, when the first dividends were declared on the common stock, and a maximum of \$501,742.43 in 1910, when there was a "sundry addition" to income of \$500,000, arising from adjustments of the stock account.

Table 6 shows the disposition of the net income available for return to capital for the Milwaukee Light, Heat and Traction Company.

It seems that the net income available for return to capital, as noted hitherto, has increased greatly, and that the interest on the funded and floating debt has increased in an almost equal ratio. Transfers to The Milwaukee Electric Railway and Light Company, consisting of transfers of surplus under the operating agreement, and dividends on stock held by the company, increased from \$9,361.43 in 1897 to \$100,000 in 1906, after which they do not appear in this account. Common stock dividends, beginning in 1907 with \$200,000, or 2 per cent on the stock issued, increased by 1910 to \$547,399.88, or 5.47 per cent. The balance, carried to the profit and loss account, reached its maxima in 1903 and 1907, but since 1907 has tended to decrease, there being slight deficits for the last two years.

Table 7 is a comparative income account of The Milwaukee Electric Railway and Light Company for the railway business only, 1897 to 1910, inclusive.

It will be noted that the amount of fares received has increased from \$1,374,118.14 in 1897, to \$3,755,769.50 in 1910, an increase of 173 per cent, in spite of the fact that the average fare for revenue passengers decreased 14 per cent. Revenues from advertising increased from \$6,173.95 in 1897 to

\$22,306.43 in 1910. The different groups of operating expenses continued to bear approximately the same ratio to each other and to the total earnings throughout the period. After the income from other sources and the deductions from income had been apportioned, the remaining net income available for return to capital increased from 1897 to 1910 by 171 per cent for the railway business as compared to 182 per cent for the total business. The proportion of gross income from all sources which has remained for return to capital has been somewhat less for the railway business than the lighting business, although the difference has been small since the first few years.

Table 8 is a comparative income account of the Milwaukee Light, Heat and Traction Company for the railway business only, 1897 to 1910.

As was previously noted, the railway business of this company has shown marked development within this period, the amount of fares received increasing from \$10,194.26 in 1897 to \$847,780.22 in 1910. The ratio of operating expenses to operating earnings has fallen considerably during the period, the decrease being due mostly to the fall in the proportionate expenditures for conducting transportation, though the other groups of expenses likewise decreased in proportion to earnings. As a consequence of this decrease the surplus of earnings over expenses has increased steadily. After the apportionment of the large non-operating revenues and the deductions from income, the net income of the railway business available for return to capital has increased from \$1,264.93 in 1897 to \$1,016,155.64 in 1910, a much greater rate of increase than is shown for the net income of the total business, on account of the fact that the lighting business was better established in 1897 than the railway. The proportion of the total income from all sources, which was available for return to capital, tended to decrease until 1908, when the ratio again increased, owing to the increased income from the large number of securities of other companies acquired about that time.

TABLE 5
DISPOSITION OF NET INCOME AVAILABLE FOR RETURN TO CAPITAL
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY

Year.	Net income available for return to capital.	Interest on floating debt.	Interest on funded debt.	Dividends on preferred stock.	Excessive reserve for taxes, Cr. back.	Sundry additions.	Dividends on common stock.	Sundry deductions.	Balance to profit and loss for year.
1897.....	\$531,006 90	\$29,483 16	\$357,130 03	.....	.....	\$7,304 31	.....	\$84,757 91	³ \$33,059 89 ²
1898.....	480,233 17	28 72 ¹	383,252 54	.....	.....	79 00	.....	2,255 68	94,837 67
1899.....	574,238 63	10,835 75 ¹	412,019 93	.....	.....	303 83	.....	.....	173,353 34
1900.....	679,460 28	554 21 ¹	413,767 50	\$261,448 00	.....	.....	.....	.....	1,798 91
1901.....	912,323 63	3,218 29 ¹	413,872 88	267,431 00	.....	.....	.....	.....	234,238 07
1902.....	1,093,346 89	5,586 06 ¹	412,220 28	270,000 00	.....	.....	.....	.....	416,712 67
1903.....	1,099,690 40	7,939 41 ¹	409,920 27	270,000 00	.....	.....	.....	.....	357,072 46 ²
1904.....	1,194,066 86	7,641 70	409,920 27	270,000 00	\$55,000 00	.....	\$589,802 00	250,000 00	150,829 87
1905.....	1,280,987 43	4,850 58	409,920 28	270,000 00	25,000 00	.....	810,000 00	.....	183,783 43 ²
1903.....	1,380,891 96	283 85 ¹	510,048 45	270,000 00	25,000 00	.....	540,000 00	.....	86,127 36
1907.....	1,320,203 95	5,260 83	567,593 74	270,000 00	.....	24,322 41	540,000 00	4,826 82	43,164 03 ²
1908.....	1,383,533 61	28,186 53 ¹	601,621 63	270,000 00	.....	100,000 00	540,000 00	101,895 69	1,797 23 ²
1909.....	1,510,623 29	76,870 54 ¹	620,215 87	270,000 00	.....	.....	540,000 00	31,271 40	128,006 56
1910.....	1,495,318 85	100,683 58 ¹	627,700 00	270,000 00	.....	500,000 00	697,500 00	.....	501,742 43

¹Additions.

²Deductions.

³Additional deduction of \$100,000.00 unaccounted for.

TABLE 6
DISPOSITION OF NET INCOME AVAILABLE FOR RETURN TO CAPITAL
MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY

Italic figures denote deductions.

Year.	Net income available for return to capital.	Interest on floating debt.	Interest on funded debt.	Deductions trans. T. M. E. R. & L. Co.	Common stock dividends.	Sundry deductions.	Sundry additions.	Balance to profit and loss for year.
1897.....	\$21,518 42	\$583 33	\$11,573 66	\$9,361 43				
1898.....	32,020 95		9,920 28	22,100 67				
1899.....	54,628 47		50,000 00	4,628 47				
1900.....	95,569 20	1,105 69	85,762 11	8,701 40				
1901.....	121,619 54	3,682 16	91,694 71	13,121 33				\$13,121 34
1902.....	145,404 50	5,586 06	98,691 67	20,563 38				20,563 39
1903.....	201,849 51	7,959 41	122,969 59	50,000 00			\$24,248 69	245,169 20
1904.....	224,449 05	2,640 10	150,275 95	50,000 00			13,000 00	34,533 00
1905.....	307,401 49	14,993 72	161,150 00	100,000 00			5,000 00	36,257 77
1906.....	357,321 01	15,460 99	210,942 78	100,000 00			5,000 00	35,917 24
1907.....	343,916 93	53,121 80	238,876 53		\$200,000 00	\$145,833 33	445,000 00	151,085 30
1908.....	963,969 18	30,963 47	549,541 68		350,000 00	5,000 00	45 47	28,509 50
1909.....	970,003 23	62,189 97	559,449 99		350,000 00			1,633 73
1910.....	1,202,618 61	96,961 41	559,450 00		547,399 88			1,192 68

TABLE 7
COMPARATIVE INCOME ACCOUNT
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY
Railway only.

ACCOUNT	1897	1898	1899	1900	1901	1902	1903
<i>Earnings</i>							
Fares received.....	\$1,374,118 14	\$1,511,671 77	\$1,657,981 48	\$1,836,555 21	\$2,019,399 61	\$2,287,230 05	\$2,542,071 37
Private cars.....		3,079 81	4,509 05	7,024 14	6,102 70	6,412 40	5,970 46
U. S. mail.....							75 31
Advertising.....	6,173 95	6,000 00	6,085 00	6,470 00	6,466 76	8,274 59	8,930 84
Miscellaneous.....	28,124 95		87 34	36 75	239 00	597 10	1,411 05
Total earnings.....	\$1,408,417 04	\$1,520,751 58	\$1,668,962 87	\$1,850,086 10	\$2,032,208 07	\$2,302,514 14	\$2,558,459 03
<i>Operating Expenses</i>							
General expenses.....	\$125,157 35	\$147,300 60	\$152,944 30	\$173,939 71	\$192,706 86	\$208,598 63	\$226,122 60
Conducting transportation.....	513,174 10	521,604 10	527,174 47	623,548 70	663,041 28	710,412 93	878,909 71
Maint. way and structures.....	88,730 80	86,042 40	92,300 48	80,804 12	72,460 76	83,554 48	97,771 07
Maint. rolling stock.....	84,195 73	67,615 35	73,943 05	74,100 78	81,138 77	79,535 43	89,028 75
Total operating expenses.....	\$811,257 98	\$822,562 45	\$846,362 30	\$955,193 31	\$1,012,347 67	\$1,081,901 47	\$1,291,832 13
Surplus over operating expenses.....	\$597,159 06	\$698,189 13	\$822,600 57	\$894,892 79	\$1,019,860 40	\$1,220,612 67	\$1,266,626 90
<i>Income from Other Sources</i>							
Rentals.....	\$480 00	\$484 80	\$129 60	\$302 40	\$288 00	\$1,515 99	\$1,735 45
Stocks and bonds of other companies.....	7,489 14	18,380 54	3,702 78	7,028 19	10,417 07	16,450 70	40,000 00
Interest on deposits.....	674 89	295 29	1,151 79	1,036 73	983 51	1,003 42	391 73
Miscellaneous income.....							
Total income from other sources.....	\$8,644 03	\$19,160 63	\$4,984 17	\$8,367 32	\$11,768 58	\$ 8,976 11	\$12,127 18
Income from all sources.....	\$605,803 09	\$717,349 76	\$827,584 74	\$903,260 11	\$1,031,628 98	\$1,239,588 78	\$1,308,754 08
<i>Deductions from Income</i>							
Taxes accrued.....	\$42,452 93	\$54,281 50	\$69,083 33	\$73,584 72	\$86,368 84	\$103,613 12	\$140,715 24
Depreciation reserve.....	153,308 68	300,000 00	300,000 00	300,000 00	203,220 79	230,251 41	255,845 91
Total deductions.....	\$195,761 66	\$354,281 50	\$369,083 33	\$373,584 72	\$289,589 63	\$333,864 53	\$396,561 15
Net income available for return to capital.....	\$410,041 43	\$363,068 26	\$458,501 41	\$529,675 39	\$742,039 35	\$905,724 25	\$912,192 93

TABLE 7.—Concluded.

ACCOUNT	1904	1905	1906	1907	1908	1909	1910
<i>Earnings</i>							
Fares received.....	\$2,680,461 87	\$2,655,517 61	\$2,955,569 76	\$3,197,197 06	\$3,199,097 69	\$3,441,292 26	\$3,755,769 50
Private cars.....	7,175 90	5,300 50	8,349 88	6,330 15	5,190 70	4,986 50	5,320 50
U. S. mail.....	153 95					217 72	503 07
Advertising.....	9,220 82	8,690 00	9,045 00	17,737 50	18,066 00	19,470 00	22,306 43
Miscellaneous.....	1,628 25	338 49	478 53	647 73	825 43	718 46	3,423 65
Total earnings.....	\$2,698,640 79	\$2,669,846 60	\$2,973,443 17	\$3,221,912 44	\$3,223,179 82	\$3,466,684 94	\$3,787,323 15
<i>Operating Expenses</i>							
General expenses.....	\$232,959 55	\$237,294 69	\$273,541 90	\$322,541 64	\$328,722 68	\$317,808 12	\$327,063 60
Conducting transportation.....	906,076 62	877,717 85	945,238 50	1,056,992 30	1,064,497 96	1,133,161 26	1,327,405 60
Maint. way and structures.....	111,207 82	84,825 66	110,408 37	141,835 08	120,532 78	126,764 88	213,947 56
Maint. rolling stock.....	122,055 72	113,213 22	126,575 11	162,697 71	164,951 46	182,988 91	217,926 68
Total operating expenses.....	\$1,372,299 71	\$1,313,051 42	\$1,455,763 88	\$1,684,066 73	\$1,678,704 88	\$1,760,723 17	\$2,086,343 44
Surplus over operating expenses.....	\$1,326,341 08	\$1,356,795 18	\$1,517,679 29	\$1,537,845 71	\$1,544,474 94	\$1,705,961 77	\$1,700,979 71
<i>Income from Other Sources</i>							
Rentals.....	\$2,117 03	\$2,422 14	\$3,404 55	\$10,299 18	\$11,333 44	\$13,892 18	\$10,623 30
Stocks and bonds of other companies.....	40,000 00	80,000 00	80,000 00		28,000 00	28,000 00	50,069 22
Interest on deposits.....	268 61	1,208 88	17,327 00	29,145 74	13,910 25	5,471 66	
Miscellaneous income.....				383 09	1,845 87	923 72	1,634 53
Total income from other sources.....	\$42,385 64	\$83,631 02	\$100,731 55	\$39,828 01	\$55,089 56	\$48,292 56	\$62,327 05
Income from all sources.....	\$1,368,726 72	\$1,440,426 20	\$1,618,410 84	\$1,577,673 72	\$1,599,564 50	\$1,754,254 33	\$1,763,306 76
<i>Deductions from Income</i>							
Taxes accrued.....	\$148,425 24	\$160,190 80	\$178,406 56	\$193,314 68	\$193,390 78	\$242,667 93	\$274,580 93
Depreciation reserve.....	269,834 06	266,984 67	297,344 32	322,191 26	322,318 00	346,668 50	378,732 31
Total deductions.....	\$418,259 30	\$427,175 47	\$475,750 88	\$515,505 94	\$515,708 78	\$589,336 43	\$653,313 24
Net income available for return to capital.....	\$950,437 42	\$1,013,250 73	\$1,142,659 96	\$1,062,167 78	\$1,083,855 72	\$1,164,917 90	\$1,109,993 52

¹ Includes \$199,131.60 undistributed expenses in 1910.

² Includes \$9,468.30 contingencies in 1910.

TABLE 8.
COMPARATIVE INCOME ACCOUNT.
MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.
Railway Only.

ACCOUNT.	1897	1893	1899	1900	1901	1902	1903
<i>Earnings.</i>							
Fares received.....	\$10,194 26	\$34,110 98	\$163,497 08	\$233,238 10	\$256,584 76	\$287,368 09	\$341,795 62
Private cars.....		740 50	2,620 55	3,233 84	4,820 38	4,397 52	5,454 94
U. S. mail.....			184 51	283 32	286 36	286 32	592 00
Advertising.....			533 34	1,550 00	1,622 00	1,648 00	1,870 66
Miscellaneous.....		171 26	709 52	528 03	803 09	1,403 30	3,105 75
Total earnings.....	\$10,194 26	\$55,022 74	\$170,545 03	\$238,836 29	\$264,122 59	\$291,163 23	\$352,618 07
<i>Operating Expenses.</i>							
General expenses.....	\$1,242 28	\$5,788 99	\$19,589 36	\$26,201 15	\$25,961 38	\$27,074 06	\$32,956 03
Conducting transportation.....	5,552 26	21,125 45	77,958 42	109,642 19	109,764 25	110,389 09	107,853 31
Maintenance way and structures.....	984 10	2,938 28	12,986 36	12,388 24	10,319 80	11,492 69	13,897 49
Maintenance rolling stock.....	889 67	2,232 22	9,726 09	11,378 47	11,572 55	10,836 78	12,496 58
Total operating expenses.....	\$8,668 41	\$32,084 94	\$120,261 13	\$159,610 05	\$157,657 98	\$159,803 52	\$167,203 41
Surplus over operating expenses.....	\$1,525 85	\$22,937 80	\$50,283 90	\$79,226 24	\$106,464 61	\$131,299 71	\$185,415 56
<i>Income from Other Sources.</i>							
Rentals.....					\$33 75	\$6 38	
Stocks and bonds of other companies.....							\$25,500 00
Interest on deposits.....					60 77	27 89	24 79
Miscellaneous income.....							
Total income from other sources.....					\$124 52	\$34 27	\$25,524 79
Income from all sources.....	\$1,525 85	\$22,937 80	\$50,283 90	\$79,226 24	\$106,589 13	\$131,333 98	\$210,940 35
<i>Deductions from Income</i>							
Taxes accrued.....	\$230 92	\$769 31	\$4,013 52	\$4,497 86	\$5,942 75	\$6,549 83	\$14,104 74
Depreciation reserve.....							17,620 95
Total deductions.....	\$230 92	\$769 31	\$4,013 52	\$4,497 86	\$5,942 75	\$6,549 83	\$31,725 69
Net income available for return to capital.....	\$1,294 93	\$22,168 49	\$46,270 38	\$74,728 38	\$100,646 38	\$124,784 15	\$179,214 66

TABLE 8—Concluded.

ACCOUNT.	1904	1905	1906	1907	1908	1909	1910
<i>Earnings.</i>							
Fares received.....	\$369,828 20	\$513,778 49	\$593,150 98	\$632,555 89	\$718,630 59	\$766,820 13	\$847,780 22
Private cars.....	6,911 47	5,486 30	9,010 02	7,045 45	5,976 50	7,506 16	8,415 64
U. S. mail.....	440 49	281 74	281 72	281 72	281 72	223 27	196 93
Advertising.....	2,039 46	2,087 96	2,195 00	3,351 00	3,928 00	3,937 00	4,057 44
Miscellaneous.....	4,767 05	1,961 82	946 25	1,289 78	1,655 50	1,435 37	1,581 17
Total earnings.....	\$383,986 67	\$523,576 31	\$605,533 97	\$704,556 84	\$730,472 31	\$779,921 93	\$862,031 40
<i>Operating Expenses.</i>							
General expenses.....	\$34,680 36	\$49,406 78	\$57,957 05	\$71,842 94	\$75,394 56	\$72,659 94	\$74,469 64
Conducting transportation.....	105,427 61	126,476 70	133,265 82	173,000 30	182,784 42	194,926 05	220,965 73
Maintenance way and structures.....	15,458 16	14,197 75	15,066 20	25,588 47	21,876 09	23,003 34	36,803 67
Maintenance rolling stock.....	16,689 59	18,758 82	20,571 36	28,390 88	29,507 03	32,803 26	37,318 95
Total operating expenses.....	\$172,255 72	\$208,840 05	\$229,860 43	\$333,822 51	\$309,562 10	\$323,389 59	\$369,557 99
Surplus over operating expenses.....	\$211,730 95	\$314,736 26	\$375,723 54	\$405,734 25	\$420,910 21	\$456,532 34	\$492,473 41
<i>Income from Other Sources.</i>							
Rentals.....		\$108 80	\$702 10	\$534 43	\$174 81	\$969 62	\$1,004 13
Stocks and bonds of other companies.....	\$25,500 00	25,500 00	25,500 00		522,750 00	502,350 00	671,344 51
Interest on deposits.....	232 43				2,712 91		
Miscellaneous income.....				380 70		12 75	34 00
Total income from other sources.....	\$25,732 43	\$25,608 80	\$26,202 10	\$975 13	\$525,937 72	\$503,322 37	\$672,382 64
Income from all sources.....	\$237,463 33	\$340,345 06	\$401,925 64	\$406,709 33	\$946,847 93	\$959,854 71	\$1,164,856 05
<i>Deductions from Income.</i>							
Taxes accrued.....	\$19,199 35	\$31,414 57	\$30,335 03	\$42,273 42	\$43,828 34	\$54,594 54	\$60,342 20
Depreciation reserve.....	23,039 21	33,650 33	43,446 72	63,410 03	73,017 23	77,992 20	88,358 21
Total deductions.....	\$42,238 56	\$65,064 90	\$73,781 75	\$105,683 51	\$116,845 57	\$132,586 74	\$148,700 41
Net income available for return to capital.....	\$195,224 82	\$275,280 16	\$328,143 89	\$301,025 87	\$829,972 36	\$827,277 97	\$1,016,155 64

¹Includes \$51,609.60 undistributed expense in 1910.

²Includes \$2,155.07 contingencies in 1910.

Table 9 is a comparative income account of the railway business of The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company combined, for the years 1897 to 1910, inclusive.

The total earnings, composed almost entirely of fares, have increased from \$1,418,611.30 in 1897 to \$4,649,354.55 in 1910, an increase of 228 per cent, the increase of the total earnings per car-hour being 59 per cent and per car-mile 49.5 per cent. Operating expenses increased from \$819,926.39 in 1897 to \$2,455,901.43 in 1910, or an increase of about 200 per cent. The operating ratio has tended to decrease slightly and the operating surplus to increase in proportion. The income from all sources has increased from \$607,328.94 to \$2,928,162.81, or 382 per cent, this larger rate of increase being due mostly to the income derived by the Milwaukee Light, Heat and Traction Company from its treasury securities. This figure, however, contains duplications owing to the interrelation of securities and accounts payable. Deductions from income, taxes and depreciation reserve, have increased from \$196,022.58 to \$802,013.65, or 309 per cent, while the total net income available for return to capital has increased from \$411,306.36 to \$2,126,149.16, or 417 per cent.

Table 10 compares a few operating units of The Milwaukee Electric Railway and Light Company, and the Milwaukee Light, Heat and Traction Company for the period of 1897 to 1910. These units are of interest as showing not only the development of each company but also their comparative development. It will be noted that the total miles of single track operated by The Milwaukee Electric Railway and Light Company has not increased materially during the period, the usual small annual increase being offset by the sale of lines outside the city limits to the Milwaukee Light, Heat and Traction Company and the abandonment of track. On the other hand, the track operated by the Milwaukee Light, Heat and Traction Company has increased steadily from 6.73 miles in 1897 to 224.36 miles in 1910. The combined mileage has increased from 142.10 in 1897 to 360.61 in 1910, an increase of 154 per cent. Of this combined mileage, in 1897, The Milwaukee Electric Railway and Light Company composed 95.26 per cent and the Milwaukee Light, Heat and Traction Company 4.74 per cent. The

ratio belonging to the Milwaukee Light, Heat and Traction Company has increased constantly until, in 1910, The Milwaukee Electric Railway and Light Company operated only 37.78 per cent and the Milwaukee Light, Heat and Traction Company 62.22 per cent of the combined track mileage.

The growth in number of the car-hours has been steady for each company. The Milwaukee Electric Railway and Light Company increasing from 873,178 to 1,546,513, or an increase of 77 per cent. The car-hours of the Milwaukee Light, Heat and Traction Company, meanwhile, increased from 8,694 to 267,801. The combined increase was 106 per cent. In 1897, 99.02 per cent of the car-hours were The Milwaukee Electric Railway and Light Company and 0.98 per cent the Milwaukee Light, Heat and Traction Company. By 1910, the proportions had changed to 85.24 per cent and 14.76 per cent, respectively.

The car-miles have shown a similar increase. The Milwaukee Electric Railway and Light Company increasing 81 per cent, and the combined increase being 119 per cent. In 1897 The Milwaukee Electric Railway and Light Company operated 98.82 per cent of the car-miles and the Milwaukee Light, Heat and Traction Company 1.18 per cent. By 1910 the proportions had become 81.65 per cent and 18.35 per cent, respectively.

The total number of passengers carried has increased more than the other units, those carried by The Milwaukee Electric Railway and Light Company increasing from 35,195,122 in 1897 to 120,744,648 in 1910, an increase of 243 per cent. The number of passengers carried by the Milwaukee Light, Heat and Traction Company increased from 234,609 to 11,525,409. The combined increase of the two companies was 273 per cent. In 1897 The Milwaukee Electric Railway and Light Company carried 99.34 per cent and the Milwaukee Light, Heat and Traction Company 0.66 per cent of the total number of passengers. By 1910 the two companies carried 91.29 per cent and 8.71 per cent, respectively, of the total passengers.

TABLE 9
COMPARATIVE INCOME ACCOUNT
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY
Railway Only

ACCOUNT	1897	1898	1899	1900	1901	1902	1903
<i>Earnings</i>							
Fares received.....	\$1,384,312 40	\$1,565,782 75	\$1,824,478 56	\$2,039,793 31	\$2,275,984 37	\$2,570,598 14	\$2,883,866 99
Private cars.....		3,820 31	7,429 60	10,257 98	10,923 08	10,809 92	11,425 40
U. S. mail.....			184 54	286 32	286 36	286 32	467 31
Advertising.....	6,173 95	6,000 00	6,618 34	8,020 00	8,088 76	9,922 59	10,801 50
Miscellaneous.....	28,124 95	171 26	796 86	564 78	1,048 09	2,000 40	4,516 80
Total earnings.....	\$1,418,611 30	\$1,575,774 32	\$1,839,507 90	\$2,088,922 39	\$2,296,330 66	\$2,593,617 37	\$2,911,078 00
<i>Operating Expenses</i>							
General expenses.....	\$126,399 63	\$153,089 59	\$172,533 66	\$200,140 86	\$218,668 24	\$235,672 69	\$259,078 63
Conducting transportation.....	518,726 46	542,729 55	605,132 89	736,190 89	775,805 53	820,812 92	986,763 02
Maintenance way and structures.....	89,714 90	88,980 68	105,286 54	92,992 36	82,820 56	94,847 17	111,668 56
Maintenance rolling stock.....	85,055 40	69,847 57	83,670 04	85,479 25	92,711 32	90,372 21	101,525 33
Total operating expenses.....	\$819,926 39	\$854,647 39	\$966,623 43	\$1,114,803 36	\$1,170,005 65	\$1,241,704 99	\$1,459,035 54
Surplus over operating expenses.....	\$598,684 91	\$721,126 93	\$872,884 47	\$974,119 03	\$1,126,325 01	\$1,351,912 38	\$1,452,042 46
<i>Income from Other Sources</i>							
Rentals.....	\$480 00	\$184 80	\$189 60	\$302 40	\$351 75	\$1,522 37	\$1,735 45
Stocks and bonds of other companies.....	7,489 14	18,380 54	3,702 78	7,028 19	10,497 07	16,450 70	65,500 00
Interest on deposits.....	674 89	295 29	1,151 79	1,036 73	1,044 28	1,037 31	416 52
Miscellaneous income.....							
Total income.....	\$8,644 03	\$19,160 63	\$4,934 17	\$8,367 32	\$11,893 10	\$19,010 38	\$67,651 97
Income from all sources.....	\$607,328 94	\$740,287 56	\$877,868 64	\$982,486 25	\$1,138,218 11	\$1,370,922 76	\$1,519,694 43
<i>Deductions from Income</i>							
Taxes accrued.....	\$12,713 90	\$55,050 81	\$73,096 85	\$78,082 58	\$92,311 59	\$110,162 95	\$154,819 98
Depreciation reserve.....	153,308 68	300,000 00	300,000 00	300,000 00	203,220 79	230,251 41	273,476 86
Total deductions.....	\$166,022 58	\$355,050 81	\$373,096 85	\$378,082 58	\$295,532 38	\$340,414 36	\$428,296 84
Net income available for return to capital...	\$441,306 36	\$385,236 75	\$504,771 79	\$604,403 77	\$842,685 73	\$1,030,508 40	\$1,091,397 59

TABLE 9—Concluded.

ACCOUNT	1904	1905	1906	1907	1908	1909	1910
<i>Earnings</i>							
Fares received.....	\$3,050,290 07	\$3,169,266 10	\$3,548,720 74	\$3,889,782 95	\$3,917,728 28	\$4,208,112 39	\$4,603,549 72
Private cars.....	14,087 37	10,766 80	17,359 90	13,375 60	11,167 20	12,492 66	13,736 14
U. S. mail.....	594 44	281 74	281 72	281 72	281 72	440 99	700 00
Advertising.....	11,260 28	10,777 96	11,240 00	21,091 50	21,994 00	23,407 00	29,001 29
Miscellaneous.....	6,335 30	2,300 31	1,424 78	1,937 51	2,480 93	2,153 83	2,367 40
Total earnings.....	\$3,082,627 46	\$3,193,422 91	\$3,579,027 14	\$3,926,469 28	\$3,953,652 13	\$4,246,606 87	\$4,649,354 55
<i>Operating Expenses</i>							
General expenses.....	\$267,639 91	\$286,701 47	\$331,498 95	\$394,384 58	\$404,117 24	\$390,468 06	\$401,533 24
Conducting transportation.....	1,011,504 23	1,004,194 55	1,078,504 32	1,229,992 60	1,247,282 88	1,328,087 31	1,548,371 33
Maintenance way and structures.....	128,665 98	99,023 41	128,474 57	167,423 55	142,408 87	149,768 22	250,751 23
Maintenance rolling stock.....	133,745 31	131,972 04	147,146 47	191,088 59	194,458 49	215,789 17	255,245 63
Total operating expenses.....	\$1,544,555 43	\$1,521,891 47	\$1,685,624 31	\$1,982,889 32	\$1,988,266 98	\$2,084,112 76	\$2,455,901 43
Surplus over operating expenses.....	\$1,538,072 03	\$1,671,531 44	\$1,893,402 83	\$1,943,579 96	\$1,965,385 15	\$2,162,494 11	\$2,193,453 12
<i>Income from Other Sources</i>							
Rentals.....	\$2,117 03	\$2,530 94	\$4,106 65	\$10,893 61	\$11,808 25	\$4,861 80	\$11,627 43
Stocks and bonds of other companies.....	65,500 00	105,500 00	105,500 00	29,145 74	550,750 00	530,350 00	721,413 73
Interest on deposits.....	501 04	1,208 88	17,327 00	.....	16,623 16	5,471 66	.....
Miscellaneous income.....	.....	.....	.....	763 79	1,845 87	941 47	1,668 53
Total income.....	\$28,118 07	\$109,239 82	\$126,933 65	\$40,803 14	\$581,027 28	\$551,624 93	\$734,709 69
Income from all sources.....	\$1,606,190 10	\$1,780,771 26	\$2,020,336 48	\$1,984,383 10	\$2,546,412 43	\$2,714,119 04	\$2,928,162 81
<i>Deductions from Income</i>							
Taxes accrued.....	\$167,624 59	\$191,005 37	\$214,741 59	\$235,588 10	\$237,219 12	\$297,262 47	\$325,454 83
Depreciation reserve.....	292,903 27	303,635 00	345,791 04	385,601 35	395,365 23	424,660 70	476,558 82
Total deductions.....	\$460,527 86	\$495,240 37	\$560,532 63	\$621,189 45	\$632,584 35	\$721,923 17	\$802,013 65
Net income available for return to capital....	\$1,145,662 24	\$1,285,530 89	\$1,459,803 85	\$1,363,193 65	\$1,913,808 28	\$1,992,195 87	\$2,126,149 16

TABLE 10.
OPERATING UNITS
OF THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

YEAR.	MILES OF SINGLE TRACK OPERATED						CAR-HOURS.					
	T. M. E. R. & L. Co.		M. L. H. & T. Co.		Combined.		T. M. E. R. & L. Co.		M. L. H. & T. Co.		Combined.	
	Miles.	Per cent.	Miles.	Per cent.	Miles.	Per cent.	Miles.	Per cent.	Miles.	Per cent.	Miles.	Per cent.
1897.....	135.37	95.26	6.73	4.74	142.10	100	873,178	99.02	8,694	0.98	881,872	100
1898.....	139.55	80.59	33.61	19.41	173.17	100	850,635	97.24	24,138	2.76	874,773	100
1899.....	140.29	65.72	73.18	34.28	213.47	100	877,756	90.08	96,661	9.92	974,417	100
1900.....	139.99	63.84	79.30	36.16	219.29	100	997,784	86.70	153,078	13.30	1,150,862	100
1901.....	138.34	62.89	81.63	37.11	219.97	100	1,041,816	87.50	148,914	12.50	1,190,730	100
1902.....	139.52	62.52	83.63	37.48	223.15	100	1,050,977	87.97	143,663	12.03	1,194,640	100
1903.....	141.73	58.91	98.84	41.09	240.57	100	1,088,842	87.66	153,240	12.34	1,242,082	100
1904.....	142.01	56.40	109.79	43.60	251.80	100	1,166,950	87.94	159,943	12.06	1,326,893	100
1905.....	123.05	48.36	131.41	51.64	254.46	100	1,198,319	85.75	199,063	14.25	1,397,382	100
1906.....	116.22	45.00	142.00	55.00	258.22	100	1,308,756	85.99	213,273	14.01	1,522,029	100
1907.....	116.22	43.97	148.08	56.03	264.30	100	1,383,653	85.10	242,200	14.90	1,625,853	100
1908.....	121.45	39.38	186.97	60.62	308.42	100	1,367,793	84.73	246,566	15.27	1,614,359	100
1909.....	130.88	38.64	207.80	61.36	338.68	100	1,433,060	84.72	258,494	15.28	1,691,554	100
1910.....	136.25	37.78	224.36	62.22	360.61	100	1,546,513	85.24	267,801	14.76	1,814,314	100

TABLE 10—Concluded.

YEAR.	CAR-MILES.						TOTAL PASSENGERS.					
	T. M. E. R. & L. Co.		M. L. H. & T. Co.		Combined.		T. M. & E. R & L. Co.		M. L. H. & T. Co.		Combined.	
	Miles.	Percent.	Miles.	Percent.	Miles.	Percent.	Miles.	Percent.	Miles.	Percent.	Miles.	Percent.
1897.....	7,632,849	98.82	91,206	1.18	7,724,055	100	35,195,122	99.34	234,609	0.66	35,429,731	100
1898.....	7,426,033	96.57	263,486	3.43	7,689,519	100	33,990,758	98.42	625,359	1.58	39,616,117	100
1899.....	7,662,821	88.19	1,026,532	11.81	8,689,353	100	43,001,956	95.05	2,238,336	4.95	45,240,292	100
1900.....	8,395,323	84.71	1,515,549	15.29	9,910,872	100	49,212,074	93.32	3,523,969	6.68	52,736,043	100
1901.....	8,639,402	81.88	1,544,513	15.12	10,213,915	100	54,024,726	93.54	3,734,033	6.46	57,768,759	100
1902.....	9,143,023	85.94	1,496,220	14.06	10,639,243	100	61,087,507	94.08	3,846,711	5.92	64,934,218	100
1903.....	9,568,915	85.80	1,583,888	14.20	11,152,803	100	68,556,814	93.72	4,593,993	6.28	73,150,717	100
1904.....	10,477,929	86.60	1,621,696	13.40	12,099,625	100	72,570,810	93.62	4,940,655	6.38	77,511,465	100
1905.....	10,521,160	83.12	2,135,719	16.88	12,656,879	100	81,482,841	91.81	7,265,263	8.19	88,748,104	100
1906.....	11,492,013	83.30	2,305,776	16.70	13,797,789	100	92,110,135	91.66	8,385,401	8.34	100,495,536	100
1907.....	12,294,354	81.39	2,811,084	18.61	15,105,438	100	100,921,311	91.38	9,524,676	8.62	110,445,947	100
1908.....	12,144,642	80.12	3,013,321	19.88	15,157,963	100	101,831,038	91.52	9,440,829	8.48	111,301,867	100
1909.....	12,887,776	80.45	3,131,338	19.55	16,019,114	100	109,248,941	91.36	10,325,376	8.64	119,573,377	100
1910.....	13,812,813	81.65	3,102,499	18.35	16,915,312	100	120,744,648	91.29	11,525,409	8.71	132,270,057	100

These figures are significant when compared with the other indices of the city's growth. The population of Milwaukee increased from 264,650 in 1897 to 373,857 in 1910, an increase of 41.27 per cent, while, as previously noted, the total passengers carried by the Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company combined increased 273 per cent, indicating a greatly increased use of cars. For The Milwaukee Electric Railway and Light Company alone, the revenue passengers increased 217 per cent, free passengers 62 per cent, transfer passengers 353 per cent, and total passengers 243 per cent within the period. According to statistics obtained from Milwaukee annual trade reports, the amount of suburban building increased, from 1897 to 1909, 419 per cent, showing one probable cause of the increased number of passengers. The relative development of other business in the city is shown by the following percentages of increase for the period 1897 to 1909: bank clearings 142 per cent; bank balances 82 per cent; the number of manufacturing establishments 41 per cent; the value of manufacturing production 155 per cent; the number of employes engaged in manufacturing 98 per cent; manufacturing employes' wages 197 per cent; the amount of capital employed in manufacturing 124 per cent; the receipts of the post office department 173 per cent; annual building costs in the city 158 per cent; the number of buildings erected 68 per cent; and the total sales in the wholesale and jobbing trade 122 per cent. Compared with these indications of the general business growth, we note that the total railway earnings of The Milwaukee Electric Railway and Light Company increased within this period by 146 per cent, while for The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company combined the increase was 199 per cent. The total railway expenses of The Milwaukee Electric Railway and Light Company increased 117 per cent, and of the two companies combined 154 per cent. The car-miles increased 69 per cent and 107 per cent, respectively, and the car-hours 64 per cent and 92 per cent, respectively. The value of property and plant of the companies, as given in the balance sheets, increased 85 per cent for The Milwaukee Electric Railway and Light Company and 129 per cent for the two companies combined.

The determination as to whether respondent company is earning a sufficient or more than a reasonable return upon the property used and useful for traction purposes, resolves itself into an analysis of values and operating tendencies underlying these summarized statements. Much evidence has been introduced in criticism of, and supplementary to, the results disclosed by the company's books. In places it is possible to definitely correct the book accounts of values and earnings, frequently, however, what are reasonable corrections lie somewhere between maximum and minimum results and must be made a matter of careful determination from every available viewpoint.

The lines of inquiry may be grouped under four headings:

1. The reasonable value of the investment used and useful for passenger traction service in Milwaukee.
2. The normal cost of performing such service including an allowance for accrued losses to property sustained because of such service.
3. The rate of return to which the investment is entitled.
4. The portions of company's business upon which surpluses over and above a reasonable rate of return have been earned, if any.

VALUE OF PROPERTY.

The value of the property used and useful for street railway purposes in Milwaukee, upon which the company is entitled to a fair return, is the most important single factor affecting the determination of whether company's present rate of fare is unreasonable and excessive.

A large number of factors have been suggested as probable tests of such a value. Among these are capitalization, the appraised cost of reproduction new, the depreciated or present value, the appraised value of the earnings, the value for purposes of taxation, and the appraised value of the service.

Of these separate factors not much stress is laid upon the value based upon earnings, since it is recognized that in an inquiry involving the reasonableness of earnings such consideration ought not affect the determination of the value upon which such rates are based. The appraised value for purposes of taxation may lead to similar erroneous conclusions. Such values are frequently based upon net earnings or the ability of

the company to carry a portion of the general burden of taxation and involve a capitalization of net profits even though such profits arise from excessive rates.

The importance of the remaining factors and their equity to both the company and the public will depend upon the availability of evidence and the local circumstances surrounding the case, such as the history of the property, the sacrifices of the owners, and the satisfaction that is given to the public. No single factor can be said to control in each and every case, and it appears that no single rule has been developed by judicial interpretation in proceedings of this kind involving reasonableness of rates.

The evidence as to value in the present case has been exceptionally comprehensive. The company's books of accounts are submitted since the date of reorganization in 1897 and have been separately audited by accountants employed by the city and by the company, and this evidence has been supplemented by inventory of the property upon that date and Jan. 1, 1907, and Jan. 1, 1910. Unfortunately no books of account exist preceding the reorganization, but the records of available facts as to earnings and operating expenditures may be determined within certain limits. For convenience the evidence relating to the value of tangible property has been considered under two headings, "Book value", involving the records of the investment as determined from the company's books of account, and "Appraised value" involving the detailed inventory of appraisal made by examining engineers.

BOOK VALUE.

All estimates of value of traction properties based upon the financial records of the company assume a value at the time of reorganization and add to such ascertained initial value the cost of all property additions since that time.

Such additions for the period Jan. 1, 1897, to Dec. 31, 1906, inclusive, have been covered by a thorough examination and audit of the books by Mr. Edward E. Gore, C. P. A., of the firm Barrow, Wade, Guthrie & Co., on behalf of the city; and a critical re-analysis of those results has been made by Mr. Chas. J. Marr, C. P. A., of the firm Dickinson, Wilmot & Sterrett. The two reports on this point are practically in accord.

Objection is raised, however, to the inclusion of certain items and to the principle of the apportionment of the property common to both railway and lighting business by counsel for the city in its brief.

Value of the Property, Jan. 1, 1897.

The initial value of the property on Jan. 1, 1897, dating with the opening of the books of the new company, and the basis of the determining of that value is perhaps the most controverted question of fact in the record before us. The value of the property as appearing on the books of the company, the value of the stocks and bonds, the price fixed at reorganization of the property, the cash investment for rehabilitation and the purchase of preceding companies, the price paid at foreclosure, the cost of reproduction new and existing value at prices current at the time, the cost of reproduction new and existing value at prices existing at the present time, and the value fixed as reasonable in the previous rate case as adjudicated in the United States circuit court, are all cited in evidence as elements to be considered in determining such a value.

The opening entries of the property account of the company give a value of \$14,186,951.95, but disclose no details as to what items make up this amount. A portion of this value is covered by investment in railway property; a portion by the investment in lighting properties. The lighting business of the company at this time, however, was small and it is alleged that fully 80 per cent of the investment was devoted to railway purposes. In the opinion of JUDGE SEAMAN in the circuit court case, this value is held to be greatly excessive, 87 Fed. Rep. 577, 584, and the evidence contains many admissions that some downward revision is proper.

The par value of stock and bonds at the time of reorganization aggregated \$14,000,000, and was made up of first mortgage bonds \$5,500,000, underlying bonds assumed \$1,500,000, preferred stock \$3,500,000, and common stock \$3,500,000. The securities of the Milwaukee Street Railway Company at the time of reorganization aggregated \$12,687,000, and were made up of \$8,912,000 first consolidated mortgage bonds, \$1,275,000 second mortgage bonds, \$1,500,000 underlying bonds, and \$1,000,000 stock, of which \$800,000 was outstanding. It is pointed

out in the various computations submitted that the stock was worth at least 50 per cent of its par value and evidence is presented to the effect that the bonds were sold on the market in large quantities at 80 cts. on the dollar.

Attention is called to the Wisconsin statute under which the reorganization was effected, section 1788, Revised Statutes 1898, which allows the company to fix the price and number of shares of stock and bonds put into the new organization. Such a capital value, established pursuant to law and under express grant, it is urged, must be controlling and any other course would impeach the credit of the company and deprive innocent holders of the value of securities authorized by statute.

The cash investment in the railway property has been variously estimated. According to the testimony of President Chas. W. Wetmore, of the North American Company, the cost of railway properties would amount to \$11,313,829.84, if stocks and bonds were taken at par and the difference between interest at 5 per cent and the net earnings since the operation of the property be allowed during construction. Assuming that the stock of the Wisconsin company was worth 50 per cent of the par value and the first consolidated bonds 80 per cent, the cash investment would aggregate \$9,721,595.93.

An analysis of the terms of the acquisition of the preceding companies and the cost of electrifying the mule car equipment thus purchased is likewise presented by Mr. Wetmore and reveals a total cost of the traction properties aggregating \$8,885,644.17. Of this amount \$5,831,253.37 was expended for the acquisition of properties and \$3,054,390.80 for the work of rehabilitation. Of the total, again, \$3,296,294.17 consisted of cash expenditures and \$5,589,350.00 of transferred securities.

Details of the terms of acquisition of preceding companies have been given in the discussion of organization and are summarized in the statement submitted by the company's accountants in table 11, pp. 68-69.

The total mileage of the separate companies purchased aggregated 110 and was made up of: Milwaukee City Railroad Company, animal, 40.50 miles; Cream City Railway Company, animal, 31.25 miles; Milwaukee Electric Street Railway Company, electric, 12.75 miles; West Side Railroad Company, part electric, 20.75 miles; White Fish Bay Railway Company, steam

dummy, 4.75 miles. Of this total mileage 7.75 miles were removed in order to make way for a more convenient and efficient arrangement of the system. The entire remaining mileage, with the exception of the White Fish Bay dummy line, was changed to electric traction. This work was accomplished under contract with the Edison General Electric Company of New York who took charge of the construction and equipment of the power station and of the electric equipment of the railway and installation of the lighting plants. The cash cost of this amounted to \$1,165,560.34. The Milwaukee Street Railway Company constructed its roadbed and track under the supervision of its own officers and engineers at a cash cost of \$1,888,830.46. The money for these purposes was obtained from the sale of consolidated mortgage bonds which were sold by the company for cash at 80 and accrued interest and were used in settling with the Edison company for its construction account, which was the equivalent of the sale for cash of \$925,000 of bonds at 90 and without interest. These amounts, it is alleged, do not include the expenditures for construction and rehabilitation of the lighting properties.

TABLE 11.

COMPANY'S ACCOUNTANTS' STATEMENT OF INVESTMENT JAN. 1, 1897.¹

Showing Securities Issued and Cash Expended by the Milwaukee Street Railway Co. for the Acquisition of Properties or for the Reconstruction Thereof and Showing Also the Basis on Which These Securities Were Subsequently Exchanged for Those of The Milwaukee Elec. Ry. & Light Co in 1896.

	Par value.	How disposed of	Cash expenditures.
(a) Securities issued or moneys expended for acquisitions of railway properties or for construction purposes:			
Milwaukee City Railroad.....	\$1,950,000 00	At 80 = \$1,580,000 00	.....
" underlying bonds assumed.....	1,000,000 00	Discount 390,000 00	.....
Whitefish Bay Railway.....		1,000,000 00	\$241,849 27
Cream City Railway.....	1,142,000 00	1,142,000 00	54 10
West Side Railroad, 1st consolidated.....	167,000 00	133,600 00	.....
" 2nd ".....		Discount 33,400 00	.....
" underlying bonds.....	1,275,000 00	Discount 956,250 00	.....
Milwaukee Electric Street Railway.....	500,000 00	Discount 318,750 00	.....
Construction.....	350,000 00	Discount 52,500 00	.....
Edison General Electric Construction.....			1,888,830 46
Total cost of railway properties.....			1,165,560 34
Total discount.....		\$5,589,350 00	\$3,296,294 17
(b) Securities issued or moneys expended for acquisition of lighting properties or for construction purposes:			
Edison Electric Illuminating Co.....	671,000 00	\$536,800 00	\$323 98
" Construction.....		Discount 134,200 00	67,958 66
" General construction.....			284,547 39
Badger Illuminating Co.....	387,000 00	387,000 00	10,500 00
Milwaukee Electric Light Co.....	77,000 00	63,600 00	.....
Construction.....		Discount 13,400 00	275,207 58
Total cost of lighting properties.....			\$987,400 00
Total discount.....			147,600 00
Total cost of railway and lighting properties.....		\$6,576,750 00	\$3,934,831 73
Total discount.....		942,250 00	.....

The cash expenditures of \$3,934,831.78 were provided for by the sale of bonds of the par value of \$4,168,000.00, applicable as to \$3,537,700.00 to the railway and as to \$630,300.00 to the lighting department, which amounts should, therefore, be deducted from the cash column and added to the bond column as follows:

Railway.....				23,934,831 78
Lighting.....				
Total railway.....				
Total lighting.....				
Total bonds of Milwaukee Street Railway.....				
Common stock				
Accrued interest				
Total capitalization of Milwaukee Street Ry. at date of reorganization.....				
		Cash	\$3,296,294 17	
		Discount	241,405 83	
		Cash	638,537 61	
		Discount	28,237 61	
		Cash cost	\$8,885,644 17	
		Discount	992,842 98	
		Cash cost	1,625,937 61	
		Discount	182,575 24	
			\$11,687,000 00	
			1,000,000 00	
			\$12,687,000 00	

The above mentioned securities were exchanged for securities of the Milwaukee Electric Railway and Light Company as follows:

Underlying bonds.....

For old consolidated 1st—

\$8,912,000.00 less \$6,000.00 in treasury = \$8,906,000 @ 61.756%.....

\$8,906,000.00 @ 38.244% =

For old consolidated 2nd =

\$1,275,000.00 @ 200% =

For old common stock.....

For accrued interest—say.....

Total capitalization of The Milwaukee Electric Railway & Light Co. at time of reorganization.....

	Underlying bonds assumed.	New 1st mortgage bonds.	New preferred stock.	New common stock.
	\$1,500,000 00			
		\$5,500,000 00		
			\$3,406,000 00	
				\$2,550,000 00
				950,000 00
			94,000 00	
Total capitalization of The Milwaukee Electric Railway & Light Co. at time of reorganization.....	\$1,500,000 00	\$5,500,000 00	\$3,500,000 00	\$3,500,000 00

¹ Company's accountants' exhibit 1005, Ex. K.

² Credit.

³ Made up of—

1st consolidated mortgage bonds.....	\$8,912,000 00
2nd	1,275,000 00
Underlying bonds.....	1,500,000 00

\$11,687,000 00

The city in its brief cites the record as showing that the North American Company turned over the property of the constituent railway companies owned and controlled by it to the Milwaukee Street Railway Company, which it likewise owned and controlled, for \$2,451,464 in excess of what was paid for the properties. Two transfers for example relate to the acquisition of the Milwaukee City Railroad Company, viz., a transfer by Thomas F. Ryan to the North American Company, for \$200,000 stock, \$850,000 bonds, and \$540,000 cash, and a subsequent transfer by the North American Company to the Milwaukee Street Railway Company for \$400,000 common stock, \$1,950,000 bonds, and an assumed \$1,000,000 mortgage. The details of these transfers have already been elaborated in our discussion of the organization of the property. It is urged that the North American Company had left over, after the consummation of the deal, \$1,300,000 of stock and bonds for which it paid \$540,000 in cash, or 41.54 per cent of the par value, and that as Mr. Ryan was party to the contract which provided for the capitalization of the company and how this capitalization was to be distributed, it can be assumed that he placed the same value on the stocks and bonds acquired by him, i. e., 41.54 per cent of \$1,050,000, or \$436,170, which added to the \$540,000 gives the cash basis at which the property was acquired as \$976,170, subject to \$1,000,000 underlying bonds, or \$1,976,170.

On this and similar bases of computation for the other acquired properties, the city scales down the par value at which the constituent railway companies were absorbed from \$7,373,403 to \$4,921,939. Details of these results are contained in table 12. It will be noted from table 11 that the company in its computations of net investment values places no value upon the stock transferred, and lists the larger portion of bonded indebtedness at 80. With these two adjustments, the company has scaled down the par value in constituent companies from \$7,373,403 to \$5,831,253.37.

Adding the cost of rehabilitation and electrification of the absorbed traction properties, aggregating \$3,054,390.80, gives a resulting investment value on the basis of the company's accountants' estimate of \$8,885,644.17, and on the basis of the city's brief of \$7,976,329.80.

	Terms of organization by Milwaukee Street Railway Co.	Terms of acquisition by North American Co.	Per cent correction.	Net worth of securities.
<i>Railway Properties.</i>				
(a) Milwaukee City Railroad Company.....	\$400,000 common stock 1,950,000 bonds 1,000,000 bonds assumed \$3,350,000	\$200,000 stock } 850,000 bonds } 540,000 cash } 1,000,000 bonds assumed	241.54	\$436,170 540,000 1,000,000 \$1,976,170
(b) Cream City Railway Company.....	\$400,000 common stock 1,142,000 bonds, 54 cash \$1,542,054	\$60,000 stock 900,000 cash \$960,000	360.7	\$36,420 900,000 \$936,420
(c) West Side Railroad Company.....	\$1,442,000 bonds 500,000 bonds assumed \$1,942,000	\$970,000 cash 500,000 bonds assumed \$1,470,000	100.00%	\$970,000 500,000 \$1,470,000
(d) Milwaukee and Whitefish Bay Co.....	\$241,849 cash			\$241,849
(e) Milwaukee Electric Street Railway Co.....	\$350,000 bonds 52,500 discount \$297,500			\$297,500
Total cost of acquiring railway properties.....				\$4,921,939
<i>Lighting Properties</i>				
(a) Edison Electric Illuminating Company.....	\$50,000 stock 671,000 bonds 324 cash \$721,324	\$317,084 cash	100.00%	\$317,084
(b) Badger Illuminating Company.....	\$140,000 stock 387,000 bonds 500 cash \$527,500	\$310,000 cash	100.00%	\$310,000
Total cost acquiring lighting properties.....				\$627,084
Total cost of acquiring railway and lighting properties.....				\$5,549,023

¹ Compiled from data supplied in city's brief pp. 74-77 inc.² Ratio of cash to par value of additional securities purchased—\$1,300,000 (divided) \$540,000—41.54%.³ Ratio of cash to par value of additional securities purchased—\$1,482,054 (divided) \$900,000—60.7%.

The accountants employed by the city, Messrs. Barrow, Wade & Guthrie, examined such records as were available as to the property accounts of the Milwaukee Street Railway Company and found certain items which they deemed properly excluded from a property account. The sums total of these exclusions, aggregating \$3,082,265.42, are listed in table 13, and reduce the book value from \$12,102,412.01 to \$9,020,146.59:

TABLE 13.
EXCLUSIONS TO PROPERTY ACCOUNT—1894 TO 1896 INCLUSIVE.
MILWAUKEE STREET RAILWAY COMPANY.
Compiled from City Accountants' Report, part I, pp. 35-37 inclusive.

	Railway.	Lighting.	Common.	Total.
Capital stock.....	\$800,000 00			\$800,000 00
Discount on bonds.....	837,547 32	\$100,018 12	\$243,700 00	1,181,265 44
Interest and discount.....	21,164 25	5,676 65	17,561 06	44,401 96
General expense N. Y. office.....	34,807 44	9,336 01	3,408 28	47,551 73
Expense reorganization.....			41,764 48	41,764 48
Interest accrued on bonds.....			217,658 34	217,658 34
Interest to bond holders under plan.....			320,688 51	320,688 51
Interest accrued Jan. 1, 1896.....			563,762 50	563,762 50
Interest.....			1,563 90	1,563 90
Betterments of 1895 (repairs only)	68,613 95			68,613 95
Unexp'l increase opening books... Legal service fees for foreclosure and damages settlement.....	8,852 56		160,992 40	160,992 40
Payment to receivers.....			13,000 00	13,000 00
Services.....			12,555 00	12,555 00
Payment to committee.....			22,500 00	22,500 00
Payment on outstanding bonds and coupons.....			10,203 33	10,203 33
Judgments, printing and engraving and Central Trust Co.....			9,742 07	9,742 07
Total.....	\$1,770,985 52	\$115,030 78	\$1,639,099 87	\$3,525,116 17
Add 89% of common.....	1,311,279 90			
	\$3,082,265 42			

¹ Difference shown in the cents column caused by a 10c mistake in the Gore statement.

From the testimony it is gathered that the items of capital stock were eliminated because it represented evidence of property and not property itself. All items of discount on bonds were eliminated on the ground that the city, being a party to the contract with the street railway company, had the right to assume that the party contracting had the money on hand with which to carry on the contract, and the city, when its rights become involved in the matter, could not be called upon to respect the fact that the company was then unable to supply the money without selling its securities at a discount. The

same reasons are assigned for the exclusion of interest and discount, general expenses of local office, betterments during 1895, an unexplained increase of \$160,992 in opening the books, and all items of expense relating to the reorganization committee, payments to receivers, Central Trust Company service, payments to committees, interest to bondholders under plan of reorganization, payments on outstanding bond coupons, judgments, printing and engraving stock certificates and authenticating bonds, etc. This list of eliminations is not an exhaustive one and the examining accountant, Mr. Gore, qualifies his conclusions as to adjusted railway property value by stating that there may be items included in the \$9,020,146.59 which should properly be eliminated.

Counsel for the city lay stress upon the fact that the property of the Milwaukee Street Railway Company was sold under foreclosure upon Jan. 29, 1896, for \$5,000,000 cash, subject to two underlying mortgages for \$1,500,000. Company's contention is that this foreclosure was a necessary step in reorganizing the securities issued against the property and in no way represents the value of this property on that date. It appears that the organization was effected by the security holders under a definite plan of agreement dated May 31, 1895, the details of which are included in the testimony.

In brief, the plan of organization provided that the depositors of the first consolidated mortgage bonds receive 61.756 per cent of the par value in new consolidated bonds and the difference between this percentage and the par value of the old bonds or holdings, 38.244 per cent, in shares of new preferred stock. All the capital stock of the new company was delivered to depositors of the first consolidated bonds of the old company in payment of the 38.244 per cent referred to. The holders of the second consolidated mortgage bonds received common stock to the amount at its par value of 200 per cent of the par value of the bonds which they surrendered. The holders of the stock of the Milwaukee Street Railway Company of New Jersey, a foreign corporation capitalized at five times the amount of the Milwaukee Street Railway Company of Wisconsin, received 20.2 per cent of the par value of their holdings in common capital stock of the new company, thus absorbing the balance of the common stock. The details of this distribution are given in the schedule of the company's accountants, table 11.

The appraised value or cost of reproduction new of the traction property as of Jan. 1, 1897, has been the matter of two separate inventories and appraisals in the record in the circuit court case and of several re-appraisals upon the basis of the accepted inventories in the present case.

In the former proceeding, the city introduced in testimony the appraisal of Mr. Partenheimer who placed the value of the company's property at \$2,358,799. It appears, however, that this estimate was somewhat hastily made and that there were omitted in the appraisal various items, such as tools, buildings, supplies on hand, interest during construction, salaries and wages of employes during construction, locomotives, and twenty-seven miles of street railway line.

The company likewise introduced the inventory appraisal of Mr. W. J. Clark of the General Electric Company, disclosing a total cost of reproduction new of \$5,153,288.

This value is evidently accepted by the respondent in the present case as representing the physical value cost of reproduction new, and all computations as to the accrued depreciation of the property since organization are based upon this initial value. According to the testimony of Mr. Marr, the expert accountant for the company, the cost of reproduction new is placed at \$5,153,288, the cost of reproduction existing value is placed at \$4,000,000, and the difference between \$4,000,000 and the \$8,885,644.17, or estimated investment value, table 12, is held to represent the intangible values arising out of the additional cost of preëxisting systems, necessarily acquired to form a new complete and unified system, and the value of franchises existing in the previous properties.

The city in its brief accepts in general the inventory of traction property upon which the Clark appraisal is based, introduces a new set of unit prices similar to those employed by the Railroad Commission staff in its tentative appraisal, and by an involved process of deductive reasoning estimates the cost of reproduction new as \$3,256,510, and the cost of reproduction existing value as \$2,684,541. These computed values are presented separately for track, electrical distribution system, paving, cars, power plants, buildings, etc., and their careful examination has necessitated a re-appraisal of the Clark inventory by the engineer of the Commission. A comparison of the resulting values is given in table 14:

TABLE 14.
VALUATION PLACED UPON THE INVENTORY OF PHYSICAL PROPERTY.
PREPARED BY W. J. CLARK AS OF JAN. 1, 1897.

DISTRIBUTION.	1Clark.		1City brief.		1Commission's engineer.	
	Item.	Total.	Item.	Total.	Item.	Total.
A. Track and Electrical Distribution System.		\$1,879,037 23		\$1,651,622 49		\$1,640,293 76
I. Straight track construction.	\$1,135,905 76		\$716,719 18		\$1,000,742 56	
II. Track special work.	182,840 00		182,840 00		208,936 20	
III. Ties, ballast, etc.			17,872 75			
IV. Track bonding.	65,512 50		65,512 00		37,124 00	
V. Overhead electrical construction.	257,919 00		254,919 00		227,719 00	
VI. Underground feeder system.	236,800 00		236,800 00		1 5,772 00	
VII. Percentage addition.			176,959 56			
B. Paving.		532,641 80		213,554 40		446,283 61
C. Cars and Car Equipment.		541,445 00		518,235 00		588,056 00
I. Car trucks.	65,400 00		62,150 00		72,400 00	
II. Car bodies.	238,025 00		255,525 00		319,815 00	
III. Electrical car equipment.	188,020 00		170,560 00		195,841 00	
D. Power Plants and Buildings.		888,715 00		501,191 69		774,742 60
I. Buildings.	405,400 00				349,632 00	
II. Power plant, stacks, foundations, etc.	121,100 00				99,000 00	
III. Electrical equipment.	121,650 00				121,650 00	
IV. Steam equipment.	240,565 00				204,460 00	
E. Miscellaneous Property.		83,232 00		215,123 43		83,232 00
I. Snow sweepers.	13,500 00				13,500 00	
II. Whitefish Bay dummy line equipment.	25,400 00				25,400 00	
III. Track and line tools.	4,070 00				4,070 00	
IV. Overhead and track material.	15,000 00				15,000 00	
V. Machinery and shop tools.	25,262 00				25,262 00	
F. Real Estate.		450,000 00		156,782 50		474,900 00
G. Additions to Tangible Property.		748,197 70				480,900 83
I. Architect's fees, superintendence.	90,845 66					
II. Engineering contingencies.	282,766 70					
III. Interest during construction.	134,535 34					
IV. Legal and court expenses.	40,000 00					
V. Electrical patent rights.	200,000 00					
Error.		19 00				
Total appraised value.		\$5,153,287 76		\$3,256,509 51		\$4,488,408 25

1 References to exhibits from which the above table was compiled: 1. Estimates on reproduction—Milwaukee Street Railway, Wm. J. Clark, complainants proof on rebuttal, circuit court case, p. 49-153. 2. City's brief—appendix. 3. Special report to Commission.

TABLE 15.
A COMPARISON OF THE ESTIMATES OF THE COST OF REPRODUCTION NEW OF THE STRAIGHT TRACK CONSTRUCTION
OF THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.
Made by William J. Clark, the City's Brief, and the Commission's Engineer.
As of Jan. 1, 1897.

CLASS OF RAIL.	ESTIMATE OF CLARK			ESTIMATE OF CITY'S BRIEF			ESTIMATE OF COMMISSION'S ENGINEER		
	Miles of track	Cost per unit.	Total cost	Miles of track	Cost per mile	Total cost.	Miles of track.	Cost per mile.	Total cost.
58 lb. girder rail.....	69.19	\$8,296 39	\$574,027 20	69.19	\$5,184 10	\$357,687 87	69.08	\$7,339 49	\$507,011 97
63 " ".....	1.60	8,628 39	13,805 42	1.60	5,420 20	8,672 32	1.89	7,576 20	12,044 57
38 " ".....	2.02	7,273 03	14,691 52	2.02	4,165 04	8,413 39	2.02	6,326 23	12,778 98
78 and 80 lb. girder rail.....	21.32	9,768 25	203,825 95	21.32	6,342 38	135,219 46	21.89	8,500 58	186,077 70
90 " ".....	0.65	10,321 65	6,709 70	0.65	6,948 60	4,516 59	0.65	9,103 86	5,917 51
Tee rail.....	25.50	7,533 73	192,110 00	25.50	4,408 44	112,415 13	28.05	6,581 96	184,623 94
70 lb. box rail.....	1.70	10,172 35	17,293 00	1.70	7,099 00	12,034 22	1.21	9,234 00	11,173 14
45 and 52 lb. flat rail.....	7.93	9,529 78	76,142 97	7.99	5,822 62	46,522 70	7.60	8,367 73	63,594 75
Car barn tracks.....	3.10	10,000 00	31,000 00	3.10	8,025 00	24,877 50	3.10	3,600 00	11,160 00
Falk joints.....	13,180	2 00	6,360 00	13,180	2 00	6,360 00	13,180	2 00	6,360 00
Total.....	133.07	.....	\$1,135,965 76	133.07	.....	\$716,719 18	135.49	.....	\$1,000,742 56
Average cost per mile.....	.....	.....	\$8,536 60	.....	.....	\$5,386 03	.....	.....	\$7,386 10

¹ Pieces.

It is noted from table 14 that the city has reduced the appraised value placed in evidence by Mr. Clark in the circuit court case from \$5,153,288 to \$3,256,510. The re-appraisal of the Commission's engineer based upon the inventory submitted by Clark aggregates \$4,488,408.25. These differences are due to a variance in the unit prices used and to numerous omissions contained in the city's estimate. It is particularly to be noted that the city's estimate is based almost entirely upon 1906 prices; that of Clark and the Commission's engineer upon prices as of 1897. Other differences arise from the exclusion by the city of property outside the city limits, credit for which is allowed by the Commission upon the change of title of that property from The Milwaukee Electric Railway and Light Company to the Milwaukee Light Heat and Traction Company in 1905. The following is a brief explanation of the points at variance and summarizes a detailed report submitted by the engineer of the Commission. As typical of the variation in individual estimates the detail of the valuation of straight track construction is given in table 15.

A. Track and Electrical Distribution System.

The estimate contained in the city's brief, before making an allowance of 12 per cent to cover engineering, superintendence and contingencies, is \$404,374.33 lower than the Clark appraisal and \$165,630.83 lower than the re-appraisal made by the Commission's engineer. The city omitted 2.42 miles of straight track. Unit prices for straight track are uniformly lower in the city's brief, resulting in an average of \$5,386.03 per mile as against \$8,536.60 per mile in the Clark figure, and \$7,386.10 in the estimate of the Commission's engineer. The lower unit prices of the Commission's engineer are due to differences in the separate estimates for track laying, surfacing, miscellaneous hauling and clearing up.

For bonding, overhead electrical construction and underground feeder system the city's brief accepts Clark's estimate with little change. The Commission's engineer believes that Clark has either doubled the number of bonds per mile or their unit price and makes corresponding reductions in the appraised value for bonding. Reductions from the unit prices employed by Clark are also made by the Commission's engineer for trolley wire, for iron poles and for underground cable.

B. Paving.

The city's brief is \$349,087.40 lower than the Clark appraisal and \$232,729.21 lower than the Commission's engineer. The city, in the endeavor to distinguish between paving actually laid

by the company and paving existing at the time of appraisal, bases its estimate upon the arbitrary assumption that paving bore a similar proportion to track construction before 1897 as since, or 21.726 per cent. The appraisal of the Commission's engineer reduces unit prices for cedar blocks from \$1 to 73 cts. per square yard.

C. Cars and Car Equipment.

The city's brief is \$23,210 lower than the Clark appraisal and \$69,821 lower than the Commission's engineer. The city excluded twenty-two cars with the total value of \$23,210 which it alleges were purchased after Jan. 1, 1897. With this exception, the city has accepted the Clark appraisal figures. The Commission's engineer has increased certain of the unit prices for car trucks, bodies, and equipment.

D. Power Plants and Buildings.

The estimate contained in the city's brief is \$387,523.31 lower than the Clark appraisal and \$273,550.31 lower than the re-appraisal of the Commission's engineer. It is difficult to determine just what items are contained in the city's figure. Two power plants are evidently included, being Wells street and River street, and these comprise \$295,619.33 of the total. The remaining \$205,572.36 is listed as "Other buildings." The estimate of the value of the River street plant is made by deducting property additions since 1897 from the cost of reproduction new, as disclosed in the engineer's tentative value of the property for 1906, and assuming that 46.94 per cent of the resulting value is railway as distinct from lighting property. Electrical machinery in the Wauwatosa power plant and steam machinery in the Kinnickinnic station, Farwell avenue station, Third street station and Twelfth and Wells street station are omitted. The Commission's engineer estimates buildings at a considerably lower figure than that used in the Clark appraisal.

E. Miscellaneous Property.

The city's brief is \$131,891.43 higher than the Clark estimate and the estimate of the Commission's engineer. Owing to the different nature of the separate items, however, these totals are not comparable. The city's valuation is obtained by deducting from the appraisal of miscellaneous property, contained in the tentative appraisal of the Commission's engineer of date Dec. 31, 1906, plus 12 per cent, aggregating \$382,397.12, the additions from 1897 to 1906 inclusive, aggregating \$167,273.69.

F. Real Estate.

The city's brief is \$293,217.50 lower than the Clark appraisal and \$318,117.50 lower than the appraisal of the Commission's engineer. The city entirely omitted about one-half of the real estate property, including the Second street car barn valued at

\$178,000, Third street car barns, property at Twenty-second and Wells street, etc. For the property valued the brief accepts the Clark figures. The Commission's engineer increased some of the prices for real estate situated outside of the city limits.

G. Additions to Tangible Property.

The city's brief made no separate addition to tangible property to cover engineering, superintendence during construction, contingencies, etc., beyond the additions already included under track, electrical distribution and miscellaneous property. These additions amount to approximately \$530,000 less than the Clark estimate and \$263,000 less than the estimates of the additions by the Commission's engineer. The total of the additions made by the city amounts to about 7 per cent on the total value of the property. The total additions of the engineer of the Commission aggregate 12 per cent. No allowance as an item of tangible property is made by the city's brief or the Commission's engineer for patent rights appraised at \$200,000 in the Clark estimate. Omitting patent rights, the additions of the Clark estimate are approximately 12 per cent of the total appraised value.

In addition to estimating the cost of reproduction new the city has attempted in its brief an estimate of the cost of reproduction depreciated value, and the investment as of Jan. 1, 1897. These values aggregate \$2,684,541 and \$2,885,248, respectively.

In determining the depreciated value of the property reliance has evidently been placed by the city in its brief upon the testimony of several of the company's officials as to the rehabilitation necessary at the reorganization of the property. Much of this evidence relating to insufficiency of ties, ballast and weight of rail must be construed rather as a criticism of their existing standards of construction than as evidence of lack of upkeep. The facts must not be lost sight of that the electric traction business was then in its experimental period, that the Milwaukee properties were pioneers in the field and that the success of traction transportation has been much advanced since that time. Present standards and prices can only be applied with considerable qualification to conditions existing on Jan. 1, 1897. It is not necessary to cite in detail the testimony to which reference is made. The sum total of the claims for depreciated value result in a condition per cent, or ratio of the depreciated value to the cost new, of 82.44 per cent. The resulting ratio of the estimate of depreciated

value made by the accountant for the company to the Clark appraisal, or cost new, viz., \$4,000,000 to \$5,153,288, is 77.63 per cent. Applying the city's brief's condition percentage to the valuation of the Clark inventory made by the Commission's engineer, an existing value would result of \$3,700,243.76.

The so-called investment value of the city's brief is an appraisal of the cash cost of the property to the investor and is a reduction of \$371,262 over the cost of reproduction new, this amount being the alleged cost of property additions charged to depreciation and operation prior to the reorganization. To estimate this deduction the appraised values have been projected back to Jan. 1, 1894, and the financial records for 1894, 1895 and 1896 submitted in the circuit court case are cited as supporting this conclusion. The relation of the cost of reproduction new and depreciated value to the investment value is thus defined:

"If the company has failed, under reasonable good management to earn enough to cover operating expenses, depreciation and a reasonable return on its investment and the deficits are not covered by the cost of going value, the cost of reproduction new will represent the investment of the company, provided there has not been a material variance in unit prices.

"If the company has earned its depreciation in addition to the other elements of cost and has set it aside on a sinking fund basis, and has not diverted the fund to other purposes, the cost of reproduction, new, should represent the investment.

"When the company has earned enough to cover these elements and has failed to set aside a fund to cover depreciation, or has diverted such fund to other purposes, it has withdrawn a part of the original investment and the present value of its investment is represented by the cost of reproduction existing condition, or depreciated value."

The relation of the expenditures from the depreciation reserve to the investment value is defined as follows in the city's brief:

"If replacements charged against the fund equal in cost the elements replaced, and such elements are discarded when the replacement is installed, the cost of reproduction new will always equal the 'primary' investment and the balance in the depreciation reserve will equal the difference between the cost of reproduction, new, and the value existing condition. In this instance the cost of reproduction, new, represents the investment of the company in physical property.

“If the replacements charged to depreciation reserve exceed in cost the cost of the elements replaced, thus increasing the value new of the inventory, but do not exceed the accrued partial and total depreciation, the charges against capital represent the investment.

“If charges are made against depreciation reserve to cover partial depreciation, thus increasing the number of units in the inventory, and do not exceed the accrued partial depreciation, the charges against capital represent the investment.

“If the charges are made against depreciation reserve which result in increasing the inventory and exceed the accrued depreciation, the investment is represented by the charges against capital plus such service and the charges against operation should be reduced by such excess.

“If charges made against depreciation reserve equal the accrued depreciation the value existing condition and the charges against capital will be the same and will represent the investment.”

Upon the facts presented in the circuit court case JUDGE SEAMAN, in his opinion accompanying the granting of a permanent injunction, states:

“I am satisfied that the property of the complainant represents a value based solely upon the cost of reproduction exceeding \$5,000,000, and I am further satisfied that this amount is not the true value of the investment in the enterprise. It leaves out of consideration any allowance for necessary and reasonable investment in the purchase of old lines and equipments which are indispensable to the contemplated improvements but of which a large part was of such a nature that it does not count in the final inventory.” *The Milwaukee El. Ry. & Lt. Co. v. City of Milwaukee*, 1898, 87 Fed. 577, 585.

In its computation as to what constitutes a reasonable return upon the property, the court assumes a valuation of \$7,000,000.

As to which of these various elements are entitled to the greatest weight in determining the initial value of the investment or book cost of the traction property in Milwaukee, the briefs and arguments of counsel are at considerable variance. The company claims an investment of at least \$8,885,644.17, this being its minimum claim in the case decided in its favor in the federal court. The city claims that the capitalization upon which this figure is based throws little light upon the investment of the present company for electric street railway purposes; that the original capitalization of the constituent com-

panies did not exceed \$4,660,000; that the purchase of these properties was based upon prospective earnings rather than the cost of reproduction; and that little, if any, of the property was useful for electric railway purposes. It contends that only the depreciable value of so much of the property as was acquired from predecessor companies and was available for use can be considered as devoted to electric railway purposes; that the right to electrify was granted by the common council at the solicitation of Mr. Payne, the agent of the company; and that after its grant the stockholders declined to make the change; that the lines could have been operated to the end of the franchises, when the property would have had none other than scrap value; and that the city, at the expiration of the franchises, could have compelled the old companies to remove their property, could have granted the right to a new company to build an electric line, or could, if there had been a pressing immediate demand, have granted the right to build electric lines on parallel streets, in which event the horse car property would have been valueless. It is contended in the brief that the owners of these properties put them in at inflated values, and that the purchasers again inflated the values for the purposes of capitalization, and that the company cannot now be heard to contend that the obsolete worn out horse car equipment and franchises and the inflated values predicated upon the mistaken idea of prospective earnings can be included in the value properly determined for rate-making purposes.

In contending for a high value of the property as of Jan. 1, 1897, the counsel for the company pointed out the fact that an adjacent system of electric traction in Milwaukee would have been impossible without the additional purchase of the horse railway lines and admitted that the lines as built were not suitable for electric traction, that they were the best type of horse railway and thoroughly suited for horse railway service. It is pointed out that the Clark inventory is based upon prices considerably lower than those paid at installation and that some compensation is due the organization who conceived and planned the combination of five separate systems into one electric railway, and who had the courage to undertake and bring the venture to success.

As the respondent contends that the cost to it of the five companies or property involved up to Jan. 1, 1897, was not

less than \$8,885,644.17, and as cost values of this sort are given considerable weight in valuations, it is important that the accuracy of this figure should be determined as fully as possible in the light of the testimony already outlined.

The alleged cost of \$8,885,644.17, as indicated by the facts already presented, was made up of the first consolidated bonds of the Milwaukee Street Railway, amounting to \$1,950,000 and applied at \$1,560,000; the Milwaukee City underlying bonds of \$1,000,000 at par; the Cream City Railway issue of \$1,142,000 at par; the West Side first consolidated bonds of \$167,000 at \$133,600; and second consolidated of \$1,275,000 at \$956,256; and also \$500,000 underlying bonds at par; the Milwaukee Electric Street Railway issue of \$350,000 at \$297,500. In other words, bonds to the amount of \$2,642,000 were thus applied at par, while bonds to the amount of \$3,742,000 were so applied at \$2,947,350. That is, bonds, the par value of which was \$6,384,000, were applied in the purchase at \$5,589,350. In addition to this, the Milwaukee Street Railway issued \$3,537,700 of bonds which were disposed of at \$3,296,294, of which net amount \$241,849 were devoted to the purchase of the White Fish Bay line, and \$3,054,391 to additions and improvements of the properties up to Jan. 1, 1897. Over and above the items enumerated there was also a small cost outlay in connection with the purchase of the Cream City Railway of \$54.10. The par values of the securities issued and assumed thus foot up to \$9,921,700, while the figure at which they were applied stands at \$8,885,644, which sum, as stated, was given as the cost of the properties to the respondent, when the discounts on these securities, or the difference between the two sums just given, which amounts to \$1,036,056, is omitted from consideration.

This cost of \$8,885,644 amounts to \$138,463 less than the cost as shown on books of the respondent, as developed by the accountants in the case. This difference between the two sets of costs is almost entirely accounted for by the fact that the accountants included in their figures certain items for new improvements which amounted to \$168,996 and excluded therefrom certain other items amounting to \$30,554.

While these facts throw much light on how the roads in question were acquired and consolidated into one company, they do not seem to represent the fair value of the property that was used and useful in serving the public. In fact, care-

ful analyses of these costs indicate that they are out of proportion to the actual cost of this property, based on reasonable quantities and unit prices, as well as to the earning power of the roads at the time of the consolidation and for several years subsequent thereto. It is difficult to reconcile this cost with an amount that would ordinarily be regarded as a judicious expenditure upon the plant and its business under the circumstances. This is even true when it is admitted that, under such radical changes in the methods of transportation as those which were going on about that time, it may be neither possible nor in line with public policy to shift all losses and apparent wastes, that are incidental to such changes or progress, upon the shoulders of the investors.

It is well known from experience that public utilities are mostly over-capitalized, and that the par value of their outstanding securities usually exceeds the actual investment in the property that is used and useful in connection with the services they render to the public. In fact, the bonds alone often amount to more than the cost-value of this property. The reasons for this are easily explained. They are found in the fact that in capitalizing the plants, whether for the purposes of consolidation or otherwise, securities are often issued not only against actual and other costs, but against estimated monopoly profits, future increases in the business, estimated savings in expenses and many other elements of this nature. Not only this, but investigators of such matters feel that the greater proportions of the consolidation of business interests during the past three decades have had their sources in the opportunities for private gains that were offered to insiders in connection therewith, through unlimited security issues and the rigging of the markets by which these securities were unloaded upon the public at prices that netted such insiders large profits. In the public utility field, where monopolistic conditions largely obtain, the opportunities for such practices have been relatively large. That security issues, based on such conditions, cannot often fairly measure either actual investments in, or fair value of, the property they represent, is rather obvious. It is equally clear that excessive capital issues of this sort cannot ordinarily constitute a fair and equitable basis for the valuation upon which the rates charged for the services rendered to the public should be fixed.

Public utilities, for adequate service and under normal conditions, are ordinarily entitled to rates that will cover reasonable amounts for operating expenses, including depreciation and interest and profit on a fair valuation of the property used and useful in serving the public. What constitutes adequate service, reasonable returns, and fair valuation of the property, are mainly questions of fact that are difficult to determine and concerning which there are sharp differences of opinion. With respect to the valuation, these views vary from those who hold that it should cover not only liberal allowances for the original or reproductive cost of the plant and its business, but such other elements as the promoters have seen fit to capitalize or place a value on, to those who are barely willing to include therein the cost new, less depreciation of the plant alone. The truth in the matter is undoubtedly found somewhere between these two extremes. In fact, the fair value of the property and business of such utilities can, as a rule, be best determined from such factors as their original cost of construction and development, and from the cost of reproduction of the same under conditions which are normal, and when, in both cases, full consideration is given to the depreciation that has taken place in the property because of age, use, and other reasons. Normal costs may be said to include all reasonable outlays that are necessary to obtain a needed plant and a business for this plant. It does not cover abnormal items such as excessive and unnecessary charges of any kind; nor capitalized monopoly profits, future growth, excessive development costs and other items of this nature.

The value of a plant and its business that is ultimately found to be fair and equitable under the circumstances may not agree either with the original cost or with the cost of reproduction, but in most instances it is likely to be found at some figure in the neighborhood of these costs. Operators in public utilities who fail to use ordinary business judgment, either in the location, construction, or management of the same, or who incur unnecessary and excessive obligations in other ways, should not be permitted to shift such extra costs upon the public. It is, in fact, to prevent such shifting and other unfair practices of this kind, which are possible under monopolistic conditions, that public utilities have been placed under government regulation.

That the fair value of utilities, as thus outlined, can hardly be safely measured by the security transactions described above, would seem to be quite clear. It is difficult to see how this could be otherwise, for the \$5,559,403, of which \$2,647,500 consisted of bonds, \$260,000 of stocks and \$2,651,903 of cash, which the North American company paid for the properties in question, cannot, under the circumstances, measure their fair value. Nor is much light thrown on the value by the fact that, in these transactions, the stock of the Milwaukee Street Railway Company of New Jersey, which was turned over as part payment for the Cream City Railway, was given an estimated value of only one-fifth of the stock of the Milwaukee Street Railway Company of Wisconsin, because of the differences in the capitalization of these two companies. Again, the fact that the properties which were thus acquired by the North American Company on the above basis were then turned over to the Milwaukee Street Railway Company for \$800,000 in stock and for \$6,573,403 in bonds, including a small amount of cash, is also of very little assistance in finding the true value of the property involved. In fact, these figures, either alone or when taken together, do not throw much if any greater light on the value in question than was shown to be the case for the total sum of all of the transactions of this kind up to Jan. 1, 1897, which, as shown, amounted to \$8,885,644.

Somewhat more suggestive, though by no means conclusive in the matter, are the calculations of the city attorney which are summarized in table 12. These calculations tend to show that the actual values of the \$5,559,403 of securities and cash for which the properties were acquired, did not exceed \$4,921,939. This value is \$2,451,464 less than the amounts of securities for which these properties were later turned over to the Milwaukee Street Railway Company.

Nor is the cost of reproduction of these properties, as found by the city's brief, of much aid in determining their value. Under this appraisal the cost new and present value in 1897 were placed at \$3,256,510 and \$2,684,541, respectively. These computations were, in part, based upon the inventory obtained for the Clark appraisal and upon prices the source of which is not very fully disclosed. These costs of the properties would seem to be too low. The cost new, for instance, amounts to but little more than the amounts expended upon these properties

for additions and improvements from the time of the consolidation up to the time of the appraisal. That practically all of the physical property in existence and use in 1891 had not disappeared, either through replacement or in other ways in 1897, is evident from the staff's verification of the Clark appraisal, as well as from this appraisal itself. The difference between the appraisal of the city engineer and that of the staff would seem to be due to the fact that the city engineer omitted many items from the inventory and used what appear to be comparatively low prices.

The so-called Clark appraisal of the physical property involved, which was made as of Jan. 1, 1897, and the verification and tests of this appraisal by the engineers of this Commission, throw more light on the value of this property at that time than any other facts that have been brought out in this connection. This appraisal appears to have been based upon complete inventories and upon prices and conditions that prevailed at the time. It is true that there are important differences as between the cost-values obtained by Clark and those obtained by the staff, but these differences are not as significant as they might seem. They are partly due to the exclusion of certain patent rights and other items in the staff's figures and partly to such differences in the prices used as are often found to be open to argument. In appraisals, as in other activities in life, there are many points upon which the facts are not clear and which, of necessity, are matters of judgment. In such instances the appraisers are often justified in giving their clients the benefit of the doubts. Appraisers who represent the state should, and are more likely to, maintain the strictest impartiality upon such points.

In the Clark appraisal the cost of reproduction new of the physical property is placed at \$5,153,288; while in the staff's verification of this appraisal it is placed at \$4,488,408, a difference of \$664,880. The figures in both cases have been carefully examined by us and the conclusion we have reached therein is that those obtained by the staff are, on the whole, equitable and just. Neither Mr. Clark nor the staff determined the amount of the depreciation that had taken place in property at the time of the appraisal, and for this reason figures giving their views as to the present value of the property, that is, its cost new less depreciation, are not available. It is probable, how-

ever, that the property was in what may be regarded as about a 77.62 per cent condition, which would give a present or existing value of about \$4,000,000 under the Clark and about \$3,483,900 under the staff's appraisal.

The Clark appraisal, as verified by the staff, includes all the so-called physical property included in the consolidation, that had not been replaced, as well as all replacements and all improvements in, and additions to, this property that had been made from the time of the consolidation up to the time of the appraisal. In other words, the appraisals cover all the property purchased that had not been discarded, together with the \$1,165,560.34 that was said to have been expended for the electrification of the roads, as well as the \$1,888,830.46 that had been expended for new construction, replacements and improvements up to 1897, which items, when taken together, foot up to \$3,054,391.

The cost of reproducing the property as determined by the engineering staff of this Commission, from the inventory of the Clark appraisal and from the prices which then obtained, not only throws a great deal of light on the cost value of the physical property on Jan. 1, 1897, but, together with the amounts that were thus said to have been expended for new additions, replacements and improvements to the property from the time of the consolidation up to 1897, it also is of considerable assistance in estimating the probable cost of reproducing these properties at the time of said consolidation.

For instance, the difference between the cost of reproduction new in 1897, on the one hand, and the sum of the amounts which, as shown, were said to have been expended for new additions and improvements on the other, should agree quite closely with the cost of reproduction new of that part of the property in use in 1897, which was also in use at the time of the consolidation in 1891. In other words, the total cost of reproduction new in 1897 covers the property in existence and use at the time of said consolidation, plus the property added by the electrification, other new additions, replacements and the more permanent improvements during the period, minus or less the cost new of the property that was discarded and replaced during the period.

On this basis, when the cost of reproduction stood at say about \$4,500,000 in 1897, and the new additions and improve-

ments up to that time foot up to \$3,054,391, it follows that the cost new of that part of the original property which was still in use, and which had not been replaced up to 1897, amounts to about \$1,445,609. These figures are absolute and the process by which they were obtained seems logical and in line with what seems reasonable under the circumstances.

The cost new of the property that had been discarded and replaced from the time of the consolidation up to 1897, is difficult to obtain; but some idea of that cost may be had from further analyses of the figures. The new additions in this case would seem to be represented by the cost of the electrification, which was placed at \$1,165,560, and by the cost of the twenty-five miles of new road or lines that were added during the period. The cost of this new mileage is indicated when the total cost new of the system of \$4,500,000 is divided by the total mileage thereof, which stood at about 135 miles. This gives an average cost per mile of about \$33,333. For twenty-five miles, on this basis, the approximate cost would foot up to \$833,325. When this cost for the twenty-five miles of new line is deducted from the \$1,888,830, which amount was said to represent partly new additions and partly replacements and other improvements, the balance left is about \$1,055,505. This balance, unless it includes other new additions than those given, which it probably does, at least to some extent, should represent rather closely the property discarded and replaced during the period. On the other hand, it is possible that the cost of electrifying these twenty-five miles of line is included in the \$1,165,560 which is given above, in which case the balance would be below the actual amount of property discarded and replaced during the period by the amount of such electrification. If it is, then the cost per mile of new line should perhaps be reduced to about \$25,000, while the total cost of this new mileage should be reduced from \$833,325 to \$625,000, and the balance for discarded and replaced property should be increased from \$1,055,505 to \$1,263,830.

From these facts it appears that the cost of reproduction new of the roads or property in question did not exceed \$2,709,439, or the sum of \$1,445,609 for the unreplaced part of the original property, or that part thereof which was still in use at the time of the appraisal, and of \$1,263,830 for the replaced parts of the original property. In fact, it is more likely to have

been less than to have been greater than this sum, and this for the reason that the proportion expended for new additions probably exceeded \$1,790,561. In this connection it should also be noted that the figures thus given represent the cost of reproduction new and that the present value of existing condition is not likely to exceed 80 per cent of the cost new.

The conclusions to which this analysis of the facts seems to point is that on Jan. 1, 1897, the cost of reproduction new of the physical property amounted to about \$4,500,000 and that its cost new less depreciation at that time did not exceed \$3,600,000. It further indicates that at the time of the consolidation the cost of reproduction new of the physical property was not greater than \$2,709,439, and that its cost new, less depreciation at that time did not exceed \$2,100,000. As no fund to cover depreciation appears to have been set aside or to have gone with the property, at least in 1897, it follows that the figures which thus represent the cost new, less depreciation, have important bearings upon the value of the physical property.

The cost-value of the business alone, at least in 1897, is also an element that should receive consideration in this connection. Development costs of this kind are also, as a rule, determined from the original cost of the business, as well as from the cost of reproducing it. In this case, however, its normal original cost is hidden in the rather obscure figures which relate to the value of the plants in 1891, to the additions to the property, from that year up to 1897; and to the earnings and the operating expenses during this period. Some idea of this cost may be had when depreciation and interest are allowed on the present value of the property plus something for contingencies, and plus further, from year to year, the annual proportion of the estimated cost of the new additions, from 1891 to 1897, and when the net earnings which have thus been found to be required for depreciation and interest are compared with the actual net earnings of the company during this period. Thus, when the rate of return for depreciation and interest is fixed at, say, 12 per cent, the present value of the property in 1891, including \$200,000 for contingencies, at \$2,300,000, the annual proportion of the \$1,709,439 which had been expended for new additions at about \$285,000, it is found that the requirement for depreciation on this basis exceeds the net earnings during the period by something less than \$300,000. This deficit or excess of

the required net earnings over the actual net earnings may be regarded as one element in the cost of the business. Another element in this cost is the probable cost of reproducing the business under the conditions which prevailed in 1897. While this reproduction cost would probably have been no greater than the original cost, the cost-value of the business alone, Jan. 1, 1897, for the purposes of these illustrations, may be placed at \$400,000. This amount, as may be noted, is equal to over 11 per cent on the \$3,600,000, which was shown to be the approximate existing or present value of the physical property in 1897, and would not seem to be an unreasonable allowance for development value at that time.

In this case the conditions are probably such that in the 1897 appraisal some consideration should also be given to the cost-value of the property which, in changing the form or method of operation, it was found necessary to discard and replace. Replacements of this sort, which are due to almost revolutionary changes in the art and in methods of operation, are usually accompanied by greater waste and destruction of capital than can be covered by ordinary depreciation allowances. Such losses, however, are in the nature of depreciation and, like depreciation generally, must undoubtedly in the end be largely borne by the public. It is, of course, a fact that such losses are not always as serious as they may look, and this for the reason that they are usually accompanied by improvements which result in lower costs per unit of production.

The cost-value new of the property thus displaced in this case was variously estimated in the testimony in the case. In the preceding calculations herein, however, it is placed at something like \$1,263,830, or at nearly one-half the estimated cost new of the entire physical property at the time of consolidation. It amounts, in fact, to practically \$11,500 per mile of line. It is not claimed that this estimate is absolutely accurate. When taken in connection with the minimum service and scrap value of the property discarded, however, it certainly looks high and it ought to go far in representing the losses in question. Just what this minimum service and scrap value amounted to is not clear, but it certainly must have reached many thousands of dollars.

What weight should be given to these replacement losses in the appraisal is not clear. Considerable proportions of them

were, as said, undoubtedly wiped out by reductions in the cost of transportation, when this cost is viewed relatively rather than absolutely. Other parts were also, no doubt, covered in such ordinary upkeep and renewals as were made from time to time. Other parts, again, have perhaps been wiped out in other ways. For the purposes of the estimates herein, the amount of such losses that can be recognized in the appraisal may be placed at something like \$1,000,000.

In this connection something should also be said about the value of certain patent rights which the respondent claimed to have, and the value of which was estimated at \$200,000 in the Clark appraisal. Such rights may, undoubtedly, have values; but it would hardly seem that such values can properly be considered as permanent capital charges. Rights of this kind are, as a rule, secured because they are profitable or because, in one way or another, they tend to increase the net earnings. The prices paid for such rights would seem to be operating expenses rather than capital charges. If regarded as capital charges at all, they should be written off during the life of these rights from the profits for which they are responsible. In this case the facts presented in relation to these rights are rather indefinite and this, in addition to what has just been said, makes it difficult to say just how much importance, if any, should be given to them in the appraisal.

The facts thus presented indicate that on Jan. 1, 1897, the original cost and the cost of reproduction of the plant in question here, and its business, were not far apart; that the cost new, less depreciation, of the physical property alone amounted to some \$3,500,000; that the cost of the business alone of this plant was something less than \$400,000; and that the losses because of discarded property due to the development in the art, or progress in the business, had occasioned a loss of property that would measure up to \$1,000,000, if not more. What has been said indicates further that these are the principal factors that, on equitable grounds, are entitled to consideration in the appraisal of this plant.

Additions to Railway Property, Jan. 1, 1897 to Dec. 31, 1906.

The company's financial records for the period under review have been critically examined by the accountants employed by the city, Barrow, Wade, Guthrie & Co., and these results, in

turn, have been carefully checked by the accountants for the company, Messrs. Dickinson, Wilmot and Sterrett. The net additions to railway property, according to the city accountants' original figures contained in their report for the ten year period, aggregate \$5,489,187.67. Those of the company's accountants aggregate \$5,432,868.41. This difference is due to the erroneous placing of \$56,319.26 in the summary statement presented by the city's accountants.

The process of arriving at this value may be briefly described as consisting of four steps.

1st. The verification of annual statements of The Milwaukee Electric Railway and Light Company as to property additions, railway and light business, for a ten year period. Comparing the annual balance sheets of Jan. 1, 1897, and Jan. 1, 1907, this value aggregates \$10,336,625.74.

2nd. The classification of separate property charges into three groups, comprising those charges relating entirely to the railway business, those relating entirely to the lighting business, and those common to both. On the basis of such a classification the accountants find that of the total property additions \$1,368,012.89 may be classified as railway, \$1,278,125.79 may be classified as lighting, and \$7,690,487.06 may be classified as common.

3rd. The adjustment of charges classified as railway and common, (a) by the exclusion of items which it is alleged were improperly charged to the property account and the deduction of various amounts realized from the sale of disposed property which it is alleged were improperly credited to depreciation reserve; (b) by the addition of various items which it is alleged were improperly charged to the depreciation reserve instead of property account and the addition of items which it is alleged were improperly deducted from the property account. Upon this basis additions of \$756,273.49 are made to that portion of the property charges classified as railway, making a total of \$2,124,286.38. There is likewise deducted \$3,219,430.27 from that portion of the total charges designated as common, making this total \$4,471,056.79.

4th. The addition of a pro rata portion of the total adjusted charges classified as common to the total adjusted charges classified as railway. The accountants arbitrarily divide common charges 74 per cent to railway and 26 per cent to lighting, this

basis being determined by the proportionate use of current as shown by the station output for the year 1906. By the addition of the adjusted railway charge, \$2,124,286.38 to 74 per cent of \$4,471,056.79, adjusted common property, or \$3,308,582.02, we obtain \$5,432,868.40, the total estimated addition to railway property for the ten year period ending Dec. 31, 1906, according to the audit and critical re-check of city's and company's accountants.

It has been the practice of the company to maintain two accounts relating to property, a so-called construction and equipment account, to which current additions made during the year are charged, and a general property account into which the construction account is closed yearly and to which sundry additions and deductions are frequently made prior to the closing of the books. Both accounts are recorded under the balance sheet caption "Real estate, plants, franchises, licenses, etc." In addition to these accounts a depreciation reserve has been maintained to which are charged, to again cite the caption, "Reconstruction, reëquipment, betterments, uncurrent and extraordinary expenditures, etc."

A statement of the estimated portion of these accounts pertaining to the railway business, together with the adjustments made by the accountants for the city and company, is given in table 16. The nature of these adjustments is revealed in table 17.

TABLE 16.
ESTIMATED YEARLY ADDITIONS TO RAILWAY PROPERTY
CITY'S AND COMPANY'S ACCOUNTANTS. 1897-1906.

Italic figures denote credits.

YEAR	CONSTRUCTION ACCOUNT.			PROPERTY ACCOUNT.									
	Estimated yearly construction to railway property, per company's books.	Adjustments. Deduct sundry charges improperly charged to construction.	Adjusted estimated construction during year.	Other yearly additions to railway property, per company's books.	Adjustments.		Other additions to property as adjusted.	Deductions from property, as per company's books.	Adjustments.		Adjusted property deductions.	Adjusted net yearly charges to railway property.	Net yearly charges to railway property before adjustment.
					Deduct sundry charges improperly charged to property.	Add property charges improperly charged to depreciation reserve.			Deduct sundry credits improperly credited to property.	Add credits improperly credited to depreciation reserve.			
1897...	\$27,398 88	.....	\$27,398 88	\$8,055 30	\$3,055 30	.....	\$5,000 00	\$280,839 87	\$133 24	.....	\$280,406 63	\$248,007 75	\$245,385 69
1898...	174,335 68	.....	174,335 68	20,793 63	20,793 63	\$62,562 45	62,862 45	17,186 91	4,958 00	\$3,487 00	15,715 91	221,482 22	177,942 40
1899...	307,970 81	.....	307,970 81	188 29	147 63	85,438 24	85,478 90	17,199 42	13,838 59	10,553 15	13,893 98	379,555 73	290,959 67
1900...	294,685 61	\$8,450 50	286,235 11	237,679 40	237,252 77	345,128 97	345,555 60	2,347 33	.....	36,181 88	38,529 21	593,261 50	530,017 69
1901...	233,938 01	6,320 09	227,617 92	2,195 753 47	1,953,436 89	68,785 39	311,101 97	1,989 99	.....	7,094 42	9,084 41	529,635 48	2,427,791 49
1902...	541,185 12	.....	541,185 12	184,510 75	.....	11,857 42	193,368 17	1,466 86	.....	5,619 97	7,086 83	730,466 46	724,229 01
1903...	929,784 37	.....	929,784 37	.....	.....	10,722 86	10,722 86	.....	.....	9,104 05	9,104 05	931,403 18	929,784 37
1904...	925,546 56	.....	925,546 56	.....	.....	14,161 02	14,161 02	.....	.....	9,692 43	9,692 43	930,015 15	925,546 56
1905...	937,607 90	105,242 64	832,365 26	.....	.....	239,087 27	239,087 27	500,000 00	.....	2,952 43	502,952 43	598,500 10	467,607 90
1906...	830,569 92	82,926 95	747,642 97	.....	.....	23,781 94	23,781 94	.....	.....	4,868 58	4,868 58	766,556 83	830,569 92
Total	\$5,233,022 86	\$202,940 18	\$5,030,082 68	\$2,646,980 84	\$2,214,686 22	\$861,825 56	\$1,294,120 18	\$821,030 38	\$19,229 83	\$39,533 91	\$891,334 46	\$5,432,868 40	\$7,058,973 32

References to exhibits from which the above table was compiled:
 City accountants report, part I, pp. 44-49, inclusive.
 Company's accountants report, exhibit 1003, table G.

TABLE 17.
 DETAIL OF ADJUSTMENT TO COST OF PROPERTY.
 CITY'S AND COMPANY'S ACCOUNTANTS.
 Ten Years Ending Dec. 31, 1906.

	Railway.	Lighting.	Common.
1. Property Debits Excluded:			
Discount on bonds.....			\$25,000 00
Commission on bonds sold.....			2,755 00
Revenue stamps on bond sales.....			203 00
Revenue stamps on common and preferred stock sales.....			1,988 75
Discount on common stock in treasury.....			4,117 90
London stock exchange expense.....			242 50
Application to list bonds on N. Y. stock exchange.....			50 00
Application to list preferred stock on N. Y. exchange.....			100 00
Central Trust Co. certifying bonds.....			98 50
Engraving stock certificates.....			165 00
Engraving and printing common stock certificates.....			207 50
Filing amendments to articles of incorporation.....			5,750 00
Advertising house for sale.....			85
Sale of preferred stock to North American Company, no consideration.....			316,200 00
St. Galls church property repurchase.....			2,631,254 67
Cash paid North American Company in lieu of 1/2 share preferred stock.....			50 00
Purchase of stock Milwaukee Electric St. Railway.....	\$755 30		
Purchase of Gether franchise and property.....	2,300 00		
J. I. Beggs disbursement account general franchise.....	375 00		
Total.....	\$3 430 30		\$2,988,183 67
2. Property Credits Excluded:			
Coupons collected.....			\$44 92
Howell avenue subsidy.....	\$100 00		
Consolidated bonds placed in treasury.....			1,000 00
Preferred stock placed in treasury.....			5,464 88
Coupons or scrip collected.....			235 12
Consolidated bonds in treasury.....			1,000 00
Preferred stock in treasury.....			129 24
Common stock in treasury.....			8,235 80
Cash proceeds of bonds scrip at par.....			245 76
Premium on 202 bonds at 105 less commission of 1/2%.....			9,090 00
Total.....	\$400 00		\$25,445 72
3. Construction Debits Excluded:			
Commission, etc., paid to North American Company Service of John I. Beggs, expert and engineer.....			\$122,000 00
Discount, commission and expense refunding 4 1/2% gold bonds.....			20,219 78
Transferring 1st ave. feeder to south side Kinnickinnic river.....	\$1,328 05		
Spreading rails on 11th. State and Wisconsin streets.....	3,890 98		
Repairing Holton street viaduct.....	3,263 47		
Repairs of Holton street viaduct, charged to construction.....	5,657 56		
Removal of track on Harmon st., Island ave., etc.....	602 53		
Setting back curbs on 8th street.....	28 47		
Total.....	\$14,799 06		\$254,244 75
4. Depreciation Reserve Debits Included:			
Car bodies and trucks.....	\$722,080 07		
Car electrical equipment.....	57,734 59		
Overhead system.....	5,926 59		
Miscellaneous equipment.....	75,408 69		\$913 00
Total.....	\$861,149 94		\$913 00
5. Depreciation Reserve Credits Included:			
Car bodies and trucks.....	\$32,769 92		
Car electrical equipment.....	54,275 17		
Overhead system.....			\$1,369 30
Miscellaneous equipment.....	4 00		1,991 27
Total.....	\$87,047 09		\$3,360 57

TABLE 17—Concluded.
 DETAIL OF ADJUSTMENTS TO COST OF PROPERTY.
 CITY'S AND COMPANY'S ACCOUNTANTS.
 For Ten Years Ending Dec. 31, 1906.

	Railway.	Lighting.	Common.
RECAPITULATION.			
<i>Deduction from Property:</i>			
1. Property debits excluded	\$3,430 30		\$2,988,183 67
2. Construction debits excluded	14,799 06		254,244 75
5. Depreciation reserve credits included	87,047 09		3,360 57
Total	\$105,276 45		\$3,245,788 99
<i>Additions to Property:</i>			
2. Property credits excluded	\$400 00		\$25,445 72
4. Depreciation reserve debits included	861,149 94		913 00
Total	\$861,549 94		\$26,358 72
Total adjustment before division of common	\$756 273 49		\$3,219,430 27
Total adjustment as divided 74% railway, 26% lighting...	\$1,626,104 91	\$837,051 87	

Reference to exhibits from which above table was compiled:

2. City accountants' report, part I, pp 44-47, inclusive. Company's accountants, exhibit 1009.
3. City accountants' report, part I, pp 44-47, inclusive. Company's accountants, exhibit 1009, for common, railway items as above have been excluded in arriving at total adjusted cost of construction, exhibit 1005, table G.
4. City accountants' report, part I, pp. 44-47, inclusive. Company's accountants, exhibit 1005, table H, for railway. Deductions for common were included in arriving at construction and improvement expenditures, 1897-1906, exhibit 1005, p. 6.
5. City accountants' report, part I, pp. 44-47, inclusive. Company's accountants, while not itemized, is included under credits to property account, exhibit 1005, table G

In making these adjustments it has been the purpose of accountants employed by the city to exclude all property accounts which represented other than investment in tangible and actual property. For this reason there have been deducted all expense items relating to the organization of the company, all expenses relating to the preparation or sale of securities such as the listing on stock exchanges, discount on bonds, collection of coupons and stock and bond scrip, commissions and sale expenses, revenue stamps and similar expenditures. It will be noted that this explanation serves as the reason for the exclusion of the greater number of items contained in table 17.

The item \$316,200, sale of preferred stock to the North American Company, was eliminated on the ground that no consideration for such sale appeared. By way of explanation, the books of the company stated that 4,862 shares were issued to the North American Company against a payment of \$170,000 cash and other obligations. The obligations did not appear on the books of The Milwaukee Electric Railway and Light Company,

so their identity could not be disclosed nor was any apparent lessening of liabilities effected thereby.

The item \$2,631,254.67 is perhaps the most important item eliminated. It appears that the real estate described on the books as St. Gall's church property had been acquired in July and August, 1899, at an initial cost of \$251,313.39, which by the addition of sundry charges was later increased to \$253,745.33. The property was transferred on Dec. 1, 1899, to the North American Company at the latter price. It appears to have been again purchased by The Milwaukee Electric Railway and Light Company from the North American Company on Dec. 30, 1901, for \$2,885,000, consideration being 30,000 shares of stock. Since nothing appears to have been done to increase the value of property, a deduction is made of the difference or \$2,631,254.67.

The items \$122,000, cash paid to the North American Company for commissions and services from Dec. 31, 1901, to April 1, 1905, and \$20,219.78, cash paid to John I. Beggs, for services as expert engineer from Dec. 31, 1901, to Sep. 1, 1903, both of which appear to have been charged as incurred in 1905, were eliminated for two reasons, viz., that they clearly relate to matters of prior years and that there is nothing to be found on the books of the company to indicate any **recognized liability** for such services during these years; that they are in the nature of expense items and are not properly made an addition to the physical property of the plant.

The sundry items relating to the repairing of street viaducts, the removal of track, the transferring of feeders and resetting of curbs, it is alleged are in the nature of repairs and hence not properly included as a property charge.

Purchases made of cars and car equipment, aggregating some \$861,149.94, charged to depreciation reserve, are deemed from their nature to have been acquisitions of new property and are so included. Criticism is likewise made of company's practice in crediting the sale of old material to depreciation reserve rather than to property, and corresponding deduction made.

To the finding of the accountants, exceptions are taken by both counsel for the city and the company in their briefs.

The claim is made by the company that bond discount is properly part of the cost, and argument is made for the inclusion of not only the \$104,631.98 excluded during the ten year

period, but also for the \$1,036,055.83 charged prior to 1897, which latter item is deducted in determining the value as of Jan. 1, 1897. Claim is likewise made for the appreciation in real estate value of the St. Gall's church property, estimated at \$100,000, during its nominal possession by the North American Company. There is suggested, moreover, the addition of \$120,000 interest during construction and the necessity is pointed out for the various expenditures of organization and sale of securities excluded by the accountants. With the addition of the items enumerated above, the property additions of the accountants are increased by the company in its brief from \$5,432,868.40 to \$6,793,556.21.

The criticisms of the city's brief may be grouped under three heads. First, exception is taken to the inclusion of certain property items contained in the schedules of the city's accountants. For example, real estate investments, aggregating at least \$108,379.19, are excluded as not being property used and useful for railway purposes; the value of the substations at South Milwaukee and West Allis, aggregating \$87,974.88, a charge for private right of way of \$27,302.86, and other similar items are excluded as being property without the city limits. Credit is later given for other transfers to the traction company of track and electrical distribution system property owned by the city company outside of the city limits. Second, criticism is likewise made of the arbitrary method used in apportioning common property, and a redistribution is attempted of values affecting both railway and lighting business. In the third place, question is raised as to whether property additions charged to the depreciation reserve shall be construed as a part of company's investment. In line with the separation attempted in estimating the value of the property devoted to street railway purposes, in 1897, the city has based its figures as to property items for the ten year period on similar theories as to what is the investment, cost of reproduction new, and cost of reproduction existing value. The estimates of additions aggregate \$3,551,942.18, \$4,443,264.78, and \$3,405,749.45, respectively, upon the three bases and are given in table 18:

TABLE 18.
CITY'S BRIEF'S ANALYSIS OF ADDITIONS TO RAILWAY PROPERTY.
Ten Years Ending Dec. 31, 1906.

	Investment basis.	Cost of reproduction new basis.	Cost of reproduction existing value.
<i>Additions.</i>			
A. Charged to property account.....	\$3,670,055 99	\$3,670,055 99	\$3,670,055 99
B. Charged to depreciation and operation....		1,146,157 60	1,146,157 60
C. Appreciation in real estate.....	264,026 02	264,026 02	264,026 02
D. Replacements charged to depreciation reserve.....			1,174,578 85
Total additions.....	\$3,934,082 01	\$5,080,239 61	\$6,254,818 46
<i>Deductions.</i>			
E. Cost new of property disposed of and replaced (cars).....		\$254,835 00	
F. Cost new of property disposed of and not replaced.....	\$382,139 83	382,139 83	
G. Receipts from sale of scrap.....			\$133,073 40
H. Depreciated value Wells street power plant.....			10,250 00
I. Depreciated value of track sold to M. L. H. & T. Co.....			234,471 78
J. Depreciation accruing Jan. 1, 1897 to Dec. 31, 1906.....			2,471,273 83
Total deductions.....	\$382,139 83	\$636,974 83	\$2,849,069 01
Net addition.....	\$3,551,942 18	\$4,443,264 78	\$3,405,749 45

A detailed examination of the scattered references upon which these figures are based discloses little which may be accepted as an accurate statement of fact. In an effort to carry out the distinction drawn as to the three estimates of value, the attorney for the petitioner has isolated bits of testimony from the context, reconstructed the Clark appraisal, and quoted from his revised notes, referred to the original working sheets of the city's accountants in which the meanings of certain entries were evidently misinterpreted, and has accepted as final the tentative valuation of the engineers of the Commission, of date Jan. 1907, which has been materially revised since that date. In order to reconcile the audited results of the city's accountants with those of the city's brief, the computations submitted have been carefully checked and further investigation of disputed factors made into the books of the company. An element of confusion has been the interchange made of costs and values, or of book figures and appraisals, and the assumption that items similarly labeled in both referred to the same physical property. While, however, the estimates are clearly inaccurate, the principles upon which they are based are of interest and merit consideration.

Referring to table 18, the item "Charge to property account", \$3,670,055.99, is composed of charges to the construction account, charges directly to the property account, and certain minor additions to property considered as "lighting" by the city's accountants. That portion of the net property additions classified as "railway" by the city's and company's accountants, aggregating \$2,124,286.38, is reduced to \$1,841,257.76. This difference is due to the exclusion of property items charged to the depreciation reserve, of the property credits to which reference is made in other items, and of other charges. Similarly the railway portion of the property additions considered as "common" by the city's and company's accountants, aggregating \$3,308,582.02, is reduced to \$1,768,690.03. Additional charges included by the city's brief aggregate for the railway department \$60,108.20.

Item B, additions "Charged to depreciation and operation," \$1,146,157.60, consists in part of estimated excess charges for track and electrical distribution system to depreciation reserve, and was computed by deducting the sum of the cost of property of this class on hand Jan. 1, 1897, as revised by the city in its brief, plus the cost of property charged to construction account 1897 to 1906, from the tentative cost of reproducing the property on hand Jan. 1, 1907, as determined by the Commission's engineer. This difference was assumed to be made up of the excess charges to depreciation for track and electrical distribution system, and amounted to \$317,814.25.

The remainder of the additions charged to depreciation and operation is computed as follows:

From an examination of the testimony and accounts it was determined that only \$13,917.62 of the charges to depreciation reserve for cars and car equipments, "appear to be for replacements." This was deducted from the total charges to depreciation reserve and current expenses for this class of property, \$842,260.97, and the difference or \$828,343.35 was considered to be the excess charge to depreciation.

Item C, "Appreciation in real estate," \$264,026.02, was computed by accepting the Commission's engineer's total appraisal of land, appearing in the tentative valuation as of Jan. 1, 1907; and, by applying the same apportionment to the land as to the building for which it was used, a railway apportioned value of \$619,815.36 was arrived at. From this there is deducted the

railway portion of the value of real estate as of Jan. 1, 1897, appearing in the revised Clark's appraisal, plus the railway portion of the purchase price of real estate acquired in 1897-1906, viz., \$355,789.34. The difference thus obtained, \$264,026.02, was considered to be the appreciation in the value of land between these two dates. The appreciated value is added to the three bases of value. The brief contends, however, that the appreciation in land should be deducted from the depreciation on other property in determining the proper allowance for depreciation.

Item D. "Replacements charged to depreciation reserve," \$1,174,578.85, was computed by a method similar to that described under item B. The proper charges for replacements are presumed to be the difference between these alleged excess charges and the total replacement charges. The charges to depreciation reserve for paving indicated upon the company's books are accepted. The charges to depreciation reserve for cars and car equipments, and the property which may possibly have been displaced are determined from the audited accounts and testimony. It is alleged that \$13,917.62 of these charges "appear to be for replacement." The remainder is entered as an excess charge, though an allowance for further replacements is later deducted from the cost of reproduction new in item E. The charges to depreciation reserve for "Buildings other than power plants and the Public Service Building," appearing upon the books, are accepted as correct although it is alleged the title would indicate that some of the charges were in excess of replacements. Under the theories of value advanced by the city these replacements are added to the cost of reproduction existing value.

Item E, "Cost new of property disposed of and replaced," \$254,835.00, consists entirely of rolling stock. By a comparison of inventories it was asserted that by Dec. 31, 1906, all rolling stock, except 146 cars, appearing in the inventory on Jan. 1, 1897, had disappeared. The value of these cars is computed according to Clark's unit prices and deducted from the total value of cars on hand Jan. 1, 1897. The remainder is considered to be the value of such cars disposed of and replaced and aggregates \$242,485.00. To this estimate is added the value of five cars purchased subsequent to Jan. 1, 1897, and since disposed of, aggregating \$12,350.00.

Item F, "Cost new of property disposed of and not replaced," \$382,139.83, consists of track and electrical distribution system disposed of to the Milwaukee Light, Heat and Traction Company in 1905, aggregating \$334,517.43, this being the cost of reproduction new of this property on March 31, 1905, computed by adding to the city's brief's revised estimate of the cost of reproduction new as of Jan. 1, 1897, based on Clark's appraisal, the estimated additions outside the city since that date; and the estimated value of the Wells street power plant, which became obsolete and was abandoned in 1904. It will be noted that the cost new of property disposed of and not replaced is deducted from the so-called investment and cost of reproduction new values only.

Item G, "Receipts from sale of scrap", \$133,073.40, consists of credits to track and electrical distribution system and to cars and car equipments. The credits to track and electrical distribution system consist of \$42,040.50 credited to the depreciation reserve, and \$3,296.93 credited to the property account. The credits to cars and car equipments consist of \$86,286.72 to the construction, and \$1,449.25 to the property accounts. The total of sales of scrap is deducted from the estimated cost of reproduction existing condition.

Item H, "Depreciated value of Wells street power plant when abandoned," \$10,250.00, consists of the sale of one generator for \$800.00 per books, four other generators placed in storage, assumed to be of the same value, and the sale of engines for \$6,250.00 as indicated by the books. The total is deducted from the estimated cost of reproduction existing condition.

Item I, "Depreciated value of track sold to the Milwaukee Light, Heat and Traction Company", \$234,471.78, is determined by comparing inventory and book values. Because of lack of data on depreciation of property outside of the city limits, it was assumed that the rate of depreciation was identical with that upon property within the city. The accrued depreciation was then determined by applying this rate to the average amount of depreciable property on hand outside of the city each year, and the depreciated value determined by deducting the accrued depreciation from the cost new. The rate of depreciation inside the city, 1894 to 1906, was determined by dividing the total accrued depreciation by the aggregate of the average amount of depreciable property on hand each year. The total accrued depreciation was determined by deducting

the value, existing condition, from the cost of reproduction new, as found in the tentative appraisal of the Commission's engineer, 1907, and adding to the difference the proper charges to depreciation reserve less the receipts from sale of scrap, and deducting the depreciation accrued prior to Jan. 1, 1894. The average amount of depreciable property on hand each year was secured by adding to the balance of depreciable property on hand Jan. 1, of each year, one-half the additions during that year. This total is deducted from the cost of reproduction existing condition.

Item J, "Depreciation accruing Jan. 1, 1897, to Dec. 31, 1906", \$2,471,273.83, is determined entirely by a comparison of inventories and was estimated by "adding the cost of the property replaced to the difference between the value new and the value existing condition of the property in inventory" and deducting from this sum the depreciation accrued prior to the beginning of the period. The total is deducted from the cost of reproduction existing condition.

It appears to be the contention of the city's brief that only the net investment in the property is the basis upon which the company is entitled to a fair return. All charges to depreciation and operation, while resulting in a net addition to property, are not construed as adding to the investment. The appreciation of land values, upon the other hand, is added to the investment, but made a deduction from the annual depreciation accrued.

It is difficult to see upon what basis additions to property through operation or depreciation reserves should not be construed as a part of the investment value. Extensions must be financed either through additional capital or through surplus earnings, and the fact that the company has conservatively waived its additional dividend and placed its earnings into the plant, cannot be made the ground upon which future dividends are to be curtailed. The criticism of the city's brief as to the apportionment of common property upon the arbitrary basis of 74 per cent to railway is entitled to careful consideration and this has become more and more apparent as the details of the investments have been examined into and compared with the appraisal of the engineer of the Commission. It seems reasonable that the only basis of apportionment of property costs jointly used by railway and lighting service must be the present uses of the property.

TABLE 19.

APPORTIONMENT TO RAILWAY PROPERTY ADDITIONS DESIGNATED AS "COMMON" BY CITY'S AND COMPANY'S ACCOUNTANTS AS COMPARED WITH SIMILAR APPORTIONMENTS MADE IN THE CITY'S BRIEF AND BY THE RAILROAD COMMISSION.

Ten Years Ending Dec. 31, 1906.

Year.	Work order No.	Items.	Total.	City's and Company's Accountants.		City's brief.		Railroad Commission.	
				Per ct. railway.	Railway.	Per cent railway.	Railway.	Per cent. railway.	Railway.
Construction:									
1897-1900...	228	River street power plant.....	\$789,413 90	74	\$584,166 30	22.65 (a)	\$178,801 96 (1)	11.28	\$89,049 43
1903.....		Purchase of Kern property, Poplar st. lot Kinickinnic ave. real est. Rahm property	12,140 20 7,549 11	74 74	8,983 75 5,586 34	66.31 (b)	8,950 03 (6)	97.00	11,775 99
1904.....		Expenditures acct. Rahm property.....	146 98	74	108 77	98.00	7,398 13 (6)	97.00	7,322 64
1905.....		Adding machines purchased.....	500 00	74	370 00	73.63	144 04 (6)	97.00	142 57
	235, 296, 561	Conduits.....	136,813 47	74	101,241 97	28.94	39,589 13 (2)	33.00	45,148 44
	298, 312, 373	Conduits 2nd st., Knapp st., & Martin st.	71,525 42	74	465 77	28.94	182 16 (2)	0.00	
	299, 613	Conduits, Nat. ave., 7th-11th ave., W. Water	3,484 37	74	2,578 43	28.94	1,008 98 (2)	67.00	2,334 53
	317, 320	Conduits, E. Water st.	565 59	74	418 54	28.94	163 68 (2)	50.00	282 79
	318	Conduits, West Water st.	1,571 00	74	1,162 54	28.94	454 65 (2)	15.00	235 65
	319	Pole line.....	110 76	74	81 96	100.00	110 76 (10)	72.00	79 75
	390	Cables, Kinickinnic.....	6,474 07	74	4,791 26	50.00	3,237 34 (11)	55.00	3,561 07
	410	Cables, West Water st.	3,032 44	74	2,244 04	50.00	1,516 24 (11)	31.00	940 07
	411	Public Service Building.....	1,418,293 59	74	1,049,537 25	23.86 (c)	338,345 98 (9)	47.72(m)	676,800 00
	416	Conduit, tunnel to Sherman st.	6,736 49	74	4,985 00	28.94	1,949 54 (2)	46.00	3,098 79
	460	Reconstruction of Badger Pr. plant and Commerce st. power plant.....	1,341,297 26	74	992,559 97	66.31	889,414 21 (5)	69.75	935,532 03
	540, 733	Tunnel.....	30,209 16	74	22,354 78	81.13	24,507 48 (8)	53.00	16,010 85
	563	Cables, feeders, and ground returns.....	70,747 12	74	52,352 85	100.00	70,747 12 (4)	100.00	70,747 12
	576, 583, 596	Conduits and laterals.....	10,134 25	74	7,499 34	28.94	2,932 85 (2)	70.00	7,093 97
	605	Pole line.....	826 55	74	611 65	0.31 (d)	2 58 (12)		
	607, 827	Edison underground system and feeders.	16,759 31	74	12,401 89	0.00			
	623	Conduits.....	18,573 91	74	13,744 69	28.94	5,375 29 (2)	59.00	10,958 61
	632	Conduits.....	29,666 31	74	21,953 07	28.94	8,585 43 (2)	20.00	5,933 26
	652	Conduits.....	3,250 48	74	2,405 36	28.94	940 69 (2)	54.00	1,755 26
	679	Edison tube extensions.....	96,403 45	74	71,338 55	0.00		25.00	24,100 86
	739	Real est., rem'l of bldgs. on Kern prop'y.	2,899 89	74	2,145 92	100.00	2,899 89 (13)	100.00	2,899 89
	784	Heating main.....	1,102 45	74	815 81	73.63	811 73 (2)		
	814	Tools and appliances.....	52,347 78	74	38,737 36	73.63	38,543 67 (7)	0.00	
		Error Gore report.....	3 40	74	2 52			49 12	-1 67
		Total.....	\$4,133,202 00	74	\$3,058,569 47	39.84 (f)	\$1,646,780 57	46.86 (o)	\$1,936,969 27
Property Debits:									
1899.....		Labor payrolls charged to property.....	\$54 94	74	\$40 67			80.00	\$43 95
1901.....		Purchase of River st. real estate.....	40,000 00	74	29,600 00	46.44	\$18,576 00 (6)	55.00	22,000 00
		Poles sold but returned.....	16 00	74	11 84			80.00	12 80
		Machinery sold but returned.....	1,000 00	74	740 00			80.00	800 00
1902.....		Church property acquired.....	253,745 33	74	187,771 54	29.00 (h)	73,589 20 (6)	47.72 (r)	121,087 27
		Purchase of real estate, River st.....	64,048 80	74	47,896 11	46.44	29,744 26 (6)	86.00	55,081 97
		Expense of real estate, St. Gall's church.	1,993 01	74	1,474 83			47.72	951 06
		Purchase of tools and machinery.....	700 00	74	518 00			80.00	560 00
		Total.....	\$361,558 08	74	\$267,552 99	33.72 (i)	\$121,909 46	55.46 (t)	\$200,537 05
Depreciation Reserve Debits:									
1899, 1900.....		Typewriter and adding machine.....	\$913 00	74	\$675 62			80.00	\$730 40
Property Credits:									
1897, '99-'02		Sale of sundry materials, rheostat, shaft- ings and scrap iron.....	\$484 03	74	\$358 19			80.00	\$387 23
1898.....		Mchy. & equip. transf. to M. L. H. & T. Co. from Commerce st. plant.....	\$14,000 00	74	10,360 00			100.00	14,000 00
		Sale of leather belting from Commerce st. plant.....	462 61	74	342 33			100.00	462 61
1900-'01		Sale of three dynamos.....	1,475 00	74	1,091 50			80.00	1,180 00
1900.....		Sale of frame house on National ave.....	150 00	74	111 00			100.00	150 00
		Sale of generator.....	1,000 00	74	740 00			50.00	500 00
		Cash unexplained.....	14 74	74	10			80.00	11
1900-'01		Sale of poles.....	560 00	74	414 40			80.00	448 00
1901.....		Materials transferred to wk. in process.	1,500 00	74	1,110 00			100.00	1,500 00
1902.....		Commerce st. fire loss.....	1,298 94	74	961 22			69.75	905 99
		Switchboard panel.....	325 00	74	240 50			80.00	260 00
		Total.....	\$21,255 72	74	\$15,729 24			93.12	\$19,793 94
Depreciation Reserve Credits:									
1901-'02,.....		Materials placed in stock supplies.....	\$3,360 57	74	\$2,486 82			80.00	\$2,688 46
RECAPITULATION									
Debits:									
		Construction.....	\$4,133,202 00	74	\$3,058,569 47	39.84 (f)	\$1,646,780 57	46.85 (o)	\$1,936,969 27
		Property.....	361,558 08	74	267,552 99	33.72 (i)	121,909 46	55.46	200,537 05
		Depreciation reserve.....	913 00	74	675 62			80.00	730 40
		Total debits.....	\$4,495,673 08	74	\$3,326,798 08	39.34 (j)	\$1,768,690 03	47.56 (p)	\$2,138,236 72
Credits:									
		Property.....	\$21,255 72	74	\$15,729 24			93.12	\$19,793 94
		Depreciation reserve.....	3,360 57	74	2,486 82			80.00	2,688 46
		Total credits.....	\$24,616 29	74	\$18,216 06			91.33	\$22,482 40
		Debit balance.....	\$4,471,056 79	74	\$3,308,582 02	39.56 (k)	\$1,768,690 03	47.32 (q)	\$2,115,754 32

Source of additions per city's and company's accountants,—petitioner's exhibits 3 and 4 and railway's exhibits 1005 and 1009.

- (a) City's brief credits this plant with \$80,445.00 for storage batteries, alleged to have been removed to the Public Service Building for lighting purposes. The city's brief's total value is \$708,968.90, which it apportioned 25.22% to railway. Table P. 10 p. 237.
- (b) Error. City's brief omits 20 cts. of total. Table L5 p. 266.
- (c) City's brief deducts from the total appraisal of this building, \$257,358.73, for various items of property which it alleges would not be included by the Commission's engineer. It also deducts 13.052% from the construction charges in order to determine the investment on the "Basis of the staff appraisal." \$58,080.56 of the excluded items are included elsewhere, thus making a net exclusion of \$350,805.19. The city's brief apportions its total for the Public Service Building 29.28% to railway, and the items totaling \$58,080.56, 73.63% to railway. p. 251,253, and table P. B. 2 p. 255.
- (d) All but \$3.50 is omitted. This is apportioned, 73.63% to railway, table M2 p. 258.
- (e) Omitted. Table M2 p. 258.
- (f) Net exclusions from the total of construction debits, considered as common by city's and company's accountants, \$432,070.04. The total railway portion is 44.49% of the city's brief's total. Other items have been classed as "Lighting and non-operating" without being divided and are not included in the above exclusions.
- (g) Omitted by city's brief.
- (h) Public Service Building property, \$2,431.94 for the interest on the investment excluded and the remainder apportioned 29.28% to railway. Table L5 p. 266.
- (i) Total exclusions from property debits \$6,195.89. The total railway portion is 34.31% of the total common as per city's brief.

- (j) Total railway portion is 43.60% of the total as per city's brief.
- (k) Total railway portion of debit balance is 43.60% of debit balance of total common property as per city's brief.
- (m) \$199,057.59 or 14.03% excluded. The railway portion is 55.51% of the total after making this deduction.
- (n) Excluded from railway and lighting.
- (o) Total exclusions from common property as per city's and company's accountants \$200,160.04. The railway portion is 49.25% of the total, as per Railroad Commission.
- (p) Railway portion is 50.19% of the total as per Railroad Commission.
- (q) Railway portion is 49.96% of the total as per Railroad Commission.
- (r) \$35,600.47 or 14.03%, excluded. The railway portion is 55.51% of the total as per Railroad Commission.
- (s) Not included by city's brief.
- (t) \$35,600.47 is excluded. The railway portion is 61.52% of the total as per Railroad Commission.
- (1) City's brief, table P. 10 p. 237.
- (2) City's brief, table T 9 p. 149 and p. 133.
- (3) City's brief, p. 132 and table T5 p. 146.
- (4) City's brief, table T 4 p. 145.
- (5) City's brief, p. 226 and table P 11 p. 238.
- (6) City's brief, table L5 p. 266.
- (7) City's brief, table M2 p. 258.
- (8) City's brief, table 11 p. 134.
- (9) City's brief, pp. 251-254 and table P. B. 2 p. 255.
- (10) Not definitely located, but believed to be included in "Track and overhead," \$560,775.43 city's brief, table T1 p. 141.
- (11) W. O. S. 510 and 511 are divided equally between property considered all railway by city's brief and property considered all lighting, city's brief, table T4 p. 145 and table T5 p. 146.
- (12) City's brief, table M2 p. 258 in sundries.
- (13) City's brief, table B2 p. 250.

Accordingly that portion of property additions classified as common by the city's and company's accountants, aggregating \$4,471,056.79, has been distributed as between railway and lighting business upon what has seemed to be a more equitable basis than that utilized by the accountants. In consultation with the engineers who appraised the property, and who are familiar with the actual uses to which the various items were put on Jan. 1, 1910, each charge has been apportioned as indicated in table 19. It will be noted that where the accountants have classified \$3,308,582.02 as railway property, an examination discloses that only \$2,115,754.32 is so used. A tabulation carefully prepared forms the detail submitted in the city's brief and discloses \$1,768,690.03 which has been similarly localized.

While a number of the adjustments to property made by the accountants cannot be fully concurred in, especially the exclusions of expenses of organization, that portion of property additions classified as railway, aggregating \$2,124,286.38, has been accepted as tangible property additions. Where the accountants, however, add \$3,308,582.02 as the railway proportion of common property, making a total net addition for the ten year period of \$5,432,868.40 in the calculations accepted by the Commission, there is added \$2,115,754.32 as a more equitable distribution of common property, making a total net addition for the ten year period of \$4,240,040.70. A comparative yearly distribution of the accountants, the city brief, and the Railroad Commission additions by years is given in table 20:

TABLE 20.
COMPARISON OF ESTIMATED ADDITIONS TO RAILWAY PROPERTY.
Ten Years Ending Dec. 31. 1906.

Year ending Dec 31.	City's and company's accountants.	City's Brief—Three Bases.			Railroad Commission.
		Investment.	Cost of re- production, new.	Cost of re- production existing value.	
1897.....	\$—248,007 75	\$61,129 04	\$131,425 37	\$32,480 17	\$—248 146 48
1898.....	221,482 22	141,486 99	199,577 28	84,190 44	174,217 63
1899.....	379,555 72	287,058 42	360,580 79	360,671 12	239,871 74
1900.....	593,261 51	228,314 30	496,807 54	441,228 85	493,301 33
1901.....	529,635 49	240,378 18	326,349 04	197,666 38	366,452 49
1902.....	730,466 45	410,545 64	434,463 22	313,331 18	609,255 89
1903.....	931,403 18	799,541 19	793,257 44	577,322 16	773,466 48
1904.....	930,015 15	666,115 20	662,232 47	516,882 80	805,056 12
1905.....	598,500 11	228,018 89	478,776 79	419,661 19	409,274 55
1906.....	766,556 32	489,354 33	529,994 84	462,015 16	617,292 95
Total.....	\$5,432,868 40	\$3,551,942 18	\$4,443,264 78	\$3,405,749 45	\$4,240,040 70

A similar localization of work orders has been made for the years 1907 to 1910, inclusive, and the following appears to be a reasonable division between what is railway and what lighting property. Such a classification, summarized from the detailed report to the Commission, is given in table 21:

TABLE 21.
SUMMARY OF NET ADDITIONS TO PROPERTY.
AS PRORATED BY THE RAILROAD COMMISSION.
For The Four Years Ending Dec. 31, 1910

Year ending Dec. 31.	Total net additions to property.	Amount railway.	Per cent railway.	Amount other.	Per cent other.
1907.....	\$703,623 96	\$336,476 29	47.82	367,147 67	52.18
1908.....	443,394 61	174,976 51	39.46	268,418 10	60.54
1909.....	1,009,579 46	697,177 69	69.05	312,401 77	30.95
1910.....	951,652 47	572,075 71	60.11	379,576 76	39.89
Total.....	\$3,108,250 50	\$1,780,706 20	57.27	\$1,327,544 30	42.73

Accepting the investment of tangible property on Jan. 1, 1897, as \$4,488,408.25, the additions from 1897 to 1906, inclusive, as \$4,240,040.70, and additions from Jan. 1, 1907 to Jan. 1, 1911 as \$1,780,706.20, the total investment in tangible property of the respondent company is found to aggregate \$10,509,155.15. The total investment in tangible property on Jan. 1, 1910, the date of the appraisal, is found to be \$9,937,079.44.

APPRAISED VALUE.

Two appraisals were made of the property of The Milwaukee Electric Railway and Light Company and the Milwaukee Light Heat and Traction Company and are submitted by the engineer of the Commission. The first of these, of date Jan. 1, 1907, was offered in evidence prior to the hearing and became the basis of criticisms and suggestions offered by the city's and company's witnesses. This appraisal yields a cost of reproduction new of the traction property used and useful in Milwaukee, inclusive of materials and supplies, of \$8,931,317, and a depreciated or existing value of \$6,742,271. The second valuation of date Jan. 1, 1910, was completed after the attorney's briefs were submitted and yields a cost of reproduction new of \$10,179,167 and an existing value of \$7,615,992. Taking the 1907 cost of reproduction new as a basis, the city in its brief sug-

gests a reduction from \$8,931,317 to \$7,699,774, this difference being due to variance in the suggested bases of apportionment of joint values and the exclusion of a portion of the value of paving. Company's brief suggests an increase to \$10,701,238 to cover alleged omissions in inventory and the addition of paving and non-operating property excluded in the engineer's figure.

Counsel for the company in both the arguments and submitted briefs place little reliance upon the cost of reproduction basis of determining the value of that portion of respondent's property devoted to street railway purposes. Beyond pointing out the danger of omitting valuable items in inventory, attention is called to the fact that the appraised value cannot be made the measure of the company's investment, since it assumes a market price of the various property elements as of one specific date, whereas the actual investment has spread over long periods of time, has included an added expense of planning and experimentation and has been completed at unit prices which have sustained great variation. It is pointed out that many items must be apportioned upon an arbitrary basis between company's urban and interurban railway business and between its lighting and traction departments, and that no two engineers will be in agreement upon the proper basis of apportionment. The principal objection raised, however, is that the appraisal does not adequately take account of the additional or overhead charges, the only allowance made by the engineer of the Commission being a 12 per cent addition to the total appraisal.

Many of the objections raised to the appraisal of Jan. 1, 1907, have been met and disposed of in the light of additional examination and evidence in the appraisal of Jan. 1, 1910. As regards omitted items of unusual difficulties in construction, it should be pointed out that both appraisals have been made in great detail and with full access to company's property and records of construction and after many conferences with officials actually in charge of the construction work. If omissions of tangible property have occurred, it is probable that company's constructing engineers, fully acquainted with the resulting detailed valuation, have not been aware of such omissions. As regards the unit costs used in appraising the inventory, it is to be noted that these are in most instances five year average prices, designed to include contractors and subcontractors com-

missions, the enhanced cost of piecemeal as compared with continuous construction, and the cost of handling material and labor until both items enter into the actual construction. Comparison with company's detailed construction vouchers discloses many instances where the investment unit prices fall below the appraised value cost of reproduction new.

In addition to the collaboration with company's officials, the criticisms of the consulting engineers who testified at the hearings as to the results of the 1907 appraisal have been carefully examined into prior to making the revised or 1910 appraisal. The principal objection of Prof. Mortimer E. Cooley of the University of Michigan is that the appraisal of track and track structures was too low, and it is suggested that 50 per cent is properly added to this portion of the total value to effect a normal appraisal. This item is one of considerable importance, as straight track alone aggregates \$1,711,732 of the total value, exclusive of percentage additions and materials and supplies, for 1910, or \$8,752,506. It is noted from the last engineer's report that where the unit price per average mile of single track was \$10,008 in the 1907 appraisal, this has been increased to \$15,240 in the 1910 appraisal, a figure somewhat in excess of Prof. Cooley's estimate. A similar criticism is made by company's witness Mr. Milton G. Starrett of New York City. The unit cost of 7 inch 95 lb. rail in concrete, company's standard construction, is given by Mr. Starrett as \$15,734 per mile. In the engineer's appraisal of 1910 this particular type is valued at \$16,213.92 per mile. Similarly, the unit cost of 6 inch 72 lb. rail in concrete type of construction is estimated as \$14,076 by Mr. Starrett and placed at \$14,336 in the engineer's 1910 appraisal.

That the revised appraisal has been based upon unit prices which do not underestimate the actual costs involved in street railroad construction is evident from a comparison of the prices employed by the engineer's staff with the prices obtained from company's construction vouchers and prices used in traction appraisals such as Chicago, Cleveland and Detroit. The comparative statement given in table 22, covering the item straight track, is typical.

The original appraisal of Jan. 1, 1907, is summarized in table 23 and is cited from the detailed engineer's report, all of which

appears in the printed transcript of the case and needs no elaboration at this time. The criticism of Prof. Cooley has already been referred to and relates principally to the unit prices for straight track. Several of the company's officers testified as to separate items, all of which has been taken into consideration in the revised valuation.

It will be noted that the total value of the traction property of both The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company, inclusive of materials and supplies and paving, aggregates \$12,394,031 cost of reproduction new; of this amount \$8,931,317 is property the title to which lies in the city company and \$3,462,714 is property the title to which lies in the traction company. The depreciated or present values aggregate \$6,742,271 and \$2,911,030, respectively.

TABLE 22.
COMPARISON OF TYPICAL UNIT COSTS USED IN APPRAISAL OF STRAIGHT TRACK.

	Staff's valuation Jan. 1, 1910.	Esti- mates in files of T. M. E. R. & L.	Clark's appraisal of T. M. E. R. & L. Jan. 1897.	Staff's valuation Jan. 1, 1907.	Valua- tion of Chicago Union Traction 1906.	Valua- tion of Chicago City Railway Dec. 1906	Valuation of Calumet Electric Railway Mar. 1908.	Valu- ation South Chica- go City Rail- way March 1908.	Valu- ation South- ern Street Ry. Co. Dec. 1908.	Valuation Detroit United Railways Oct. 1909.	Valuation Chicago Consolid- ated Traction Company Feb. 1910.	Cleveland Electric 1908.
<i>Materials</i>												
Rail per ton at site....	\$40 20	\$40 00	\$25 00-30 00	\$31 20-35 50	\$42 00	\$42 00	\$42 00	\$42 00	\$42 00	\$31-75-40 00	\$41 00	\$32-35-38-80
Ties—6 ft. 6 in.—cedar....	45	40	.35	.34						60	70	75
Ties—8 ft. 0 in.—oak....	70	65			65	65	75	75	75		4 00	4 50
Spikes per keg.....	3 86	4 00	3 75	4 00	4 00	4 00	4 10	4 10	4 10	4 00	4 00	4 50
Shims—each.....	02½	02½										
Cast welded joints....	4 25	3 00	2 00	2 80-3 50	4 25-5 50	3 75-5 50	4 25-4 50	4 25		3 00	4 25	4 75
Concrete ballast per cubic yard.....	4 30	3 90		5 00								
Crushed stone—per cu. yd. alongside track...	1 45	90	75		1 65	1 65	1 65	1 65	1 65	4 50		4 875
Gravel or cinder bal- last—per cubic yard alongside track.....	50	50		40						1 95	1 70	1 725
<i>Labor</i>												
Track laying per mile of single track.....	1,400-1,600	1,200 00	2,630-3,168	567-1,300- 1,483		1,584 00	1584-1848 00	1,848 00	1,584 00	1375-1400 00	1584-1848 00	1,475 00
Excavation per cu. ft..	45	40	(?)	(?)		50	50	50	50	325	50	1,682-3,532
Teaming per hour.....											55	
Hauling rail to streets —per ton.....	50					1 00	1 00	1 00	1 00		1 00	
Teaming, sundries, etc., per mile.....		350 00	500 00									
Hauling rail—per ton..	60											

¹ Includes miscellaneous hauling.

² Included in item above

³ Does not include disposal.

⁴ Indicates per mile of single track.

TABLE 23

SUMMARY OF PHYSICAL VALUATION, OPERATING RAILWAY PROPERTY ONLY.
 THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT HEAT
 AND TRACTION COMPANY, JAN. 1, 1907.

Cost of Reproduction—Operating Railway Property Only.

CLASSIFICATION.	T. M. E. R. & L. Co.		M. L. H. & T. Co.		Total.	
	Property new.	Existing condition.	Property new.	Existing condition.	Property new.	Existing condition.
1—Land (right of way and other)...	\$597,845	\$597,845	\$230,721	\$230,721	\$828,566	\$828,566
2—Track and track structures.....	1,236,949	877,177	1,230,971	1,031,354	2,467,920	1,908,531
3—Cars and car equipment.....	2,007,876	1,496,291	418,420	342,634	2,426,296	1,838,925
4—Electrical distribution system...	1,063,818	919,001	445,387	381,289	1,509,205	1,300,290
5—Power plant equipment.....	1,060,615	835,160	188,630	119,914	1,249,245	955,074
6—Buildings and misc. structures...	878,807	644,063	407,709	390,431	1,286,516	1,034,994
7—Office furniture and appliances.	23,443	20,789	10,132	8,984	33,575	29,773
8—Tools, implements and machinery.....	285,564	182,267	14,119	8,866	299,683	191,133
9—Horses, wagons and miscellaneous.....	32,419	28,038	22,014	18,449	54,433	46,487
Total of items 1-9.....	\$7,187,336	\$5,600,631	\$2,968,103	\$2,533,142	\$10,155,439	\$8,133,773
10—Add 12% (see note below).....	862,480	672,075	356,172	303,977	1,218,652	976,052
Total of items 1-10.....	\$8,049,816	\$6,272,706	\$3,324,275	\$2,837,119	\$11,374,091	\$9,109,825
11—Stores and supplies.....	57,630	57,630	9,382	9,382	67,012	67,012
Total of items 1-11.....	\$8,107,446	\$6,330,336	\$3,333,657	\$2,846,501	\$11,441,103	\$9,176,837
12—Paving.....	823,871	411,935	129,057	64,529	952,928	476,464
Total of items 1-12.....	\$8,931,317	\$6,742,271	\$3,462,714	\$2,911,030	\$12,394,031	\$9,653,301

NOTE:—Item 10 includes: Engineering and superintendence, 4%; organization and legal expenses, 2%; interest during construction, 3%; contingencies, 3%; total 12%

In table 24 there is summarized the appraised value of The Milwaukee Electric Railway and Light Company, the Milwaukee Light, Heat and Traction Company, and the Milwaukee Central Heating Company as of date Jan. 1, 1910. The division of this property as between the city company and traction company has been made upon the basis of actual ownership, and the only approximate or arbitrary apportionments occur where property is used jointly for railway, lighting and the heating business. It will be noted that the total value of the property, exclusive of materials and supplies, of The Milwaukee Electric Railway and Light Company is placed at \$15,749,310. Of this amount \$9,802,807 is the appraised value of property used and useful for railway purposes; \$4,151,619 is the appraised value of property used for light and commercial power service; \$103,059 is the property, the title to which lies in The Milwaukee Electric Railway and Light Company used and useful for heating service; \$431,760 is investment and consists of non-revenue produc-

ing property, such as vacant space in the Public Service Building and land held as investment; \$1,260,065 consists of non-operating property. The total appraised cost of reproduction new of the Milwaukee Light, Heat and Traction Company is placed at \$6,131,533, and of the Milwaukee Central Heating Company at \$630,448. The total value of railway property useful for traction service, whether of an urban, suburban or interurban nature, is \$15,934,340.

It has already been noted from an examination of the operating revenues of The Milwaukee Electric Railway and Light Company, that all railway property, the title to which is lodged in that company, is used for urban service, for suburban service within the city limits, and for interurban service within the city limits. Compensation is made for the track, car houses and rolling stock and power output devoted to outside operations by crediting the city company earnings with a single fare within the single fare area.

In table 25 the total cost of reproduction new of property used and useful for railway service aggregating \$15,934,340 is apportioned as between urban railway service, suburban service, interurban railway service, and local service in Racine and Watertown. To obtain this estimate land and buildings have been apportioned upon the relative floor space devoted to the separate services; car barns and their sites have been apportioned upon the basis of number of operating cars stored; car plants and substations and their sites have been apportioned upon the basis of electric and mechanical equipment contained in the buildings and upon the basis of output for the various services; shops, foundries, and stables have been apportioned upon the basis of the total car-miles for various services; roadway, track and paving have been apportioned as actually used, where, however, such equipment is utilized for two or more services the apportionment has been made upon the basis of tributary car-miles; transmission and distribution system has been apportioned as actually used, joint equipment being apportioned upon the tributary car-mile basis; mechanical and electrical equipment has been apportioned to the various services on the basis of station output.

It is to be emphasized that the appraisal summarized in table 24 has been based upon actual property ownership, while the apportionment in table 25 has been based upon the apportioned property used and useful.

TABLE 24.

SUMMARY OF PHYSICAL VALUATION

OF THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT CO., MILWAUKEE LIGHT, HEAT AND TRACTION CO., MILWAUKEE CENTRAL HEATING CO.
OF DATE JAN. 1, 1910.

Engineer of the Commission.

ITEMS.	T. M. E. R. & L.—147.002 Miles of Single Track.											
	Railway.		Light and commercial power.		Heat.		Investment.		Non-operating.		Total	
	Cost new.	Present value.	Cost new.	Present value.	Cost new.	Present value.	Cost new.	Present value.	Cost new.	Present value.	Cost new.	Present value.
A. Land.....	\$529,200	\$529,200	\$236,900	\$236,900	\$3,500	\$3,500	\$228,000	\$228,000	\$310,600	\$310,600	\$1,308,200	\$1,308,200
B. Roadway.....	2,323,631	1,533,224	1,910,685	1,545,023	.....	.....	.....	.....	218,787	200,828	2,323,631	1,533,225
C. Transmission and dist.	1,150,925	1,010,232	442,442	410,364	10,500	10,080	157,500	151,200	355,900	175,905	3,280,397	2,756,085
D. Bldgs., fix., and grds...	1,003,546	902,156	1,030,065	673,824	78,017	65,705	.....	.....	239,771	103,455	1,969,888	1,649,704
E. Power plant equip.....	815,601	607,811	.....	.....	.....	.....	.....	.....	.....	.....	2,476,810	1,590,883
F. Rolling stock and eq'pt	2,402,549	1,533,478	74,261	57,405	.....	.....	.....	.....	.....	.....	539,504	356,073
G. Paving.....	527,054	347,856	12,450	8,217	.....	.....	.....	.....	.....	.....	.....	.....
Total A to G.....	\$8,752,506	\$6,463,957	\$3,706,803	\$2,931,733	\$92,017	\$79,285	\$385,500	\$379,200	\$1,125,058	\$790,788	\$14,061,881	\$10,644,963
Overhead, 12%.....	1,050,301	775,675	444,816	351,808	11,042	9,514	46,260	45,504	135,007	94,895	1,687,426	1,277,396
Total A to G ¹	\$9,802,807	\$7,239,632	\$4,151,619	\$3,283,541	\$103,059	\$88,799	\$431,760	\$424,704	\$1,260,065	\$885,683	\$15,749,310	\$11,922,359
H. Materials & supplies...	376,360	376,360	215,799	210,769	.....	.....	.....	.....	.....	.....	592,159	587,129
Grand total.....	\$10,179,167	\$7,615,992	\$4,367,418	\$3,494,310	\$103,059	\$88,799	\$431,760	\$424,704	\$1,260,065	\$885,683	\$16,341,469	\$12,509,488

¹ Overhead charges included.

TABLE 24.—Concluded.
 SUMMARY OF PHYSICAL VALUATION
 OF THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT CO., MILWAUKEE LIGHT, HEAT AND TRACTION CO., MILWAUKEE CENTRAL HEATING CO.,
 OF DATE JAN. 1, 1910.
Engineer of the Commission.

ITEMS.	M. L. H. & T. Co.—229.173 Miles of Single Track.										M. C. H. Co.	
	Railway.		Light and commercial power.		Investment.		Non-operating.		Total.		Heating.	
	Cost new.	Present value.	Cost new.	Present value.	Cost new.	Present value.	Cost new.	Present value.	Cost new.	Present value.	Cost new.	Present value.
A. Land.....	\$361,311	\$361,311	\$12,331	\$12,331	\$43,775	\$43,775	\$63,652	\$63,652	\$481,069	\$481,069		
B. Roadway.....	3,079,419	2,542,365					12,567	7,628	3,091,986	2,549,993		
C. Transmission and dist.	731,033	643,620	242,043	191,461			86,316	82,910	1,059,392	917,991		
D. Bldgs., fix., and grds..	122,097	107,372	19,503	15,360			29,930	15,463	171,530	138,195	\$532,723	\$527,939
E. Power plant equip.....	258,644	186,209	90,079	56,827			95,436	53,613	444,159	296,649	7,390	6,651
F. Rolling stock and eq'pt	789,179	614,153	1,718	1,124			118	59	791,015	615,336	854	523
G. Paving.....	132,900	106,319					1,515	1,212	134,415	107,531	21,933	21,494
Total A to G.....	\$5,474,583	\$4,561,349	\$365,674	\$277,103	\$43,775	\$43,775	\$289,534	\$224,537	\$6,173,566	\$5,106,764	\$562,900	\$556,607
Overhead, 12%.....	656,950	547,362	43,881	33,252	5,253	5,253	34,744	26,944	740,828	612,811	67,548	66,793
Total A to G ¹	\$6,131,533	\$5,108,711	\$409,555	\$310,355	\$49,028	\$49,028	\$324,278	\$251,481	\$6,914,394	\$5,719,575	\$630,448	\$623,400
H. Materials & supplies..	1,500	1,500	5,051	4,702					6,551	6,202	16,500	16,500
Grand total.....	\$6,133,033	\$5,110,211	\$414,606	\$315,057	\$49,028	\$49,028	\$324,278	\$251,481	\$6,920,945	\$5,725,777	\$646,948	\$639,900

¹ Overhead charges included.

TABLE 25.

APPORTIONMENT OF PHYSICAL VALUATION OF RAILWAY PROPERTY.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE
LIGHT, HEAT AND TRACTION COMPANY TO URBAN, SUBURBAN AND
INTERURBAN BUSINESS.

Jan. 1, 1910.

CLASSIFICATION.	Urban Milwau- kee.	Suburban Milwau- kee.	Interur- ban.	Racine & Water- town local.	Total.
Land.....	\$483,502	\$82,958	\$276,121	\$47,930	\$890,511
Roadway and paving.....	3,013,520	387,389	2,229,787	432,606	6,063,004
Transmission & distribution	1,113,447	126,260	600,770	41,481	1,881,958
Buildings, fixtures & grounds	847,182	72,857	145,272	60,332	1,125,643
Power plant equipment.....	738,326	71,799	203,110	61,010	1,074,245
Rolling stock and equipment	2,331,938	118,359	657,518	83,913	3,191,728
Total.....	\$8,527,915	\$859,322	\$4,112,578	\$727,274	\$14,227,089
12%.....	1,023,350	103,119	493,509	87,273	1,707,251
Total.....	\$9,551,265	\$962,441	\$4,606,087	\$814,547	\$15,934,340

When a comparison is made of the appraised value of city company railway property as of Jan. 1, 1907, in table 23 and the appraised value as of Jan. 1, 1910, in table 24, it will be noted that the increase in plant valuation cost of reproduction new, exclusive of the percentage addition for railway property, will aggregate \$741,299. Inclusive of the 12 per cent addition this will aggregate \$830,255. From a comparison of the increase in book value occurring within these periods it will be noted that the construction has aggregated \$1,208,630.49. This difference is due to the fact that the book value includes additions to property in the process of construction and not as yet operating property used and useful upon the date of the appraisal. The larger items of such work in process aggregate \$45,000 expended upon the 16th street viaduct, \$13,260 expended upon the Cold Spring car property, and \$415,490 expended for pay-as-you-enter car equipment. When placed in operation the total of such non-operating property included in the book value, but not yet a part of the cost of reproduction new, will aggregate at least \$473,750. With these adjustments it will be noted that there is an addition in the revised appraisal of about 50 per cent in the unit value for track and a deduction of about 50 per cent in the unit estimate of paving.

Company contends that the entire cost of pavement laid above conduit and track is to be included in the valuation upon the

basis of cost of reproduction new. It will be noted that in the valuation of date Jan. 1, 1907, the paving item aggregating \$823,871 includes all paving, irrespective of whether such paving has been laid by the city or by the company. Heretofore, in cases before the Commission only the actual paving laid by the company has been included in the value for rate-making purposes and we see no reason for a departure from that rule in the present case. As has been held in *City of Ripon v. Ripon Lt. & W. Co.* 1910, 5 W. R. C. R. 1, 10, decided March 28, 1910:

“Every legitimate expenditure in adapting the utility to the demands of progress and community growth is a proper charge to construction, and as such the investment therefor is entitled to participate in the distribution of the earnings from operation. Obviously expenditures for pavement incurred by the utility in response to assessments levied therefor by the city, or the cost of cutting through such pavement for construction purposes and its replacement, are proper capital charges. It does not necessarily follow that the utility is to capitalize expenses for municipal betterment in which it has not participated and where such accruing benefits to the utility are remote and incidental, and thus compel the subscribers for utility service to pay increased rates because of public improvements. The improvement is not a proper element of value where the pavement has not been paid for by the utility, nor any expense in connection with it directly incurred, in determining a value which shall serve as the basis for an adjustment in rates.”

See also *Ashland v. Ashland W. Co.* 1909, 4 W. R. C. R. 273, 307; *State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 554; *In re Compensation to Fond du Lac W. Co.* 1910, 5 W. R. C. R. 482, 492; *City of Racine v. Racine G. Lt. Co.* 1911, 6 W. R. C. R. 228, 240; *In re Manitowoc W. Wks. Co.* 1911, 7 W. R. C. R. 71, 88; *City of Beloit v. Beloit W. G. & El. Co.* 1911, 7 W. R. C. R. 187, 233; *La Crosse v. La Crosse G. & El. Co.* 1911, 8 W. R. C. R. 138, 162.

Departures from this rule are cited by the respondent in *The Consolidated Gas Co. v. City of N. Y.* 1907, 157 Fed. 849. It is to be noted, however, that this point is not specifically passed upon in the affirming case, *Wilcox v. Consolidated Gas Co.* 1909, 212 U. S. 19, to which citation is also made.

No evidence was presented at the hearings as to the paving actually paid for by the company beyond a statement of the witness John J. McGucken, record and permit clerk in the office of the board of public works, to the effect that the cost of repav-

ing or resurfacing of pavements was paid either by the property owners or by the city from ward funds, and that no part of this cost was paid by the respondent company. This fact is disputed by the testimony of Mr. Beggs and by statements furnished by other officials of the company, in which it is alleged that the company is generally required by franchise to maintain pavement within the rails, within the dead strip between double track, and six inches at each side of the outer rail. The city in its brief estimates the amount of paving actually laid on Jan. 1, 1907 as \$213,554.40. This estimate, however, is based upon the questionable assumption that the cost of paving incidental to construction of the track prior to 1897 was the same percentage of the cost of track construction as subsequent to 1897.

In an effort to clear up these conflicting estimates a complete check has been made of the location, kind and description of all paving requirements imposed by franchise, and the amount of paving actually replaced by the company, both company's records and records on file with the department of public works being utilized for that purpose, and from these data it appears that the paving actually laid above the railway substructure and that portion of conduit devoted to railway purposes on Jan. 1, 1910, if reproduced, will aggregate \$527,054. It is estimated that the cost of disturbing and replacing present paving, including the dead center and a strip one foot outside of the outer rail, will aggregate \$581,604. This estimate is based upon the assumption that in reproducing the present equipment the company will utilize paving blocks disturbed during such construction. To reproduce all paving above tracks, including the dead center and one foot outside the outer rail, will aggregate \$1,033,429. This estimate is based upon the assumption that the company will itself furnish all material as well as labor in reproducing the paving. It appears that according to the franchise requirements company has placed original pavement upon Washington street, Muskego avenue, Greenfield avenue, and Fond du Lac avenue. These original expenditures are estimated at \$32,858. In the valuation the estimate of \$527,054, being the amount of pavement actually laid by the company, has been accepted.

Objection is made by the company to the exclusion from the property appraised as used and useful for railway purposes of certain items of non-operating property which in the 1907

valuation consisted of conduit, a small portion of the Public Service Building, and certain tracks used only in case of emergency. It is contended that a considerable portion of this property is being held for immediate future operation or with a wise foresight for future needs. The reasonableness of this contention has been carefully examined into and it will be noted that in the revised valuation all roadway and track has been treated as operating property. A careful check of the remaining items listed as non-operating suggests certain additional items which may properly be construed to be a reasonable reserve for future operation. The period of time for which conduit shall be constructed in the future has been placed at fifteen years, and on the basis of the present increase of cable laid of about 4 per cent per annum it is estimated that 60 per cent of the present conduit will be occupied within that period of time. Making these corrections, it is noted from the detailed memorandum submitted by the engineer that an increase of \$139,318 is properly made to railway operating property and an increase of \$136,817 to lighting property. With these corrections the property listed as non-operating consists principally of revenue producing real estate, that portion of the value of the Public Service Building leased to outside tenants, and a portion of conduit and power plant equipment which cannot be construed as applicable to railway operation.

Apart from the expense of labor and material incurred in constructing the plant, many additional costs must be met which do not appear in the appraiser's inventory of tangible property. Among these are the expenses of organization preliminary to the construction of the property, usually consisting of engineering and legal expenses; the expenses of supervising including the wages of all contractors, superintendence, and necessary administrative organization; contingent costs due to loss of time, material and unexpected obstacles occurring during the progress of construction; and, finally, the expense of financing the construction, consisting principally of interest on money advanced prior to operation. Construction costs of this character are analogous to the overhead or expense burden encountered in analysis of operating costs. Allowances for such expenditures are usually made in appraisals of public utility properties and have in all instances been made by this Commission.

The amount of such a percentage allowance has frequently been made a matter of dispute and is a controverted point in

the present case. In previous decisions as to the appraised value of property involved in cases relating to compensation at time of purchase, valuation for stocks and bonds and reasonable rates, the addition has not exceeded 12 per cent of the priced inventory. *Hill et al. v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 685; *State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 540; *In re Fond du Lac W. Co.* 1910, 5 W. R. C. R. 482, 500.

The reasonableness of such an amount is conceded by the city. Counsel for the company suggest, however, that 22 per cent is not an excessive figure and cite instances of percentage additions as high as 51 per cent. In testifying as to the basis upon which the additional allowance is made in the 1907 appraisal, the Commission's engineer, W. D. Pence, states that it consists of four items, 4 per cent for engineering and superintendence, 2 per cent for organization and legal expenses, 3 per cent for interest during construction, and 3 per cent for contingencies. The allowance of 3 per cent for interest during construction was based upon the assumption that the average period of construction would not aggregate more than one year and interest was allowed for one-half of this period. Certain portions of the property, it was admitted, such as the Public Service Building or the Commerce street power plant, might not be entirely completed within one season and the building of the entire traction system as one continuous operation might require three years. The interest allowance period, however, was based upon the general practice of operating portions of the system prior to the time when the entire work would have been completed. The allowance for contingencies was designed to cover insurance during construction and omissions in the inventory. It was admitted that a more liberal allowance would be necessary in estimating values prior to actual construction since more omissions would occur than where a practically complete and accurate inventory of the constructed property was available. For the remaining contingencies 3 per cent was deemed to be an ample allowance.

From a review of the testimony of experts for the company, it is noted that the criticism of these estimates by Mr. Beggs relates principally to the exclusion of contractor's profits, which according to the testimony of the Commission's engineer are included by him in the unit prices. This item Mr. Beggs esti-

mates will be at least 15 per cent in addition to the cost of labor and material entering into the work. Interest, it is urged, cannot possibly be computed at less than 5 per cent and might aggregate $7\frac{1}{2}$ per cent, and engineering and superintendence may aggregate from 5 per cent to $6\frac{1}{2}$ per cent. Prof. Cooley, in his revision of the staff's figures, adds 5 per cent for contingent omissions to the inventory on all items except land, cars, and car equipment, and an additional 5 per cent for general contingencies during construction on all items except land, office furniture, and horses, wagons and miscellaneous. A 4 per cent allowance is made for engineering, $\frac{1}{2}$ per cent allowance for insurance, $2\frac{1}{2}$ per cent for organization and legal expenses, and 6 per cent for interest during construction. The total addition will aggregate 22.2 per cent as against the engineer's estimate of 12 per cent. Of this amount contingencies will aggregate 8.8 per cent. Company's witness, Mr. Starrett, accepts the percentage allowed in the valuation of the engineer of the Commission for engineering and superintendence aggregating 4 per cent, for organization and legal expenses aggregating 2 per cent, and for interest during construction aggregating 3 per cent. The allowances for contingencies of construction are increased from 3 per cent to 5 per cent and an addition is made for discount on bonds aggregating 9 per cent, and for working capital aggregating 1 per cent of the appraisal of the physical property. Since there was no intention on the part of the engineer of the Commission to include the amount of discounts on bonds or the amount of working capital, these items being considered apart from the valuation of the other tangible property, the only difference of judgment between the engineer and Mr. Starrett lies in the allowance for contingencies.

Isolated cases are cited, at and since the hearing, of percentage additions considerably in excess of the engineer's allowance. A careful examination of this evidence, however, discloses that these instances are based upon a definition of overhead additions which includes such items as hauling, store room, transportation of employes, labor and renewal of tools, and contractor's profits, all of which are included in the unit prices of the engineer of the Commission, and such items as discounts on bonds, organizer's profit, preliminary legal expenses, working capital, etc., all of which are classed in our analysis in a separate group apart from the other tangible portions of the property. Un-

doubtedly the fact that these items are otherwise included must be taken into consideration in determining the proper percentage allowance.

An examination of some thirty cases covering actual expenditures for construction of public utility properties, especially electric railway and lighting properties, suggests that such allowances are not unreasonable. From a careful study of these cases it appears that the overhead costs, in addition to the expenditures for specific construction to cover such items as engineering and superintendence, organization, legal expenses, and interest during construction, averages 10.13 per cent and ranges from 4.12 per cent to 23.43 per cent. These results are actual costs and hence do not include an allowance for contingencies. Some of the individual percentages are low by reason of the fact that a portion of the cost of supervision of extensions has been borne by operation instead of being a charge to construction.

In the present case the reasonableness of the addition to the appraised value must be determined not so much upon the basis of comparison as in the light of local circumstances. It is noted from an examination of the books that by far the greater portion of the company's property has been built as extensions to the original street railway system, and that the larger portion of the cost of supervising and planning these extensions have been included as a portion of operating expenses. It is noted also from an examination of the inventories submitted that a large amount of stores and supplies, included as working capital upon which a reasonable return is allowed, is material which ultimately enters into construction.

In addition, the fact must not be lost sight of that both the appraisal and re-appraisal have been submitted in detail and have no doubt been critically examined and compared with the company's own complete record of physical plant. It seems reasonable to assume that in an appraisal conducted under those conditions the element of contingencies of inventories has been reduced to a minimum, and that the allowance of 3 per cent is a sufficient addition to add to the cost of physical property to cover contingencies.

As regards the allowance for interest which has been placed by the engineer at 3 per cent, it is concluded that such an addition to plant is not unreasonable in the light of the allowance

for working capital and the fact that construction has been piecemeal and frequently placed in operation during the year of construction. No serious question is raised as to the allowance of 4 per cent to cover engineering and superintendence and the allowance of 2 per cent to cover organization and legal expenses, and in examination of the book figures these additions appear to be ample.

In the conflicting estimates of what are proper overhead additions confusion has evidently arisen as to the purpose of the appraisal. If the point of view is one of reproducing a hypothetical or identical plant, the overhead cost is concededly greater than if the appraisal is one of reproducing or estimating company's cost or sacrifices in building up the property.

The question is somewhat akin to the controversy as to the inclusion of paving which has not been paid for by the utility, upon the ground that its inclusion is necessary in the reproduction of a hypothetical or identical plant. Undoubtedly in appraisements for rate-making purposes judicial notice must be taken as to whether additional allowances such as those in question have been included in operating expenses and have been borne by the consumer.

For the reasons elaborated we find no reason for departing from the revised findings of the engineer as to the appraisal of the traction property of the city company as of date Jan. 1, 1910. The cost of reproduction new of the property is placed at \$9,942,125 and the existing or depreciated value will not amount to more than \$7,378,950, or 74.22 per cent of the value new. The appraisal of materials and supplies is later included in our finding as a portion of the working capital of the property.

Similarly the appraised cost of reproduction new and existing value of the traction company railway property is placed at \$6,131,533 and \$5,108,711, respectively. In any extension of these values to property used within certain extended areas of traffic, an apportionment of values used and useful, similar to that contained in table 25, has been used and is elaborated upon in later portions of our decision.

GOING VALUE.

It is conceded that in addition to the value of the tangible property some allowance is properly made for the cost of building up the business, or the losses sustained before the property has been placed upon a paying basis. Previous decisions of

this Commission have recognized the necessity of compensating for such early losses and the existence of a going value is recognized by both parties to the complaint in the present case. *Hill et al v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 706-711. *In re Menominee & Marinette Lt. & Tr. Co.* 1909, 3 W. R. C. R. 778, 792. *State Journal Prtg. Co. v. Madison Gas & El. Co.* 1910, 4 W. R. C. R. 501, 577. *City of Appleton v. Appleton W. Wks. Co.* 1910, 5 W. R. C. R. 215, 276. *Cunningham et al. v. Chippewa Falls W. & Lt. Co.* 1910, 5 W. R. C. R. 302, 315.

Two methods are proposed for the measurement of such a going value. One of these is a continuation of the cost or investment theory of value and is based upon the actual losses sustained by the utility in the past, and its subsequent earnings as an offset to such losses; the other is a continuation of the appraisal or cost of reproduction theory of value and is based upon the assumption that an identical utility property shall have been reproduced at the present time, and estimates the expenditures probably made before the hypothetical or comparative plant shall have been placed upon an earning basis identical with the present property. Estimates are made upon both methods by company's witness, Mr. Mortimer J. Cooley. Estimates made by the city in its brief are evidently made upon the first or cost basis and lead to the claim that company's earnings have been sufficient to absorb any early losses and adequately compensate the owners for their sacrifices in developing the property.

Both the cost and comparative plant theory are in a measure predicated upon past earnings and expenses. Where in the first case the actual losses sustained are made the measure of going value and result in computations similar to those described in the *Antigo* case, to which reference has been made, in the latter case the trend of past earnings and expenses forms the basis of predicting future losses probably to be borne by a new, hypothetical or parallel plant. This raises the question of fact as to such losses and necessitates a review of the company's financial history.

The evidence relating to net earnings prior to the organization of the present company are meager and consist entirely of evidence presented in the circuit court case covering the operating returns for the years 1894 to 1896, inclusive. Estimates are made by Prof. Cooley to cover the years 1891 to 1893, inclusive, but no evidence is presented as to the basis upon which these

figures are predicated. Neither does a careful search for records in the office of the company throw any light upon what transpired during these three years. The evidence relating to net earnings during 1894, 1895 and 1896 has been summarized in table 26.

Of the witnesses called upon to testify in the circuit court proceedings, Mr. Wetmore is the president of the parent or North American Company and was a director and chairman of the executive and finance committee of the Milwaukee company. His testimony is corroborated by Mr. Mason, auditor of the company. Mr. Coffin is an operating expert of considerable experience who critically examined all expenditures with the view of determining how far these were at variance with normal operating costs of properties with which he was familiar. Mr. De Grasse is an expert accountant who testified for the city and who has audited the expenditures of the company for the three years in question. Mr. Goodspeed is the comptroller of the Boston Elevated and formerly a member of the Massachusetts railroad commission. His estimate is based largely upon a statistical study of what would appear to be normal operating costs, and much of his testimony relates to the operations of the Lynn & Boston road of Massachusetts, deemed comparable with Milwaukee in regard to mileage and passengers carried. Mr. Beggs testified as to expenditures during 1896, the traction properties at that time having come under his management. Mr. McAdco is manager of the Paterson Railway Company, New Jersey, and general superintendent of the Paterson Central Railway Co., and gives his estimate as to proper expenditures for a traction system similar to Milwaukee in response to a hypothetical question. The evidence presented by these witnesses has been reviewed and passed upon by Judge Seaman in his decision. It is to be noted, however, that the findings of fact in which we are interested for purposes of determining the going value are not the normal cost of operating a transportation business in Milwaukee during these years, but the amount actually expended for ordinary operating expenses, including taxes. This will explain the departure from the findings of the circuit court as to net earnings noted in the summaries of the original evidence submitted at that time.

For the year 1894, the net earnings as estimated by the separate witnesses are: Wetmore, \$64,868.77; Coffin, \$92,769.18; De Grasse, \$387,074.70; Goodspeed, \$230,412.24. Wetmore's

estimate is based upon the books of the company. It includes, in addition to operating expenses, a charge of \$247,324.88 for depreciation. Coffin adds \$16,613.96 to general expenses as reported by Wetmore, allowing 3 per cent of the gross earnings as an accident fund, the \$16,613.96 in this case being the difference between 3 per cent of gross earnings and the actual amount paid by the company for accidents. While no special charge is made by Mr. Coffin for depreciation, the sums \$124,106.29 and \$110,018.73 are added to "Maintenance of way and buildings" and "Maintenance of equipment," respectively. These amounts, totaling \$234,125.02, are evidently intended to cover the item of depreciation. The absence in Coffin's report of the charge made by Wetmore, \$31,314.51, for additional power is not explained. In regard to the deduction by Mr. Coffin of about \$27,900 in total operating expenses, the explanation made is: "The company had charged too much in the aggregate for 'Maintenance of equipment' and 'Depreciation charge'. I, therefore, did not in the suggested statement allow as much as the officers had reported." De Grasse makes a deduction of \$3,856 from the amount charged to general expenses by the company, as reported in the Wetmore statement, because it does not appear upon the books of the company, the charge for additional power is reduced from \$31,314.51 to \$5,540.36, since \$25,674.50 of this account accrued during the year 1893; \$35,250.90 is deducted as an overcharge for taxes, being the difference between the amount of taxes charged to expenses and the actual amount paid by the company for taxes; \$10,000 salary to H. C. Payne is deducted as excessive. De Grasse evidently makes no allowance for depreciation. Goodspeed allows 1.9 cts. per car-mile for "Maintenance of roadway and buildings" and 2.2 cts. per car-mile for "Maintenance of equipment." Accordingly the \$40,942.13 allowed by De Grasse for "Maintenance of roadway" in 1894 is increased to \$126,930.32, while the \$80,680.12 allowed for "Maintenance and equipment" is increased to \$145,814.06. Mr. Goodspeed's figures evidently make some provision for depreciation. The federal circuit court in its decision evidently accepts the Goodspeed estimate and assumes net earnings for the year as \$230,000. In the present case it is noted that Prof. Cooley in his estimate of going value assumes earnings as \$1,147,683, and the operating expenses as \$831,706, leaving net earnings of \$315,977. The city in its brief estimates net earnings as \$312,193.65.

TABLE 26.
EVIDENCE RELATING TO EARNINGS AND EXPENSES, CIRCUIT COURT CASE,
MILWAUKEE STREET RAILWAY COMPANY.
1894, 1895, 1896.

Italic figures denote deductions.

Account	Wetmore,	Coffin.	Beggs.	DeGrasse.	Goodspeed.	McAadoo.
<i>1894</i>						
<i>Gross Earnings</i>	\$1,143,798 37	\$1,143,798 37	.....	\$1,143,798 37	\$1,143,798 37	.....
<i>Expenses:</i>						
General.....	\$158,129 73	\$174,743 69	.....	\$154,273 73	\$109,022 83	.....
Transportation.....	520,538 23	520,538 23	.....	520,538 23	526,078 56	.....
Maintenance way and buildings.....	40,942 13	165,048 42	.....	40,942 13	126,930 32	.....
Maintenance equipment.....	80,680 12	190,698 85	.....	80,680 12	145,814 06	.....
Additions:						
Additional power.....	31,314 51	.....	.....	.....	.....	.....
Allis temporary plant.....	.....	.....	.....	5,540 36	5,540 36	.....
Maintenance way equipment and other.....	247,324 88	.....	.....	.....	.....	.....
Deductions:						
Overcharge taxes.....	.....	.....	.....	35,250 90	.....	.....
H. C. Payne, salary.....	.....	.....	.....	10,000 00	.....	.....
Total expenses.....	\$1,078,929 60	\$1,051,029 19	.....	\$756,723 67	\$913,386 13	.....
Net earnings.....	\$64,868 77	\$92,769 18	.....	\$387,074 70	\$230,412 24	.....
<i>1895</i>						
<i>Gross Earnings</i>	\$1,309,641 19	\$1,309,641 19	.....	\$1,309,641 19	\$1,309,641 19	\$1,309,641 19
<i>Expenses:</i>						
General.....	\$139,100 22	\$152,198 23	.....	\$139,100 22	\$139,100 22	\$165,000 00
Transportation.....	526,663 76	526,663 76	.....	526,603 76	526,603 76	526,663 00
Maintenance way and structures.....	51,832 72	169,686 27	.....	51,832 72	136,397 78	180,000 00
Maintenance equipment.....	110,991 53	214,050 38	.....	110,991 53	157,934 28	200,000 00
Additions:						
Maintenance way equipment.....	211,850 66	.....	.....	.....	.....	.....
Advertising legal and rec. expense.....	.....	.....	.....	18,431 28	18,431 28	.....
Deductions:						
Overcharge taxes.....	.....	.....	.....	16,999 43	16,999 43	.....
Total expense.....	\$1,040,458 89	\$1,062,598 64	.....	\$829,960 08	\$961,467 89	\$1,071,663 00
Net earnings.....	\$269,202 30	\$247,042 55	.....	\$479,681 11	\$348,173 30	\$237,978 19

1896					
Gross Earnings	\$1,228,626 58	\$1,228,626 58	\$1,228,626 58	\$1,114,752 69	\$1,114,752 69
Expenses:					
General	\$149,548 53	\$161,638 33	\$149,548 53	\$132,770 69	\$132,770 69
Transportation	572,492 28	572,492 28	572,492 28	523,785 08	523,785 08
Maintenance way and structures	50,528 77	182,213 11		47,774 74	147,481 54
Maintenance equipment	97,784 42	205,021 01		90,825 12	169,610 21
Additions:					
Maintenance equipment etc	257,643 77				
Strike expense		86,840 23			
Extraordinary expense				123,103 57	123,103 57
Interest paid				160,550 00	
Deductions:					
Overcharges				8,341 93	8,341 93
Total expense	\$1,127,997 77	\$1,208,504 96	² \$1,113,557 68	\$1,070,467 27	\$1,088,409 16
Net earnings	\$100,628 81	\$20,121 62	\$115,068 90	³ \$66,520 99	\$26,343 53

¹\$1,009,905.12 after deducting \$30,533.77, amount paid for construction of paint shop and which was included in other maintenance of way and equipment—Complainants proof p. 465.

² Additional operating expenses of Mr. Beggs, as follows:

Railway and track	\$147,643.86
Overhead lines	29,647.19
Underground feeders	13,473.82
Car house and repair shop	6,813.11
Tools and repair shop machinery	5,000.00
Power plant	28,187.12
Rolling stock	138,968.32
Sweepers hand cars	3,000.00
Damages	18,783.45

³ Includes \$22,235 57 additions to net earnings, page 53.

For the year 1895 net earnings are estimated by the separate witnesses as follows: Wetmore, \$269,202.30; Coffin, \$247,042.55; De Grasse, \$479,681.11; Goodspeed, \$348,173.30; McAdoo, \$237,978.19. Wetmore's estimate is based upon the books of the company and includes in addition to operating expenses a charge of \$211,850.66 as extraordinary maintenance expenditures or depreciation. Coffin increases "General expenses" as reported by Wetmore from \$139,100.22 to \$152,198.23, the difference being an increase of the amount provided for accidents to 3 per cent of gross earnings; Coffin adds \$117,853.55 to the amount charged by the company to "Maintenance of way" and makes a similar increase to "Maintenance of equipment" of from \$110,991.53 to \$214,050.38. These additions are intended to cover depreciation. No explanation is given in regard to the \$22,000 difference between the total expenses given by Wetmore and the total amount allowed by Coffin. De Grasse has investigated the item of \$211,850.66 included in the Wetmore statement as to the "Maintenance of way and equipment, other, etc." and finds that it consists of: Advertising, \$150; attorney's fees, \$40,703.21; receivers' expenses, \$2,000; betterments, \$68,613.95; construction, \$100,383.50. By reference to the journal items, Mr. De Grasse finds that the legal expenses include forty months, sixteen of which cover the period under investigation. Allowing \$16,281.28 as proper expenditure for legal expenses during the period, \$150 for advertising and \$2,000 for receivers' expenses, the total amount of \$211,850.66 is reduced to \$18,431.28. No allowance is made in the De Grasse estimate for depreciation and the amount charged to betterments by Wetmore is included in the construction account by the witness. The \$16,999.43 overcharge for taxes is a surplus set aside in the tax reserve over the amount of taxes actually paid. Goodspeed bases his 1895 estimated expenditures upon the same basis as those for 1894, and assumes a cost of 1.9 cts. per car-mile for maintaining roadway, and of 2.2 cts. per car-mile for maintaining equipment. The item "Maintenance of equipment" is accordingly increased from \$110,991.53 to \$157,934.28 and "Maintenance of roadway" from \$51,832.72 to \$136,397.78. The overcharge noted by De Grasse for taxes is excluded, as are also the excessive amounts included in the account "Maintenance of way, equipment, other, etc." The difference in operating expenses as computed by De Grasse and

Goodspeed is \$131,507.81. McAdoo, in response to a hypothetical question, and upon the basis of the descriptive data furnished, places "General expenses" at \$165,000, "Maintenance of equipment" at \$200,000, "Maintenance of way and structures," \$180,000. Assuming that the charges for conducting transportation are proper, and deducting the sum total of the operating expenses from gross earnings, leaves net earnings \$237,978.19. The circuit court in its opinion evidently accepts Goodspeed's estimate, and refers to net earnings as \$340,000. In the present case, Cooley in his estimate of going value estimates net earnings as \$396,466. The city in its brief estimates net earnings as \$438,199.75 (p. 73, Vol. I).

For the year 1896 net earnings are estimated by the separate witnesses as follows: Wetmore, \$100,628.81; Coffin, \$20,121.62; Beggs, \$115,068.90; De Grasse, \$66,520.99; Goodspeed, \$26,343.53. Wetmore's estimate is based upon the books of the company and includes, in addition to "Operating expenses," \$257,643.77 as "Maintenance of equipment, other." Coffin again increases "General expenses" by \$12,389.80, being the difference between the actual charges of the company for accidents and the 3 per cent of gross earnings estimated as proper by the witness. The items "Maintenance of way" and "Maintenance of equipment" are increased from \$50,528.77 and \$97,784.42, respectively, to \$182,213.11 and \$205,021.01, this difference including shifting of items because of certain additions for depreciation. The amount \$86,840.23 allowed by Coffin for strike expenditures is included by Wetmore in "Maintenance of equipment, other." The total expenses are about \$81,000 greater than those reported by Mr. Wetmore, this difference being due to allowances made for depreciation. Beggs gives estimates of operating expenses based upon what he believes should have been spent in order to keep the property in fair, practicable operating condition. The readjustments in operating expenses, as reported by Wetmore, made by Mr. Beggs, consist principally of additional charges in the maintenance expenditures, and the elimination of strike expenses. De Grasse's estimate is based upon eleven months operating in 1896, which in part accounts for differences in totals of operating expenses and earnings. "General expenses" are decreased \$5,188.39 because of sundry improper charges. There is included in operating expenses \$160,550 interest, which is entirely omitted by the

other witnesses. The item "Maintenance of equipment, other" is partly eliminated from the amount reported by Wetmore as \$257,643.77, there being deducted \$56,578.91 for "Material put in construction," \$12,069.53 "Pay roll on construction," \$16,061.37 "Paving," and \$49,506.31 "Construction account." The remaining item, \$123,103.57, is allowed as "Extraordinary expenses" and consists almost entirely of strike expenses. Miscellaneous items eliminated from gross earnings amount to \$22,235.57 and consist of "Depreciation," "Old rails sold," "Damages," "Rent received," and similar items. An overcharge of \$8,341.93 is eliminated from "General expenses," it being the excess of reserves over the amounts actually paid. Goodspeed increases "Maintenance of roadway" expenses, as reported by De Grasse, from \$47,774.74 to \$147,481.54 and "Maintenance of equipment" from \$90,825.12 to \$169,610.21, making a difference in "Total operating expenses" of \$178,491.89. The circuit court case places net earnings for the year at \$115,000, evidently accepting the estimate of Mr. Beggs. Prof. Cooley in the present case in his estimate of going value, placed net earnings at \$394,977. The city in its brief places net earnings at \$270,476.49 (p. 73, Vol. I).

In passing upon the evidence for the three years here summarized it is to be noted that the losses sustained in the public utility business, for which allowance is made in the going value of the enterprise, are properly the difference between gross earnings and operating expenses, plus depreciation and interest upon the investment. In determining what expenditures listed as operating are to be included, the distinction as to what are revenue and what are depreciation and capital expenditures should be carefully maintained. Questions of equal importance are whether expenditures have been wisely and necessarily incurred, and whether expenditures have applied during the year under review. It appears that in the financial statements submitted by the company these distinctions have not at all times been carefully made, and little fault can therefore be found with the adjustments made by the auditor, De Grasse. The evidence relating to normal operating costs, concerning which the greater number of witnesses expressed opinions, while clearly in point as affecting the determination of a rate of fare at that time, are not germane to a determination of actual net losses for purposes of computing a going value. The amount

available for interest and depreciation for 1894 and 1895, as determined from the detailed exhibits of the witness De Grasse, aggregating \$387,074.70 and \$479,681.11, respectively, are accepted in our calculations. For the year 1896 the item "Interest paid" is included in "Net earnings," it being clearly a financial transaction. "Net earnings" are determined as \$227,070.99. It is noted, also, that the operating expenditures for 1891, 1892, and 1893, inclusive, submitted by Prof. Cooley, concerning which no detailed evidence is available, aggregate 65, 65, and 76 per cent of gross earnings. Based solely upon these ratios it does not appear that the resulting net earnings for these years, \$274,800, \$343,491, and \$272,378, are far out of line.

The evidence relating to the net earnings of the company for the ten year period 1897 to 1906, inclusive, consists of a detailed audit of the accounts made by the accountants for the city, Barrow, Wade, Guthrie & Co., and a similar investigation made by Dickinson, Wilmot, and Sterrett, the accountants employed by the company. In accordance with these findings, certain deductions from the operating expenses, reported by the company as applicable to the traction business, are claimed and become a matter of controversy in the present case. In the computations of going value submitted by Prof. Cooley and accepted in the company's brief, the findings of the company's accountants are accepted. The city, however, in its brief has not rested its case upon the reports of its accountants, but has made additional claims for allowances in computations affecting the reasonableness of rates. For purposes of concise summary the entire ten year period may be grouped and the various deductions claimed separately listed.

From the financial records of the company already summarized it will be noted that operating expenses, exclusive of taxes and depreciation, have aggregated \$11,158,573.12 in the period 1897 to 1906, inclusive, ranging from \$1,007,019.64 in the former to \$1,455,763.88 in the latter year. From this total amount deductions have been made by the city's accountants aggregating \$750,441.97. Suggested corrections made by the company's accountants will reduce these exclusions to \$622,266.79. Additional claims made by the city in its brief will increase the amount deducted to \$883,366.74.

TABLE 27.
OPERATING EXPENSES.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.
Railway Only.

YEAR.	Company's books.	Company's books as adjusted by		
		City's accountants.	Company's accountants.	City's brief.
	a.	b.	c.	d.
1897.....	\$1,007,019 64	\$857,397 85	\$856,554 03	\$852,769 06
1898.....	822,562 45	800,605 74	810,140 83	800,605 74
1899.....	846,001 44	838 835 60	833,236 27	838,835 60
1900.....	955,193 31	951,707 57	958,140 88	951,707 57
1901.....	1,012,347 67	939,948 66	954,920 33	939,948 66
1902.....	1,081,901 47	975,489 60	1,003,499 93	975,489 60
1903.....	1,291,832 13	1,211,719 10	1,223,715 20	1,191,289 99
1904.....	1,372,299 71	1,268,590 29	1,293,095 34	1,248,531 19
1905.....	1,313,051 42	1,223,420 89	1,245,856 32	1,207,347 02
1906.....	1,455,763 88	1,340,415 85	1,357,147 20	1,268,681 95
	\$11,158,573 12	\$10,408,131 15	\$10,536,306 33	\$10,275,206 38

- a. Income account of company on file.
b. City's exhibit 4, part II, p.24.
c. Company's exhibit 1005, table C.
d. City's brief, p. 73.

The detail of items excluded is given in table 28:

TABLE 28.

COMPARATIVE STATEMENT OF ITEMS EXCLUDED FROM RAILWAY OPERATING EXPENSES.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.

Jan 1, 1897—Dec. 31, 1906.

	By city's accountant. a	By city's brief. b	By company's accountant. c
1. Excessive credits to Legal Expense Reserve.....	\$121,700 96	\$121,700 96	\$121,700 96
2. Excessive credits to Injuries and Damages Reserve	224,711 85	224,711 85	96,536 67
3. Excessive credits to Fire Insurance Reserve.....	71,530 92	71,530 92	71,530 92
4. Pay Roll Adjustment Account.....	141,648 19	141,648 19	141,648 19
5. Reconstruction and Reëquippment charged to operation	136,337 98	140,966 77	136,337 98
6. Excessive charges to Operation of Power Plants			
a. Credited to Depreciation Reserve Power	4,320 93	4,320 93	4,320 93
b. Credited to Storage Battery Maintenance Re-	17,118 75	17,118 75	17,118 75
serve.....			
7. Excessive charges to Conducting Transportation			
a. Credited to Depreciation Reserve Power	679 70	679 70	679 70
Plants.....			
b. Credited to Depreciation Reserve through	1,406 25		1,406 25
Operation of Gravel Pits.....			
c. Credited to Depreciation Reserve through	1,045 42		1,045 42
Utility Service.....			
8. Excessive charges to General Expense			
a. Credited to Depreciation Reserve Power	1,539 88	1,539 88	1,539 88
Plants.....			
b. Credited to Depreciation Reserve through	197 29		197 29
Utility Service.....			
c. Credited to Advertising and Attraction Re-	2,547 67	2,547 67	2,547 67
serve.....			
9. Excessive charges to Maintenance of Way and			
Structures			
a. Credited to Depreciation Reserve Power	52 62	52 62	52 62
Plants.....			
b. Credited to Depreciation Reserve through	453 17		453 17
Operation of Stone Crushers.....			
c. Credited to Depreciation Reserve through	2,145 05		2,145 05
Operation of Gravel Pits.....			
d. Credited to Depreciation Reserve through	5,179 28		5,179 28
Operation Utility Service.....			
10. Machinery Purchased, erroneously charged to Main-	4,342 47	4,342 97	4,342 47
tenance of Way and Structures.....			
11. Excessive charges to Stable Expense			
a. Credited to Depreciation Reserve.....	12,964 06		12,964 06
b. Credited to Injuries and Damages Reserve...	519 53	519 53	519 53
12. Credited to Depreciation Reserve			
a. Fixed Charges			
1. Utility Service.....		14,400 00	
2. Stable Expense.....		7,200 00	
3. Operation of Gravel Pits.....		3,105 00	
4. Operation of Stone Crusher.....		1,440 00	
5. Cast Welding.....		936 00	
6. Brass Foundry.....		190 00	
b. Profit or Loss on			
1. Utility Service.....		39,266 24	
2. Stable Expense.....		5,764 06	
3. Operation of Gravel Pits.....		21,020 73	
4. Operation of Stone Crusher.....		4,803 33	
5. Brass Foundry.....		136 38 <i>d</i>	
6. Cast Welding.....		2,818 29	
13. Excessive charges to T. M. E. R. & L. Co. for Opera-		39,686 63	
tion of Power Plant.....			
14. Credit to Depreciation Reserve Profit or Loss on		11,192 70	
Slag.....			
	\$750,441 97	\$883,366 74	\$622,266 79

- a. City's exhibit 4, part II, page 24.
b. City's brief, page 74.
c. Company's exhibit 1005, table C.
d. Credit item.

Item 1, Legal Expenses, \$121,700.96.

In order to equalize legal expenses occurring over a number of years, the company has set up a single reserve for the cost of litigation sustained by the railway and lighting departments of both the city and traction companies. The railway department of each company has contributed an amount ranging from $\frac{1}{2}$ per cent to $1\frac{1}{2}$ per cent of the gross earnings for the ten year period. The charge for 1903 to 1907 was but 1 per cent. The lighting departments have, with few exceptions, contributed a like amount. The unexpended surplus on Jan. 1, 1907, aggregated \$162,459.02.

Objection is made by the city accountants to the amount of this reserve and attention is called to the fact that the average yearly expenditures for legal expenses for the ten year period is \$13,669.60 or 0.47 per cent of the gross earnings of the above period. The proportion of this total expense properly chargeable to the city railway is estimated upon the basis of the amounts contributed to the reserve and aggregate \$6,627.57 per annum or 0.31 per cent of the gross earnings. This latter percentage is urged as reasonably sufficient to provide for legal expense contingencies, and the unexpended surplus is accordingly reduced from \$162,459.02 to \$40,758.06 and the deducted items added to the net earnings. This exclusion is not objected to by the company's accountants, but attention is called to the fact that the company is generally entitled to a reserve for contingencies and that these over-reservations may be so construed. The yearly credits, charges and accruing reserves are given in the following table:

TABLE 29.
LEGAL EXPENSE RESERVE

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE
LIGHT, HEAT AND TRACTION COMPANY.

Showing Adjustments Made by City's Accountants.

Italic figures denote deficits.

Year.	Legal Expense Reserve as per company's books.			Deductions made by city's accountants. <i>c</i>	Net yearly Legal Expense Reserve as adjusted. T. M. E. R. & L. Co. Ry.
	Yearly credits, <i>a</i>	Yearly charges, <i>b</i>	Net yearly reserve.		
1897.....	\$25,239 41	\$15,603 41	\$9,636 00	\$7,467 90	\$2,168 10
1898.....	28,372 97	24,251 88	4,121 09	3,309 23	811 86
1899.....	32,755 65	17,306 24	19,449 41	14,870 45	4,678 96
1900.....	24,919 68	39,773 26	14,855 58	10,993 13	3,862 45
1901.....	22,963 29	6,260 12	16,703 17	14,765 60	1,937 57
1902.....	12,968 09	7,787 41	5,180 68	4,595 26	585 42
1903.....	34,517 63	5,646 67	28,870 96	21,393 78	7,477 58
1904.....	36,806 48	5,844 00	30,962 48	22,695 50	8,266 98
1905.....	38,355 29	7,788 34	30,566 95	21,274 60	9,292 35
1906.....	42,256 55	10,432 69	51,823 86	22,372 17	9,451 69
Total.....	\$299,155 04	\$136,696 02	\$162,459 02	\$121,700 96	\$40,758 06

	Amount.	Per cent.
<i>a</i> Source of Amounts Credited to Legal Expense Reserve:		
General Expense T. M. E. R. & L. Co., railway.....	\$236,642 06	75.75
Expense M. L. H. & T. Co., railway.....	28,587 54	9.57
Lighting—Badger, Edison and Broadway plants.....	38,476 95	12.86
Expense M. L. H. & T. Co., lighting.....	5,386 91	1.10
M. L. H. & T. Co., Current Account.....	68 88	.02
Expense, Wauwatosa plant.....	524 48	.11
Expense, Racine plant.....	428 37	.14
Reconstruction, Reequipment & Extraordinary Expense.....	1,539 85	.45
Total.....	\$299,155 04	100.00
<i>b</i> Detail of Charges Made:		
Salaries.....	\$58,374 73	42.71
Sundry payments of fees, costs & expenses.....	1,868 10	11.61
Expense, 4 cts. fare & franchise litigation:		
1. Audited vouchers.....	7,513 41	5.50
2. Work orders.....	27,920 76	20.42
Payment of New York office account 4 ct. fare and franchise litigation.....	20,763 17	15.21
Sullivan & Cromwell, attorneys, services in re bond issue.....	3,911 55	2.86
Sundry.....	2,321 30	1.69
Total.....	\$136,696 02	00.00

a & *b*, Petitioners' exhibit 4, page 42.

c Petitioners' exhibit 4, page 24.

It will be noted that within the period reviewed 76 per cent of the amount credited to the legal reserve has arisen from general expenses of the city railway property. The remaining amounts have been contributed by the traction company and by the separate power plants and sundry accounts. Of the charges made, about 43 per cent have been for salaries and about 41

per cent have been for expenses incurred in the former circuit court case.

Item 2, Injuries and Damages, \$224,711.85.

Company's practice is to set up a single reserve for injuries and damages sustained in its lighting and railway departments of both the city and traction companies, to which railway has contributed in 1897 and 1898 2 per cent, 1899 3 per cent, and from 1900 to 1906, inclusive, 4 per cent of the gross earnings, and lighting $\frac{1}{2}$ per cent since 1901. On Jan. 1, 1907, there remained unexpended in this reserve \$289,480.64.

Objection is made to the amount of this reservation by the city's accountants on the ground that it is in excess of all reasonable requirements, and attention is called to the fact that the average yearly expenditure for injuries and damages for the ten years aggregates \$73,233.84, or 2.50 per cent of the total gross earnings for that period. The proportionate share of the expenses properly borne by Milwaukee traffic is estimated upon the basis of contribution to the reserve as \$59,301.72 per annum or 2.73 per cent of the gross earnings of that department. It is pointed out that the introduction of air brakes, the improved cars and trucks, the more experienced management and the substitution of Bascule for swing bridges is sure to reduce the liability of accident in the future and tend to decrease rather than increase the expense. Under these conditions, it is urged that the experience of these ten years, as evidenced by the expenditures from the funds, fairly represents the allowance which should be made for the future to cover this element of the cost of service.

Company's witness, Beggs, insisted, however, that the present reserve percentages are insufficient. He points out that it would take more than the present injuries and damages reserve to liquidate all the damage claims of that nature now unsettled, that something like one hundred suits are pending and more are to be brought, that if the property were sold, one of the conditions of sale would doubtless be that the present owners would clear up all such claims and that the tendency, as indicated by the act of the Wisconsin legislature of 1907 in increasing the liability for death from \$5,000 to \$10,000, is in the direction of increasing the cost of injuries and damages.

The company's accountants, moreover, take issue with the method followed by the city's accountants in estimating the

charges to surplus properly belonging to city railway. The summarized amounts contributed by railway are found to be about \$808,000 and the total expenditure is estimated at about \$615,000, leaving a total amount in reserve over and above claims paid of \$192,900.42, instead of \$289,480.84, as found by the city's accountants. The expenditures of \$615,000 were obtained by first separating out all lighting claims paid, which it is alleged were sufficiently ear-marked to make identification possible, and apportioning the remaining amount as between city and traction company for 1897-98 and 1899 on the basis of earnings, and for later years on the basis of car-hours. This surplus, it is contended, is further reduced by outstanding claims as estimated by company's attorneys and claim agents aggregating \$96,363.75, leaving an over-reservation of only \$96,536.67.

Reduced to a percentage basis, it is company's practice to set aside 4 per cent of the gross earnings to a reserve for the cost of injuries and damages upon city railway lines; the city's accountants estimate 2.73 per cent as sufficient to take care of payments sustained in 10 years; the company's accountants estimate 2.84 per cent as sufficient to care for such payments, increasing this to 3.28 per cent to care for outstanding claims, and they expressed the opinion that the reserve of about \$289,000 now accumulated would appear reasonable to carry the company over any unforeseen estimated contingencies.

Exception is taken to the entire computation of company's accountants by the city in its brief on the grounds that no deductions are made for liquidation of claims pending prior to 1897, that the evidence as to claims outstanding in 1907 was hearsay and clearly incompetent testimony, and that there is no justification for distributing charges upon a car-hour basis when the fund is credited on a gross earning basis. Counsel for the company urge that the present injuries and damages reserve is no greater than is prudently required and call attention to the fact that the company's accountants' admissions are for the purpose of minimizing differences.

It will be noted that 79 per cent of the total amounts credited to injuries and damages have been credited through "General expenses, railway", of The Milwaukee Electric Railway and Light Company, 11 per cent from the Milwaukee Light, Heat and Traction Company, and some 3 per cent accrued as interest and premium on bonds for injuries and damages. Lighting

department expenses, utility services, operation of gravel pits, stable expenses, and cast welding contributed the remaining proportionate part of the reserve. Of the amounts expended 92 per cent have been disbursed for the payment of claims and 6 per cent for pay roll and salaries of claim department.

TABLE 30.

INJURIES AND DAMAGES RESERVE

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

Showing Adjustments Made by City's Accountants.

Italic figures denote deficits.

Year.	Injuries and Damages Reserve as per company's books.			Deductions made by city's accountants. <i>c</i>	Net yearly Injuries and Damages reserve as adjusted. T. M. E. R. & L. Co. Ry.
	Yearly credits <i>a</i>	Yearly charges <i>b</i>	Net yearly reserve.		
1897.....	\$34,853 45	\$34,853 45		\$1,479 35	\$1,479 35
1898.....	49,782 07	31,472 59	\$18,309 48	16,716 55	1,592 93
1899.....	58,852 89	70,401 74	11,548 85	9,816 53	1,732 32
1900.....	83,307 67	69,864 72	13,442 95	11,278 63	2,164 32
1901.....	91,064 75	61,639 01	29,425 74	26,247 76	3,177 98
1902.....	111,360 80	51,981 64	59,379 16	49,106 56	10,272 60
1903.....	128,744 45	102,256 90	26,487 55	21,031 11	5,456 44
1904.....	140,695 89	84,683 84	56,012 05	42,961 24	13,050 81
1905.....	149,468 38	94,379 99	55,088 39	39,333 11	15,755 28
1906.....	173,688 72	130,804 55	42,884 17	29,332 77	13,551 40
Total.....	\$1,021,819 07	\$732,338 43	\$289,480 64	\$224,711 35	\$64,768 79

	Amount.	Per cent.
<i>a. Sources of Amounts Credited to Injuries and Damages Reserve.</i>		
General expense T. M. E. R. & L. Co., railway.....	\$308,035 64	79.08
Expense M. L. H. & T. Co., railway.....	112,849 93	11.04
Interest and premium on bonds for Injuries and Damages Reserve Fund.....	35,526 62	3.48
Sundry cash receipts.....	3,289 88	.32
Lighting expenses, T. M. E. R. & L. Co.....	25,338 41	2.48
Utility service.....	22,252 65	2.18
Operation of gravel pits.....	4,437 59	.43
Stable expense.....	1,854 30	.18
Cast welding.....	1,621 68	.16
Work orders.....	1,246 11	.12
M. L. H. & T. Co. lighting expense.....	910 29	.09
Brass foundry.....	1,068 03	.10
Sundry.....	1,895 15	.19
Profit and Loss charges.....	1,492 79	.15
Total.....	\$1,021,819 07	100.00
<i>b. Detail of Charges Made.</i>		
Sundry disbursements in payment of claims.....	\$679,768 70	92.83
Pay roll and salaries.....	4,174 06	6.72
Photograph department.....	759 29	.10
Conducting transportation.....	1,701 66	.23
Sundry.....	171 87	.02
Legal expense.....	763 05	.10
Total.....	\$732,338 43	100.00

Item 3, Fire Insurance Reserve, \$71,530.92.

Company maintains a reserve for fire insurance designed to cover fire risks upon a portion of the property of the city and traction companies. This reserve has been built up by yearly charges to general expenses of from $1\frac{1}{2}$ per cent to 1 per cent for the railway department of both companies, the charge from 1903 to 1907 being 1 per cent; and from $1\frac{1}{2}$ to 2 per cent in the lighting departments of both companies, the charge from 1903 to 1907 being 2 per cent. Substantial additions have also been made by the transfer of \$250,000 from the profit and loss account during 1903, and by interest accruing on bonds belonging to the reserve fund. The total accrued reserve aggregated on Jan. 1, 1907, \$387,117.71. It is urged by the city's accountants that operating expenses have been overloaded on account of this reserve to the extent of from \$2,000 to \$9,000 annually, and \$71,530.92 is accordingly deducted during the ten year period, leaving a net reserve of \$315,586.79 instead of \$387,117.71. Admission was made, however, during cross-examination that, upon the assumption that there was \$3,000,000 of uninsured property, company's present reserve was not excessive. No mention is made of this exclusion in the city's brief although the amount is included in the list of deducted items. Mr. Beggs calls attention to the fact that the insurance rate of the company has been reduced from \$1.40 to \$1.00 per thousand, because it was in a position to declare that unless a low rate was given the street railway would carry its own risks, and that the rate of the reserve had been cut down in the early part of 1909 to $\frac{5}{8}$ per cent. The company's accountants in their report have accepted the adjustment with the general understanding that these reservations are properly to be considered as part of a general reserve for contingencies. The total yearly credits and charges, together with adjustments made by the city's accountants, are given in the attached table.

It will be seen from the analysis that during the ten year period 1897 to 1906, inclusive, "General expenses" of the city railway have contributed approximately 29 per cent of the total reserve. Coupons collected on bonds belonging to the fire insurance fund have contributed 13.23 per cent, and transfers from "Profit and loss" contributed 49 per cent. 91 per cent of the charges against the reserve have been for "Fire insur-

ance prepaid" and only 2.88 per cent have been for "Fire losses sustained."

TABLE 31.

FIRE INSURANCE RESERVE.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

Showing Adjustments made by City's Accountants.

Italic figures denote deficits.

Year.	Fire Insurance Reserve as per company's books.			Deductions made by city's accountants. c.	Net yearly Fire Insurance Reserve as adjusted. T.M.E.R. & L.Co.Ry.
	Yearly credits. a.	Yearly charges. b.	Net yearly reserve.		
1897.....				\$7,295 26	\$7,295 26
1898.....	\$2,263 99		\$2,263 99	1,930 93	333 06
1899.....	3,624 57		3,624 57	2,761 92	862 65
1900.....	4,278 39		4,278 39	3,200 24	1,078 15
1901.....	10,834 87	\$1,854 55	8,989 32	9,108 85	119 53
1902.....	43,315 03	14,140 70	29,174 33	22,638 96	6,535 37
1903.....	296,271 47	29,618 14	266,653 33	5,683 57	260,969 76
1904.....	47,811 95	23,901 72	23,910 23	7,277 64	16,632 59
1905.....	48,516 63	27,224 56	21,292 07	4,168 71	17,123 36
1906.....	53,984 34	27,052 86	26,931 48	7,464 84	19,466 64
Total.....	\$510,910 24	\$123,792 53	\$387,117 71	\$71,530 92	\$315,586 79

	Amount.	Percent.
<i>a. Source of Amounts Credited to Fire Insurance Reserve:</i>		
General Expense T. M. E. R. & L. Co., railway.....	\$146,074 29	28.59
Coupons collected on bonds belonging to Fire Insurance Reserve Fund.....	67,625 00	13.23
Profit and Loss transferred per resolution of directors....	250,000 00	48.94
Lighting Expense, Badger and Edison plants.....	27,920 59	5.47
Insurance Prepaid.....	19,283 82	3.77
M. L. H. & T. Co., Current Account.....	5 23	
Cash.....	1 31	
Total.....	\$510,910 24	100.00
<i>b. Detail of Charges Made:</i>		
Fire Insurance Prepaid.....	\$112,315 77	90.76
Premium and interest on bonds purchased for Insurance Reserve Fund.....	1,607 73	1.29
Interest accrued on bonds purchased for Insurance Reserve Fund.....	5,911 67	4.77
Fire losses.....	3,531 17	2.88
Sundry.....	376 19	.30
Total.....	\$123,792 53	100.00

a. & b. petitioners exhibit 4, page 43.

c. petitioners exhibit 4, page 24.

Item 4, Pay Roll Adjustment Account, \$141,648.19.

It appears to have been the practice of the company to arbitrarily add 10 per cent to its pay roll in the ways and structures department and 25 per cent to a portion of the pay roll in the rolling stock department, these additional amounts being intended to cover the expense of "Superintendence" and "Use of tools" by the two departments. These amounts were credited to a "Pay roll adjustment account" and debited to such operation or construction as was undertaken under the pay roll for that particular year. The excessive amount accruing at the end of the year was transferred to the depreciation reserve.

Objection is made by the city's accountants to this practice on the ground that it is not a proper method of building up reserve charges, and the additions made to the pay roll items have been deducted from the operating expenses as reported by the company.

The entire excluded amount is added to net earnings by the company's accountants in their final exhibit of operating expenses as adjusted. Attention is called, however, to the fact that a greater portion of the pay roll account has been built up by charges to construction and reconstruction and that an equitable readjustment of the matter would have required that the bulk of the exclusion made by the city's accountants should have been written back to the credit of construction and reconstruction. Since, however, this transfer would merely reduce the difference between the book value and depreciated value of railway property and thus reduce the amount necessarily allowed for depreciation, the elimination is regarded as immaterial and excluded from operating expenses.

The city's brief calls attention to the fact that the excess amount credited to depreciation reserve was intended to cover the cost of replacing tools worn out and interest upon such investment. Since a valuation of this property is included in the value used and useful for railway purposes and since the depreciation allowed covers this entire property, there can be no question as to the exclusion of the entire excess amount added to "Pay roll adjustment account".

A detailed statement of the "Pay roll adjustment account", 1901 to 1906, inclusive, with the adjustments made by the city accountants, is given in the following table:

TABLE 32.

PAY ROLL ADJUSTMENT.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.

Showing Adjustment made by City Accountants.

Year.	Company's books.		Yearly credit balance transferred to Depreciation Reserve.	Deductions made by city's accountants.
	Yearly additions to pay rolls. <i>a</i>	Yearly charges. <i>b</i>		
1901.....	\$39,295 94	\$19,647 88	\$19,648 06	\$19,648 06
1902.....	54,292 15	28,185 45	26,106 70	26,106 70
1903.....	53,374 50	31,261 50	22,613 00	22,613 00
1904.....	62,635 20	41,489 90	21,145 30	21,145 30
1905.....	68,194 49	54,196 65	13,997 84	13,997 84
1906.....	115,402 35	77,265 03	38,137 29	38,137 29
Total.....	\$393,694 63	\$252,046 44	\$141,648 19	\$141,648 19

	Amount.	Per cent.
<i>a. Source of Amount Credited to Pay Roll Adjustment.</i> <i>Rep. Ex. 1008.</i>		
Operating expenses.....	\$130,086 66	33.04
Construction.....	161,722 75	41.08
Reconstruction.....	41,883 12	10.64
M. L. H. & T. Co. Op. Exp.....	19,328 61	4.91
Miscellaneous (lighting expenses, etc.).....	40,673 49	10.33
Total.....	\$393,694 63	100.00
<i>b. Actual Charges for "Superintendence and Use of Tools."</i>		

Item 5, 10, Reconstruction, Re-equipment, Extraordinary Expense, \$140,680.45.

These amounts are charges included in operating expenses which admittedly should have been charged against depreciation reserve and are deducted by the city's accountants since the allowance for depreciation is treated separately as a deduction from income. Attention is called by the company's accountants in their report to the fact that, while these items have been excluded from operating expenses, they have not been included in either construction or reconstruction. This correction is made in the detailed exhibit, "Exhibit 1005". It will be noted that in the city's brief is included a deduction of \$140,966.77 under item 5, as against the deduction of \$136,337.98 excluded by the accountants. The additional deduction here made is not explained.

Items 6, 7, 8, 9, 11, 12, 14, Special Accounts, \$50,169.60.

It is company's accounting practice to maintain special or clearing accounts known as "Utility service," "Stable expense,"

“Operation of gravel pits,” “Operation of stone crusher plant,” “Cast welding,” and “Brass foundry.” These accounts are charged with all expenses of operation, maintenance and fixed charges, including monthly charge for injuries and damages, insurance, taxes, and depreciation, and are credited with services furnished for construction and operation of the city and traction railway and light departments in accordance with a fixed scale of prices. When these credits exceed the charges made for the year, the special accounts are closed by crediting balances to depreciation reserve.

Adjustment aggregating \$50,169.60 are made by the city’s accountants, these amounts being a proportionate amount of these profits which arose from charges against operation. Of this amount \$29,983.65 are credits to “Depreciation reserve,” \$17,118.75 are credits to “Storage battery maintenance reserve,” \$519.53 credits to “Injuries and damages reserve,” and \$2,547.67 are credits to “Advertising and attractions reserve.”

These exclusions are accepted by company’s accountants and excluded by them in the revised statement of operating expenses, but attention is called to the fact that these amounts may properly be construed as reserve for contingencies.

The city in its brief contends that, with the exception of the gravel pits, all of this property is considered as a part of the investment of The Milwaukee Electric Railway and Light Company for the city railway purposes, and that city service is, therefore, entitled to the profit and depreciation on the entire investment; that, if fixed charges for interest, depreciation and profit represent only such amount as is reasonably necessary to compensate The Milwaukee Electric Railway and Light Company for use of its investment and depreciation, it is proper that the balance be treated either as income or deducted from operating expenses; and that, if this balance exceed such reasonable return, the depreciation allowance on the basis computed in the city’s brief would be increased by these excessive charges. Accordingly credits to the depreciation reserve, aggregating \$118,592.50, are deducted from operation, as against the accountant’s deduction of \$29,983.65, making the total for the group of excluded items \$138,778.45 instead of \$50,169.60 as computed by the city’s and company’s accountants.

Item 13, Power Plant Expenses, \$39,686.63.

Company's practice has been to combine all expenses of generating current, divide this charge as between the lighting and railway business of both companies on the basis of output, and further divide the charge as between the city and traction company on the basis of car-hours operated.

It is urged by counsel for the city that because of differences in size and speed and the greater distance current is transmitted, the cost per kilowatt hour and the number of kilowatt hours consumed per car-hour by the interurban and suburban service far exceeds that of the city service, and that the company errs in dividing the expense of current consumed for railway service in the same proportion as the car-hours operated. It is contended that all of the railway power generated and regenerated in the plants and substations of the Milwaukee Light, Heat and Traction Company is used solely for the line of that company beyond the single fare limits of the city of Milwaukee; that the Whitefish and Fox Point lines are operated by current generated at the Farwell avenue substation and consume 7.6 per cent of the total current produced at that substation; that the North Milwaukee line, the Washington Park and the Wauwatosa lines are operated by current directly from the Commerce street plant; and that all of the current generated at the West Allis and South Milwaukee substations was originally generated at the Commerce street plant. Since the traction company consumed all of the current generated and regenerated in its own plants and substations, it should be charged directly with the entire cost of operating, and as the city company receives no benefit from this operation, this expense is not a common cost item to be apportioned.

On the basis above outlined the entire cost of railway current consumed by the traction company is estimated as \$81,208.18 for the year 1906 as against \$41,521.55 actually charged to the traction company; and accordingly the difference or \$39,686.63 is deducted from operating expenses for that year.

The company in its brief contends that the car-hour basis of apportionment is the one most readily available in practice; that segregation is impossible owing to the interconnection of feeder lines; that the outlying plants are in position to assist the city system in case of need; that the interurban demands for current from power plants operated within the city permit of the

installation of larger and more economical units; and that if the interurban system were cut off from the city system the costs per kilowatt hour would undoubtedly be increased.

It will be noted from table 28 that the exclusions from operating expenses claimed arise from two sources, viz., deductions of amounts claimed as reserve and replacements of expenditures devoted to two or more purposes. Of the reserves, the legal expenses, injuries and damages, and fire insurance serve both The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company, and both the railway and lighting business. The amount of overcharge deducted from the other reserve must be gauged by the amount contributed by the city railway earnings or by amounts expended for such operating expenses. In the analysis of such joint accounts presented in tables 29 to 32, inclusive, there is indicated in each instance the source of such debits and credits. In determining the net earnings for the ten years under review, there are accepted all exclusions to depreciation reserve arising through operating expense accounts, since provision is made later in our calculations for depreciation. The "Injuries and damages reserve" is placed at 3 per cent of gross earnings, this amount appearing ample in the light of company's experience, and the unit expenditures for similarly situated companies. Only that portion of the "Pay roll adjustment" is excluded which arose from charges to operation as distinct from construction, and company is allowed its entire reserve for fire insurance. For reasons hereinafter explained, in the detailed reapportionment of operating costs for the years 1908 to 1911, inclusive, the apportionment of expenses as between the traction and the city company is presented upon a car-mile rather than a car-hour basis. The total deduction for the ten year period as made by the Commission for purposes of computing going value aggregates \$739,376.75, as compared with the \$750,441.97 claimed by the city's accountants, \$883,366.74 claimed by the city's brief and \$622,266.79 excluded by the company's accountants, the company's brief, and Prof. Cooley in their computations.

Net earnings available for depreciation and interest in 1907, according to company's books, were \$1,344,531.03. The same earnings are placed by Prof. Cooley at \$1,372,788, and are placed by the city's accountants at \$1,459,173.38, and are estimated by the city in its brief at \$1,572,939.41. After careful

analysis of this year there is deducted from operating expenses \$124,654.13, making the total amount of net earnings \$1,469,185.16. Of this total exclusion, \$1,200 is deducted from the reserve for advertising and attractions, \$19,632.34 is deducted from the "Injuries and damages reserve," this being the difference between a 3½ per cent of gross earnings allowed by the Commission and 4 per cent estimated by the company, and \$33,628.68 being the difference between taxes accrued and taxes actually paid. The remaining deduction, aggregating \$70,193.11, results because of using the car-mile basis of apportionment between the two companies rather than the car-hour.

Operating expenses for the four years ending Dec. 31, 1911, have been carefully reviewed in an effort to determine the cost of traction service in Milwaukee. After consideration of the evidence and in accordance with methods hereinafter discussed in detail, deductions have been made from the total operating expenses appearing in the annual statements of the company, aggregating \$147,218.56 for 1908, \$188,202.09 for 1909, \$245,988.57 for 1910, and \$185,867.39 for 1911.

In table 33 there are compared the net earnings available for depreciation and interest as appearing in the findings of the city's and company's accountants, the exhibits prepared by Prof. Cooley, the city's brief, and the amounts finally accepted by the Railroad Commission in its computation of going value:

TABLE 33.

NET EARNINGS AVAILABLE FOR DEPRECIATION RESERVE AND INTEREST UPON THE INVESTMENT, BEING A FACTOR IN THE ESTIMATE OF "GOING VALUE."

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND PREDECESSOR COMPANY.
Railway Only.

Year.	Company's brief Prof. Cooley. ¹	City's Brief. ²	City Accountants. ³	Company's Accountants. ⁴	Railroad Commission.
1891.....	\$274,800 00	.....	.....	.....	\$274,800 00
1892.....	343,491 00	.....	.....	.....	343,491 00
1893.....	272,378 00	.....	.....	.....	272,378 00
1894.....	315,977 00	\$312,193 65	.....	.....	387,074 70
1895.....	396,468 00	438,199 75	.....	.....	479,681 11
1896.....	394,977 00	270,476 49	.....	.....	227,070 99
1897.....	486,508 00	490,290 98	\$485,662 19	\$486,506 01	482,539 30
1898.....	656,818 00	666,353 67	666,353 07	656,817 98	644,770 07
1899.....	768,894 00	763,293 95	763,293 95	768,833 28	764,484 80
1900.....	817,611 00	824,044 22	824,044 22	817,610 91	834,848 96
1901.....	996,540 00	1,011,511 60	1,011,511 60	996,539 93	1,002,567 59
1902.....	1,207,234 00	1,235,244 98	1,235,244 98	1,207,234 65	1,183,823 74
1903.....	1,229,902 00	1,232,326 92	1,241,807 81	1,229,901 71	1,265,607 69
1904.....	1,298,439 00	1,343,002 96	1,322,943 86	1,298,438 81	1,320,249 20
1905.....	1,284,935 00	1,323,443 42	1,307,369 55	1,284,934 12	1,329,249 13
1906.....	1,468,744 00	1,557,209 07	1,485,475 17	1,468,743 82	1,504,590 70
1907.....	1,372,788 00	1,572,939 41	1,459,173 38	.....	1,469,185 16
1908.....	1,344,131 00	.....	.....	.....	1,498,302 72
1909.....	.....	.....	.....	.....	1,651,495 93
1910.....	.....	.....	.....	.....	1,672,387 35
1911.....	.....	.....	.....	.....	1,871,414 61

¹ Transcript of testimony—p. 768. Exhibit 1029.

² City's brief—p. 73, part 1.

³ Petitioner's exhibit 4—part II, p. 24. For 1907 see page 30 of supplement.

⁴ Company's accountants' report.—Exhibit C.

The determination of what are the proper net earnings in the conduct of the traction business of The Milwaukee Electric Railway and Light Company have purposely been fully entered into, since the inclusion or exclusion of a going value will materially affect the issue of the case.

The estimate of going cost submitted by Prof. Cooley is based upon net earnings as indicated in column 1 of table 33, and is summarized in table 34. It is based upon a value aggregating \$9,921,700 on Jan. 1, 1897, and a deficit is computed on Jan. 1, 1909, amounting to \$4,710,676. This latter figure will be increased by \$2,860,539 if interest upon the deficits is added. The sum of these is the figure claimed by the company in its brief.

Prof. Cooley's methods are similar to those first used by the Commission in the *Antigo* case, 1909, 3 W. R. C. R. 623, but the resulting values will be considerably altered if the revised investment values for each year and the revised net earnings

indicated in the last column of table 33 are substituted for those used by the witness. A number of computations, similar in principle, have been made by the Commission and result in net cost values such as computed in table 35.

The net cost value in table 35 is based upon an assumed value on Jan. 1, 1897, of \$7,000,000. This value is suggested by Judge Seaman in the circuit court case. The net cost value is computed by adding to the total value at the first of the year (1) the additions to property in that year, (2) the depreciation allowance, and (3) interest allowance. The rate of depreciation used is 4.4866 per cent and has been computed upon the investment values for the different years, while 7.5 per cent interest has been allowed as a fair return, and has been applied to the "Average value for the year" rather than to the "Net cost," values, "at the first of the year." The so-called "Average value" has been obtained by adding to the "Net cost" value at the beginning of the year one-half of the additions to property for that particular year. The net earnings available for depreciation and interest are deducted from the total of the items enumerated above, and the resulting figure is the estimated "Net cost" value at the end of the year. This value for the end of the year is then carried forward to become the total value for the first of the next year. The resulting net cost value as of Dec. 31, 1910, aggregated \$9,807,716.22.

TABLE 34.
GOING VALUE.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.
Respondent's Estimate. Prof. Mortimer E. Cooley.

Italic figures denote deficits.

1	2	3	4	5	6	7	8	9	10	
Year	Interest.	Depreciation.	Taxes	Operating expenses.	Total.	Gross earnings.	Deficit.	Interest 1 yr. at 6 per cent.	Time.	Interest for period.
1891.....	\$287,000	\$100,000	.....	\$510,800	\$897,800	\$785,600	\$112,200	\$6,732	17	\$114,444
1892.....	465,500	175,000	.....	638,470	1,278,970	981,961	297,009	17,821	16	285,136
1893.....	507,500	272,632	.....	888,733	1,668,865	1,161,111	507,754	30,459	15	456,885
1894.....	591,500	277,967	.....	831,706	1,701,173	1,147,683	553,490	33,209	14	464,926
1895.....	625,842	286,852	.....	919,497	1,832,191	1,315,963	516,228	30,974	13	402,662
1896.....	660,142	257,644	.....	833,650	1,751,436	1,228,627	522,809	31,369	12	376,428
1897.....	694,515	239,047	\$65,957	856,554	1,856,073	1,409,017	447,056	26,823	11	295,053
1898.....	677,156	238,302	53,793	810,141	1,779,392	1,520,732	258,640	17,518	10	175,180
1899.....	692,662	256,763	66,833	833,236	1,849,494	1,668,963	180,531	10,832	9	97,488
1900.....	719,213	286,761	74,334	953,141	2,038,449	1,850,086	188,363	11,302	8	90,416
1901.....	760,759	321,388	80,748	954,920	2,117,815	2,032,208	85,607	5,136	7	35,952
1902.....	797,834	360,245	91,780	1,003,500	2,253,359	2,302,514	49,155	2,949	6	17,694
1903.....	849,674	411,292	104,842	1,223,715	2,589,523	2,558,459	31,064	1,864	5	9,320
1904.....	914,201	468,892	107,107	1,293,095	2,783,295	2,698,641	84,654	5,079	4	20,316
1905.....	979,266	516,027	139,056	1,245,856	2,880,205	2,669,847	210,358	12,621	3	37,863
1906.....	1,021,197	568,123	147,552	1,357,147	3,094,019	2,973,443	120,576	7,235	2	14,470
1907.....	1,074,500	580,558	165,057	1,684,067	3,504,182	3,221,912	282,270	1,694	1	1,694
1908.....	1,106,000	599,353	200,344	1,678,705	3,584,402	3,223,180	361,222	.....	0	.....
Total.....	\$13,424,461	\$6,216,846	\$1,297,403	\$18,521,933	\$39,461,643	\$34,749,967	4,710,676	.....	.....	\$2,860,539

TABLE 35.
NET COST OF PLANT AND BUSINESS.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.
Railway.

Assuming An Initial Value of \$7,000,000 at the Date of the Reorganization of the Property.

Italic figures denote credits.

Year.	1	2	3	4	5	6	7	8
	Net cost of plant and business first of the year.	Additions to property.	Average value for the year.	Depreciation allowance.	Interest 7.5% on average value.	Total of 1.2.4 and 5.	Net earnings available for depreciation and interest.	Net cost of plant and business Dec. 31.
1897.....	\$7,000,000 00	<i>\$248,146 48</i>	\$6,875,926 76	\$201,376 91	\$515,694 51	\$7,468,924 91	\$482,539 30	\$3,936,385 64
1898.....	6,906,385 64	174,217 63	7,078,494 45	190,243 57	530,512 08	7,881,368 92	644,770 07	7,236,588 85
1899.....	7,236,588 85	239,871 74	7,356,524 72	198,060 02	551,739 35	8,224,259 96	764,484 80	7,461,775 16
1900.....	7,461,775 16	493,309 33	7,708,429 82	208,822 11	578,132 24	8,742,038 84	834,848 93	7,907,189 88
1901.....	7,907,189 88	366,452 49	8,090,416 12	230,954 92	606,781 21	9,111,378 50	1,002,567 59	8,108,810 91
1902.....	8,108,810 91	609,255 89	8,413,438 85	247,396 18	631,007 91	9,596,470 89	1,183,823 74	8,412,647 15
1903.....	8,412,647 15	773,456 48	8,799,375 9	274,731 03	659,953 15	10,120,787 84	1,265,607 69	8,855,180 15
1904.....	8,855,180 15	805,056 12	9,257,708 37	309,432 95	694,328 13	10,657,997 35	1,320,249 20	9,343,748 15
1905.....	9,343,748 15	409,274 55	9,548,385 42	343,552 60	716,128 92	10,814,704 22	1,329,249 13	9,483,455 09
1906.....	9,483,455 09	617,292 95	9,794,101 56	363,915 11	734,557 63	11,201,220 78	1,504,590 70	9,696,630 08
1907.....	9,696,630 08	336,476 29	9,864,868 22	391,610 58	739,865 13	11,161,582 08	1,469,185 16	9,693,596 92
1908.....	9,693,596 92	174,976 51	9,782,885 17	406,706 92	733,716 40	11,010,796 75	1,498,302 72	9,512,494 03
1909.....	9,512,494 03	697,177 69	9,861,082 87	414,557 42	739,581 23	11,363,810 37	1,651,495 93	9,712,314 44
1910.....	9,712,314 44	572,075 71	9,998,352 29	445,836 99	749,876 43	11,480,103 57	1,672,387 35	9,807,716 22

The computations of net cost value in table 35 indicate that company has, within the past, earned sufficient revenue under its rates of fare to care for operating expenses, a reasonable allowance for depreciation, and a reasonable allowance for interest and profit, and that the excesses over these amounts have been sufficient to wipe out early losses sustained in building up the business. In brief, after making such revisions in property values and net earnings as appear proper from the evidence, no going value is developed upon the "losses and deficits" or net cost value basis as elaborated by Prof. Cooley and as developed in previous decisions of the Commission.

The burden of company's claim is, however, that losses have undoubtedly been sustained in the past and that the company is entitled to some amount in addition to the bare physical investment to cover the value of properly harmonizing and coordinating the traction system to the needs of the city. Such an additional value is defined by Prof. Cooley as the value lying in the property by virtue of its kinetic or dynamic character as distinguished from the value lying in the property by virtue of its potential or static character. The value of such a going concern, it is urged, is different from the cost of a going concern and that such value is independent of company's financial history. An investor desirous of engaging in traction business in Milwaukee and with sufficient capital to purchase the present plant would place a greater value upon an established business than upon a business in its formative period. Mr. Beggs places this additional value at 20 per cent and in one of Prof. Cooley's computations the value is placed at 10 per cent.

Aside from an arbitrary percentage which must have some basis in fact, the measure of going value must be made either upon the basis of cost or upon the basis of an estimate of a reproductive value. Upon the basis of cost instances frequently occur, as it developed in tables 34 and 35, where past surpluses have offset and wiped out past losses. Upon the basis of a reproduced plant a going value will be developed in every case dependent largely upon the liberality of estimate.

Following the suggested process of Prof. Cooley, an estimate has been made of the cost of reproducing a going value. Necessarily the comparative plant method rests upon a series of assumptions, the reasonableness of which must be separately

determined. The assumptions made in this case may be briefly summarized as follows:

1. The date of valuation is assumed to be Jan. 1, 1910.
2. It is assumed that a new street railway is to be constructed in the city of Milwaukee, construction to begin Jan. 1, 1911.
3. The population is assumed to remain as at present.
4. It is assumed that, with the anticipated probable adjustments in fares and fare limits, the earning power will be reduced \$349,569.70 per annum.
5. One year is to be devoted to preliminary work. In this year the design is assumed to be made, specifications drawn up and some contracts let, organization and the general details completed. In addition to this organization work, all land except the Public Service Building site is assumed to be purchased.
6. Approximately 2 per cent of the total cost is allowed for engineering, organization, legal expenses, etc., during the first year.
7. Four years is assumed to be sufficient time in which to construct the present traction plant. The progress of the construction during each one of the periods is summarized below:
 - 2nd year. 1911-12—25 per cent of roadway, transmission and distribution, and 25 per cent of the paving is constructed. Also all power plant buildings are constructed. The Public Service Building site is purchased.
 - 3rd year. 1912-13—25 per cent of roadway, transmission and distribution, and paving is added. About 50 per cent of the track has been completed so far, and in order to begin operation Jan. 1, 1913, 50 per cent of the rolling stock is purchased. Operation begins Jan. 1, 1913, with 56 per cent of total investment completed.
 - 4th year. 1913-14—25 per cent more roadway, transmission and distribution, and paving are added. 25 per cent rolling stock added, and 25 per cent of car barns constructed, 50 per cent of the Public Service Building is constructed.
 - 5th year. 1914-15—Remaining 50 per cent of the Public Service Building is built. Remaining 25 per cent of roadway, transmission and distribution, rolling stock, paving, and car barns finished. The entire road is completed by Jan. 1, 1915.
8. Inasmuch as operation begins Jan. 1, 1913, gross earnings will accrue from that date. In estimating the annual earnings, it has been assumed that at the end of 1915 the earnings of the comparative company have been brought on a par with the adjusted earnings of the present plant as of Jan. 1, 1910. Thus one extra year after the completion of the road has been allowed in order to bring the development of the business up to full capacity.

The gross earnings of the present plant for the year ending Dec. 31, 1909, per books, were \$3,466,684.94. Upon a revised earning power basis this is reduced to \$3,117,115.24. This figure represents the assumed ultimate earning power of the hypothetical company as of Jan. 1, 1916. In determining the earnings for the intermediate years, it has been assumed that the earnings will increase in the same proportion as the construction work. That is to say, they will commence Jan. 1, 1913, at 56 per cent of the total amount and increase by 22 per cent for each of the two succeeding years of operation.

9. Ordinary operating expenses have been estimated upon a car-mile basis. In connection with the gross earnings, 1913, 1914, and 1915, it was assumed that the revenues per car-mile were 18 cts., 21 cts., and 24 cts., respectively. Dividing these ratios into the assumed gross earnings for those years gives the number of car-miles. Ordinary operating expenses were computed at 14 cts. per car-mile for each of the three years of operation.

10. Until Jan. 1, 1913, interest is purely a construction item. From this time on it becomes an operating expense charge. A 6 per cent allowance for interest is made upon the estimated investment each year.

11. During the first year there is no depreciation, since land only has been purchased. Neither is depreciation assumed to occur in the second year, since the property constructed in this year will not begin to depreciate until the third year. Depreciation is computed upon the same basis as that used in determining going cost in tables 34 and 35.

12. The apportioned taxes actually paid by the city company in 1909 amounted to \$197,000. Therefore it has been assumed that at the end of 1915 the taxes of the comparative road will amount to \$197,000. The taxes are assumed to begin with \$10,000 and increase up to \$197,000.

13. Interest is assumed to aggregate 6 per cent upon the investment.

14. Gross earnings, less ordinary operating expenses, interest, depreciation, and taxes give the annual deficits or surpluses.

Such deficits are reduced upon a present worth basis of 6 per cent to correspond to the value Jan. 1, 1910.

Based upon the assumptions as outlined, a going value of the street railway property of The Milwaukee Electric Railway and Light Company is computed at \$436,235. The detailed estimate is given in table 36. Upon the altered assumptions that six years are necessary for construction work and that the plant will yield the revised earning power at the beginning of the eighth year; that during the five years of operation oper-

ating revenues will aggregate 18, 20, 22, 23, and 24 cts. per car-mile, respectively, a going value is obtained as of \$470,290.96. In fact, under the conditions imposed, that only necessary construction be undertaken prior to operation and that additional construction keep pace with gross earnings, the going value for any assumed period of time will not materially exceed this latter figure.

TABLE 36.

GOING VALUE. COMPARATIVE PLANT BASIS.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY. RAILWAY PROPERTY.
Jan. 1, 1910.

Year.	Gross earnings.	Ordinary operating expense.	Taxes.	Depreciation.
1910.....			\$10,000 00	
1911.....			40,000 00	
1912.....			110,000 00	\$80,742 19
1913.....	\$1,745,584 51	\$1,357,676 74	150,000 00	197,236 05
1914.....	2,431,349 85	1,620,899 84	190,000 00	283,091 49
1915.....	3,117,115 24	1,804,288 64	197,000 00	368,946 94
Total.....	\$7,291,019 61	\$1,782,865 22	\$67,000 00	\$910,016 67

Year.	Interest.	Total expense.	Deficit for year.	Present worth factor, 6%	Yearly going values.
1910.....		\$10,000 00	\$10,000 00	0.9433	\$9,433 00
1911.....		40,000 00	40,000 00	.899	35,596 00
1912.....		170,742 19	170,742 19	.8396	143,355 14
1913.....	\$343,100 94	2,048,013 73	302,429 22	.7920	239,523 94
1914.....	476,925 54	2,570,916 87	139,567 01	.7472	104,284 47
1915.....	610,750 14	2,980,985 72	136,129 52	.7049	295,957 70
Total.....	\$1,430,776 62	\$7,820,658 51	\$526,608 90		\$436,234 85

¹ Surplus.

² Negative value.

Of the two methods elaborated the first or going cost basis has been variously criticised, by many upon the ground that its estimates are too liberal, by others that it results in negative values and takes recognition of the utility's past financial history. Its obvious merit lies in the fact that it assumes that the relations of users and utility have at all times been placed upon an equitable basis. Upon this assumption the opportunity has already been granted the company to recoup itself for those elements of added value which undoubtedly existed in 1897.

The comparative plant basis is open to the objection that it is based upon a large number of varying assumptions involving practically every factor in the calculation. Its greatest point of weakness is the assumptions made with regard to earning power. It is not certain that gross earnings will show a uniform increase year by year. We are not warranted in assuming that rates will remain the same or that the company will increase its net earnings until they yield present revenues. In fact, in a determination of whether the present earning power is equitable, no portion of the rate should be based upon present earning power as a factor. There is no reason for assuming, moreover, that gross earnings will not continue to increase when present earnings have been reached and continue to offset the earlier losses. Some of these objections have been obviated by the care with which the arbitrary assumptions made in determining going value have been based upon company's conditions of operation.

In the present case the amounts disclosed in such computations as given in table 36, aggregating about \$450,000, may be said to represent the maximum amount which in the light of company's past financial condition may properly be permanently placed as a part of the value of the property used and useful for rate-making purposes.

DISCOUNT ON BONDS.

It has been claimed by the company that expenditures necessary to the organization and financing of the property are properly a part of the investment and must be so considered, and attention is called particularly to the excluded items of bond discount, aggregating \$104,631.98. It is urged by the city in its brief that the discount or premium is virtually a part of the interest to be paid on the bonds and that the value of the investment for rate-fixing purposes should be limited to the value of the property devoted to the public use, without regard to the sources from which the money to develop the property was derived. Respondent's witness, Mr. Beggs, lays stress upon the necessity of a bond discount in issuing securities and points out that any law or regulation which would make it impossible to pay a bond discount, and compensate for carrying an enterprise through the doubtful years, would make it impossible to

float new enterprises. Prof. Cooley claims discount on bonds should be considered as part of company's investment and includes an estimate for such discount as his last step in the exhibited schedule of valuation.

There should undoubtedly be included as a portion of the intangible value of the property all preliminary or organization expenses, such as the cost of incorporating, filing amendments to articles of incorporation, expense of marketing bonds, and, under certain circumstances, discount on bonds. With the exception of the latter item, however, these amounts in the present case are small and, it is noted from the schedule of adjustments of the company's accounts, will not exceed \$9,543.63 in the ten year period ending Dec. 31, 1906.

An examination of the amounts realized from the sale of securities by the company discloses instances of sale at a premium as well as sale at a discount. Of the 5 per cent consolidated bonds issued Feb. 1, 1896, we find that only the issue of 1898, aggregating \$703,000, was sold at a discount, while the issue of 1899, aggregating \$197,000, was sold at a premium. The net discount on the entire issue of \$6,500,000 aggregated about \$17,650 or 0.27 per cent. The refunding and extending 4½ per cent bonds issued Jan. 1, 1906, were issued at a discount in almost every issue. The total amount issued aggregated \$6,728,000 and was sold for \$6,242,480, or at a discount of 7.22 per cent. It is probable that this discount was necessary not so much because of the inability of the company to secure funds, as because of the lowness of the interest rate. Referring to The Milwaukee Light, Heat and Traction Company, we note that the first mortgage 5 per cent bonds issued on May 1, 1899, par value of \$5,000,000, were disposed of for \$4,955,928.75. Of this entire issue only the sales in 1899 claimed a discount. In 1901, 1904, and 1906 the securities were disposed of at a premium aggregating a total of \$30,928.75. In the intervening years the securities were sold at par. Net discount on the issue aggregates \$44,071.25 or 0.88 per cent of the total issue. We note, however, that the refunding and extending 5 per cent mortgage bonds issued June 1, 1907, were transferred at a discount of 10 per cent to The Milwaukee Electric Railway and Light Company and were not purchased by outsiders.

Whether or not the discount rate is to be included as a portion of the property account will depend upon interest rate allowed the utility. It is obvious that a 4 per cent bond cannot be expected to sell at the same premium as a 6 per cent security, and the amount of the interest rate allowed the utility must determine whether or not the discount is to be included. In the present case it appears that the allowance for interest and profit is ample to allow for all expenses of the sales and discount upon the securities issued.

WORKING CAPITAL.

It is conceded that the respondent company is entitled to an allowance for working capital in order to economically carry on its business. The only question in dispute is the amount of such an allowance. It is apparent that such an amount is dependent largely upon the nature of the business. The electric railway is unlike the water, gas and telephone utility, in that it has no monthly bills but receives a large portion of its transportation revenues daily. The electric railway also has the advantage of selling a part of its transportation service in advance in the form of blocks of tickets or mileage books. The money so received is at the company's disposal as working capital prior to the time when it is necessary for current expenses.

Counsel for the city deems the monthly arithmetic average of current operating expenses an adequate allowance for working capital. Upon this basis there would have been allowed in the city's brief approximately \$150,000 per annum. Company's witness, Prof. Cooley, estimates that working capital in addition to stores and supplies should include the average monthly pay roll and average monthly vouchers. Upon this basis the working capital for the working property would aggregate \$263,270 for 1906 and \$296,290.63 for 1910. Mr. Beggs' testimony is to the effect that he has not found it necessary to maintain a working capital, as reserve funds are now used for such purposes. His estimate aggregated \$250,000 in addition to the average amount of stores on hand.

An examination of company's current assets and liabilities discloses the following facts which are usually considered in determining a reasonable amount of the working allowance. Based upon figures for the year 1910, the amount of unredeemed tickets

not yet lifted by conductors aggregated \$81,575.22. The excess of current assets over current liabilities for the same year aggregated \$591,069.49. This excess related to both railway and lighting business combined, and it is to be noted that the lighting business required more working capital per dollar of income than the electric railway. By far the largest portion of working capital is required for the pay roll, which during 1910 for the railway portion aggregated \$1,261,592. Employees are paid every 15 days and the semi-monthly pay roll will aggregate \$5,566.32.

In addition to these factors attention has been called to the fact that considerable working capital is necessary to cover property extensions.

During the ten year period 1901 to 1910, both inclusive, the cash invested in physical property of this company aggregated \$9,303,809.53. During the same period the annual gross earnings of the railway and electric lighting and power departments increased \$2,489,855.43. The capital investment increased \$3.74 for each dollar of increase in annual gross earnings. Not all of this extension can be covered by utilizing credit reserves and only a portion is properly financed through the issue of additional bonds. This fact is undoubtedly entitled to considerable weight. Much of this new construction will probably relate to service betterments ordered by the Commission, which in their nature are not revenue producing.

From the engineer's appraisal it will be noted that there was on hand Jan. 1, 1910, \$376,360 in stores and supplies for railway purposes. This item already includes material necessary for a reasonable amount of new additions. To this amount there should be added from \$150,000 to \$200,000 to cover other additional working capital for operation and construction purposes.

SUMMARY.

The effort here has been to present and explain as fully as possible the various factors which, in a case of this sort, enter into the value of the plant of The Milwaukee Electric Railway and Light Company and its business, upon which the returns for interest and profits should be computed. The various factors which in their aggregate should receive consideration in this connection as of Jan. 1, 1910, may be summarized as follows:

The fair original cost of the so-called physical property, based upon the records and books of the company as examined and adjusted, amounts to about \$9,937,079. The original cost of the business of the plants, as represented by the deficits or amounts by which in the earlier years, from 1891 on, the company failed to earn what might be regarded as reasonable amounts for operating expenses, including depreciation, and interest and profit on such fair costs of the property, would not seem to greatly exceed \$500,000.

The cost of reproduction new of the physical property, exclusive of materials and supplies, aggregates about \$9,942,125. The cost of reproduction new less depreciation of this property amounts to about \$7,378,950. This difference between the cost new and the present value, or the depreciation that has taken place in the property is largely, or to the extent of about \$1,839,000, offset by a depreciation fund which is partly covered by securities and partly by property, and which goes with the property and plant.

The difference between the original cost and the cost of reproduction new as obtained from the above figures is considerably reduced by the fact that the latter cost includes the appreciation on the value of the real estate, which up to Jan. 1, 1907, amounted to about \$264,026, as well as certain other items which were then represented by work in process of construction.

The working capital should not exceed the cost of the materials and supplies and the cash ordinarily carried for this purpose, which amounts to about \$350,000 and \$150,000, respectively. In fact, an amount that is somewhat less than this would probably be sufficient. The cost of the business alone, or of the so-called going value, appears to be fully covered by from \$450,000 to \$500,000.

The total value upon which the calculations for 1910 have thus been based aggregate about \$10,300,000, and this sum would not seem to be far away from the amount upon which the respondent is entitled to reasonable returns.

In connection with the case of *Fay L. Cusick et al.* similar investigations into the value have also been made with respect to the value of the plant and the business of the Milwaukee Light, Heat and Traction Company. In this connection it was found that for the physical property the original cost, as per the books and records of the company, amounts to about \$7,490,831; that the cost of reproduction new of this property foots up to \$6,131,533, or \$6,133,033 when materials and supplies

are included, and that the cost new less depreciation of this property stands at about \$5,108,711, or \$5,110,211 including materials and supplies. It was further found that the cost of the business of this company, as represented by its deficits from operation during the development period, foot up to not far from \$620,985; that it carries a working capital of about \$100,000. From these facts it would seem that the cost value of this plant and its business cannot greatly exceed \$6,133,033, its cost of reproduction new, including materials and supplies.

COST OF SERVICE

APPORTIONMENT OF OPERATING EXPENSES BETWEEN URBAN, SUB-URBAN AND INTERURBAN RAILWAY BUSINESS, AND BETWEEN THE CITY COMPANY AND THE TRACTION COMPANY.

It has been the practice of the respondent company, prior to June 1, 1911, to charge all traction expenditures, whether incurred for urban, suburban or interurban business, to a single group of accounts and apportion the share properly to be borne by the city company, or The Milwaukee Electric Railway and Light Company, and the traction company, or Milwaukee Light, Heat and Traction Company, upon an arbitrary accounting basis. These companies do both a lighting, heating and street railway business. Administrative expenses covering these three departments are apportioned upon the gross earnings basis; power plant expenses upon a boiler room output or kilowatt-hour basis; while all traction expenses are prorated upon a car-hour basis.

Exception is taken to this method and the claim is made both in the report of the accountants employed by the city, and by the city in its brief, that this apportionment is prejudicial to the city company.

It is the company's claim that the car-hour is the best available single unit for the purpose of prorating joint street railway costs, and reference is likewise made to a traffic agreement existing between the city and traction company since March 15, 1899, by which agreement there is guaranteed the payment of interest upon traction company bonds. In substance it is provided in this contract that traction cars may be operated upon the city company's property; that the city company shall efficiently operate and maintain traction company property and shall keep all records of the business of the traction company;

that the earnings of the cars of either company making trips over lines of both companies shall be divided on a fair and equitable basis; and that the city company shall charge the traction company an equitable proportion of the general expenses incurred in the common interest of both properties, which proportion "shall be determined by the ratio of their gross earnings, unless or until some other unit shall hereafter be mutually agreed upon, shall charge for materials, supplies and labor at cost, and shall receive and collect all earnings and income and apply the same to the payment of current expenses, maintenance, taxes, interest and expenses of management." Any remaining surplus is to be divided equally between the two companies. It will be noted that beyond prescribing the basis of prorating general expenses this agreement does not specify a particular basis for allotting the transportation costs as between the two companies. Since January, 1912, substantial changes have been made in the accounting practice in this respect. Many of the expenditures previously treated as common, such as "Maintenance of way" and "Maintenance of rolling stock", are now separately reported. These results have an important bearing upon the case before us.

It appears from a study of the operating agreement and testimony that what is Milwaukee urban traction business is not identical with The Milwaukee Electric Railway and Light Company business. Under company's rule of accounting the city company is credited with all fares collected by the traction company while operating over the city company's tracks; the city company, moreover, is credited with the city fare for every interurban passenger hauled over the city company's tracks; the car-hours used in prorating costs of operation represent the operation of the traction company cars without the city limits, all car-hours within the city limits being reckoned as city company car-hours. This provision has raised the question as to whether, under the exchanges of fares, adequate compensation is given for the right to operate over trackage belonging to the city company. In the investigation of the cost of service made by the Commission two bases have been employed: (1) The cost of service of the city or The Milwaukee Electric Railway and Light Company as distinct from the traction or the Milwaukee Light, Heat and Traction Company. (2) The cost of service of urban as distinct from interurban and suburban business.

Of the total of operating costs of traction business in Milwaukee, general expenses, taxes and charge for power represent a prorated part of the original charge, a portion of which is borne by the electric light and power and heating businesses. The separation of these expenses has necessitated an examination as to whether the rule of apportionment adopted by the company in drawing off its yearly statements operates fairly to the street railway patron in Milwaukee. In making this and other analyses, the four years ending Dec. 31, 1911, have been made the basis of computation. It is only necessary in describing the method used to refer to a single year's operation and the year 1909 has been chosen for this purpose. Reference is made to similar results obtained for the years 1908, 1910, and 1911.

GENERAL EXPENSES.

General expenses consist of executive and reserve charges. The former relate to salaries of general officers and clerks, a portion of which is charged directly to the separate departments, and stationery, printing and miscellaneous office expenses, etc., all of which are common to all departments. Reserve charges include legal expenses, injuries and damages, fire insurance, uncollectible accounts, and contingencies, and constitute charges for which the company has arbitrarily created liabilities upon its books and to which reserve accounts, in turn, it charges all actual expenditures made during the year. Both executive and reserve charges constitute the greater part of what is usually called the overhead or expense burden portion of the business. This expense burden usually forms a fixed addition to such running expenses which can be directly charged and which consist in the traction business of the cost of conducting transportation and the cost of maintenance of way and structures.

Table 37 discloses the percentage distribution of the expense burden.

(1) For the total business of The Milwaukee Electric Railway and Light Company, the Milwaukee Light, Heat and Traction Company, and the Milwaukee Central Heating Company combined.

(2) For the railway business as separate from the lighting and heating businesses, and

(3) For the railway business of The Milwaukee Electric, Railway and Light Company as distinct from the Milwaukee

Light, Heat and Traction Company for the fifteen years ending Dec. 31, 1911.

The executive charges include all items enumerated above, including stores department expense and advertising, while reserve charges include all reserves except depreciation reserve and an amortization reserve which was maintained during the three years 1898-1900, inclusive. The total direct charges used as the basis for computing the percentage additions include all operating expenses enumerated above with the exception of excluded reserves already mentioned.

The tendency of the burden of general and reserve charges to decrease within recent years is very marked and is due to the increased volume of business, and probably to increased efficiency of management. The ratio of greatest interest in this case is the expense burden of the railway business of The Milwaukee Electric Railway and Light Company as compared with the other businesses transacted. With the exception of the last year, executive charges of The Milwaukee Electric Railway and Light Company railway business have generally borne a lower proportion to direct charges than have those of the other businesses.

TABLE 37.
DISTRIBUTION OF EXPENSE BURDEN.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY, MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY AND MILWAUKEE CENTRAL HEATING COMPANY.
Percentage Addition to direct charges.

Year.	Executive.			Reserve charges except depreciation & amortization.			Executive and reserve charges.		
	Total business.	Railway business.	T. M. E. R. & L. railway business.	Total business.	Railway business.	T. M. E. R. & L. railway business.	Total business.	Railway business.	T. M. E. R. & L. railway business.
1911.....	4.15	4.31	4.30	7.96	9.91	9.34	12.11	14.22	13.64
1910.....	7.80	7.56	7.54	9.14	10.38	9.63	16.94	17.94	17.17
1909.....	10.06	8.34	8.31	10.01	11.27	10.54	20.07	19.61	18.85
1908.....	10.38	8.76	8.77	12.20	13.42	12.53	22.58	22.18	21.30
1907.....	9.73	8.32	8.31	12.23	13.50	12.43	21.96	21.62	20.74
1906.....	8.33	7.06	6.99	12.71	14.07	13.11	21.04	21.13	20.10
1905.....	6.83	6.30	6.24	12.54	13.79	12.96	19.37	20.01	19.20
1904.....	6.11	5.59	5.52	11.87	12.93	12.57	17.98	18.52	18.09
1903.....	6.36	6.03	5.94	11.76	13.09	12.81	18.12	19.12	18.75
1902.....	7.37	7.18	7.21	12.24	13.95	14.14	19.61	21.13	21.27
1901.....	8.14	7.75	7.81	11.61	13.20	13.46	19.75	20.95	21.27
1900.....	8.98	8.64	8.69	10.83	11.52	11.66	19.81	20.16	20.35
1899.....	9.24	8.89	8.95	10.44	11.01	11.11	19.68	19.89	20.46
1898.....	10.64	9.43	9.46	10.32	10.80	10.73	20.96	20.23	20.19
1897.....	9.93	8.92	8.91	8.09	8.5	8.27	18.02	17.17	17.18
Simple ave....	8.27	7.54	7.53	10.93	12.06	11.69	19.20	19.60	19.21

In table 38 there are itemized all general expenses and reserve charges for the year 1909, distributed by services and companies. Of the total charges aggregating \$489,084.54, the traction business, urban, suburban and interurban, has aggregated 79.84 per cent. The proportion of railway to total operating revenues for the same year aggregated 80.85 per cent. The proportion of direct charges of railway business to total direct charges aggregated 82.01 per cent, and the railway proportion of the cost of reproduction new, as estimated by the engineer of the Commission, aggregated 75.06 per cent. The somewhat larger share of the general officers' and clerks' salaries charged to lighting is due to the greater proportion of direct charges occurring in these items.

Similarly, of the total charges The Milwaukee Electric Railway and Light Company aggregated 80.55 per cent. The proportion of this company's revenues to total operating revenues for all companies aggregated 81.25 per cent. The total of all direct charges appearing upon the company's books aggregated 83.53 per cent of the total direct charges of all companies. The total of the cost of reproduction new, as estimated by the engineer of the Commission, aggregated 66.21 per cent of the total appraisal of all companies.

It is obvious, upon any basis of apportionment, that the amount charged to total railway business cannot be regarded as excessive.

Company's practice as regards reserve charges has already been explained in the discussion of going value and need only be briefly referred to here. It will be noted that the charge for legal expenses made to total railway, aggregating 81.74 per cent, is a portion of the single reserve maintained upon the books of The Milwaukee Electric Railway and Light Company for the cost of litigation sustained by the railway and lighting departments of both the city and traction companies. For this purpose there has been reserved $\frac{1}{4}$ per cent of gross earnings during 1908, 1909 and 1910, and about $\frac{1}{8}$ per cent during 1911. An examination of the actual charges during these years discloses a total expense somewhat in excess of the amount reserved, this increase being due largely to the preparation of the present case.

TABLE 38.

APPORTIONMENT OF GENERAL EXPENSES.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY—MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY—MILWAUKEE CENTRAL HEATING COMPANY.

1909.

Item.	Total.	Apportioned to						Apportioned to					
		Railway.		Lighting.		Heating.		T. M. E. R. & L. Co.		M. L. H. & T. Co.		M. C. H. Co.	
		Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
General officers' salaries.....	\$46,350 00	\$35,531 89	76.66	\$10,369 46	22.37	\$448 65	0.97	\$38,757 22	83.62	\$7,144 13	15.41	\$448 65	0.97
Clerks' salaries.....	47,568 76	31,864 07	66.98	15,305 62	32.18	399 07	.84	37,095 01	77.98	10,074 63	21.18	399 07	.84
Stationery and printing.....	12,862 15	10,520 62	81.80	2,197 91	17.09	143 62	1.11	10,749 41	83.57	1,969 12	15.31	143 62	1.12
Misc. office expenses....	48,529 44	39,549 91	81.50	8,449 61	17.41	529 92	1.09	40,518 68	83.49	7,480 84	15.42	529 92	1.09
Legal expense reserve.....	12,987 86	10,616 49	81.74	2,371 37	18.26	.....	.....	10,668 83	82.14	2,319 03	17.86	.....	.....
Injuries and damages reserve.....	174,606 99	169,864 27	97.28	4,742 72	2.72	.....	.....	142,671 64	81.71	31,935 35	18.29	.....	.....
Insurance reserve.....	40,586 45	33,365 60	82.21	7,220 85	17.79	.....	.....	26,672 04	65.72	13,914 36	34.28	.....	.....
Stores expenses.....	18,222 42	9,312 33	51.10	8,786 74	48.22	123 35	.63	16,363 50	89.80	1,735 57	9.52	123 35	.68
Stable expenses.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Advertising and attractions.....	29,893 81	10,616 49	35.51	18,971 10	63.46	306 22	1.03	24,683 78	82.57	4,903 81	16.40	306 22	1.03
Misc. general expenses.....	39,221 73	28,233 46	71.99	10,485 47	26.73	499 80	1.28	32,702 97	83.38	6,018 96	15.35	499 80	1.27
Rental: Tracks, lands, buildings.....	676 00	373 44	55.24	302 52	44.75	04	.01	381 30	56.40	294 66	43.59	04	.01
Uncollectible accounts reserve.....	2,760 48	.....	.....	2,371 37	85.90	389 11	14.10	2,002 13	72.53	369 24	13.38	389 11	14.09
Contingencies reserve.....	14,818 45	10,616 49	71.64	2,371 36	16.00	1,830 60	12.36	10,668 82	72.00	2,319 03	15.65	1,830 60	12.35
Total.....	\$489,084 54	\$390,468 06	79.84	\$3,946 10	19.21	\$4,670 38	0.95	\$393,935 38	80.55	\$90,478 78	18.50	\$4,670 38	0.95

In consequence, while the total reserve, as adjusted in our computation of going value, aggregated \$69,626.88 on Jan. 1, 1908, it has been reduced to a deficit of \$1,344.62 by Jan. 1, 1912. Under these circumstances the amount contributed by the traction business cannot be construed to be unreasonable.

The reserves for fire insurance aggregated \$416,186.39 on Jan. 1, 1908, and have been increased by additions from earnings, credits from special accounts, and earnings on reserve fund investments to \$571,756.66 on Jan. 1, 1912. That portion contributed by The Milwaukee Electric Railway and Light Company aggregated 1 per cent of gross earnings during 1908, $\frac{5}{8}$ per cent during 1909 and 1910, and 0.34 per cent during 1911. No adjustment has been made to this reserve for reasons already brought out in our discussion of going value, being principally that company is carrying self-insurance.

The reserve for injuries and damages is designed to provide for cost of damages sustained by the railway and lighting departments of both city and traction companies. This reserve, as adjusted in our computations of going value, aggregated \$190,405.31 on Jan. 1, 1908, and has been built up by credits of 4 per cent of gross earnings from railway business of both companies and $\frac{1}{2}$ per cent gross earnings arising from the lighting business. Credits from special accounts, interest on funds invested and transfer of bonds have contributed the additional credits for the four years. In the computation of going value 3 per cent of gross earnings has been deemed a sufficient allowance for the cost of injuries and damages for the period 1897 to 1906, inclusive. Owing to the increased expenditures, however, this has been increased to $3\frac{1}{2}$ per cent in our computations since that date. The available reserve on Jan. 1, 1912, as adjusted, will aggregate \$279,175.08, which appears to be ample to care for any yearly fluctuations in the adjustment of damage claims.

The reserve for contingencies appears upon the books of The Milwaukee Electric Railway and Light Company in 1908 and was made up during that year by credits of \$35,634.51 from operating expenses. The Milwaukee Electric Railway & Light Company, railway, contributed \$24,173.87, or 67.8 per cent, and a transfer of \$90,000 from the legal expense reserve. Expenditures for that year aggregated \$93.77. During 1909 there was credited \$12,987.85 from operating expenses, The Milwaukee Electric

Railway and Light Company, railway, contributing \$8,666.70, or 66.7 per cent. Expenditures during this year aggregated \$3,613.31. There appears to be no reason why an addition to a reserve for depreciation and an interest and profit allowance sufficient to compensate for the risk of the business, that is a separate contingency reserve, should be added to the cost of service. Accordingly both The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company, railway portions, are charged only with such a part of the actual expenditures as the relative proportion of earnings credited to the reserve by each.

A similar pro rata deduction is made of the unexpended portion of the reserve for promotion of business, railway. During the year 1909, credits from operation to this reserve aggregated \$10,616.49, of which The Milwaukee Electric Railway and Light Company, railway, contributed \$8,666.70. Total expenditures for the same year aggregated only \$3,004.97.

Aside from reserve charges which have been prorated upon a gross earnings basis, the total of executive and general expenses have been apportioned as between The Milwaukee Electric Railway and Light Company, and the Milwaukee Light, Heat and Traction Company upon the basis of the total direct expenses for the year. This procedure in the handling of overhead expenses has been discussed at length in former decisions of the Commission:

Buell v. C. M. & St. P. R. Co. 1907, 1 W. R. C. R. 324, 470. *In re Menominee & Marinette Lt. & Tr. Co.* 1909, 3 W. R. C. R. 778, 815. *State Journal Printg. Co. et al. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 592, 664. *Ross et al. v. Burkhardt Milling & El. P. Co.* 1910, 5 W. R. C. R. 139, 154-155. *Cunningham et al. v. Chippewa Falls W. Wks. & Ltg. Co.* 1910, 5 W. R. C. R. 302, 328. *City of Manitowoc v. Manitowoc El. Lt. Co.* 1910, 5 W. R. C. R. 360, 377-378. *In re Appl. Darlington El. Lt. & W. P. Co.* 1910, 5 W. R. C. R. 397, 411. *In re Appl. Jefferson Municipal El. Lt. & W. Plant*, 1910, 5 W. R. C. R. 555, 564. *Lamp v. Eastern Wis. R. & Lt. Co.* 1911, 6 W. R. C. R. 473, 483, 492. *Schicker v. Rockford & I. Ry. Co.* 1911, 6 W. R. C. R. 695, 709.

Summarizing the conclusions of fact relative to general and reserve expenses borne jointly by the railway, light and heating businesses, and by The Milwaukee Electric Railway and Light Company, Milwaukee Light, Heat and Traction Company, and the Milwaukee Central Heating Company, it appears:

(1) That the amount of executive and general expenses charged as railway upon the books of the company is evidently not an unreasonable part of the expense burden properly shared by the traction business.

(2) That the contributions of railway business to the reserves for legal expenses and for fire insurance are evidently not excessive and that reserves aggregating, respectively, \$1,344.62 Dr. and \$571,756.66 on Jan. 1, 1912, are not unreasonable.

(3) That the contribution of railway business to the injuries and damages reserve aggregating 4 per cent of gross earnings is excessive and that an allowance of 3.5 per cent is sufficient and would have resulted in an unexpended reserve of \$279,175.08 on Jan. 1, 1912.

(4) That the contribution of railway business to the reserve for contingencies, aggregating $\frac{3}{4}$ per cent of gross earnings in 1908 and $\frac{1}{4}$ per cent of gross earnings in 1909, 1910, and 1911, and similar contributions to reserve of promotion of railway business has not been justified and accordingly only the actual charges debited to such a reserve have been allowed.

(5) That, following the rule of apportioning the expense burden outlined in previous cases before the Commission, all executive and general expenses are properly apportioned as between The Milwaukee Electric Railway and Light Company, and Milwaukee Light, Heat and Traction Company upon the basis of total direct expenses.

TAXES ACCRUED.

In order to equalize the tax payments over the various monthly statements, an account "Taxes accrued" is maintained to which was charged 6 per cent of gross earnings during 1908, and 7 per cent during 1909, 1910, and 1911. Reference has already been made to the relation of actual tax payments to the account "Taxes accrued" in our discussion of going value and for the period 1897-1907, inclusive, the accountants' rule of charging 80 per cent of all payments made to railway service has been accepted. Prior to 1908, company's state taxes, which comprise by far the larger portion of the total, were assessed upon a gross earnings basis. Beginning with 1908, a change was made to the so-called *ad valorem* tax basis. Where the reserve for taxes during the last three years aggregated 7 per cent, actual tax payments have aggregated 5.99 per cent, 5.75 per cent, and

5.72 per cent. This difference has been deducted from operating expenses of the company and added to net earnings. The division between railway and lighting has been made upon the basis of net earnings and accordingly from 74 per cent to 78 per cent of the charge has been included in the schedule of railway expenses. The Commission's estimate of the amount of taxes paid, properly chargeable to railway during 1909, aggregates \$197,106.37. The amount of taxes accrued according to company's books aggregated \$242,667.93. Similarly taxes paid during 1910 aggregated \$200,328.37. Taxes accrued aggregated \$265,112.63. Taxes paid for 1911 aggregated \$239,037.57. Taxes accrued aggregated \$277,415.02.

POWER PLANT EXPENSES.

The Milwaukee Electric Railway and Light company operated during 1909 three power plants and two substations within the city of Milwaukee, and two power plants and three substations without the city limits, the latter being the property of the Milwaukee Light, Heat and Traction Company. The total power plant expense, exclusive of interest and depreciation, for that year aggregated \$654,913.40. Of this amount 64.02 per cent alone was for fuel, 14.55 per cent was for superintendence and operating labor, 9.68 per cent was for electric current purchased from the Southern Wisconsin Power Company's hydroelectric plant at Kilbourn. The remaining 11.75 per cent cover water, lubricants and waste, and maintenance expenses. The proportion of the total cost of power estimated as for traction purposes during the same year aggregated \$356,681.46, and was 17.18 per cent of the total traction expense, exclusive of taxes and depreciation, of both the city and traction company. This amount was arrived at by grouping all power plant costs into a single controlling account and apportioning such costs as to the railway, lighting and heating businesses on the basis of steam plant or kilowatt-hour output. The total proportion allotted to traction purposes is further divided between the traction and city systems upon the basis of relative car-hours for the year.

The objection of the city in its brief and the defense of counsel for the company to this procedure have already been referred to under the discussion of going value. Briefly stated, it is urged that a lower proportion of the total cost than that possible upon a car-hour basis is properly charged to city business on

the grounds that the greater distance involved in furnishing current to the traction company results in greater losses during transmission; that the greater percentage of transformed current utilized by the traction system results in a higher cost per kilowatt hour; that the increased weight and increased speed of the traction cars will require a relatively higher proportion of current; and that the detailed statement of separate power plant costs discloses the fact that those plants furnishing current for the traction company have higher costs per kilowatt hour than those furnishing current to the city system. In justification of its charge, the company claims that a separation is inadvisable owing to the interconnection of feeder lines and points out the reciprocal relation of urban and interurban systems as regards stand-by service and the greater economy possible in city power plants because of out of city business.

Some idea of the efficiency of the various power plants and substations furnishing current may be gathered from the appended table. Of the prime mover stations Commerce, Oneida and Public Service Building are located within the city of Milwaukee. Racine and Waukesha plants serve the vicinity of the cities after which they are named. Of the substations Farwell and Kinnickinnic are the only substations operating within the city.

TABLE 39.
EFFICIENCY STATISTICS POWER PLANT AND SUB-STATION,
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY, AND MILWAUKEE LIGHT,
HEAT AND TRACTION COMPANY, 1909.

	Output capacity in kws.	Cost new per kw capacity end of year.	Cost per kw. hr. generated.	Pounds of coal per kw. hr.	Per cent transformation loss.	Cost of coal per ton.	Average B. T. U. per lb.	Average B. T. U. per S. B. kw. hr.	Average monthly load factor.
<i>Power Stations.</i>									
Commerce street.....	16.000	75.35	0.556	3.16	.....	2.74	12,118	38,293	51%
Oneida street.....	4.750	287.85	.924	4.36	.....	2.74	12,098	52,468	46%
Racine.....	3.500	62.82	1.371	6.56	.....	2.86	11,952	78,405	37%
Waukesha.....	800	82.21	2.67	10.60	.....	2.86	12,634	133,920	16%
Public Service Bldg.	4.500	104.44	.....	10.69	.....	.....	.....	.....	.....
<i>Sub-Stations.</i>									
Farwell.....	1,000	30.06	.743	.....	18.5	.....	.....	.....	.....
Kinnickinnic.....	1,500	33.77	.704	.....	17.1	.....	.....	.....	.....
West Allis.....	3,180	59.77	.775	.....	21.6	.....	.....	.....	.....
So Milwaukee.....	620	68.48	.....	.....	31.5	.....	.....	.....	.....
Waukesha pit.....	1,000	29.42	.839	.....	13.8	.....	.....	.....	.....

It is evident from such analyses of power expenses as the Commission has made from time to time, that the cost of various traction, commercial lighting, arc lighting, and power services does not vary proportionately to the output; that a reduction of the output cost is possible where the central station is operated at a higher load factor; that where the demand for service at certain periods of the day is high, the fixed expenses and stand-by losses are proportionately increased; and that since electrical energy cannot be profitably stored, it is equitable to charge each service with its separate output and demand costs, so that each may be assured the benefits of the economies it creates and be made to bear the stand-by losses it occasions.

To determine the proportion of the expense properly applicable to railway as distinct from lighting and heating business, separations have been made of the separate power expenses between those costs varying with the output and those varying with the demand. In making these separations the Commission has followed closely the principles laid down in previous decisions. *In re Menominee & Marinette Lt. and Tr. Co.* 1909, 3 W. R. C. R. 778, 831; *State Journal Prtg. Co. v. Madison G. and El. Co.* 1910, 4 W. R. C. R. 501, 664; *City of Ripon v. Ripon Lt. and W. Co.* 1910, 5 W. R. C. R. 1, 27.

While such an analysis of what are output and demand costs has been made for each prime mover and substation of both city and traction company for the years 1907 to 1910, inclusive, it is only necessary to cite here, as typical of the separations made, the detail of costs of the Commerce street plant for the calendar year 1909.

Examining the separate expense items in detail, it will be noted that "Engine and turbine labor" and "Electrical labor" are divided 50 per cent to output and 50 per cent to demand. This figure approximates the average load factor during 1909 which is made the basis of division, upon the ground that the number of hours of productive labor roughly approximates the number of hours the power plant is operated at full load. In apportioning the cost of steam generated, it is recognized that the cost of boiler fuel in a station under continuous operation is strictly proportional to output, and that fuel used for purposes of banking boilers and losses sustained by reason of the station not being in continuous operation, are properly charged to demand. During 1909, 3.16 lbs. of coal were consumed per switchboard kilowatt hour and from tests made at the plant it is esti-

mated that this amount could be reduced to 2.30 lbs. of coal were the station operated at 100 per cent load factor. Accordingly 27 per cent of the total cost of steam generated is charged to demand and 73 per cent to output. The apportionment of the cost of prime mover plant lubricants will depend upon the load, condition of run, size of units and the similar factors. This and the various maintenance expenses have been apportioned at various percentages after consultation with the inspecting engineers of the Commission who made the appraisal of the property and are familiar with the operation of the plant. The electric current purchased is contracted for under a guarantee to use 8,000 h. p., an equivalent of about fourteen hours per day. Excess amounts used without increasing this demand are purchased at a lower rate per kilowatt hour, and this latter rate is assumed to measure the output cost of all current purchased.

TABLE 40.
TYPICAL APPORTIONMENT OF POWER PLANT EXPENSES OVER DEMAND AND OUTPUT AND OVER RAILWAY, LIGHTING AND SUB-STATION.
COMMERCE STREET POWER PLANT.

Year Ending Dec. 31, 1909.

Italic figures denote credits.

	Per Cent.	Demand.	Per cent.	Output.	Per cent.	Total.
<i>Electric Generation (steam power)</i>						
<i>Operation:</i>						
Prime mover plant operating labor						
Superintendence.....	100.00	\$4,776 00	.....	.....	100.00	\$4,776 00
Engine and turbine labor.....	50.00	980 42	50.00	\$980 41	100.00	1,663 83
Electrical labor.....	50.00	6,905 35	50.00	6,905 36	100.00	13,810 71
Miscellaneous labor.....	100.00	1,500 00	.....	.....	100.00	1,500 00
Steam generated.....	27.00	75,072 07	73.00	202,972 61	100.00	278,044 68
Prime mover plant lubricants.....	50.00	1,930 04	50.00	1,930 05	100.00	3,860 09
Misc. supplies and expenses.....	50.00	1,630 00	50.00	1,630 41	100.00	3,260 82
<i>Maintenance:</i>						
Prime mover plant equipment						
Engine and turbine parts and appliances.....	50.00	1,820 86	50.00	1,820 87	100.00	3,641 73
Prime mover plant auxiliary equip. ...	25.00	681 01	75.00	2,043 02	100.00	2,724 03
Generators.....	25.00	230 03	75.00	690 07	100.00	920 10
Auxiliary electrical equip.....	33.00	122 65	67.00	245 37	100.00	368 01
Switchboard and sw. bd. equip.....	33.00	797 45	67.00	1,594 89	100.00	2,392 34
Prime mover plant, bldgs. fix. and gds.	100.00	1,247 77	.....	.....	100.00	1,247 77
Electric current exchanged.....	.....	.....	100.00	884 20	10.00	884 20
Electric current purchased.....	16.98	6,132 93	83.02	29,971 24	100.00	36,104 17
Total.....	29.35	\$103,827 03	70.65	\$249,900 10	100.00	\$353,727 13
<i>Distribution</i>						
Railway system.....	54.30	\$56,378 08	45.58	\$113,904 47	48.14	\$170,282 55
Lighting system.....	20.20	20,973 06	17.95	44,857 07	18.61	65,830 13
Substation and transformer station (1)	25.50	26,475 89	30.47	91,138 56	33.25	117,614 45
Total.....	100.00	\$103,827 03	100.00	\$249,900 10	100.00	\$353,727 13
<i>(1) Apportioned as follows:</i>						
Farwell.....	25.50	\$6,751 35	17.50	\$15,949 25	19.30	\$22,700 60
Kinnickinnic.....	47.50	12,576 05	52.80	48,121 16	51.60	60,697 21
South Milwaukee.....	7.80	2,065 12	10.20	9,296 13	9.70	11,361 25
West Allis.....	19.20	5,083 37	19.50	17,772 02	19.40	22,855 39
Total.....	100.00	\$26,475 89	100.00	\$91,138 56	100.00	\$117,614 45

It will be noted also that a portion of the current generated is immediately applicable to railway and lighting service, while the remainder is transmitted to substations for regeneration and distribution. To determine the amount of demand cost properly borne by these separate services, a study has been made of daily load curves covering plant operation since 1899. In order to properly approximate normal conditions, an average has been taken of the six maximum peaks during each year. Table 41 is typical of such an analysis and discloses the basis upon which demand costs have been apportioned in table 40.

TABLE 41.
TYPICAL SUMMARY OF SIX MAXIMUM PEAKS
ON THE COMMERCE STREET POWER PLANT
for the Year 1909.

		Oct. 11 6:30 p. m.		Oct. 27 6:30 p. m.		Oct. 8 6:30 p. m.		Oct. 1 6:30 p. m.		Nov. 18 5:30 p. m.		Oct. 14 6:00 p. m.		Aver- age.
		Kws.	Per cent.	Kws.	Per cent.	Kws.	Per cent.	Kws.	Per cent.	Kws.	Per cent.	Kws.	Per cent.	
13,200 V. sub- station.....	No. 1	2,310	.....	2,280	12.3	2,750	14.8	2,070	11.3	1,960	10.8	2,080	11.4	12.1
	No. 2	1,390	.....	1,250	6.8	835	4.5	1,095	6.0	1,355	7.4	1,390	7.6	6.5
	No. 3	335	.....	205	1.1	273	1.5	410	2.2	485	2.7	480	2.6	2.0
	No. 4	1,310	.....	740	4.0	942	5.1	670	3.6	1,400	7.7	730	4.0	4.9
Lighting....	.....	(1)	.....	1,026	5.5	171	0.9	726	3.9	493	2.7	1,421	7.8	4.1
C. C. arc....	.....	(1)	.....	499	2.6	499	2.7	499	2.7	507	2.8	499	2.7	2.7
600 V. ry....	.....	10,800	.....	9,600	51.8	10,800	58.3	10,200	55.6	9,600	52.6	9,600	52.8	54.3
2,300 V. ltg....	.....	3,010	.....	2,950	15.9	2,260	12.2	2,700	14.7	2,420	13.3	2,000	11.1	13.4
Total.....	.....	19,155	.....	18,550	100	18,530	100	18,370	100	18,220	100	18,200	100	100

¹Data lacking.

The output results for the same year aggregated 63,587,075 kilowatt hours. Of this amount 29,163,724 kilowatt hours were used by railway, 11,358,520 kilowatt hours were used for lighting and 23,064,831 kilowatt hours were used for substations, and these figures became the data for the apportionment of output costs.

That the output and demand data for the Commerce street plant for 1909 does not represent abnormal conditions is evident when these percentage relations are compared with those computed for preceding years. Such a comparison is included in table 42:

TABLE 42.
PERCENTAGE RELATION OF DEMAND FOR, AND OUTPUT OF,
VARIOUS SERVICES.

Commerce Street Plant, 1903 to 1909, Inclusive.

DEMANDS.

Relation of Average of Six Maximum Demands.

	1903	1904	1905	1906	1907	1908	1909
13,200 V							
Substation No. 1.....	42.5	30.7	15.9	14.8	14.4	13.9	12.1
" 2.....	22.5	14.9	3.3	4.3	4.4	4.5	6.5
" 3.....	3.0	7.2	3.8	2.8	2.6	2.6	2.0
" 4.....	.....	11.8	5.4	4.6	5.1	4.4	4.9
Lighting.....	14.3	14.4	5.6	4.5	5.5	3.4	4.1
C. C. arc.....	2.8	4.8	2.3	2.0	2.2	3.0	2.7
600 V. ry.....	.....	.....	56.2	56.0	55.5	55.0	54.3
2,300 V. ry.....	14.9	16.2	7.5	11.0	10.3	13.2	13.4
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0

OUTPUT.

Relation of Current Generation.

Current for ry.....	1.2	.....	29.2	51.1	52.7	47.1	45.3
" " lgr.....	25.2	14.0	11.0	10.0	10.6	12.5	17.8
" " other power plants.....	(1)	(1)	(1)	.6	.6	.5	.6
" " substations.....	73.6	85.0	59.8	38.3	36.1	39.9	36.3
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹Included in current for substations.

When a similar analysis is made for other power plants and substations, for 1909, the following relations between demands and outputs are revealed, and these have been used to determine the separate railway cost:

TABLE 43.

PERCENTAGES USED IN APPORTIONING DEMAND AND OUTPUT COSTS
AS BETWEEN RAILWAY, LIGHTING AND SUBSTATION IN THOSE STATIONS FURNISHING
RAILWAY SERVICE DURING 1909.

*The Milwaukee Electric Railway and Light Company, and Milwaukee Light, Heat
and Traction Company.*

	Demand.				Output.			
	Ry.	Ltg.	Sub- sta.	To- tal.	Ry.	Ltg.	Sub- sta.	To- tal.
<i>Power plants.</i>								
Commerce st.....	54.3	20.2	25.5	100.	45.58	17.95	36.47	100.
Oneida st.....	19.8	80.2	.....	100.	5.87	94.13	.....	100.
Racine.....	67.5	32.5	.....	100.	62.83	37.17	.....	100.
Waukesha.....	100.0	.....	.....	100.	96.98	3.02	.....	100.
<i>Substations</i>								
Farwell ave.....	100.0	.....	.....	100.	100.0	.....	.....	100.
Kinnickinnic.....	100.0	.....	.....	100.	100.0	.....	.....	100.
West Allis.....	97.3	2.7	.....	100.	93.4	6.6	.....	100.
So. Milwaukee.....	53.4	16.6	.....	100.	86.5	13.5	.....	100.
Wauk. gravel pit.....	100.0	.....	.....	100.	98.6	1.4	.....	100.

A summary of results comparing the proportion of power plant expenses applicable to railway according to the method of the Commission outlined above, and the amount charged by the company based solely upon the station output, is included in table 44.

It will be noted that owing to the higher peak demand for railway service during the rush hours, a slightly higher charge than that allotted by the company is properly chargeable to a traction service. Results for 1907 place the Commission's figures \$7,898.47 in excess of the company's. For 1908, however, the Commission's apportionment is \$8,386.86 lower than that of the company, while for 1909 and 1910 the excesses aggregate \$5,270.77 and \$9,153.82, respectively. These differences, however, are small and the general results substantiate the company's apportionment as between traction and commercial lighting and power service.

TABLE 44.
POWER PLANT AND SUBSTATION COSTS APPORTIONED TO RAILWAY.

	1907.		1908.		1909.		1910.	
	Commission's.	Company's.	Commission's	Company's.	Commission's.	Company's.	Commission's.	Company's.
<i>Power stations:</i>								
Commerce.....	\$186,183 99	\$183,455 84	\$168,354 71	\$161,036 81	\$170,282 55	\$161,359 91	\$203,962 89	\$195,004 89
Oneida.....	18,875 21	1,625 18	1 393 86	1,946 55	10,540 74	5,782 10	20,866 29	22,096 55
Racine.....	35,379 28	37,745 96	34,228 70	36,221 22	38,739 71	37,622 81	37,866 49	31,045 49
Waukesha.....	14,510 01	14,158 51	15,408 37	15,139 28	10,866 55	10,374 64		
Total.....	\$254,948 49	\$236,985 49	\$219,385 64	\$214,393 86	\$230,429 55	\$215,139 46	\$262,695 67	\$248,146 93
<i>Substations:</i>								
Farwell.....	\$19,579 62	\$20,578 56	\$20,378 06	\$21,384 82	\$24,506 22	\$24,402 76	\$30,143 03	\$30,470 78
Kinnickinnic.....	61,991 54	66,451 09	62,022 13	66,751 89	63,534 39	70,993 39	64,931 84	75,677 94
West Allis.....	31,403 14	34,562 08	35,374 40	42,033 22	48,290 65	49,413 65	47,331 41	45,303 85
Waukesha.....							8,212 66	8,184 90
Beach.....							7,219 45	7,219 45
East Troy.....							5,428 01	5,428 01
Burlington.....							4,963 86	4,963 86
Watertown.....							6,787 64	7,782 56
Storage batteries							2,013 56	2,009 33
So. Milwaukee.....	11,493 58	12,940 68	11,323 11	12,306 41	11,720 36	13,371 81	12,171 31	12,556 81
Wauk. gravel pit.....					1,905 04	1,894 37		
Total.....	\$124,467 88	\$134,532 41	\$129,097 70	\$142,476 34	\$149,956 66	\$159,975 98	\$194,202 57	\$199,597 49
Grand total.....	\$379,416 37	\$371,517 90	\$348,483 34	\$356,870 20	\$380,386 21	\$375,115 44	\$456,898 24	\$447,744 42

Aside from the charges to railway and lighting systems, which aggregated 54.46 per cent and 32.43 per cent, respectively, of the total power plant expenses in 1909, the total cost of power is cleared by sale to the Milwaukee Central Heating Company and by credits arising from the Public Service Building and miscellaneous purposes. Steam is furnished the Milwaukee Central Heating Company at 35 cts. per M lbs. condensation from the Oneida and Public Service Building plants and the expense for this service aggregated 4.92 per cent of the total power plant expenses in 1909. Electric current for purposes other than railway and lighting and for the Public Service Building is charged out at 2 cts. per kw. hr., and these sources contributed 2.49 per cent and 5.70 per cent of the total expenses during 1909. These amounts, however, are relatively small and the determination of their adequacy or inadequacy would in no event materially affect the totals.

As regards the division of that portion of the total power plant expenses chargeable to railway as between the traction company and the city company, however, the same reconciliation of company's charge and the actual cost of service is not possible. As has already been explained, prior to Jan. 1, 1912, such a charge was made upon a car-hour basis. As a result about 85 per cent of the total charge to railway has been borne by The Milwaukee Electric Railway and Light Company under the provisions of its operating agreement with the Milwaukee Light, Heat and Traction Company. From 83 to 84 per cent would have been charged to urban business as distinct from suburban and interurban business.

TABLE 45.
APPORTIONMENT OF POWER PLANT EXPENSES.
Upon a Car-Hour Basis.

Year.	Total charge.	T. M. E. R. & L. Co.	Per cent. of total.	Urban Milwaukee.	Per cent. of total.
1908.....	\$342,959 42	\$290,764 81	84.78	\$284,347 66	82.91
1909.....	356,681 46	302,479 52	84.81	296,188 28	83.04
1910.....	424,711 82	362,184 37	85.28	357,182 64	84.10
1911.....	463,303 87	395,103 52	85.28	389,175 25	84.00

Company's rule of apportionment rests upon two assumptions, (1) that the amount of current consumed per car during an hour's service will be a constant for all classes of traffic, and (2)

that the cost per kilowatt hour of current delivered will be a constant, irrespective of the place of delivery. The consumption of current per car is affected by a number of factors, among which may be mentioned weight, speed, size of motor, frequency of stop, efficiency of motorman, and steepness of grade.

The cost of current likewise is dependent primarily upon the efficiency of the power plant utilized and the extent of transmission losses. Of the elements first mentioned, the transportation of weight is perhaps of most importance, and this has suggested a separation of all expenses upon the ton-mile basis. The city cars range in dead weight from 30,000 to 43,800 lbs.; interurban cars from 57,000 to 80,800; and these weights will be increased by about 3,500 lbs. for urban and 2,500 lbs. for interurban per car for passenger loading. The weighted average of live weights will aggregate 44,400 lbs. per car for city cars and 70,850 lbs. for interurban cars. The weighted average of cars operated in Racine will aggregate 21,000 lbs. Based upon the ton-mile basis, it is noted that from 78 to 79 per cent of the total charge will be borne by The Milwaukee Electric Railway and Light Company under its operating agreement with the Milwaukee Light, Heat and Traction Company, and that from 75 to 77 per cent of this cost is occasioned by urban as distinct from suburban and interurban operation.

TABLE 46.
APPORTIONMENT OF POWER PLANT EXPENSES.
Upon a Ton-Mile Basis.

Year.	Total.	T. M. E. R. & L. Co.	Per cent of total.	Milwaukee, urban.	Per cent of total.
1908.....	\$342,959 42	\$266,239 40	77.63	\$256,362 17	74.75
1909.....	356,681 46	277,854 86	77.90	263,581 13	75.30
1910.....	424,711 82	337,603 43	79.49	329,703 79	77.63
1911.....	463,303 87	368,233 92	79.48	358,365 54	77.35

Data of some importance as to the relative amount of current used by the various cars under different conditions of operation are to be obtained from tests made by the company from time to time. At the hearing the testimony by Mr. Rau, superintendent of the lighting department, was presented showing the result of such tests made during 1907. A city car operated upon the Third street line, having a weight of approximately 43,300

lbs. and equipped with four 40 h. p. motors, consumed 2.58 kw. hrs. per car-mile. A similar car equipped with two 35 h. p. motors consumed 1.66 kw. hrs. per car-mile. A typical suburban car upon the regular Waukesha route with a weight of 55,000 lbs., equipped with four 60 h. p. motors, consumed 3 kw. hrs. per car-mile. A regular interurban car, weighing 82,000 lbs., equipped with four 75 h. p. motors, consumed 3.90 kw. hrs. per car-mile.

Another series of tests made during 1910 and 1911 on street and interurban cars discloses somewhat similar results. City cars Nos. 334 and 476, with a weight of 38,500 and 43,300 lbs., consumed 3.16 and 2.83 kw. hrs. per car-mile, respectively, in a run upon the Wells-Farwell ave. line. The average speeds in these instances, including stops, were 10.9 and 10.2 miles. The number of stops per mile aggregated 5.0 and 5.47. Tests made upon interurban car No. 1122, weight 80,000 lbs., during April and May, 1911, on runs from the Public Service Building to Waukesha Beach and from Waukesha Beach to Oconomowoc, show current consumption of 3.82 and 3.74 kw. hrs. per car-mile. The speed in these cases aggregated 19.0 and 24.2 miles per hour and the number of stops 2.0 and 1.9 per mile, respectively.

Perhaps the data of greatest importance to this case are the units of kilowatt hour consumption per car-mile used by the company since Jan. 1, 1912, in its reorganized accounting procedure as a basis of charge for city and interurban service. According to a large number of tests made during 1911, the following units consumed have been accepted as standard:

	Kw. hrs. per car-mile
"A"—P-A-Y-E semi-steel Milwaukee city and suburban motor cars, Nos. 501-600.....	3.1
"B"—Improved P-A-Y-E standard Milwaukee city and suburban motor cars, Nos. 103-500.....	2.78
"C"—Single truck Racine city motor cars, Nos. 21-40.....	1.7
"D"—Interurban wooden motor cars, Nos. 1001-1025.....	3.3
"E"—Interurban semi-steel motor cars (St. Louis Car Co.), Nos. 1101-1110.....	3.5
"F"—Interurban semi-steel motor cars (Cuhlman Car Co.), Nos. 1111-1125.....	2.93
"G"—Interurban trail cars, Nos. 1201-1260.....	1.46

Of these cars, "A" were not in use during 1909 and a current consumption of 2.78 kw. hrs. per car-mile may be assumed for all urban and suburban cars operated during 1908 to 1910. Using a weighted average of classes "D," "E," and "F," a current consumption of 3.24 kw. hrs. is obtained for interurban cars which, in the light of previous evidence, cannot be said to be an overstatement. Based upon these data, the cost for current applicable for The Milwaukee Electric Railway and Light Company business would range from 79 to 81 per cent of the total for the four years 1908 to 1911, inclusive. Milwaukee urban business would aggregate from 76 to 79 per cent for the same years.

TABLE 47.

APPORTIONMENT OF POWER PLANT EXPENSES
Upon Company's Revised Basis, Assuming a Fixed Consumption of Current for
Various Types of Cars.

Year.	Total.	T. M. E. R. & L. Co.	Per cent. of total.	Milwaukee urban.	Per cent. of total.
1908.....	\$342,959 42	\$270,252 02	78.80	\$262,021 00	76.40
1909.....	356,681 46	282,670 06	79.25	275,679 10	77.29
1910.....	424,711 82	344,101 52	81.02	338,113 08	79.61
1911.....	463,303 87	375,322 47	81.01	367,863 27	79.40

It will be noted that the bases of expenses division used in tables 45, 46 and 47 result in a constant charge for each kilowatt hour of current consumed, irrespective of location of the car. Such an assumption cannot be said to be in all respects equitable to the city or to the company. It is evident that the Racine and the Watertown business cannot be done as economically as Milwaukee business and it is difficult to see why localities so widely separated should be treated upon a common basis.

From a careful study of the feeder lines tributary to the various power houses and substations, it is possible to determine approximately the range of service of each and by a proper weighting of all tributary car units to determine the cost of each type of service.

Objection has been raised to such a segregation on the ground that the railway feeders are interconnected. This interrelation, however, in actual practice is small and will not materially affect results. Separate feeders are more or less permanently connected to a single power plant and substation, or in certain

instances connected in multiple to two definitely determined stations. It appeared that in cases of emergency a cut-over is made from one feeder zone to that of its neighbor, under specific orders of the power department, but when this emergency has passed the switches are again closed. Such cut-overs have been caused by alterations to feeders and cross-overs, by inspection of switches, by breaking of the trolley, and similar causes. According to the records of the use of such throw-over switches on file with the company for the calendar year 1911, it is noted that for the entire year Commerce station was relieved by other power plants and substations a total of only twenty-eight hours and four minutes, Oneida station a total of twelve hours and twenty-eight minutes, Kinnickinnic substation a total of one hundred and five hours and thirty minutes, and West Allis substation a total of ten hours and thirteen minutes. An item of greater importance would be the inter-connection of power plants themselves by means of tie lines. This interchange of service has, however, been compensated for in the expense records of the separate plants and has been considered in our calculations.

While it is not possible to definitely determine the kilowatt hours used by the various urban, suburban and interurban businesses, it is possible to determine the car-miles and car-hours tributary to each feeder location, and hence to each power plant or substation. If all cars were of the same weight, were operated at the same speed, and made an identical number of stops per mile, the amount of kilowatt hours used would be practically proportionate to the car-hours and car-miles. To compensate for such differences two methods have been suggested. The first of these takes the car-hour units of urban, suburban and interurban as a basis and multiplies these by a fixed ratio designated to express the difference in power consumption due to speed tonnage and frequency of stop. It has been estimated that if cars operated upon the city and suburban lines in regular city service have a ratio of 1.0, interurban cars operated upon the Racine line within the city will have a ratio of 1.82, interurban cars operated within the country a ratio of 1.41. Interurban cars operated upon the Oconomowoc and Muskegan Lake lines would have a ratio within the city of 2.32 and without the city of 1.77. Cars operated within the city of Racine would have a ratio of 0.45. The reason for choosing car-hours in lieu

of car-miles as a basis upon which to apply the factors cited above, is that the consumption of current per car-mile decreases as the speed of the cars increases, other things being equal; while the opposite tendency is noted for car-hours.

Applying the percentage relation of adjusted car-hours to the various power plants and substations discloses the fact that for the year 1909 about 64 per cent of the total cost applicable to railway is properly borne by the Milwaukee urban business. The detail of such an apportionment is given in table 48:

TABLE 48.
 DETAIL OF THE APPORTIONMENT OF THE SEPARATE POWER PLANT COSTS FOR 1909.
On the Basis of Weighted Car-Hours Tributary to Each Station.

Station.	Company's charge (output basis).	Cents per S. B. kw. hr.	Commiss-ion's charge (output and demand).	Cost of Current Consumption.									
				Urban.	Per cent.	Suburban.	Per cent.	Interurban.	Per cent.	Local.	Per cent.		
Commerce street.....	\$161,359.91	0.556	\$170,282.55										
Oneida street.....	5,782.10	1.142	10,540.74										
Combined.....			\$180,823.29	\$147,368.48	81.50	\$11,640.83	6.44	\$21,813.98	12.06				
Racine street.....	37,622.81	1.371	38,739.71					19,718.51	50.90		\$19,021.20	49.10	
Waukesha.....	10,374.64	2.687	10,866.55					10,866.55	100.00				
Farwell avenue.....	24,402.76	.743	24,506.22	21,540.97	87.90	2,965.25	12.10						
Kinnickinnic avenue.....	70,893.39	.704	63,534.39	55,910.27	88.00	2,922.58	4.60	4,701.54	7.40				
South Milwaukee.....	13,371.81	.970	11,720.36			7,829.20	66.80	3,891.16	33.20				
West Allis.....	49,413.65	.775	48,290.65	20,426.45	42.30	8,354.28	17.30	13,108.99	37.50		1,400.43	2.90	
Waukesha gravel pit.....	1,894.37	.839	1,905.04					1,905.04	100.00				
Total.....	\$375,115.44		\$380,386.21	\$245,246.67	64.47	\$33,712.14	8.86	\$81,005.77	21.30		\$20,421.63	5.37	
*Credit transfer.....	18,433.98		18,433.98	11,884.39		989.90		3,926.44			1,633.25		
Total.....	\$356,691.46		\$361,952.23	\$233,362.28		\$32,722.24		\$77,079.33			\$18,788.38		

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A similar localization of the charge for the years 1908, 1910, and 1911, indicates cost of power for The Milwaukee Electric Railway and Light Company, ranging from 68 to 71 per cent of the total and for Milwaukee urban business ranging from 63 to 66 per cent of the total for the four years.

TABLE 49.

APPORTIONMENT OF POWER PLANT EXPENSES.

Upon the Basis of Tributary Car-Hours to the Various Power Stations Multiplied by an Assumed Weight to Compensate for Differences in Speed, Tonnage, Frequency of Stops and Other Factors.

	Total charge.	T. M. E. R. & L. Co.	Per cent of total.	Urban, Milwaukee.	Per cent of total.
1908.....	\$342,959.42	234,322.66	68.32	215,666.31	62.88
1909.....	356,681.46	252,236.70	70.72	233,362.28	65.43
1910.....	424,711.82	299,068.74	70.42	279,526.21	65.82
1911.....	463,303.87	330,867.81	71.41	307,129.65	66.29

The second method of segregation suggested, and that finally adopted by the Commission, consists in finding the car-miles tributary to each power plant and applying to these units the kilowatt hour consumption accepted by the company and applied at present in their accounting practice.

Using units of 2.78 kw. hrs. per car-mile for urban and suburban traffic and 3.24 kw. hrs. per car-mile for interurban traffic, the station output for the calendar year 1909 would be utilized as indicated in table 50.

The resulting percentages of current lost and unaccounted for, appearing in this table, are interesting as indicating the conservative basis of estimate as regards the adjustment made in the cost of Milwaukee business. It is estimated that 89.7 per cent of the utilized output of the Commerce and Oneida street plants is utilized for urban business and that the percentage lost and unaccounted for will aggregate 8.71. Owing undoubtedly to the low figure used for suburban and interurban power consumption, we note higher percentages of current lost and unaccounted for in those stations furnishing current without the city than those a majority of whose product is used for city service. Where Kinnickinnic ave. substation with 90 per cent urban use has a percentage of lost and unaccounted for of 18 per cent, Farwell ave. substation with an estimated urban use of 84 per cent has a resulting percentage lost and unaccounted for of 31, while

West Allis with over 55 per cent of its product utilized out of town has an estimated lost and unaccounted for percentage of 53 per cent.

TABLE 50.

STATEMENT OF KILOWATT HOURS GENERATED FOR RAILWAY PURPOSES IN 1909-
With the Estimated Consumption of Power by Urban, Suburban and Interurban Traffic with the
Resulting Percentage of Current Lost and Unaccounted For.

	Total railway kw. hrs. gener- ated.	Tributary car-miles times company's standard kilowatt hour ratio.					Percent- age lost and un- account- ed for.		
		Urban.	Subur- ban.	Inter- urban.	Local.	Total.			
<i>Power Plants</i>									
Commerce.....	29,767,724	24,375,418	713,120	503,334		25,591,872			
Oneida.....						621,202		621,202	
Waukesha Beach.....						380,152		380,152	
East Troy.....						179,781		179,781	
Hurlington.....						401,472		401,472	
Watertown.....									
Total.....	29,767,724	24,375,418	713,120	2,085,941		27,174,479	8.71		
Racine.....	2,738,521			1,567,723	1,263,709	2,831,432	3.51		
Waukesha.....	396,411			149,646		149,646	62.26		
<i>Substations</i>									
Farwell.....	3,284,100	1,913,822	358,311			2,272,133	30.81		
Kinnickinnic.....	10,067,815	7,413,387	329,739	532,368		8,275,494	17.80		
West Allis.....	6,388,501	1,36,335	598,309	1,472,547		3,032,191	52.53		
South Milwaukee.....	1,382,551		258,929	190,356		449,285	67.51		
Gravel pit.....	226,129			315,411		315,411	139.47		
Total.....	54,251,830	35,063,962	2,258,408	5,913,992	1,266,709	44,503,071	17.96		

¹Increases.

Table 51 is similar to table 48 and is designed to show the resulting apportionment of the separate power plant costs during 1909 on the basis of weighted car-miles tributary to each station. It will be noted that a somewhat larger portion of the total cost is estimated as properly borne by urban traffic than that indicated on a weighted car-hour basis such as given in table 48.

TABLE 51.

DETAIL OF THE APPORTIONMENT OF THE SEPARATE POWER PLANT COSTS FOR 1909
 On the basis of weighted car miles tributary to each station, the weights in this case being the standard kilowatt of consumption units now being employed by the company in its accounting practice.

Station.	Company's charges (output basis).	Cents per S. B. kw. hr	Commission's charges (output and demand).	Cost of Current Consumption									
				Urban.	Per cent	Suburban.	Per cent.	Interurban.	Per cent.	Local.	Per cent.		
Commerce street.....	\$161,359.91	0.556	\$170,282.55										
Oneida street.....	5,782.10	1.142	10,540.74										
Combined.....			\$180,823.29	\$162,168.49	89.7	\$4,701.41	2.6	\$13,923.33	7.7				
Racine.....	37,622.81	1.371	38,739.71					21,424.06	55.3			\$17.3 6.65	44.7
Waukesha.....	10,374.64	2.687	10,866.55					10,866.55	100.0				
Farwell avenue.....	24,402.76	.743	24,706.22	20,634.24	84.2	3,871.98	15.8						
Kinnickinnic avenue.....	70,893.39	.704	63,534.39	56,926.81	89.6	2,541.38	4.0	4,066.20	6.4				
South Milwaukee.....	13,371.51	.970	11,720.33			6,782.65	57.7	4,957.71	42.3				
West Allis.....	49,413.65	.775	48,290.65	21,622.50	44.9			17,094.89	35.4				
Waukesha gravel pit.....	1,894.37	.839	1,905.04			9,513.26	19.7	1,905.04	100.0				
Total.....	\$375,115.44		\$380,586.21	\$261,442.04	68.73	\$27,390.68	7.20	\$74,236.84	19.52			\$17,316.65	4.55
Credit transfer.....	18,433.98		18,433.98	12,669.67		1,327.25		3,598.31				838.75	
Total.....	\$356,681.46		\$361,952.23	\$248,772.37		\$26,063.43		\$70,635.53				\$16,477.90	

When similar apportionments are made for the years 1908, 1910, and 1911, it is noted that from 70 to 73 per cent of the total railway power plant expense is properly borne by The Milwaukee Electric Railway and Light Company, and the Milwaukee urban business would aggregate from 67 to 70 per cent for the four years reviewed.

TABLE 52.
APPORTIONMENT OF POWER PLANT EXPENSE

Upon the basis of tributary car-miles to the various power stations, multiplied by company's standard units of current consumption per car-mile.

	Total charge.	T. M. E. R. & L. Co.	Per cent of total	Urban. Milwaukee.	Per cent of total.
1908.....	\$342,959.42	\$242,086.27	70.59	\$231,262.58	67.43
1909.....	356,681.46	259,455.86	72.74	248,772.37	69.75
1910.....	424,711.82	308,882.98	72.73	297,196.65	69.98
1911.....	463,303.87	340,320.42	73.46	326,049.29	70.37

Covering the entire range of testimony and estimates, the following conclusions of fact may be made relative to power plant costs applicable to Milwaukee street railway business:

(1) That the company's rule of separation between lighting and railway business is fair and, if anything, somewhat favorable to the railway business, due to the increasing importance of railway demands upon the central station peak.

(2) That company's rule of apportionment of that portion of power plant designated as railway upon a car-hour basis practically assumes uniformity of current consumption for each car-hour unit, irrespective of type of car, and a constant cost of current per kilowatt hour, irrespective of place of delivery.

(3) That under company's rule such a charge for The Milwaukee Electric Railway and Light Company business aggregates about 85 per cent of the total and amounted in 1909 to \$302,479.52.

(4) That assuming a constant cost of current and basing the separation upon a ton-mile rather than a car-hour basis, such an amount will aggregate about 78 per cent of the total charge and will result in a reduction during 1909 of \$24,624.66.

(5) That assuming a constant cost of current and a separation upon the basis of company's standard kilowatt hours consumed per car-mile, such an amount will aggregate about 79

per cent of the total and will result in a reduction for 1909 of \$19,809.46.

(6) That assuming a varying charge for current dependent upon the power plant utilized and basing the proportionate cost of current upon the car-hours tributary to such a power plant, arbitrarily weighted, such an amount will aggregate about 71 per cent of the total cost and result in a reduction of \$50,242.82 during 1909.

(7) That assuming a varying charge for current dependent upon the power plant utilized and basing the proportionate cost of current upon the car-miles tributary to such a power plant, arbitrarily weighted, but using company's standard units of kilowatt hour consumption per car-mile for various types of cars, such an amount will aggregate about 73 per cent of the total cost and result in a reduction of \$43,023.66 during 1909. This basis has been accepted and has been used in our computations.

The cost for Milwaukee urban business as distinct from The Milwaukee Electric Railway and Light Company business will result in further reductions varying from \$1,000 to \$12,000 over the amounts stated above.

MAINTENANCE OF WAY AND STRUCTURES.

The group of expenses known as "Maintenance of way and structures," "Maintenance of rolling stock," and "Conducting transportation" affect only traction business and the inquiry in this case relates to the apportionment of these charges as between The Milwaukee Electric Railway and Light Company, and the Milwaukee Light, Heat and Traction Company.

There was included under the general account "Maintenance of way and structures," 1909, such items as repairs of roadway and track, paving and grading, bridges, culverts and subways, overhead and underground system, and all buildings except power plants.

Company has in addition a depreciation reserve against which there are charged all replacements of a larger character, maintenance accounts being concerned only with the upkeep of the property to the point of maximum efficiency, and contain only so-called minor replacement items.

Until Jan. 1, 1912, it had been company's practice to charge all way expenditures to a single account and to apportion this

total charge as between the city company and traction company upon the car-hour basis. The city, in its brief, objects to this division, on the ground that the speed on interurban way was greater than in the city, that the weights of the interurban cars are 82,000 and 55,000 lbs., while those utilized for urban traffic aggregate only 43,000, and that this difference in speed and weight should cause a difference in the relative cost of maintenance of way. In its answer to the city's objection the company states that after careful consideration and full weighing of all conditions of operation it has decided that the car-hour basis was more equitable and practicable than any other one unit; that approximately 40 per cent of the operating expenses involved in the operation of cars vary with the car-hour and that the disturbing element of speed is eliminated by the car-hour.

The total maintenance of way expense for both city and traction business for the calendar year 1909 aggregated \$149,768.22. Of this amount \$126,764.88, or 84.64 per cent, was charged to The Milwaukee Electric Railway and Light Company, while \$23,003.34, or 15.36 per cent, was charged to the Milwaukee Light, Heat and Traction Company. These amounts aggregated 7.20 and 7.11 per cent, respectively, of the total operating expenses exclusive of taxes and depreciation for the two companies. The details of the company's apportionment for the year are given in table 53:

TABLE 53.
DISTRIBUTION OF OPERATING EXPENSES FOR MAINTENANCE OF WAY AND STRUCTURES.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.
Railway—1909, As Per Company's Books.

	Total.	T.M. E. R. & L.Co.	Per cent.	M L.H. & T. Co.	Per cent.
1. Superintendence	\$13,203 43	\$11,190 85	84.76	\$2,012 58	15.24
2. Roadway and track repairs—wages	34,817 87	29,447 98	84.58	5,369 89	15.42
3. " " —materials	13,506 36	11,493 82	84.72	2,072 54	15.28
4. Paving and grading—wages	6,458 34	5,454 94	84.46	1,003 40	15.57
5. " " —materials	14,976 94	12,617 35	84.64	2,289 59	15.36
6. Bridges, culverts and subways—wages ..	3,696 95	3,126 09	84.56	570 86	15.44
7. " " —materials	4,363 68	3,708 03	84.97	655 65	15.03
8. Overhead system repairs—wages	17,272 94	14,618 48	84.63	2,654 46	15.37
9. " " —materials	13,830 32	11,706 95	84.65	2,123 37	15.35
10. Underground " " —wages	4,913 49	4,167 74	84.82	745 75	15.18
11. " " " —materials	960 87	819 27	85.26	141 60	14.74
12. Buildings, repairs—wages	3,958 50	3,352 90	84.70	605 60	15.30
13. " " —materials	2,428 41	2,059 94	84.81	368 77	15.19
14. Tools and implements	8,181 31	6,933 84	84.75	1,247 50	15.25
15. Right of way, special improvement expenses	7,208 78	6,667 00	84.16	1,141 78	15.84
Total	\$149,768 22	\$126,764 88	84.64	\$23,003 34	15.36

To separate maintenance of way expenditures upon an equitable basis, consideration must be had primarily for the differences in type of construction necessary for urban and interurban traffic. Within the city of Milwaukee by far the greater amount of track is placed in permanent paving, whereas the interurban right of way with its exposed rails and ties is similar in construction to steam railroad track. In the city, again, almost all feeders are underground, those in the country overhead. Due to density and interrelation of urban traffic there is far more special work to maintain and expenses incurred in clearing a way for other traffic than is necessary upon the interurban. The interurban right of way, on the other hand, has expenditures for maintaining shelters, bridges, culverts, trestles, etc., with which the city traffic is not concerned. Obviously, with conditions so dissimilar an actual charge is far more desirable than a prorated common cost and the company has recognized this fact by placing its maintenance expenditures upon an actual rather than an apportioned basis since Jan. 1, 1912. In an effort to secure similar results, the Commission has carefully checked all available maintenance vouchers for the year ending Dec. 31, 1909, as an aid to determining the proper distribution of the separate items as between the city and traction company.

In making an apportionment of expense accounts on an arbitrary basis, the rule usually observed is that only those units should be used which have the closest relation to the expenses under consideration. Expenses varying with the volume of traffic should, therefore, be apportioned upon the basis of a traffic unit. If they are unaffected by the volume of traffic, a stationary unit is necessary. An examination of the maintenance of way expenses as reported by the company indicates that these have little or no relation to the car-hour. Were traffic conditions similar, it might be expected that certain costs would fluctuate with the traffic and be properly prorated upon a car or ton-mile. Certain other expenses might be expected to vary with weather conditions and be properly prorated upon the miles of single track.

In determining what units are most suitable, the Commission has been guided by the localizations made upon an examination of pay roll and material vouchers in 1909, by the results obtained under company's present system of direct charges in January and February of the present year, by an examination

of the variation of the cost per unit since 1897, and, finally, by a physical examination and report of the engineers of the Commission as to the relative maintenance necessary for urban and interurban properties under conditions obtaining upon the company's right of way.

The relative proportion of car-miles, total passengers carried, maximum daily cars operated, and miles of single track upon The Milwaukee Electric Railway and Light Company's right of way and for urban Milwaukee business is given in table 54.

It will be noted that on the basis of car-mile unit about 80 per cent would be charged to The Milwaukee Electric Railway and Light Company as against 85 per cent now being charged. On the basis of miles of single track, from 38 per cent to 39 per cent of the total charge would prove sufficient for the city business.

TABLE 54.
PERCENTAGE RELATION BETWEEN THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT CO. AND MILWAUKEE URBAN SYSTEM AS TO TRAFFIC EARNINGS AND UNITS OF OPERATION.

	1908.		1909.		1910.		1911.	
	T. M. E. R. & L. Company.	Urban, Milwaukee.	T. M. E. R. & L. Company.	Urban, Milwaukee.	T. M. E. R. & L. Company.	Urban, Milwaukee.	T. M. E. R. & L. Company.	Urban, Milwaukee.
Car-miles, per cent.....	80.12	78.21	80.45	78.73	81.66	80.44	81.49	80.06
Car-hours, ".....	84.72	82.91	84.72	83.04	85.24	84.10	85.25	84.00
Total passengers, per cent.	91.52	90.90	91.36	90.82	91.29	90.90	91.41	91.02
Maximum cars daily oper ..	86.27	86.27	88.20	88.20	88.50	88.50	88.69	11.31
Miles of single track ..	39.38	39.38	38.64	38.64	37.78	37.78	38.28	38.26
Passenger earnings ..	81.56	79.84	81.66	80.04	81.46	80.13	81.65	80.32

In table 55 are summarized the localizations of the maintenance of way and structures expenses for the year ending Dec. 31, 1909. This information was obtained by an inspection of thousands of time slips and material manifests. It has not been company's practice to specify the place worked or the place of delivery of materials upon its records of original entry, so that a complete check was not possible. From supplementary data, however, available in the office of the superintendent of construction and maintenance of way, it was possible to locate the whereabouts

of foremen of various track gangs on each day, and all material received on that day was assumed to be used at the place where the track gang was then located. Material delivered to the work shop necessarily could not be localized. In all cases where doubt existed as to the location of the work of a particular gang, the item was not classified. It will be noted that about 59.52 per cent of all charges were definitely localized, or, excluding the items of superintendence, and tools and implements, both overhead costs, about 67.95 per cent were so divided.

TABLE 55.

LOCALIZATION OF WAY AND STRUCTURES EXPENSES.
 FROM AN EXAMINATION OF TIME SLIPS AND MATERIAL MANIFESTS.
 Year Ending December 31, 1909.

Account No.	Accounts.	Original Charges Localized.				Total localized.	Per cent.	Total charges as per books.	Per cent charges localized. ¹
		T. M. E. R. & L. Company.	Per cent.	M. L. H. & T. Company.	Per cent.				
30	Superintendence.....	\$572 91	100.00			\$572 91	100.00	\$ 3,203 43	4.34
31	Roadway and track, labor.....	10,130 76	28.49	\$25,430 27	71.51	35,561 03	..	34,817 87	102.13
32	materials.....	7,001 95	67.96	3,300 59	32.04	10,302 54	..	13,566 36	75.94
33	Paving and grading, labor.....	5,758 30	81.61	1,297 32	18.39	7,055 62	..	6,458 34	109.25
34	materials.....	8,383 53	93.00	171 44	2.00	8,554 97	..	14,906 94	57.38
35	Bridges and culverts, labor.....	2,279 56	67.98	1,074 32	32.03	3,353 88	..	3,696 95	90.72
36	materials.....	1,718 89	76.33	532 84	23.67	2,251 73	..	4,363 68	51.60
37	Overhead labor.....	5,295 56	50.71	5,149 54	49.29	10,446 10	..	17,272 94	60.48
38	materials.....	264 75	23.24	887 47	76.76	1,156 22	..	13,830 32	8.36
39	Underground labor.....	861 48	95.18	43.58	4.82	905 06	..	4,913 49	18.42
40	Underground materials.....	1,557 26	99.90	1 58	.10	1,558 84	..	960 87	162.23
41	Buildings etc., labor.....	920 83	93.98	50 05	6.02	979 88	..	3,958 50	24.72
42	materials.....	410 57	94.1-	25 42	5.82	435 99	..	2,428 41	17.95
43	Tools and implements.....	1,248 54	93.68	84 25	6.32	1,332 79	..	8,181 34	16.29
44	Special right of way improvements.....	301 11	6.44	4,373 66	93.56	4,674 77	..	7,208 78	64.84
	Total.....	\$46,711 00	52.40	\$42,431 33	47.60	\$89,142 33	..	\$149,769 22	59.52
	Total exclusive of accounts 30 and 43	\$14,889 55	51.45	\$42,347 08	48.50	\$97,236 63	..	\$128,383 45	67.95

¹Excess of 100% localized due to credit transfers to other departments.

That the nature of the expense must determine the apportionment basis is apparent from an inspection of the separate items contained in table 55. It will be noted that of roadway and track labor only 28.49 per cent is charged to the city company. Of paving and grading materials, 98 per cent is so charged. Of the maintenance of cost of overhead system 50.71 and 23.24 per cent for labor and materials, respectively, are apportioned to Milwaukee. Of the underground maintenance cost, 95.18 per cent and 99.90 per cent, respectively, was found to be incurred in Milwaukee, while of the account "Special right of way improvements," only 6.44 per cent is a city company charge, while 93.56 per cent is a traction company charge.

As has already been pointed out, since Jan. 1, 1912, the company had adopted a method of direct charges to its maintenance of way accounts. The results for a two months operation under the new accounting rule are given in table 57 and indicate that during January, 1912, 60.99 per cent of the total charge was incurred upon the city company system, while 39.01 per cent was incurred upon the traction company system. Likewise, for February it is noted that 65.90 per cent of the total charge was incurred upon the city company system and 34.10 per cent upon the traction company system. The direct charge shows a higher percentage of apportionment to the city than the localizations made by the Commission in table 55. This is due entirely to the fact that a large part of the maintenance work upon the interurban line is conducted during the warmer months of the year. That the ratios for January and February will not obtain throughout the entire year, due to the seasonal variation, is evident from table 56, wherein are summarized the localized maintenance charges for 1909 by months. A comparison of the Commission's analysis of 1909 expenditures with the ratios obtained for January and February is contained in table 57.

TABLE 56.
SEASONAL VARIATION.
SUMMARY OF APPORTIONED MAINTENANCE CHARGES.
Year 1909.

Months.	T. M. E. R. & L. Co.	Per cent.	M. L. H. & T. Co.	Per cent.	Total apportioned.	Per cent.
Jan.....	\$3,768.80	65.52	\$1,983.12	34.48	\$5,751.92	100.00
Feb.....	2,919.91	64.68	1,594.19	35.32	4,514.10	100.00
Mar.....	6,980.30	72.33	2,671.12	27.67	9,651.42	100.00
Apr.....	4,710.02	55.79	3,732.42	44.21	8,442.44	100.00
May.....	5,103.09	51.51	4,803.80	48.49	9,906.89	100.00
June.....	4,391.23	49.88	4,412.35	50.12	8,803.58	100.00
July.....	3,507.67	42.39	4,766.25	57.61	8,273.92	100.00
Aug.....	2,263.02	33.65	4,461.39	66.35	6,724.41	100.00
Sept.....	3,118.52	33.53	6,181.77	66.47	9,300.29	100.00
Oct.....	3,447.82	51.45	3,253.01	48.55	6,700.83	100.00
Nov.....	3,786.91	56.06	2,967.27	43.94	6,754.18	100.00
Dec.....	2,713.71	62.84	1,604.64	37.16	4,318.35	100.00
Total.....	\$46,711.00	52.40	\$42,431.33	47.60	\$89,142.33	100.00

TABLE 57.

COMPARISON OF COMMISSION LOCALIZATION OF CHARGES TO MAINTENANCE OF WAY FOR 1909

With company's basis of direct charges for January and February, 1912.

No. of account.	Accounts	1909 Charge localization.		1912 Company's original charge.			
				January.		February.	
		T. M. E. R. & L. Co.	M. L. H. & T. Co.	T. M. E. R. & L. Co.	M. L. H. & T. Co.	T. M. E. R. & L. Co.	M. L. H. & T. Co.
30	Superintendence.....	100.00	.....	60.21	39.79	61.21	38.79
31	Roadway and track, labor.....	28.49	71.51	57.88	42.12	72.81	27.19
32	" " materials.....	67.96	32.04	82.16	17.84	.....	.....
33	Paving and grading, labor.....	81.61	18.39	97.59	2.41	95.80	4.20
34	" " materials.....	98.00	2.00	99.61	.39	97.98	2.02
35	Bridges and culverts, labor.....	67.98	32.03	31.46	68.54	42.83	57.17
36	" " materials.....	76.33	23.67	49.33	50.67	89.87	30.13
37	Overhead repairs, labor.....	50.71	49.29	59.87	40.13	57.58	42.52
38	" " materials.....	23.24	76.76	26.68	73.32	35.48	64.12
39	Underground repairs, labor.....	95.18	4.82	100.00	.....	99.20	.80
40	" " materials.....	99.90	.10	97.40	2.60	.....	.....
41	Buildings, etc., labor.....	93.98	6.02	77.49	22.51	86.40	13.60
42	" " materials.....	94.18	5.82	.....	.....	.....	.....
43	Tools and implements.....	93.68	6.32	60.21	39.79	61.21	38.79
44	Special right of way improvements....	6.44	93.56	.21	99.79	.....	100.00
	Total.....	52.40	47.60	60.99	39.01	65.90	34.10

Data of some value as to the unit most applicable to serve as a basis of apportioning maintenance of way expenses are given in the unit analysis of total charges for maintenance and depreciation contained in tables 58 and 59. It will be noted that the

expense of maintenance per mile of single track has varied from \$376.54 in 1901 to \$633.43 in 1907, the average expenditure being \$482.05. The depreciation per unit is based upon the debits to the depreciation reserve of both companies after excluding items alleged by the city's and company's accountants to have been capital expenditures rather than replacements. The depreciation expense per mile of single track has varied from \$319.41 in 1903 to \$1,356.59 in 1906, the average expenditure being \$704.45. The total cost of maintenance and depreciation has ranged from a maximum of \$1,854.14 in 1906 to \$783.61 in 1903, the general average being \$1,175.84. Similarly we note in table 59 that the maintenance expense per car-mile has varied from 0.7824 cts. in 1905 to 1.2118 cts. in 1899, the general average being 0.9909 cts. The depreciation expense per car-mile has varied from a maximum of 2.295 cts. in 1899 to a minimum of 0.689 cts. in 1903, the general average being 1.409 cts. The total unit cost per car-mile for maintenance and depreciation has varied from 3.5064 cts. in 1899 to 1.3515 cts. in 1898, the general average being 2.388 cts.

An inspection of the units for separate years indicates that the total way expenses vary more closely with the car-mile than with the miles of single track, although this is not true as regards individual expenditures. It is also evident that a certain interrelation exists between maintenance and depreciation expenditures owing, no doubt, to the difficulty of applying a rigorous ruling as to what are depreciation and what are maintenance replacements. It is to be noted also that maintenance of way expenditures for 1910 are abnormally high. This is particularly apparent since it is noted that the depreciation allowance of the Commission for 1909 aggregates \$216,858.00 for roadway and paving of The Milwaukee Electric Railway and Light Company or 1.569 cts. per car-mile, or \$1,591.61 per mile of single track. Similar units for the Milwaukee Light, Heat and Traction Company show an allowance which will aggregate 3.756 cts. per car-mile, or \$519.52 per mile of single track. The Commission's depreciation allowance for transmission and distribution will aggregate 0.277 cts. per car-mile for The Milwaukee Electric Railway and Light Company and 0.859 cts. for the Milwaukee Light, Heat and Traction Company.

TABLE 58.
UNIT ANALYSIS OF MAINTENANCE OF WAY ACCOUNTS.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.
Expenses Per Mile of Single Track.

	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
<i>Maintenance of Way and Structures.</i>															
1. Superintendence.....	\$10 27	\$21 82	\$20 40	\$15 66	\$1 0						\$14 28	\$39 94	\$38 99	\$37 97	\$13 22
2. Roadway and track rep'rs. material and wages.....	163 32	161 67	183 70	185 94	168 86	\$204 85	\$220 29	\$231 00	\$ 18 57	\$ 90 88	240 2	135 37	142 85	183 60	146 90
3. Paving and grading rep'rs. materials and wages.....	145 55	77 16	66 32	52 41	52 43	72 55	84 07	100 69	83 88	111 33	72 92	70 74	63 08	63 84	49 93
4. Bridges, culverts and sub- ways repairs, material and wages.....		4 99	2 30	9 83	11 71	18 98	17 15	21 04	24 70	26 00	37 37	35 45	23 80	18 45	20 37
5. Overhead system repairs, material and wages.....	242 19	183 95	124 76	91 77	88 50	81 4	95 53	111 55	122 66	115 65	103 49	66 27	91 84	111 50	114 95
6. Underground system rprs., material and wages.....	30 10	13 60	16 20	19 88	32 87	30 27	18 66	14 78	15 55	13 47	18 40	33 76	17 35	36 90	28 33
7. Buildings, repairs, materi- als and wages.....	19 36	22 06	49 83	20 95	19 39	16 95	28 50	24 00	23 75	40 22	33 25	20 83	18 86	33 15	28 09
8. Tools and implements, re- p'rs, materials and wages	10 55	25 65	29 74	27 59	1 77						75 10	46 30	24 16	15 22	9 38
9. Right of way special im- provement expense.....											3 41	13 08	21 28	22 14	11 49
Total.....	\$631 34	\$513 90	\$493 25	\$421 03	\$376 54	\$425 03	\$464 20	\$503 06	\$389 11	\$497 55	\$633 43	\$461 74	\$442 21	\$522 77	\$452 66
<i>Depreciation Charge—"Way and Structures"</i>															
1. Roadway and track.....		\$301 10	\$846 05	\$488 80	\$441 80	\$407 10	\$272 00	\$432 75	\$625 55	\$1,237 70	\$855 90	\$658 40	\$629 05	\$752 80	\$619 20
2. Overhead and undergr'nd electrical systems.....		36 57	87 76	71 90	154 72	209 45	47 41	43 91	123 57	114 77	46 55	8 68	58 77	70 11	37 87
3. Buildings and improve- ments.....		19 58				135		15 74	11 92	4 12	9 07	14 51	43 95	38 42	25 14
Total.....		\$357 25	\$933 81	\$660 70	\$593 52	\$816 20	\$319 41	\$492 40	\$761 04	\$1,356 59	\$911 52	\$681 59	\$731 77	\$861 33	\$682 21
Grand total.....		\$871 15	\$1,427 06	\$984 73	\$973 06	\$1,041 23	\$783 61	\$995 46	\$1,150 15	\$1,854 14	\$1,544 95	\$1,143 33	\$1,173 98	\$1,384 10	\$1,134 87

¹ Credit.

TABLE 59.
UNIT ANALYSIS OF MAINTENANCE OF WAY ACCOUNTS.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.
Cents of Expense per Car-Mile.

	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
<i>Maintenance of Way and Structures.</i>															
1. Superintendence.....	0.0373	0.0491	0.0501	0.0347	0.0022						0.0775	0.0812	0.0824	0.0809	0.0909
2. Roadway and track, rprs., wages and matl.	.3005	.3642	.4513	.4114	.3635	0.4099	0.4380	0.4808	0.2383	0.3573	.4203	.2754	.3021	.3914	.3091
3. Paving and grading.....	.2679	.1738	.1629	.1160	.1129	.1451	.1672	.2095	.1688	.2084	.1276	.1440	.1334	.1261	.1051
4. Bridges, culverts and subways, rprs. wages and material.....		.0112	.0057	.0218	.0252	.0380	.0341	.0438	.0497	.0487	.0654	.0721	.0503	.0393	.0428
5. Overhead system, rprs., wages and matl	.4456	.4210	.3065	.2051	.1906	.1629	.1899	.2322	.2465	.2164	.1811	.1349	.1942	.2378	.2419
6. Underground system, " " " "	.0554	.0306	.0398	.0440	.0708	.0606	.0371	.0308	.0313	.0252	.0322	.0687	.0367	.0787	.0596
7. Buildings, " " " "	.0356	.0496	.1224	.0464	.0418	.0339	.0567	.0499	.0477	.0753	.0689	.0424	.0399	.0707	.0591
8. Tools and implements, " " " "	.0194	.0578	.0731	.0610	.0038						.1314	.0442	.0511	.0324	.0197
9. Right of way special improvement expense											.0059	.0266	.0450	.0472	.0242
Total.....	1.1617	1.1573	1.2118	0.9884	0.8109	0.8504	0.9230	1.0471	0.7824	0.9313	1.1083	0.9395	0.9351	1.1145	0.9524
<i>Depreciation Charge—Way and Structures.</i>															
1. Roadway and track.....		0.0378	2.0790	1.0820	0.9513	0.8539	0.5867	0.9006	1.2578	2.3160	1.4970	1.3395	1.3300	1.6050	1.3030
2. Overhead and underground elec. system.		.0824	.2156	.1591	.3332	.4393	.1023	.0314	.2434	.2148	.0814	.0176	.0124	.1495	.0797
3. Buildings and improvements.....		.0440						.0827	.0240	.0077	.0159	.0295	.0929	.0819	.0533
Total.....		0.1942	2.2946	1.2411	1.2845	1.2932	0.6890	1.0247	1.5302	2.5385	1.5943	1.3866	1.4353	1.8364	1.3880
Grand total.....	1.1107	1.3515	3.5064	2.1995	2.0954	2.1436	1.6120	2.0718	2.3126	3.4698	2.7026	2.3261	2.3704	2.9509	2.3404

From an inspection of all facts relating to the proper basis of prorating the maintenance of way costs already outlined, the analysis indicated in table 60 has been accepted and is used in making apportionments between the city and traction companies for the four years 1908 to 1911, inclusive. Since Jan. 1, 1909, companies' detailed accounts have conformed with the Commission's official classification and are given in greater detail and include, moreover, the accounts "Cleaning, watering and sanding track," "Removal of snow and ice," "Telephone dispatching system," which in the companies' classifications are included under the primary accounts "Conducting transportation." For purposes of comprehensive analysis, the detailed basis of apportionment given in table 60 conforms with the Commission's classification.

It will be noted that superintendence has been apportioned as overhead to all other maintenance of way and construction expenses, as it is proper to assume that this cost will vary quite closely with the amount of expense charged to each company.

The determination of the apportionment of direct charges and the fitness of arbitrary units, such as the car-mile and mile of track to serve as bases of division have been reviewed by the engineer of the Commission, W. D. PENCE, and are sustained by additional facts disclosed upon inspection of the property. The memorandum of the engineer is given in detail:

"The following statement regarding the apportionment of maintenance of way expenditures presents in brief form opinions and conclusions reached in the light of detailed field examinations of the entire Milwaukee traction properties, city and interurban, and of a review of all available records and data in the company's office. Familiarity with these properties was gained in the course of successive valuations and revaluations made by the engineering staff for the purpose of the railroad and tax commissions. These examinations were first undertaken in 1907 (January to July) when the initial valuation of these properties was made, and were further extended in the subsequent successive annual revisions. The matter of apportionment of maintenance of way expenses was early presented to the engineering staff and the subject received particular attention in connection with the exhaustive review of the valuations of the entire physical properties made under special instructions for the purposes of this case during the years 1910 and 1911.

"The apportionment of maintenance expenditures as between the city and interurban traction properties was first presented

as a call to review the company's practice of keeping these costs in common and subsequently apportioning the figures between the two properties on a car-hour basis. The point was raised at the outset as to why there should be any necessity of pursuing such an indirect process when direct localizations of material and labor costs could readily have been made. Although the advantages of such localization were obvious, the accounts had not in fact been handled on that basis and the matter presented itself directly as a practical problem as to whether the car-hour basis gave results which were suitable and equitable for the purposes of the present case.

"The analysis of the operating statistics on the company's books for the calendar year 1909, derived on the car-hour basis, showed approximately 85 per cent of the maintenance of way and structures expenses assigned to the city property. After a somewhat careful examination of the various aspects of the matter a preliminary or tentative opinion was reached that the maintenance of way expenditures to be apportioned to the city traction property could not properly be taken at so high a percentage as that above named. As a further step in the course of the preliminary survey of the problem some consideration was given to fixing at least roughly a lower or minimum limit, and it appeared that the proportion of those expenses assignable to the city property could not in any event fall below its percentage of single track mileage, namely, about 40 per cent. This rapid though somewhat careful preliminary survey of the problem led to the belief that had the maintenance of way accounts actually been kept on a localized basis, the share associated with the city system would have fallen somewhere within the roughly stated limits of 40 and 85 per cent of the total.

"From this preliminary inquiry came the suggestion that an attempt be made to localize the maintenance expenditures for an entire year and this task was undertaken for the calendar year 1909. It was found practicable to identify with certainty about two-thirds of the aggregate expenditures for the year and to associate in detail that proportion of the labor and material items with the respective properties. This separation showed that somewhat more than one-half (52.40 per cent) of the total for the year then under review would have been charged to the city system had the roadway accounts been kept on the localized plan.

"In the light of these preliminary investigations it appeared that the car-hour basis of apportioning the maintenance of way expenditures was unsatisfactory, and steps were taken to establish a method or basis for making these divisions which would meet the present requirements. These further investigations were carried forward more or less independently by the engineering and statistical departments of the Commission's staff,

with conferences on particular points which arose from time to time.

“In the course of these discussions there has been occasion to review, and in some measure to apply, the results of somewhat similar studies carried on in 1906-1907 in connection with the Wisconsin passenger rate cases, in which the Commission found it necessary to consider the relative effects upon track used in common by freight and passenger business due to the high speed passenger trains and the slow moving tonnage trains, with the further requirement for each class of traffic of making a separation of the maintenance of way and other operating expenses as between intrastate and interstate business. Without going far into detail as to the conclusions then reached, attention may be drawn to the fact that the conditions presented in the two cases differ materially along certain lines. In the present case, for example, there are lacking the sharp contrasts as to train units found on the steam roads. In fact, on the particular traction properties now under consideration, there is lacking altogether the freight or express business which has become so important a factor in the traffic of traction properties in general, particularly in other states. In the present case the contrast of conditions in the two properties as affecting the operating expenditures in the maintenance of way group centers chiefly in the differences in type of roadway and track construction in the city streets and in the country and in the methods of current upkeep for the two types of road. There is also a variation due to differences of speeds and of car weights on the two properties. Within the city limits on routes or streets used by interurban runs in reaching the down-town terminal, a distinction may be made with reference to the difference in weights of cars used in the two kinds of service, although this contrast is growing less as the proportion of the newer type of heavy city cars increases; in this same connection there must be taken into account the added wear due to the fact that the city cars on these lines used in common are required to stop more frequently to meet the demands of the local city business.

“In the steam road maintenance apportionments above referred to a separation was first made, on the one hand, with regard to the influence of such natural elements as weather, decay, etc.,—namely elements whose effect may be taken to be entirely independent of the traffic—and on the other hand, to those causes associated with wear and tear or the mechanical attack more or else directly traceable to the action of the traffic. The advantages gained in the earlier cases referred to from a preliminary separation under these two general heads led to the adoption of the same method or expedient in the present case in subdividing such maintenance of way items as may best yield to this treatment; and where this basis was used the fraction

associated with 'wear' was then apportioned between the two properties on a car-mile or traffic basis, and the non-traffic or 'weather' fraction of the particular group or item on a track-mile basis. Other items of expense when best apportioned on another basis were treated with special regard to known physical conditions or to facts revealed by examination of the accounts or other data available for the term of years considered. The results of such apportionments for the various accounts are set forth in table 60. Although there were incidental or minor differences of opinion with regard to certain of the items, the conclusions reached from an engineering viewpoint were substantially in accord with the figures derived from other sources. The following comments touch upon the more important of the items apportioned:

"Ballast was made a direct charge to the Milwaukee Light, Heat and Traction Company, in the light of evidence gathered from the localization of expenditures within the period considered, the general observation being that relatively little ballast, in the ordinary sense of the term, was being applied on the city lines during that interval. The assignment of about one-third (33 per cent) of the tie renewals of the two properties to the element of wear, depending more or less directly upon the attack of traffic as distinguished from the ravages of decay, was made in the light of extended field observations of ties freshly removed from the track on both the city and country lines; and this figure is also in line with the judgment reached in the 1907 passenger rate cases. The renewal of rails and joints, special work, etc., was apportioned almost wholly (90 per cent) on a car-mile basis. Roadway and track labor, labor on paving, and paving materials, accounts 7, 8 and 9, respectively, were separated between the two properties by direct percentages which were derived through a study of actual localization covering a proportion of each item sufficiently large to justify this method. Cleaning and sanding track was taken as depending wholly on a traffic basis. The expense of removing snow and ice, while normally resting on a track-mileage relationship, was assigned in part on a car-mile basis, in recognition of the expediency of prompt removal of snow in the city, due to the necessity of securing prompt service during or following heavy snow storms. Accounts Nos. 14 and 15, labor and material on bridges, culverts, etc., was charged 15 per cent on a traffic basis as against 10 per cent so charged in the steam road separation. The maintenance of overhead transmission system and overhead distribution system has been divided on a basis of 10 per cent upon the car-mile and 90 per cent on a mile of track basis, having in mind the estimated proportion of expense fairly assignable because of wear and weather conditions, respectively. The items relating to the upkeep of the underground systems were as-

signed substantially on the basis of the respective inventory values of the two properties which substantially agreed with such localizations as could be made. A similar basis was taken for the apportionment of maintenance of buildings, fixtures and grounds.

“The minor variations of opinion with reference to individual separations but slightly affected the resulting final apportionment figures, and there was substantial agreement in the figures representing the composite judgments of those engaged in these studies regarding the apportionments of the various items of maintenance of way expenditures. Since these opinions were reached throughout by a special study of the special circumstances of this case, it is unnecessary to add the statement that the figures here arrived at are applicable only to this property and under the conditions surrounding the operation of the same during the period considered. As elsewhere stated, the necessity of making these apportionments arose from the lack of an actual separation based upon a system of localized accounts extending through the period of operation covered by this case.

“CONCLUSION. As a result of these studies by the Commission’s engineering staff, the conclusion is reached that the general method followed and the various details outlined in table 60, together with the results derived through the application of this procedure as set forth in table 61, are confirmed by an independent review of the problem from an engineering viewpoint.”

TABLE 60.
MAINTENANCE OF WAY AND STRUCTURES
Bases of Apportionment Used for 1910 and 1911 Accounts.

No.	Account.	Bases.
1	Superintendence.....	Overhead 2-34 inclusive.
2	Ballast.....	Direct charge to M. L. H. & T. Co.
3	Ties.....	33% on car-mi.; 67% on track mi.
4	Rails.....	90% on car-mi.; 10% on track mi.
5	Rail fastenings and joints.....	90% on car-mi.; 10% on track mi.
6	Special work.....	90% on car-mi.; 10% on track mi.
7	Roadway and track labor.....	30% to T. M. E. R. & L.; 70% to M. L. H. & T.
8	Maint. of paving (labor).....	80% to T. M. E. R. & L.; 20% to M. L. H. & T.
9	Maint. of paving (materials).....	95% to T. M. E. R. & L.; 5% to M. L. H. & T.
10	Roadway and track tools.....	Overhead 2-9, inc. 12, 13.
11	Misc. roadway and track expenses.....	Overhead 2-9, inc. 12, 13.
12	Cleaning and sanding track.....	100% car-mile basis.
13	Removal of snow, ice and sand from tracks.....	20% on car-mi.; 80% on track mi.
14	Maint. of tunnels, brdgs., tres., subw., culv. (labor).....	15% on car-mi.; 85% on track mi.
15	Maint. of tunnels, brdgs., tres., subw., culv. (mat'l).....	15% on car-mi.; 85% on track mi.
16	Maint. of crossings, fences, cattle guards.....	Direct charge to M. L. H. & T. Co.
17	Improvement of right of way.....	95% to M. L. H. & T.; 5% to T. M. E. R. & L.
18	Maint. of tel. and sig. sys. (labor).....	15% on car-mile; 85% on track mile.
19	Maint. of tel. and sig. sys. (material).....	
20	Misc. way expenses.....	Overhead 2-19, inclusive.
21	Maint. of overhead trans. sys. (labor).....	10% car-mi; 90% track mi.
22	Maint. of overhead trans. sys. (material).....	
23	Maint. of underground trans. sys. (labor).....	98% to T. M. E. R. & L.; 2% to M. L. H. & T.
24	Maint. of underground trans. sys. (mat'l).....	
25	Maint. of overhead dist. sys. (labor).....	1 % car-mile; 90% track mile.
26	Maint. of overhead dist. sys. (mat'l).....	
27	Maint. of underground dist. sys. (labor).....	98% to T. M. E. R. & L.; 2% to M. L. H. & T. Co.
28	Maint. of underground dist. sys. (mat'l).....	
29	Misc. electric line expenses.....	Overhead 21 to 28 inclusive.
30	Maint. of build., fix. and grds. "way".....	94% to T. M. E. R. & L. Co.; 6% to M. L. H. & T. Co.
31	Maint. of build., fix. and grds. "shop".....	
32	Maint. of build., fix. and grds. "car house".....	
33	Maint. of docks and wharves.....	
34	Maint. of misc. bldgs., fix. and grds.....	

The total resulting percentage apportionment to The Milwaukee Electric Railway and Light Company for 1909 upon the basis outlined in table 60 will aggregate 55.65 per cent, which closely checks the result obtained by a localization of expense vouchers for that year in table 55.

In table 61 are compared maintenance of way expenses to The Milwaukee Electric Railway and Light Company on company's basis of apportionment, with resulting charge as determined under a varied basis of apportionment such as indicated in table 60. The unusual increases in the company's and Commission's expenses for 1910 and 1911 over 1908 and 1909 are due to the inclusion of expense accounts, "Cleaning, watering and sanding tracks," "Removal of snow and ice" and "Telephone dispatching system," all of which were charged to conducting transportation during 1908 and 1909.

TABLE 61.

APPORTIONMENT OF TOTAL EXPENSE FOR MAINTENANCE OF WAY
AND STRUCTURES TO THE MILWAUKEE ELECTRIC RAILWAY
AND LIGHT COMPANY.

UPON THE CAR-HOUR AS COMPARED WITH THE BASIS ADOPTED BY THE COMMISSION.

Years.	T. M. E. R. & L. Co's. chg. car-hour.	Per cent of total.	T. M. E. R. & L. Co. Com- mission's ap- portionment table 60.	Per cent of total.	Urban, Mil- waukee.	Per cent of total.
1908.....	\$120,532.78	84.64	\$89,201.35	62.24	\$88,315.01	62.01
1909.....	126,764.88	84.62	83,342.28	55.65	82,731.85	55.24
1910.....	213,947.56	85.32	134,650.25	53.70	133,959.30	53.42
1911.....	180,822.33	85.24	118,427.69	55.82	117,520.97	55.40

MAINTENANCE OF ROLLING STOCK.

This general account includes the cost of upkeep and repairs of car bodies, car trucks, car electrical equipment, together with the cost of painting and varnishing. It has been company's practice prior to Jan. 1, 1912, to charge all such expenditures to a common account and prorate the charge as between the Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company upon the car-hour basis.

Objection is made to this division by the city in its brief, on the ground that the increased speed of interurban cars results in greater wear upon brakes, riggings and other parts; that the increased rate will occasion greater cost per car-mile, and that the increased size of interurban cars will make the replacement of minor parts, the cost of painting, varnishing, etc., greater for the traction than for the city company.

The total charges to both companies for the calendar year 1909 aggregated \$215,789.17. Of this amount \$182,988.91, or 84.80 per cent, was charged to The Milwaukee Electric Railway and Light Company, and \$32,800.26, or 15.20 per cent, was charged to the Milwaukee Light, Heat and Traction Company. These amounts aggregated 10.39 and 10.14 per cent, respectively, of the total operating expenses of the companies, exclusive of depreciation and taxes. The detailed apportionment is given in table 62:

TABLE 62.
DISTRIBUTION OF OPERATING EXPENSES FOR MAINTENANCE OF EQUIPMENT.
THE MILWAUKEE ELECTRIC RAILWAY & LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT
& TRACTION COMPANY.

Railway, 1909, as per Company's Books.

	Total.	T. M. E. R. & L. Co.	Per cent of total.	M. L. H. & T. Co.	Per cent of total.
1. Superintendence	\$10,248 62	\$3,688 91	84.77	\$1,559 71	15.23
2. Car bodies, wages	12,335 58	10,453 25	84.74	1,882 13	15.26
3. " material.....	11,687 00	9,914 00	84.83	1,773 00	15.17
4. Painting and varnishing, wages	8,818 65	7,471 33	84.72	1,347 32	15.28
5. " material.....	4,241 73	3,590 18	84.64	651 55	15.36
6. Car trucks, wages.....	13,306 22	11,278 68	84.76	2,027 54	15.24
7. " material.....	47,322 63	40,107 61	84.75	7,215 02	15.25
8. Car electrical equipment, wages.....	33,502 03	28,406 48	84.79	5,095 55	15.21
9. " material.....	49,499 28	41,952 45	84.76	7,546 83	15.24
10. Miscellaneous equipment wages.....	4,124 65	3,529 70	85.58	594 95	14.42
11. " material.....	2,646 43	2,267 48	85.68	378 95	14.32
12. Tools and machinery, wages.....	2,923 60	2,480 90	84.86	442 70	15.14
13. " material.....	4,277 46	3,627 95	84.82	649 51	15.18
14. Miscellaneous expense.....	10,855 49	9,219 99	84.93	1,635 50	15.07
Total.....	\$215,789 17	\$182,988 91	84.80	\$32,800 26	15.20

From an examination of unit costs, it appears that several of the items in question are affected by length of use and probably vary with the car-miles operated. Among these may be mentioned maintenance of car electrical equipment, maintenance of car trucks, and to some extent maintenance of car bodies. Certain other expenses will probably vary with the number of cars; among these are the cost of painting and varnishing and a portion of the cost of repair and maintenance of car bodies.

Table 63 gives unit costs of maintenance and depreciation of rolling stock for the fifteen year period, 1897 to 1911, inclusive, in cents per car-mile. It will be noted that the costs of maintenance per car-mile have varied from 0.8495 cts. in 1902 to 1.5089 cts. in 1910, the average expenditure being 1.0867 cts. The depreciation per unit is the adjusted depreciation after excluding from depreciation debits certain items alleged by city's and company's accountants to have been new equipment and not replacements. These have varied from a credit of 0.0216 cts. in 1904 to 0.4815 cts. in 1910, with an average of 0.1846 cts. per car-mile. The total of maintenance and depreciation per unit averages 1.1471 cts. per car-mile, and has varied from 0.8659 cts. in 1900 to 1.9904 cts. in 1910. These units indicate that both depreciation and maintenance expendi-

tures for the year 1910, and probably for the year 1909, are abnormally high. This being due, as examination shows, to the change of city cars to the P. A. Y. E. type. That a portion of such abnormal maintenance expenses during these two years has been covered by the allowance of the Commission for depreciation, is apparent when it is noted that the estimated reserve for rolling stock and equipment for The Milwaukee Electric Railway and Light Company for the latter year will aggregate \$130,422.00, or 0.944 cts. per car-mile, while the depreciation reserve allowed for the Milwaukee Light, Heat and Traction Company will aggregate \$43,603.00, or an allowance of 1.405 cts. per car-mile during 1909.

TABLE 63.
UNIT ANALYSIS OF MAINTENANCE OF EQUIPMENT ACCOUNTS.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

Italic figures denote credits.

Expense in Cents per Car-Mile.

	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
<i>Maintenance of Rolling Stock.</i>															
1. Superintendence.....	0.0406	0.0315	0.0271	0.0296	0.0157						0.0654	0.0737	0.0640	0.0581	0.0560
2. Car bodies rprs..... wages & matl.	.1300	.1259	.1247	.0715	.1114	0.0952	0.0888	0.1222	0.1184	0.1494	.1775	.1542	.1500	.1838	.1773
3. Painting and varnishing.....	.0786	.0932	.0973	.0767	.1014	.0966	.0867	.1265	.1117	.1173	.1034	.0768	.0815	.0803	.0801
4. Car trucks.....	.2748	.1735	.1782	.1655	.2413	.2428	.2476	.3233	.3092	.2926	.2888	.3476	.3785	.4294	.1832
5. Car elec. equip.....	.5288	.3794	.4159	.4135	.3698	.3483	.4753	.5516	.4774	.4902	.4967	.4902	.5181	.6075	.5032
6. Misc. equip.....	.0174	.0418	.0413	.0366	.0516	.0663	.0115	.0230	.0261	.0185	.0192	.0426	.0423	.0266	.0070
7. Tools & machinery.....	.0123	.0202	.0335	.0.02	.0012						.0490	.0383	.0150	.0427	.0365
8. Misc. expense.....	.0194	.0432	.0449	.0388	.0048						.0651	.0585	.0678	.0805	.0938
Total.....	1.1019	0.9087	0.9629	0.8624	0.9072	0.8495	0.9099	1.1466	1.0428	1.0680	1.2651	1.2829	1.3472	1.5089	1.1371
<i>Depreciation Charge "Rolling Stock."</i>															
1. Car bodies and trucks.....			0.0013	0.0036	0.0389	0.1517	0.0918	0.0862	0.0262	0.0584	0.0735	0.0159	0.0600	0.4820	0.0495
2. Car electrical equipment.....				.0001	.0029	.0840	.0893	.1078	.0037	.0108	.1110	.0025	.0065	.0005	.0056
Miscellaneous equipment.....															
Total.....			0.0013	0.0035	0.0370	0.0677	0.0025	0.0216	0.0299	0.0692	0.1845	0.0184	0.0665	0.4815	0.0531
Grand total.....	1.1019	0.9087	0.9642	0.8659	0.9442	0.9172	0.9124	1.1250	1.0727	1.1372	1.4496	1.3013	1.4137	1.9904	1.1922

When maintenance of equipment expenditures are apportioned upon a car-mile rather than upon a car-hour basis, it is noted that a reduction is made for 1909 from \$182,988.91 to \$173,602.39. Urban Milwaukee business, as distinct from The Milwaukee Electric Railway and Light Company business, will reduce this amount to \$169,890.81. Similar adjustments are noted for the years 1908, 1910 and 1911 in table 64.

This adjustment is not unreasonable, as is apparent from an examination of maintenance of equipment expenditures during January and February, 1912, under the revised accounting method by which the charges are directly made to the separate companies. For January such a ratio aggregates 81.68 per cent. and for February 82.61 per cent of the total expenditures.

TABLE 64.
APPORTIONMENT OF EXPENSES OF MAINTENANCE OF EQUIPMENT.
UPON A CAR-HOUR AND CAR-MILE BASIS.

Years.	T. M. E. R. & L. Co. Company's charge. car-hour.	Per cent of total.	T. M. E. R. & L. Co. Commission's apportionment. car-mile.	Per cent of total.	Urban Milwaukee, charge. car-miles.	Per cent of total.
1908.....	\$164,951 46	84.83	\$155,800 14	80.12	\$152,085 99	78.21
1909.....	182,988 91	84.81	173,602 39	80.45	169,890 81	78.73
1910.....	217,926 68	85.39	208,433 58	81.66	205,319 58	80.44
1911.....	167,278 47	85.31	159,792 36	81.49	156,988 30	80.06

CONDUCTING TRANSPORTATION.

Under conducting transportation are included the wages of conductors, motormen, car service and station employes and their superintendence, the expenses of lighting, heating and dispatching cars, the furnishing of car and motor supplies, and cost of power. During 1908 and 1909, under the company's classification of expenses, there were also included in this account the cost of cleaning, watering and sanding track and removal of snow and ice. In the classification prescribed by the Commission, in use during 1910 and 1911, these items were included under maintenance of way.

The total expenditures charged to both city and traction systems for 1909 aggregated \$1,328,087.31, of which amount \$1,133,161.26, or 85.32 per cent, was charged to The Milwaukee Electric Railway and Light Company, and \$194,926.05, or 14.68

per cent, was charged to the Milwaukee Light, Heat and Traction Company. These amounts aggregate 64.36 and 60.28 per cent, respectively, of the total operating expenses, exclusive of taxes. Aside from the item power plant proportion of expense, the apportionment of which has already been entered into, the principal item comprising conducting transportation is the wages of trainmen. These aggregate about 55 per cent of the total cost.

Company's division of this group of expenses has been made upon the basis of the proportionate car-hours of the two companies. There is evidently but one exception to this rule. Owing to the fact that a single man is utilized as conductor and motorman in Racine, a revision has been made since 1893 in the proportionate distribution of conductors' and motormen's wages. Since trainmen are paid principally upon the basis of platform time, no objection can be found with this method of apportionment. Exception, however, is taken by the city in its brief to the item cost of cleaning, lighting and heating cars, it being claimed that the greater size of car will entail a greater cost per car-hour for interurban traffic. It is also maintained that the telephone dispatching system, being used mainly for interurban and suburban car operation, should be charged in part, if not entirely, to the Milwaukee Light, Heat and Traction Company.

The detailed distribution of operating expenses for conducting transportation for the year 1909 is given in table 65:

TABLE 65.
DISTRIBUTION OF OPERATING EXPENSES FOR CONDUCTING TRANSPORTATION
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE
LIGHT, HEAT & TRACTION COMPANY.
Railway, 1909, as per Company's Books.

	Total.	T. M. E. R. & L. Co.	Per cent.	M. L. H. & T. Co.	Per cent.
1. Superintendence.....	\$42,687.40	\$36,178.94	84.75	\$6,508.46	15.25
2. Conductors.....	362,510.21	310,654.37	85.70	51,855.84	14.30
3. Motormen.....	372,525.27	319,292.10	85.71	53,233.15	14.29
4. Car station employes.....	74,328.77	63,013.37	84.78	11,315.41	15.22
5. Car and motor supplies.....	16,102.20	13,648.36	84.76	2,453.90	15.24
6. Heating cars.....	9,981.30	8,546.88	85.63	1,434.48	14.37
7. Lighting cars.....	2,790.30	2,371.72	84.72	427.64	15.28
8. Miscellaneous transportation expenses.....	44,534.68	37,758.26	84.78	6,776.42	15.22
9. Cleaning, watering and sanding track.....	11,206.50	9,521.48	84.96	1,685.02	15.04
10. Removal of snow and ice.....	28,653.60	24,554.91	85.70	4,098.75	14.30
11. Power plant proportion of expenses.....	356,681.46	302,479.52	84.80	54,201.94	15.20
12. Telephone dispatching system.....	6,078.39	5,141.35	84.58	937.04	15.42
Total.....	\$1,328,087.31	\$1,133,161.26	85.32	\$194,926.05	14.68

An examination of the trend of the expenses since 1907 shows clearly that certain of the costs vary proportionately to the car-hour, certain other costs to the car-miles, and a third class of costs to the number of passengers carried. Such an analysis of unit costs for all items in the group conducting transportation with the exception of cleaning, watering and sanding track, and the removal of snow and ice, and power plant proportion of expenses, are given in tables 66, 67, and 68. It will be noted that the total cost per car-hour for the group has ranged from 62.29 cts. in 1911 to 42.90 cts. in 1900, the average being 49.77 cts. The unit cost upon passenger basis has varied from 1.1263 cts. in 1897 to 0.7634 cts. in 1906, the average being 0.8597 cts. Total unit costs per car-mile have varied from 6.6143 cts. in 1911 to 4.9328 cts. in 1899, the average being 5.4896 cts. From an inspection of the separate costs making up this total it would appear that wages of conductors and motormen and the expense of heating and lighting cars are properly apportioned upon a car-hour basis; the car station employes on the basis of passengers; car and motor supplies on the basis of car-miles. These apportionments have been accepted in our computations and the account "Superintendence" and "Miscellaneous transportation expenses" treated as divided on an overhead basis to this apportionment.

TABLE 66.
UNIT ANALYSIS OF CONDUCTING TRANSPORTATION ACCOUNTS.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.
Expense in Cents per Car-Hour.

Item.	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
1. Superintendence.....	1.44	1.74	1.87	1.90	1.82	1.84	1.89	1.98	2.03	2.18	2.38	2.37	2.52	2.56	2.71
2. Conductors' wages.....	20.31	19.79	17.94	16.96	17.97	18.61	20.08	20.08	19.93	20.39	20.71	20.94	21.43	23.33	23.99
3. Motormen's wages.....	20.31	19.97	18.98	18.78	18.28	19.11	20.58	20.46	20.16	20.59	21.29	21.58	22.02	23.81	24.44
4. Car station employes' wages.....	1.47	.39	2.70	2.57	2.82	2.92	3.09	3.12	3.10	3.49	4.53	4.47	4.39	7.03	6.77
5. Car and motor supplies.....	.26	.29	.52	.57	.55	.60	.61	.71	.65	.69	.87	.93	.95	.61	.55
6. Heating cars.....	1.44	1.09	.37	.29	.38	.35	.42	.50	.52	.58	.64	.59	.59	.50	.57
7. Lighting cars.....			.11	.11	.13	.11	.11	.12	.17	.24	.22	.17	.17	.23	.20
8. Miscellaneous transportation expenses.....	1.02	1.60	1.49	1.72	1.50	.86	1.20	1.47	1.69	1.88	2.13	2.44	2.63	3.22	2.87
9. Telephone dispatching system.....					.37	.59	.57	.38	.39	.36	.23	.21	.36	.19	.19
Total.....	45.25	43.87	43.98	42.90	43.62	44.99	48.55	48.82	48.64	50.40	53.00	53.70	55.06	61.48	62.29

¹Includes lighting cars.

TABLE 67.
 UNIT ANALYSIS OF CONDUCTING TRANSPORTATION ACCOUNTS.
 THE MILWAUKEE ELECTRIC RAILWAY & LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT & TRACTION COMPANY
Expense in Cents per Passenger Carried.

Item.	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
1. Superintendence.....	0.0360	0.0385	0.0403	0.0415	0.0376	0.0334	0.0321	0.0339	0.0320	0.0330	0.0350	0.0344	0.0357	0.0351	0.0357
2. Conductors' wages.....	.5034	.4369	.3854	.3700	.3705	.3422	.3410	.3438	.3138	.3089	.3048	.3037	.3032	.3200	.3159
3. Motormen's wages.....	.5054	.4409	.4088	.4099	.3769	.3514	.3495	.3502	.3173	.3119	.3133	.3130	.3115	.3266	.3217
4. Car station employes' wages.....	.0366	.0087	.0581	.0561	.0581	.0537	.0524	.0535	.0488	.0529	.0667	.0649	.0622	.0964	.0891
5. Car and motor supplies.....	.0065	.0063	.0113	.0124	.0115	.0110	.0104	.0122	.0103	.0105	.0129	.0135	.0135	.0084	.0073
6. Heating cars.....	¹ 1.0109	¹ 1.0021	.0080	.0063	.0079	.0064	.0071	.0086	.0082	.0088	.0094	.0085	.0084	.0068	.0075
7. Lighting cars.....			.0025	.0025	.0027	.0020	.0018	.0020	.0021	.0036	.0032	.0024	.0023	.0031	.0026
8. Misc. transportation expenses.....	.0255	.0353	.0322	.0376	.0267	.0157	.0204	.0252	.0266	.0214	.0313	.0353	.0372	.0441	.0377
9. Telephone dispatching system.....					.0076	.0108	.0097	.0065	.0062	.0054	.0033	.0030	.0051	.0027	.0025
Total.....	1.1263	0.9687	0.9476	0.9363	0.8993	0.8271	0.8244	0.8357	0.7660	0.7674	0.7799	0.7787	0.7791	0.8432	0.8200

¹Includes lighting cars.

TABLE 6S.
 UNIT ANALYSIS OF CONDUCTING TRANSPORTATION ACCOUNTS.
 THE MILWAUKEE ELECTRIC RAILWAY & LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT & TRACTION COMPANY.
Expense in Cents per Car-Mile.

Item.	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
1. Superintendence	0.1649	0.1953	0.2098	0.2207	0.2127	0.2067	0.2107	0.2172	0.2243	0.2406	0.2531	0.2522	0.2664	0.2743	0.2878
2. Conductors' wages	2.3184	2.2598	2.0119	1.9688	2.0356	2.0814	2.2364	2.2622	2.2002	2.2498	2.2288	2.2296	2.2630	2.5019	2.5479
3. Motormen's wages	2.3184	2.2717	2.1285	2.1810	2.1314	2.1452	2.2926	2.2433	2.2250	2.2717	2.2910	2.2984	2.3255	2.5541	2.5951
4. Car station employes' wages .....	.1681	.0450	.3922	.2984	.3285	.3275	.3433	.3416	.3473	.3854	.4879	.4763	.4640	.7535	.7185
5. Car and motor supplies .....	.0298	.0336	.0587	.0658	.0638	.0671	.0683	.0779	.0720	.0760	.0939	.0988	.1005	.0656	.0589
6. Heating cars .....	.0503	.0106	.0415	.0337	.0444	.0391	.0467	.0552	.0575	.0642	.0690	.0623	.0623	.0535	.0606
7. Lighting cars .....			.0126	.0132	.0152	.0130	.0118	.0129	.0193	.0269	.0233	.0178	.0175	.0246	.0209
8. Miscellaneous transportation expenses .....	.1169	.1818	.1676	.2001	.1516	.0931	.1335	.1616	.1867	.2173	.2292	.2594	.2780	.3451	.3044
9. Telephone dispatching system .....					.0430	.0691	.0637	.0416	.0434	.0395	.0242	.0221	.0379	.0269	.0202
Total	5.1638	4.9308	4.9328	4.9817	5.0856	5.0522	5.4074	5.3535	5.3707	5.5605	5.7004	5.7169	5.8151	6.5935	6.6143

In table 69 there are summarized the apportionment of conducting transportation expenses for the four years ending Dec. 31, 1911, together with the proportion of total charges made to The Milwaukee Electric Railway and Light Company in accordance with the company's basis of division and the proportion to The Milwaukee Electric Railway and Light Company, and urban Milwaukee business in accordance with the Commission's basis of division already outlined:

TABLE 69.
SUMMARY OF APPORTIONMENT OF EXPENSES OF CONDUCTING
TRANSPORTATION.

Years.	T. M. E. R. & L. Co's charge.	Per cent of total.	T. M. E. R. & L. Co., Commission's charge.	Per cent of total.	Urban Milwaukee.	Per cent of total.
1908.....	\$773,733.15	85.56	\$766,463.73	84.75	\$751,309.40	83.08
1909.....	830,681.74	85.51	822,363.45	84.66	807,369.22	83.12
1910.....	955,752.93	85.95	961,180.68	85.35	949,200.13	85.27
1911.....	983,592.05	85.96	991,192.76	86.36	977,636.86	85.18

DEPRECIATION ALLOWANCE.

The evidence relating to an allowance for depreciation as a part of the cost of furnishing traction service has been unusually thorough, both counsel for the city and the company exerting every effort towards presenting an exhaustive treatment of the theoretical and practical aspects of the subject. Since its organization in 1897, the company has made provision for a depreciation reserve and recorded and classified its expenditures for replacements. These data and valuation by Clark of date Jan. 1, 1897, and the tentative valuation of the engineer of the Commission as of Jan. 1, 1907, have formed the basis of a careful analysis by the accountants of the actual depreciation of the traction property accruing during the ten year period. The testimony and exhibits presented by the officials of the company as to the actual life of the property in service in Milwaukee and the changes necessary because of obsolescence and inadequacy furnish a valuable history of the development of the traction business. Much has been accomplished also in a clear restatement of the principles underlying the provisions against losses in value. The testimony of respondent's witnesses, Prof. Cooley and Mr. Starrett, has been unusually contributive in this re-

spect. In fact, so thoroughly have the questions of the need, purpose and extent of a depreciation allowance been discussed at the hearings that the differences in the suggested yearly amounts appearing in the briefs of the counsel for the city and counsel for the company are not large. The only matters of dispute are the necessity of increasing future allowances for obsolescence and inadequacy, the treatment of appreciation of land value and accrued interest upon the reserve.

The necessity of a depreciation allowance has been frequently pointed out by the Commission and no extended discussion is necessary at this time.

“Previous decisions have given recognition to the fact that some allowance should be made for depreciation and pointed out the economic necessity of such a charge. It is admitted that, generally speaking, an operating public utility plant is limited in life; that even where current repairs are properly met and the utility efficiently maintained, there exists a loss in value directly dependent upon the length of operation; that such losses are always present, whether a plant be in its initial or last stages of operation; and that such losses are properly borne by the consumers and properly made a charge against the revenues of the company. Such an allowance is in keeping with the provisions of the Utilities Law providing that depreciation be considered in determining reasonable rates.” *State Journal Prtg. Co. et al. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 599. See also *In re Appl. Manitowoc G. Co.* 1908, 3 W. R. C. R. 163, 170; *Hill et al. v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 643.

The reports of the accountants for the city for the ten years ending Dec. 31, 1906, disclose credits to the depreciation reserve for the ten year period aggregating \$2,866,051.58. Of this amount \$2,063,511.16 was contributed by gross earnings of the railway department. Other credits consist of fixed charges and profit and loss on special expense accounts, receipts from the sale of scrap and the transfers from other funds. Charges against the reserve for the ten year period aggregated \$2,272,496.86, leaving a net reserve of \$593,554.72. A detailed analysis of the reserve is given in table 70. As has already been pointed out in the discussion of property value, certain adjustments have been made to both the credits and charges of the depreciation reserve. Items aggregating \$862,062.94 are reported by the accountants to have been charged for new property rather than depreciation. The adjustments to credits ag-

gregate \$105,818.39. Of this amount \$91,019.33 is claimed to be a credit to property account rather than depreciation reserve. The remaining \$14,799.06 are miscellaneous items charged to property which it is alleged should have been charged to depreciation reserve.

The findings of the city's accountants are to the effect that the contributions arising from gross earnings to the depreciation reserve, aggregating \$2,063,511.16 for the ten year period, are excessive and in the revised statement of earnings submitted 8 per cent of the gross earnings, or \$1,734,714.35, is substituted as a reasonable amount. No basis has been disclosed upon which this amount has been computed other than the statement that such a sum is considered sufficient by authorities who have carefully investigated the subject.

TABLE 70.
DEPRECIATION RESERVE.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.
1897-1906 inc.

Italic figures denote debits.

Year.	Depreciation Reserve as Per Company's Books.			Depreciation Reserve as Adjusted by City's Accountants.		
	Yearly credits. <i>a</i>	Yearly charges. <i>b</i>	Net yearly reserve.	Adjustments to yearly credits. <i>c</i>	Adjustments to yearly charges. <i>d</i>	Net yearly reserve as adjusted.
1897.....						
1898.....	\$208,750 00	\$125,985 59	\$82,764 41	\$3,487 00	\$62,862 45	\$142,139 86
1899.....	228,115 94	298,032 34	<i>69,916 40</i>	11,144 82	85,597 62	4,536 40
1900.....	576,554 14	499,704 78	76,849 36	44,632 38	345,206 97	377,423 95
1901.....	228,935 26	193,916 57	35,018 69	13,932 24	68,785 39	89,871 84
1902.....	263,664 42	156,016 76	107,647 66	5,975 99	11,857 42	113,529 09
1903.....	341,711 51	103,404 97	238,306 54	9,104 05	10,722 86	239,925 35
1904.....	324,833 89	127,383 47	197,455 42	9,692 43	14,161 02	201,924 01
1905.....	311,416 83	424,106 89	<i>112,690 06</i>	2,952 43	239,087 27	123,444 78
1906.....	332,064 59	343,945 49	38,119 10	4,897 05	23,781 94	57,003 99
Total.....	\$2,866,051 58	\$2,272,496 86	\$593,554 72	\$105,818 39	\$862,062 94	\$1,349,799 27

a—Source of Amounts Credited to Depreciation Reserve.

Sales of cars, motors and miscellaneous equipment.....	\$90,381 88
Sales of old fare registers, horses, wagons and stable equipment.....	1,307 00
Sales of machinery lighting department.....	611 67
Rebates on copper purchases.....	12,931 12
Rebates and allowances on new cars.....	110 63
Old material placed in stock supplies.....	3,402 16
Hauling slag and telephone poles.....	1,751 43
East Water street bridge wreck.....	528 06
Mead street fire loss.....	75 99
Adjustment of stock supplies.....	23,955 79
Fixed charges to	
<i>a.</i> Utility service.....	14,400 00
<i>b.</i> Stable expense.....	7,200 00
<i>c.</i> Operation of gravel pits.....	3,105 00
<i>d.</i> Operation of stone crusher plant.....	1,440 00
<i>e.</i> Cast welding.....	936 00
<i>f.</i> Brass foundry.....	190 00
Profit or loss on:	
<i>a.</i> Utility service.....	33,266 24
<i>b.</i> Stable expense.....	5,764 06
<i>c.</i> Operation of gravel pits.....	21,020 73
<i>d.</i> Operation of stone crusher plant.....	4,803 33
<i>e.</i> Cast welding.....	2,818 29
<i>f.</i> Brass foundry.....	136 98
<i>g.</i> Slag.....	11,192 70
<i>h.</i> Pay roll adjustment.....	141,648 19
Sundry credits.....	372 26
Transferred from income railway.....	2,063,511 16
Transferred from income lighting.....	48,000 00
Transferred from amortization reserve.....	360,000 00
Transferred from depreciation reserve power plants.....	5,464 87
Total.....	\$2,866,051 58

b—Detail of Charges Made.

Reconstruction of track and overhead.....	\$974,481 99
Purchase and construction of new equipment (rolling stock)	785,467 83
Purchase of horses, wagons and stable equipment.....	12,471 75
Purchase and construction of utility equipment.....	39,224 61
Purchase of office implements and apparatus.....	1,183 00
Reconstruction of pole lines.....	66,565 20
Fare registers purchased and exchanged.....	11,403 77
Charges and additions to buildings.....	11,053 16
Removing track and overhead..	22,819 32
Grading, paving and resurfacing	183,786 64
Welding joints.....	58,768 48
Lighting department.....	11,449 57
Underground reconstruction.....	16,278 39
Stock supplies.....	18,574 89
Purchase of railway tools and implements.....	1,340 98
Transferred to depreciation reserve lighting.....	39,283 62
Settlement of lumber contract.	500 00
Testing electrical condition.....	1,721 79
Maintenance of way and structures.....	6,667 00
Removing dispatching and telephone system to Public Service Building.....	2,670 06
Removing batteries to Public Service Building.....	6,784 81
Total.....	\$2,272,496

a Petitioners exhibit 4, page 6.
b Petitioners exhibit 4, page 5.
c and *d* Petitioners exhibit 4, page 7.

While no material revision is made in the adjusted record of depreciation charges and credits summarized in table 70, question is raised as to the adequacy of 8 per cent of gross earnings as an allowance for depreciation. It is noted that this amount has not been accepted by the city in its brief.

Estimates of the company's accountants have been arrived at by two methods: first, by a comparison of inventories, and second, by the application of assumed lives to the valuation of the various properties at the end of each year. Under the first method company's accountants have assumed an existing value aggregating \$4,000,000 on Jan. 1, 1897, added all expenditures upon property in new additions and replacements, aggregating \$7,277,146.18, deducted all credits for the sale of property, aggregating \$458,253.59, and found the difference between the total of these items, or \$10,818,892.59, and the value of the property in existing condition, Jan. 1, 1906, as appraised by the engineers, aggregating \$7,161,926.00. The balance, or \$3,656,966.59, is estimated as the actual depreciation during the ten years, or \$365,696.65 per annum.

While this method has much to commend it and has been used by the Commission in checking its calculations, the results obtained are open to the objection that both the additions to the property and the appraisal of the engineers have been materially revised and that both these adjustments will bring about substantial deductions in the resulting reserve for depreciation.

By the second method the company's accountants find a total depreciation for the ten year period of \$3,752,038.07, or \$375,203.81 per annum. This amount is arrived at by compiling rates of depreciation as estimated by various authorities and multiplying the cost of property found at the end of each year by a weighted average of these percentages. A tabulation of the factors used is given in table 71. Objection has been raised to the competency of this testimony by the city and as a result additional and corroborative evidence has been presented by the company.

TABLE 71.
 RATES OF DEPRECIATION SUGGESTED AS APPLICABLE TO ELECTRIC STREET RAILWAY PROPERTIES AND RATE APPLIED BY COMPANY'S ACCOUNTANTS IN THEIR CALCULATIONS.

	J. I. Beggs.		Chicago Union Traction Co.								Third ave. N. Y.	Cardiff (England) company.	Glass-gow tram-ways.	Officials of T. M. E. R. & L. Co.	Weighted average adopted by accountants in their estimate.		
	Life.	Rate.	Engineer of valuation staff of R. R. Commission.		Adopted by company.		Recommended by Stone & Webster.		Rate.	Rate.						Rate.	Rate.
			Life.	Rate.	Life.	Rate.	Life.	Rate.									
Tracks and Roadway:																	
Track ties, bonding, etc.	12	8.5%			12.85	7.75%	13.86	7.2%	8.-9.0%	5.0%	8.0%	7.5%	7.5%				
Special work and installation	12	8.5	8-14	12.5-7%	12.85	7.75	13.86	7.2		5.0		12.0	8.0				
Paving and grading	12	8.5								5.0		10.0	8.0				
Granite block					16.0		16.0										
Cobble stone					25.0	10.4	26.0	10.4									
Asphalt					10.0		10.0										
Ballasting	12	8.5								5.0		5.0					
Rolling Stock:																	
Bodies and trucks	15	6.66	15-20	6.66-5	20.0	5.0	20.0	5.0	5.0	10.0	7.5	7.5	5.0				
Electrical equipment	12	8.5			12-15	8.5-6.66	12-15	8.5-6.66		10.0	7.5	6.0	7.5				
Fenders, registers										10.0		10.0	10.0				
Lights, clocks etc.																	
Overhead System:																	
Poles	12	8.5									3.06	7.5	5.0				
Iron			40.0	2.5	20.0	5.0	20.0	5.0									
Cedar			12-15	8.33-6.66													
Wiring, fittings etc.	12	8.5			7-10	14-10	7-10	14-10			3.06	7.5	10.0				
Underground system:																	
Conduits									3.0	3.0	3.06	2.0	2.0				
Feeders, cables etc.			25.0	4.0					3.0	3.0	3.06	5.0	4.0				
Power Plant Equipment:									4.0								
Engines			15-20	6.66-3	15.0	6.66	20.0	5.0		5.0	5.0	5.0	5.0				
Boilers			12-15	8.5-6.66	15.0	6.66	20.0	5.0		5.0	5.0	7.5	7.5				
Heaters, economizers, pumps, etc.					15.0	6.66	20.0	5.0		5.0	5.0	5.0	7.5				
Piping			20.0	5.0	15.0	6.66	20.0	5.0		5.0	5.0	7.5	5.0				

Power Plant Equipment—Con.												
Traveling crane.....				15.0	6.66	20.0	5.0	.....	5.0	5.0	3.0	5.0
Beltng, shafting, ropes, etc.....				15.0	6.66	20.0	5.0	.....	5.0	5.0	7.5	5.0
Coal and ash conveyors and hoist wagons.....	5.0	20.0	15.0	6.66	20.0	5.0	.....	5.0	5.0	10.0	5.0	5.0
Dynamos.....	20.0	5.0	15.0	6.66	20.0	5.0	.....	5.0	5.0	7.5	5.0	5.0
Generating apparatus.....	20.0	5.0	15.0	6.66	20.0	5.0	.....	5.0	5.0	5.0	5.0	5.0
Storage battery.....				15.0	6.66	20.0	5.0	.....	5.0	5.0	10.0	10.0
Switchboard and cables.....	50.0	2.0	15.0	6.66	20.0	5.0	.....	7.5	5.0	5.0	5.0	5.0
Shop Tools and Machinery.....	10-30	10-3.33	20.0	5.0	20.0	5.0	.....	7.5	7.5	7.5	7.5	7.5
Buildings and Improvements:	50.0	2 0	50.0	2.0	50.0	2.0	2.0	2.5	2.5	3.0	2.0	2.0
Power plants.....			20.0	5.0	20.0	2.0	.....	.....	.....	.....	.....	.....
Telephone System.....										7.5	7.5	7.5
Furniture and Fixtures.....									7.5	5.0	5.0	5.0
Engineering and Superintendence..											5.0	5.0
Miscellaneous.....												5.0

NOTES:— The rates mentioned by Mr. Beggs were those quoted by him in the *Milwaukee Railway Act, Fare Case* in 1897. The rates appearing in the column headed "Engineer of valuation staff" are the rates quoted by W. D. Pence, the engineer who had charge of the valuation of The Milwaukee Electric Ry. & L. Co's property. The rates recommended and adopted in the case of the Chicago Union Traction Co. are referred to at length in the *Electric Railway Review* of Feb. 23, 1907. The rates quoted for the Third avenue, N. Y. R. R. Co. are the rates testified to by Mr. M. G. Starrett and others in the *Franchise Tax Cases* now pending before the supreme court of the state of New York. The rates adopted by the Cardiff (England) Tramway and Lighting Co. are given in the *Electric Railway Review* of Jan. 4, 1903, and in the case of the Glasgow corporation tramways the rates are taken from the annual report of that company for the year ending May. 31, 1907

The estimates of both Prof. Cooley and Mr. Starrett are made independently of the results disclosed by the books of the company and are based upon an assumed average life for the various classes of equipment as applied to a valuation of date Dec. 31, 1906. As corroborating these estimates and those of the company's accountants to which reference has already been made, there was introduced testimony by the general manager of the company, relative to both past experience as to the rate of depreciation and the necessity of increasing such rate for the depreciation accruing within the future.

Mr. Otto M. Rau, superintendent in charge of the electrical works of the respondent company and its predecessor, testified for the most part with reference to the rate of depreciation on overhead system of poles and wires, the underground system of feeders, generating apparatus, substation apparatus, storage batteries, switchboards and cables and telephone system. As the result of witness' experience, the rate of depreciation of poles and fittings, exclusive of trolley wire, is placed at 5 per cent per annum for age and wear, and that of trolley wire at 20 per cent. The entire overhead system is estimated as depreciating at the rate of $7\frac{1}{2}$ per cent per annum. Depreciation on conduits, it is stated, will amount to 2 per cent per annum for age and wear, while that on feeders and cables for the underground system will aggregate 5 per cent per annum. The depreciation upon generating apparatus is placed at 5 per cent, substation apparatus at 5 per cent, storage batteries at 10 per cent, switchboards and cables at 5 per cent and telephone system at $7\frac{1}{2}$ per cent per annum. In addition to these percentages, all of which are for age and wear, the witness estimates an allowance of about 10 per cent per annum on all generating apparatus, substation apparatus, storage batteries, switchboards and cables for the cost of depreciation due to progress in the art and to the growth of the demand for service. Poles, wire and fittings, it is stated, have but a slight depreciation due to these causes. The underground system is subject to inadequacy rather than obsolescence, and this element will probably amount to $2\frac{1}{2}$ per cent per annum.

In support of the claim for additional depreciation, witness points out that the art of switchboard designing has undergone great changes because of the necessity for greater reliability of service. In company's practice switchboards have been repeatedly replaced before the end of their useful life and such

changes will undoubtedly continue. Similar changes have also taken place with regard to the feeder system, Edison tubing, for example, being abandoned for conduit construction. The tendency has been to increase the weight of trolley wire and a gradual transition is noted from a No. 4 Silican bronze wire to No. 0000 wire of about four times the size. While copper trolley wire and cable has a high scrap value, the cost of replacement, it is asserted, will exceed any amount realized from scrap. About 30 per cent of the poles in use are wooden poles with an average life of twelve to fifteen years. The iron poles used are latticed and tubular latticed poles being placed where strain is exceptionally heavy. Iron poles have a life of twenty-five years, although many are now being replaced because of a tendency towards heavier trolley wires.

Mr. C. J. Davidson, chief engineer of the power plant, testified as to the depreciation of power equipment. In the opinion of witness, 5 per cent of the value new should be set aside annually to provide for the depreciation of engines due to age and wear. No estimate was made as to the proper additional percentage to cover the depreciation due to obsolescence and inadequacy. It was pointed out, however, that the present state of the art of engine designing is very unsettled, probably more so than at any time during the past and the gradual transition is noted from units of small capacity of the slow speed Corliss engine type to the steam turbine. The future tendency may be in the direction of the combination of the Corliss and turbine or the gas engine. The annual depreciation due to age and wear of boilers is placed at $7\frac{1}{2}$ per cent of the cost new. Changes in the development of engines, it is pointed out, will result in equally radical changes in the design of boilers. Heaters and economizers, it is stated, are subject to a depreciation of 5 to $7\frac{1}{2}$ per cent per annum because of age and wear. The state of the art with regard to this class of property is now fairly well settled and the element of obsolescence is not as large relatively as in the case of engines. Piping has undergone great changes because of the necessity of higher pressures and higher temperatures. In company's experience there has been a general change from cast iron to steel, particularly in fittings and valves. The depreciation on piping due to age and wear is placed at $7\frac{1}{2}$ per cent. Pumps and condensers depreciate about 6 per cent per annum because of age and wear and in the opinion of the witness at least 5 per cent additional should be allowed to

cover obsolescence because of the present unsettled state of the art. The depreciation due to age and wear on traveling cranes is placed at 3 per cent, on coal and ash conveyors at 10 per cent, on belting, shafts and ropes at $7\frac{1}{2}$ per cent, and on dynamos at $7\frac{1}{2}$ per cent. Because of the interrelation of prime movers, steam plant and auxiliary equipment, the witness estimated that 5 per cent of the cost new of the entire power plant is not an excessive annual provision for obsolescence and inadequacy. It is pointed out by Mr. Beggs that three power plants had been built on the site of the Commerce street plant since the change from horse to electric power, and two on the site of the Oneida and River street plant. Emphasis is placed upon the fact that the greater demands of service and the need of securing the greatest possible reliability of service has been an important consideration in abandoning property before its useful life has been completed.

Mr. Edwin M. Olds, superintendent of rolling stock, testified as to the rate of depreciation for various classes of property under his charge. Depreciation due to age and wear on car bodies and trucks is placed at $7\frac{1}{2}$ per cent, being 8 per cent on car bodies and 4 per cent on trucks. Depreciation of car electrical equipment is placed at about 5 per cent, and that of fenders, registers, head lights, clocks and miscellaneous equipment at 10 per cent a year. These percentages, applied to the entire property classed as car and car equipment, will result in an average depreciation or percentage of from $6\frac{1}{2}$ to $6\frac{3}{4}$ per cent per annum. Office furniture and fixtures depreciate about 5 per cent per annum and shop tools and machinery at about $7\frac{1}{2}$ per cent per annum. Witness stated that the art of car designing and building is in a decidedly unsettled state. Radical changes in the type, size, seating arrangement and carrying capacity are noted as occurring in past years and it is asserted that the future will bring other sweeping changes. The tendency is in the direction of a P. A. Y. E. car, increased size of car, the greater use of steel in construction, and the relative reduction in weight. Changes in the type of car necessarily mean changes in the design of car houses.

Mr. Fred G. Simmons, superintendent of construction and maintenance of way, testified as to the depreciation of track and track structures. Witness placed the depreciation on track, ties and bonding at 7.5 per cent per annum, special work at 12 per cent, paving and grading at 10 per cent, ballast at 5 per

cent, total track and track structures at 7.96 per cent per annum. These estimates would be increased, witness stated, if replacements were undertaken during actual operation or where replacements are hastened because of the repaving of the street by the city. Tracing the development of track structures, the tendency is pointed out in the direction of heavier track. The first electrically operated cars in Milwaukee were run upon light rails laid upon wooden stringers. This type was superseded by a 5 inch, 58 lb. girder rail on gravel or cinder ballast. This construction, in turn, has given way to rails of 60 and 72 lbs. Company's present standard construction consists of a 95 lbs. Shanghai T rail, 7 inches high, constructed upon a 6 inch bed of concrete.

TABLE 72.

ESTIMATED ANNUAL RATES OF DEPRECIATION APPLICABLE TO THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.
 Data furnished by heads of departments and lives used in computation of annual depreciation reserve by Cooley, Starrett, and the Railroad Commission.

	Rau.		Davidson.		Olds.		Simmons.		Cooley.		Starrett.		Railroad Commission.	
	Life.	Rate %	Life.	Rate %	Life.	Rate %	Life.	Rate %	Life.	Rate %	Life.	Rate %	Life.	Rate %
Roadway and paving.....														
Tracks, ties bonding.....							12½	7.95					13.16	7.60
Special work and installation.....							14	7.5	12½	8	12½	8	12.5	8.0
Paving.....							8	12.					10.	10.
Ballasting.....							10	10.	10	10	12½	8	10-12.5	10-8
							20	5					10-12.5	10-8
Rolling Stock.....														
Bodies and trucks.....					15	6½-6¾			12½	8	16¾	6	18.42	5.43
Electrical equipment.....					14	7½							15-20	6.7-5
Fenders, registers, lights, etc.....					16¾	6							10-20	10-5
Car trucks.....					10	10							15	6.7
Car bodies.....					25	4							15-20	6.7-5
					12½	8							15	6.7
Transmission and Distribution.....														
Overhead System.....	14	7.5											30.63	3.33
Poles.....	20	5							1½	8	14	7		
Iron.....														
Cedar.....													40	2.5
Wiring, fittings etc.....													20	5
Underground system.....	5	20											5-20	20-5
Conduits.....														
Feeders, cables, etc.....	50	2											50	2
	20	5											15-25	6.7-4

RAILROAD COMMISSION OF WISCONSIN.

Power Plant Equipment.....							12½	8	20	5	21.01	4.76	
Engines.....			20	5							15-20	6.7-5	
Boilers.....			14	7.5							15-20	6.7-5	
Heaters, economizers, pumps.....			10-14	5-7.5							15-30	6.7-3.3	
Piping.....			14	7.5							20	5	
Traveling crane.....			33	3							50	2	
Belting, shafting, ropes, etc.....			14	7.5							10-20	10-5	
Coal and ash conveyors.....			10	10							15	6.7	
Dynamos.....			14	7.5							15-20	6.7-5	
Generating apparatus.....	20	5									10	10	
Storage batteries.....	10	10									15-20	6.7-5	
Switchboard and cables.....	20	5									15-25	6.7-4	
Pumps and condensers.....			10½	6									
Shop Tools and Machinery.....					14	7.5		12½	8	14	7	5-25	20-4
Buildings and Improvements.....					30	3		50	2	50	2	35-75	3-1.3
Power plants.....								25	4			60	1.7
Furniture and Fixtures.....					20	5		12½	8	20	5	20	5
Engineering & Superintendence.....										25	4		
Miscellaneous, Horses, Wagons.....								10	10	20	5	15-20	6.7-5
Telephone System.....	13½	7.5										10-12	10-8.3
Total.....								7.67		5.59	18.6	25.35	

¹Entire distribution system.

²Depreciable property.

Prof. Cooley, witness for the respondent, enumerates the losses in value for which a depreciation reserve is necessary under five headings: (1) Wear and tear and exposure to the elements; (2) accidents such as result from wrecks, destruction by storms and similar causes; (3) inadequacy of equipment; (4) obsolescence of equipment because of resulting changes in the art; (5) changes required to satisfy public demands. Two estimates are made of the annual reserve necessary to offset depreciation, the tentative valuation of railway property by the engineer of the Commission, adjusted by Mr. Cooley so as to aggregate \$9,390,329, forming the basis of both estimates. In the first computation the lives referred to by company's department heads are accepted and applied to the revised values. The cost of reproduction new of paving is depreciated 10 per cent per annum, track 8 per cent, cars 6.75 per cent, electrical distribution system 6 per cent, power plant 6.77 per cent, buildings and structures 3 per cent, office furniture and appliances 5 per cent, tools, implements and machinery $7\frac{1}{2}$ per cent, horses, wagons and miscellaneous 10 per cent. The sum total of such annual estimates of depreciation aggregate \$627,307.24, which will result in a depreciation allowance of 6.68 per cent on the total readjusted valuation of \$9,390,329. In the second computation depreciation rates are used which the witness deems more accurate. Paving is depreciated at 5 per cent per annum, track and track structures at 8 per cent, cars at 8 per cent, electrical equipment at 8 per cent, power plant equipment at 8 per cent, power plant buildings at 4 per cent, other buildings at 2 per cent, office furniture at 8 per cent, and tools, implements and machinery at 10 per cent. On this basis the amount necessary annually to provide for depreciation will aggregate \$720,238, or 7.67 per cent of the total readjusted value of \$9,390,329. Stated in terms of gross earnings, these depreciation rates will aggregate 29.09 and 24.23 per cent, respectively. Reference is made to the Chicago ordinances providing for the establishment of two funds, the 6 per cent fund for maintenance and 8 per cent fund for depreciation, and it is pointed out that for the year 1906 these amounted to 5.1 per cent of the total value of the property of the Chicago City Railway and 4.81 per cent of the total value of the property of the Chicago Union Traction Co. Reference is likewise made to the report upon the Chicago property made in the United States circuit court by Stone &

Webster, involving the North and West Chicago street railway companies. From this report it appears that the total amount for maintenance and depreciation will aggregate 21.77 and 23.70 per cent of the gross earnings, respectively.

Mr. Milton G. Starrett, witness for the respondent, defined depreciation of electric railway property as deterioration of value due to wear, use, obsolescence, inadequacy, and public requirements. He stated that the depreciation due to wear and tear is a matter susceptible of reasonable computation, depending upon the average life of the different parts of the various classes of property which, in turn, are dependent upon the conditions of wear and use. The witness accepted for purposes of computation the total valuation as found by the engineer of the Commission, aggregating \$8,931,315, and applies to these separate values a rate of depreciation of 8 per cent for track, 6 per cent for cars and equipment, 7 per cent for electrical distribution system, 5 per cent for power plant equipment, 2 per cent for buildings, 5 per cent for office furniture and appliances, 7 per cent for tools, implements and machinery, 5 per cent for horses, wagons, etc., 8 per cent for paving. The amount of annual depreciation based upon these percentages aggregates \$499,668, or 5.59 per cent of the total cost of reproduction new. In addition to this estimate of depreciation, all of which is for wear and tear, witness would add 1.79 per cent of the 5.59 per cent already computed to cover depreciation due to obsolescence and 0.5 per cent additional to cover depreciation due to inadequacy and public demand. These additions will provide a total depreciation allowance aggregating 7.88 per cent of the cost of reproduction.

The city in its brief attempts an analysis of the depreciation allowance from such facts as are disclosed in the evidence, particularly the various appraisals and the record of capital and depreciation expenditures presented by the city's and company's accountants, and arrives at a depreciation rate for track and electrical distribution system of 5.659484 per cent, a rate for paving of 5.952864 per cent, and a rate for cars and car equipment of 13.0012 per cent for the period 1893 to 1897, and of 3.7761 per cent for the period from 1898 to 1906. The Wells street power plant according to data reviewed from 1894 to 1903 is estimated as depreciating 6.0366 per cent per annum.

Similarly the River street Edison plant investment is estimated as depreciating 5.1044 per cent, the new Oneida street plant 2.8875 per cent, Commerce street plant 5.3075 per cent, Farwell ave. substation 3.008 per cent, and the Kinnickinnic substation as 2.8765 per cent per annum. While no rate for power plants as a class is computed, still by applying the usual method of the city to its estimates of depreciation and investment in all plants combined there results a rate of depreciation of 4.7955 per cent. Buildings other than the Public Service Building and the power plants are estimated as depreciating at a rate of 2.815437 per cent. The Public Service Building is estimated as depreciating 0.8891 per cent, and the miscellaneous property 5.2351 per cent per annum. The appreciation in real estate is estimated for the period 1897 to 1906 at 9.3485 per cent per annum.

The rate of depreciation for the property as a whole according to the analysis covering the years 1894 to 1906, inclusive, is computed to be 5.29 per cent when the appreciation in land is not considered, and 4.82 per cent when such appreciation is deducted from the depreciation on other property. Aside from the exceptions noted, these rates are based upon accounts and appraisals for the period 1894 to 1906, inclusive.

In determining the rate of depreciation for each class of property the general method followed by the city's brief is to divide what it computes to be the actual depreciation, accruing during the period to be covered by the rate, by the aggregate of the average investment on hand each year during that period. The depreciation accruing is computed by adding the cost of property replaced, minus the scrap value, to the difference between the value new and existing condition of the property in the inventory, and by deducting that portion of the depreciation computed to have accrued prior to the beginning of the period to be covered. The average investment on hand each year is obtained by adding to the investment, at the beginning of the year, one-half the net additions during the year.

The values used are obtained from the records of actual investment in the property, the appraisal of Clark, as of Jan. 1, 1897, as slightly modified by the city's brief, the tentative appraisal of the Commission's engineer of date Jan. 1, 1907, certain inventories of cars and car equipment introduced in evidence by the city, and from testimony submitted in the circuit court case.

The general fallacies already noted in examining the city's brief's figures of investment on Jan. 1, 1897, and during the ten year period ending Dec. 31, 1906, will apply to these estimates of depreciation. There seems no ground for many of the assumptions made in estimating the property used and useful for electric traction as distinct from mule service prior to Jan. 1, 1897. The assumptions, likewise, that appraisals have been made upon a similar unit cost basis and that investment costs and reproduction values are identical is not borne out by a careful checking of the details. A review of the methods followed in determining the depreciation on cars and car equipment, and appreciation of real estate may serve as typical illustrations of the character of the city's estimates and explain why these estimates cannot be accepted as a correct statement of facts in determining the cost of traction service.

The rate of depreciation on cars and car equipment is computed separately for two periods in the city's brief. The first, or experimental period, extends from Jan. 1, 1893, to Dec. 31, 1897. During this period it is stated that the electric railway business was in its experimental stages and that the rolling stock was unsuited for electric traction, being in the main transformed horse cars. As a result there occurred an unusually high rate of depreciation having no necessary connection with the depreciation at the present time. By the beginning of the second period, arbitrarily fixed at Jan. 1, 1898, it is asserted that the needs of the business had become sufficiently evident and the type of cars sufficiently standardized to warrant the assumption that the rolling stock will probably not be abandoned until worn out. Speaking generally, the city's brief maintains that the depreciation which has accrued on cars and car equipment during the history of the company will be represented by the total of three elements: first, the value of cars and car equipment which have been purchased and discarded or disposed of, minus the amount received from the sale of such discarded equipment or scrap; second, the loss in value of existing equipment due to wear and tear, action of the elements, obsolescence, inadequacy, or other causes; third, the replacements which have not resulted in increasing the number of equipments in the inventory or increasing the original value thereof.

It being assumed from a comparison of the city's accountants' inventories, the Clark appraisal, and the company's exhibits that practically all of the cars purchased prior to 1897 were still owned by the company on Jan. 1, 1897, the amount of depreciation accruing under the first element is computed as follows: It is stated, that by Dec. 31, 1906, all of the rolling stock in the inventory of Jan. 1, 1897, had disappeared except 146 cars, which, on the assumption that these were the highest type of the class on hand Jan. 1, 1897, are valued by the city's brief on the basis of Clark's unit prices at \$275,750. The difference of \$242,485 obtained by deducting this from Clark's total appraisal of cars on hand Jan. 1, 1897, or \$518,235, is estimated to be the value of such cars which disappeared from the inventory prior to Dec. 31, 1906. To this is added \$12,350, the cost of five cars purchased subsequent to Jan. 1, 1897, which had disappeared from the inventory prior to Dec. 31, 1906, and from this sum there is deducted \$87,735.97, being the total of credits to the construction account and depreciation reserve for car equipment disposed of within the period 1898 to 1906. The resulting accrued depreciation under the first element aggregates \$167,099.03.

The depreciation under the second element is computed by applying the condition percentage, 25.51 per cent, or ratio between the cost new and existing condition of the tentative appraisal of the Commission's engineer of date Jan. 1, 1907, to the aggregate of Clark's appraised value, Jan. 1, 1897, amounting to \$518,235 plus the appraised book value of cars and equipment secured between 1897 and 1906, \$1,717,544.59, minus the value of cars and car equipment already disposed of, or \$254,835. Applying the above condition percentage to this sum total, or \$1,980,944.59, results in an estimated accrued depreciation under the second element of \$505,338.96.

The depreciation under the third element is determined from an examination of the testimony and of the charges to the depreciation reserve. It is stated that \$13,917.62 of such charges appear to be for replacements.

The total accrued depreciation on cars and car equipment from all three sources is thus computed to be \$686,355.61.

The apportionment of this total depreciation over the two different periods is based upon a further comparison of inventories and appraisals. The accrued depreciation on Jan. 1, 1898,

on the cars and equipment owned Jan. 1, 1897, is assumed to be the difference between the value existing condition as of the former date appearing in the inventory of the city's accountants, or \$194,510, and the value of the Clark appraisal of Jan. 1, 1897, and amounts to \$323,725. This assumption is supported by a statement that the property valued in each case was apparently the same with the exception of twenty cars purchased in 1897. The accrued depreciation on Jan. 1, 1893, is fixed at \$45,452.87 by an arbitrary assumption that the cars on hand at that date had depreciated 50 per cent of their computed cost of \$90,905.75. The depreciation accruing within the "experimental" period is thus computed at \$278,272.13. The computation of the investment each year is based on the Clark appraisal of Jan. 1, 1897, and the yearly charges for cars purchased, obtained from various sources and of doubtful accuracy. Dividing the accrued depreciation, or \$278,272.13, by the aggregate of the average investment during each year, or \$2,140,355.24, an average yearly rate of 13.0012 per cent is obtained for the period Jan. 1, 1893, to Dec. 31, 1897.

The remainder of the total depreciation within the history of the company, or \$362,630.61, is assumed to be the depreciation accruing during the period extending from Jan. 1, 1898, to Dec. 31, 1906. Dividing this by the aggregate of the average investment during each year of the period, or \$9,603,287.01, an average yearly rate of depreciation of 3.7761 per cent is obtained.

For both periods combined the accrued depreciation is \$640,902.74, and when this is divided by the aggregate of the yearly investments, \$11,743,642.25, a rate is obtained of 5.457443 per cent.

The appreciation of real estate is computed as follows: The city's brief contends that, as the purpose of a depreciation reserve is to keep the investment intact, it should be based upon the whole investment, covering only the net loss due to wear and age which alone can be considered a part of the cost of service. It is, therefore, contended that the best method to deal with the question of real estate appreciation is to deduct it from the depreciation on other property in determining the depreciation on the whole investment.

The value of land devoted to railway purposes on Jan. 1, 1907, is estimated by the city's brief by apportioning each item

in the appraisal of the Commission's engineer on a revised basis. The cost of land held on Jan. 1, 1897, is assumed to be the average of the two valuations made by Mr. Clark, and the investment in land acquired since is assumed to be the purchase price. The investment in the Commerce street power plant site, purchased prior to 1897 but first used for railway purposes during the ten years ending Dec. 31, 1906, is computed on a basis of comparison of the Clark and the engineer's valuations, and is assumed to have been made in 1901 when the construction of the new Commerce street plant was begun.

The appreciation in land is then computed only for the ten years 1897 to 1906, by subtracting the railway investment, obtained as described, from the value as of Jan. 1, 1907, and the rate of appreciation of 9.3485 per cent is obtained by dividing the difference by the aggregate of the average investment value each year.

The methods described above for estimating depreciation and appreciation of cars and real estate are not exceptional. Similar arbitrary assumptions are used in computing other rates. The rate for paving rests upon the supposition that the city bears the entire expense of replacing all paving when worn out and that the cost of paving bore the same ratio to the cost of track construction prior to 1897 as since. The rate for track is based upon arbitrary estimates for wear prior to 1897. The rate for miscellaneous property rests upon the supposition that no additions were made from 1894 to 1896, inclusive.

Aside from the arbitrary assumptions which seriously invalidate the conclusions reached, it is to be noted that both the Clark appraisal and the tentative valuation of the Commission's engineer have been materially revised. Similarly necessary readjustments have been made in the estimate of property additions for the ten year period ending Dec. 31, 1906. The most serious objection, however, to the city's basis is the use of the difference between the cost new and existing condition in the engineer's appraisal as measuring the depreciation for a straight line rate. This existing value follows a curve intended to represent the actual decline in value, the decline increasing in rate with the age of the property. Any straight line rate of depreciation calculated on this basis, therefore, would not make sufficient allowance for the depreciation which will ultimately accrue upon the property still in use.

The total estimate of the city's brief of net depreciation for the year ending Dec. 31, 1906, aggregates \$321,679.08 and will amount to 4.656 per cent of the average value of depreciable property during 1906.

The city contends that only that portion of the depreciation is a part of the cost of service which lessens efficiency and that, therefore, obsolescence is not an element to be considered since it does not increase the cost of the product. Objection is raised to the estimates made by the heads of departments upon the ground that the costs of renewal on which they are based represent the installation of heavier and more expensive construction and include, therefore, an addition to property value not properly chargeable to depreciation reserve, and that no allowance has been made for the amounts realized from the sale of scrap or superseded machinery. It is urged that only the depreciation due to wear and tear should be compensated for as a part of the cost of service, since the installation of more efficient types of apparatus will enable reductions in operating expenses. It is claimed that the line between depreciation and maintenance has not been closely drawn and that this fact must be considered in determining what allowance must be made in addition to maintenance expenditures to provide for the upkeep of the property. The claim is also made that the unexpended balances in the depreciation reserve should be credited with interest annually, since these unexpended balances are available for use for other purposes. It is claimed that such an unexpended reserve might be invested in bonds to net from 4 to 4½ per cent, or, if placed in the bank would draw at least 2 per cent. It is claimed that if company is permitted to accumulate this fund upon a no interest basis, that the investment upon which a rate of return is to be allowed should not exceed the value existing condition, since the company has the benefit of the use of the fund representing the difference between the value existing condition and value of cost of reproduction new.

Counsel for company point out the need of a liberal depreciation reserve in order to insure good service, to keep the apparatus at a high state of efficiency, care for the constantly growing needs and demands of the community, and provide a margin of safety for possible errors in computation. It is urged that in consideration of all circumstances an allowance of 6 per cent upon the physical property would not be unreasonable. Considerable objection is raised to the sinking fund method of esti-

mating the depreciation reserve, it being generally the contention of the company that the amount of depreciation should not be reduced by the total amount of anticipated interest upon a sinking fund basis. It is pointed out that the sinking fund basis rests upon the assumption that the reserve will be continued intact and that constant annual contributions will be made. The necessity of frequent replacements and the fluctuations of net earnings are pointed out as factors making such an accumulation impossible. It is conceded, however, that the interest which can be depended upon is the amount earned upon the annual credit balances in the depreciation reserve, but it is contended that this reserve cannot be expected to earn interest except in the nature of a call loan, and should not be taken at over 3 per cent.

The estimates of a proper depreciation allowance to be added to the cost of furnishing service in this case have been based upon methods employed and described at length in previous cases.

As illustration of such methods there is summarized in table 73 the cost of reproduction, scrap value, and depreciable value of the tangible property of the city company separated into life groups, together with the estimated annual reserve properly set aside each year upon a straight line and a 2 per cent and 4 per cent sinking fund basis to cover anticipated depreciation.

It will be noted that for the total plant the composite life in years will aggregate from 16.70 years to 16.93 years, depending upon the interest basis employed. In these computations, land, stores and supplies, and a 12 per cent addition to cover interest, maintenance and contingencies have not been included. The lives of the separate units of equipment are those indicated in table 72 and are similar to the life tables used by the engineering staff in determining the present value of property. They are designed to cover wear and tear and an allowance for inadequacy and supersession where these elements are reasonably certain of occurrence.

Generally speaking, these lives compare favorably with those indicated in the testimony of the heads of the departments and Messrs. Cooley and Starrett. The largest differences occur in the estimated life of power plant equipment and in the life of buildings. Further investigation upon the part of the engineer, however, shows that the figures here used represent an estimate

of life based upon a large number of instances concerning which the appraisers have gathered data and represent the normal life after providing for maintenance.

TABLE 73.
ANNUAL DEPRECIATION RESERVE.
THE MILWAUKEE ELECTRIC RAILWAY & LIGHT COMPANY.
Railway Plant Only. Jan. 1, 1910.
DEPRECIABLE PROPERTY.

Class.	Life.	Cost of reproduction, new.	Scrap value.	Cost of reproduction new less scrap.	Annual Reserve.		
					No per cent basis.	2 per cent basis.	4 per cent basis.
A.....	5	\$69,075	\$28,670	\$40,405	\$8,081	\$7,762	\$7,459
B.....	10	688,520	41,181	647,339	64,734	59,101	53,922
C.....	12	48,180	6,001	42,179	3,513	3,142	2,805
D.....	12½	2,173,767	241,985	1,931,782	154,543	137,736	122,282
E.....	15	1,025,933	36,539	989,394	65,896	57,187	49,370
F.....	16	24,579	10,701	13,878	867	744	649
G.....	18	30,234	749	29,485	1,636	1,377	1,147
H.....	20	2,225,949	245,749	1,980,200	99,009	81,386	66,534
I.....	25	663,880	152,837	511,043	20,442	15,944	12,265
J.....	30	5,904	296	5,608	187	138	99
K.....	35	17,572	.....	17,572	501	351	248
L.....	40	84,832	9,424	75,408	1,885	1,251	792
M.....	50	359,877	.....	359,877	7,197	4,246	2,340
N.....	60	185,504	.....	185,504	3,079	1,614	779
O.....	75	619,500	.....	619,500	8,240	3,593	1,363
Total.....	.....	\$8,223,306	\$774,132	\$7,449,174	\$439,810	\$375,572	\$322,054
Composite life, years.....	.....	.....	.....	.....	16.93	16.87	16.70

The annual reserves necessary for the separate classes of property and covering both the city and traction company are summarized in table 74. The annual depreciation accruing upon a no interest basis will aggregate \$439,810 or 4.4886 per cent of the total appraised cost new, and this amount is properly increased 12 per cent if allowance is to be made for overhead additions to tangible property. Upon a 2 per cent sinking fund basis such a reserve will aggregate \$375,572.

TABLE 74.
 COST OF REPRODUCTION NEW, DEPRECIABLE VALUE, AND ANNUAL RESERVE REQUIRED TO COVER DEPRECIATION.
 THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.
Railway Property.—Based upon Engineers' Appraisal.—Jan. 1, 1910.
 T. M. E. R. & L. Co.

Department.	Cost of reproduction.	Depreciable value.	Per cent of total.	Life, years.	Annual reserve.			Per cent of annual reserve to total cost.		
					4%	2%	No %	4%	2%	No %
Roadway and paving.....	\$2,850,685	\$2,561,804	89.86	11.81	\$174,073	\$194,567	\$216,858	6.11	6.82	7.61
Transmission and distribution	1,150,935	866,439	75.28	22.61	24,975	30,868	38,327	2.17	2.68	3.33
Rolling stock and equipment.....	2,402,549	2,265,717	94.30	17.35	93,002	110,369	130,422	3.87	4.59	5.43
Power plant equipment.....	815,601	751,668	92.16	19.36	26,493	32,140	38,824	3.25	3.94	4.76
Buildings, fixtures and grounds.....	1,003,546	1,003,546	100.00	65.00	3,555	7,694	15,438	.35	.77	1.54
Total.....	\$8,223,306	\$7,449,174	90.59	16.93	\$322,054	\$375,572	\$439,810	3.92	4.57	5.35

M. L. H. & T. Co.

Department.	Cost of reproduction.	Depreciable value.	Per cent of total.	Life, years.	Annual reserve.			Per cent of annual reserve to total cost.		
					4%	2%	No %	4%	2%	No %
Roadway and paving.....	\$3,212,319	\$2,036,065	63.38	17.47	\$33,455	\$98,692	\$116,559	2.60	3.07	3.63
Transmission and distribution	731,033	487,611	66.70	18.28	18,684	22,355	26,661	2.56	3.06	3.65
Rolling stock and equipment.....	789,179	756,683	95.89	17.34	31,090	36,903	43,603	3.94	4.68	5.52
Power plant equipment.....	258,644	235,253	90.96	19.60	8,139	9,907	12,000	3.15	3.83	4.64
Buildings, fixtures and grounds.....	122,097	122,097	100.00	44.79	1,033	1,714	2,726	.85	1.40	2.23
Total.....	\$5,113,272	\$3,637,709	71.14	18.05	\$142,405	\$169,571	\$201,550	2.79	3.32	3.94

From an examination of the book values and various depreciation computations submitted in evidence the conclusions of fact relative to the depreciation reserve properly made a part of the cost of furnishing traction service on the part of The Milwaukee Electric Railway and Light Company may be summarized as follows:

1. The difference in the physical value cost of reproduction new and cost of reproduction existing condition upon Jan. 1, 1910, aggregated \$2,563,175, table 23.

2. According to the company's books, the credit balance to the depreciation reserve on Jan. 1, 1910, aggregated \$1,082,909.04. When corrections are made the reserve will be increased \$756,244.55, making a total adjusted depreciation reserve, of date Jan. 1, 1910 of \$1,839,153.59. This readjusted amount is substantially corroborated by the company's accountants, although some minor adjustments of debit and credit allowances are made in the latter's estimate. That portion of the total adjustment, or \$756,244.55, affecting the property account has already been detailed in table 17.

3. A reserve based upon 4.4886 per cent if consistently applied to company's physical valuation since 1897 would have yielded total credits from operating expenses aggregating \$5,010,516.09, as against the \$3,974,932.16 actually credited to depreciation reserve by the company, and would have increased the unexpended or net credit reserve from \$1,839,153.59 to \$2,874,737.52.

4. In estimating the addition properly made to the operation expenses to care for depreciation, consideration must be given to that portion of credits which have already been made to the depreciation reserve, arising from special accounts which have already been contributed through operating expenses. These amounts aggregated \$21,600.36 in 1908; \$30,815.98 in 1909; \$30,912.00 in 1910; and \$30,912.02 in 1911.

5. The yearly credit balance in the reserve is undoubtedly entitled to some interest allowance and an examination of the company's past experience in handling the depreciation reserve leads to the conclusion that these yearly unexpended surpluses are considerable. Under these circumstances an average interest allowance of about 2 per cent would not be unreasonable, and this will about offset the addition of 12 per cent to cover overhead physical values upon a no interest basis.

In consideration of these facts the depreciation allowance for railway service has been placed at \$379,082 for 1908; \$377,717 for 1909; \$408,898 for 1910; and \$434,567 for 1911.

RATE OF RETURN.

The determination of what is a proper rate of return upon the reasonable value of the property is dependent largely upon local conditions which surround the plant and may be expected to vary with each particular case. *Payne v. Wis. Tel. Co. et al.* 1909, 4 W. R. C. R. 1, 63; *In re Appl. North Milwaukee Lt. & P. Co.* 1909, 4 W. R. C. R. 89, 97; *State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 626.

The distinction seems clear that there are two interests represented in the investment, the bondholders seeking a secure and permanent rate of return and the stockholders interested primarily in participating in the control and returns accruing from operation and appreciation of the investment.

“The courts hold, in substance, that the investor is entitled to a reasonable return or reward for his enterprise, his risk, and the devotion of his capital to the service of the public. The return or profit, under this definition, appears to include interest, or the share of the investor, as well as profits, or the share of the entrepreneur. * * *

“If the preceding analysis of interest and profits, or of the part which capital and the employer play in modern production or in the services rendered by public utilities, is even approximately correct, then it also follows that interest proper should include only the amount that is paid for the use of the capital employed; that profits consist of the wages of management, broadly interpreted, of compensation for the risks and responsibilities that must be borne by the employers, and of such other compensation, if any, as may be demanded by the conditions; that each of these elements, in the long run, must be high enough to attract capital and business ability into such utility enterprises; and that it is the duty of the Commission, in passing upon matters in which interest and profits are involved, to determine in each particular case how much is to be allowed for each of these elements.” *Hill et al. v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 751, 764.

Interest is dependent upon the location and nature of the undertaking, the security, the degree of convertibility, the amount of risk, skill and supervision necessary to place the loan, and other factors. In the public utility business it is dependent also upon the competition for available investment resources by

other types of industry. Necessarily the interest rate is less in a well established, well managed undertaking than when the business is new and just being placed upon a paying basis. *Hill et al v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 762; *In re Menominee & Marinette Lt. and Tr. Co.* 1909, 3 W. R. C. R. 778, 793; *State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 629; *In re Fond du Lac W. Co.* 1910, 5 W. R. C. R. 482, 506.

Profit is usually defined as consisting of indemnity for risks assumed by the promotor and reward for the skill of personal management. It is obviously a large part of the cost of production in an undertaking of a new or untried character, or where there is necessity for high skill in purchasing and management of men, or where the industry must be constantly shaped to meet future conditions. Generally speaking, these factors will vary with the extent of the turn-over of the business and may be expected to be greater under competitive rather than under monopoly conditions.

These principles are well established and have been dwelt upon at length by the Commission in previous cases. The inquiry with which we are concerned at this time is the application of such principles to conditions surrounding the investment in Milwaukee.

Reference has already been made to the financial history of the property and advance issue of securities underlying the consolidation and subsequent extension. Company's present bonded indebtedness consists of two issues, one bearing interest at 5 per cent and one at 4½ per cent. This relatively low rate for a Milwaukee industry has been due, in a measure, to the conservative handling of the surplus earnings, company having at all times made provision for depreciation and frequently made additions to its property from earnings. Extensions seldom pay at the start and it has been necessary for the company to branch out into unsettled sections with the expectation of creating traffic and thus recoup its earlier losses. These expectations have in almost every instance been realized, and recognized foresight of the management has undoubtedly played an important part in increasing the attractiveness of the investment.

Counsel for the company in both briefs and argument lay considerable stress upon the necessity for an ample rate of return. It is pointed out that gross earnings are subject to fluctuations dependent upon the prosperity of the community;

that operating expenses have an upward tendency and that as a result net earnings do not evidence the assured stability demanded by investors. The possibility of labor difficulties, the increased bill for injuries and damages, the competition of other interurban companies, the critical attitude of the public, the unreasonable demands for extensions, and risks sustained by the lack of standardization of traction plant are cited as risks which must not be lost sight of in determining interest and profit. Attention is called to the unsettled conditions likely to transpire upon the expiration of the company's franchises in 1934, and the doubtful relief afforded by the Indeterminate Permit Act. The claim is also made that in determining the rate of return for the future, consideration must be had for the losses sustained in the past and commercial risks taken in the selection of a profitable locality. An efficiently operated company, it is contended, must be offered a better rate of return than a poorly operated company, if good management is to be rewarded and not penalized.

Undoubtedly these factors must be taken into consideration and given such weight as their importance will justify. The increases in operating expenses, especially the expenses for labor, is marked, but is offset by the increased number of passengers per car-hour. Some noticeable slack is noticed in the increase in gross earnings during the panic year 1907, but these conditions were general and extend to other utility businesses. Compared with competitive enterprises, the stability of earnings during panic years is marked. The risk of depreciation, damage suits, and fire are provided for with what past experience would indicate to be liberal reserves.

A feature of considerable importance is the rate of return to efficient management. In determining the return to the management some allowance should be made in some manner for special efficiency. To deny this is to take away one of the greatest incentives to economy.

The question of compensating for past losses has already been considered as an element in estimating going value. The rate of earnings upon the property used and useful, with which the present case is concerned, must be determined with reference to present and not past conditions.

It appears that an allowance for interest of from 5 to 6 per cent cannot be said to be unreasonably low to compensate for the cost of securing capital. Such amount is considerably above the figure at which bonds have been disposed of in the past and will care for such discount as it has been necessary to give to make the securities saleable. If to this is added an allowance of from $1\frac{1}{2}$ to 2 per cent to cover profits, the total rate of return is sufficient to cover such risks as are evidently inherent in the business and for which the owners are entitled to compensation.

SURPLUS AVAILABLE FOR RETURN UPON THE INVESTMENT.

Where the results of respondent company's apportionments of operating expenses between the city and traction companies are compared with those found by the Commission and the adjustments made to reserves and the depreciation allowance, it is noted that the surplus available for return upon the investment in 1909 is increased from \$1,116,625.34 to \$1,273,778.75. Of this amount \$717,546 is claimed as a $7\frac{1}{2}$ per cent return upon an investment of \$9,567,284, leaving an excess of \$556,232.45.

Upon the basis of the revised income account for 1908 the surplus is estimated at \$1,119,220.41, as against the company's figure of \$1,028,766.16. Of this amount \$703,757.85 is claimed as a $7\frac{1}{2}$ per cent return upon an investment of \$9,383,438, leaving an excess of \$415,462.56.

Upon the basis of revised income accounts for 1910 the surplus is estimated at \$1,263,489.35, as against company's figure of \$1,047,666.47. Of this amount $7\frac{1}{2}$ per cent upon an investment of \$10,300,000, or \$772,500, is properly deducted, leaving an excess of \$490,989.35.

Upon the basis of the revised income account for 1911 the surplus is estimated at \$1,436,847.61, as against company's figure of \$1,209,978.58. Of this amount \$817,566.67 is claimed for a $7\frac{1}{2}$ per cent return upon an investment of \$10,900,889, leaving an excess of \$619,280.94.

The detailed summary upon which these surpluses are based is given in table 75.

TABLE 75.

SUMMARY OF ANALYSIS OF TOTAL TRACTION COSTS OF OPERATION.

SHOWING COMPANY'S AND COMMISSION'S APPORTIONMENT AS BETWEEN THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

	Company.					Commission.				
	Total.	T. M. E. R. & L. Co.	Per cent.	M. L. H. & T. Co.	Per cent.	Total.	T. M. E. R. & L. Co.	Per cent.	M. L. H. & T. Co.	Per cent.
<i>1908.</i>										
Revenues.....	\$3,953,652.13	\$3,223,179.82	81.52	\$730,472.31	18.48	\$3,953,652.13	\$3,223,179.82	81.52	\$730,472.31	18.48
Operating expenses:										
Power plant.....	\$342,959.42	\$290,764.81	84.78	\$52,194.61	15.22	\$342,959.42	\$242,086.27	70.59	\$100,873.15	29.41
Way and structures.....	142,408.87	120,532.78	84.64	21,876.09	15.36	142,408.87	89,201.35	62.64	53,207.52	37.36
Rolling stock.....	194,458.49	164,951.46	84.83	29,507.03	15.17	194,458.49	155,600.14	80.12	38,858.35	19.88
Conducting transportation.....	904,322.96	773,733.15	85.56	130,589.81	14.44	904,322.96	766,463.73	84.76	137,859.23	15.24
Reserves.....	249,836.77	197,882.83	79.20	51,953.94	20.80	195,181.19	153,164.62	78.47	42,016.57	21.53
Total.....	\$1,833,986.51	\$1,547,865.03	84.40	\$286,121.48	15.60	\$1,779,330.93	\$1,406,716.11	79.06	\$372,614.82	20.94
General.....	154,280.47	130,839.85	84.81	23,440.62	15.19	154,280.47	121,974.14	79.06	32,306.33	20.94
Taxes.....	237,219.12	193,390.78	81.52	43,828.34	18.48	245,322.73	196,186.85	79.97	49,135.88	20.03
Depreciation.....	395,365.23	322,318.00	81.52	73,047.23	18.48	516,548.04	379,082.31	73.39	137,465.73	26.61
Total.....	\$2,620,851.33	\$2,194,413.66	83.73	\$426,437.67	16.27	\$2,695,482.17	\$2,103,959.41	78.06	\$591,522.76	21.94
Surplus available for return upon the investment.....	\$1,332,800.80	\$1,028,766.16	77.19	\$304,034.64	22.81	\$1,258,169.96	\$1,119,220.41	88.96	\$138,949.55	11.04
<i>1909.</i>										
Revenues.....	\$4,245,606.87	\$3,466,684.94	81.63	\$779,921.93	18.37	\$4,245,606.87	\$3,466,684.94	81.63	\$779,921.93	18.37
Operating expenses:										
Power plant.....	\$356,681.46	\$302,479.52	84.81	\$54,201.94	15.19	\$356,681.46	\$259,455.86	72.74	\$97,225.60	27.26
Way and structures.....	149,768.22	126,764.85	84.64	23,003.34	15.36	149,768.22	83,342.28	55.65	66,425.94	44.35
Rolling stock.....	215,789.17	182,988.91	84.80	32,800.26	15.20	215,789.17	173,602.39	80.45	42,186.78	19.55
Conducting transportation.....	971,405.85	830,681.74	85.51	140,724.11	14.49	971,405.85	822,363.45	84.66	149,042.40	15.34
Reserves.....	235,079.34	186,334.27	79.26	48,745.07	20.74	198,575.07	156,530.49	78.83	42,044.58	21.17
Total.....	\$1,928,724.04	\$1,629,249.32	84.47	\$299,474.72	15.53	\$1,892,219.77	\$1,495,294.47	79.02	\$396,925.30	20.98
General.....	155,383.72	131,473.85	84.61	23,914.87	15.39	155,383.72	122,788.57	79.02	32,605.55	20.98
Taxes.....	297,262.47	242,667.93	81.63	54,594.54	18.37	251,422.50	197,106.37	78.40	54,316.13	21.60

Depreciation.....	424,660.70	346,668.50	81.63	77,992.20	18.37	541,495.94	377,717.18	69.75	163,778.76	30.25
Total.....	\$2,806,035.93	\$2,350,059.60	83.75	\$455,976.33	16.25	\$2,840,526.93	\$2,192,906.19	77.20	\$647,620.74	22.80
Surplus available for return upon the investment.....	\$1,440,570.94	\$1,115,625.34	77.51	\$323,945.60	22.49	\$1,406,079.94	\$1,273,778.75	90.59	\$132,301.19	9.41
1910.	\$1,649,354.55	\$3,787,323.15	81.46	\$862,031.40	18.54	\$4,649,354.55	\$3,787,323.15	81.46	\$862,031.40	18.54
Revenues.....										
Operating Expenses:										
Power plant.....	\$424,711.82	\$362,184.37	85.28	\$62,527.45	14.72	\$424,711.82	\$308,882.98	72.73	\$115,828.84	27.27
Way and structures.....	250,751.23	213,947.56	85.32	35,803.67	14.68	250,751.23	134,650.25	53.70	116,100.98	46.30
Rolling stock.....	255,245.63	217,926.68	85.38	37,318.95	14.62	255,245.63	208,433.58	81.66	46,812.05	18.34
Conducting transportation.....	1,112,036.14	955,752.93	85.95	156,283.21	14.05	1,113,153.43	961,180.68	86.35	151,972.75	13.65
Reserves.....	257,445.53	203,568.58	79.07	53,876.95	20.93	215,539.91	169,433.06	78.61	46,106.85	21.39
Total.....	\$2,300,190.35	\$1,953,380.12	84.92	\$346,810.23	15.08	\$2,259,402.02	\$1,782,580.55	78.90	\$476,821.47	21.10
General.....	167,334.45	142,431.62	85.12	24,902.83	14.88	167,334.45	132,026.88	78.90	34,307.57	20.51
Taxes.....	325,454.83	265,112.63	81.46	60,342.20	18.54	261,237.08	200,328.37	76.63	60,908.71	23.32
Depreciation.....	434,935.45	378,732.31	81.46	86,203.14	18.54	610,447.62	408,898.00	66.98	201,549.62	33.02
Total.....	\$3,257,915.08	\$2,739,656.68	84.09	\$518,253.40	15.91	\$3,298,421.17	\$2,523,833.80	76.52	\$774,587.37	23.48
Surplus available for return upon the investment.....	\$1,391,439.47	\$1,047,666.47	75.29	\$343,773.00	24.71	\$1,350,933.38	\$1,263,489.35	93.53	\$87,444.03	6.47
1911.	\$4,853,314.41	\$3,963,071.86	81.66	\$890,242.55	18.34	\$4,853,314.41	\$3,963,071.86	81.66	\$890,242.55	18.34
Revenues.....										
Operating Expenses:										
Power plant.....	\$463,303.87	\$395,108.52	85.28	\$68,195.35	14.72	\$463,303.87	\$340,320.42	73.45	\$122,983.45	26.54
Way and structures.....	212,143.54	180,822.33	85.23	31,321.21	14.77	212,146.54	118,427.69	55.82	93,718.85	44.18
Rolling stock.....	166,088.31	167,278.47	85.31	28,809.84	14.69	196,085.31	159,792.36	81.49	36,292.95	18.51
Conducting transportation.....	\$1,144,231.48	\$83,592.05	85.96	160,644.43	14.04	1,147,700.26	991,192.76	86.36	156,507.50	13.64
Reserves.....	233,867.93	189,927.27	80.18	46,940.66	19.82	205,875.02	164,702.71	80.00	41,172.31	20.00
Total.....	\$2,252,643.13	\$1,916,728.64	85.09	\$335,914.49	14.91	\$2,225,114.00	\$1,774,435.94	79.75	\$450,678.06	20.25
General.....	98,033.04	83,330.98	85.05	14,655.06	14.95	98,036.04	78,183.74	79.75	19,852.30	20.25
Taxes.....	339,732.01	277,415.02	81.66	62,316.99	18.34	304,046.52	239,037.57	78.62	65,008.95	21.38
Depreciation.....	584,592.90	475,568.64	84.23	89,024.26	15.77	644,240.63	434,567.00	67.45	209,673.63	32.55
Total.....	\$3,255,004.08	\$2,753,093.28	84.58	\$501,910.80	15.42	\$3,271,437.19	\$2,526,224.25	77.22	\$745,212.94	22.78
Surplus available for return upon the investment.....	\$1,593,310.33	\$1,209,978.58	75.70	\$388,331.75	24.30	\$1,581,877.22	\$1,436,847.61	90.83	\$145,029.61	9.17

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In the disposal of this total surplus, the claim that trainmen's wages are inadequate demands first attention. The petition presented upon behalf of these employes has been carefully examined and our conclusions are based upon the recommendations of the industrial commission, that present wages are somewhat below the standard and that a readjustment of time schedule is desirable. It is not necessary to refer in detail to the extended report of the industrial commission. The net amount of the changes recommended will aggregate about 4 cts. per car-hour, platform time, and would have amounted to \$62,-443.76 for the city company in 1911.

Since July 1, 1912, respondent company has made partial compliance with these recommendations and the increase in wages upon its readjusted basis will not exceed \$35,000 during the first year. Company has in partial operation extended plans involving the employes' welfare, comprising various coöperative and profit-sharing features, the extended expenditure for which it is difficult to estimate at this time.

The claims of suburban passengers to a single fare privilege, all of which are passed upon in the separate cases decided upon this date, will necessitate an extension of the present single fare limits to approximately five miles from the Grand avenue bridge. The losses in revenues sustained by reason of such an extension during 1911 would aggregate \$131,883, and this amount will be relatively increased rather than diminished in the future, owing to the increased proportion of long haul or least profitable passengers stimulated by such an extension of single fare limits.

The burdens imposed by the municipality within the last two years have assumed substantial proportions and will materially affect the city's own application in the present case. It is estimated that the added cost of removal of snow and ice and the sprinkling of streets will aggregate about \$40,000, the larger portion of which is already reflected in the 1911 operating costs. The recent decision of the circuit court upon litigation involving the obligations of the company to place new paving between its tracks will, we note from the carefully prepared report of the engineer, aggregate in yearly interest and depreciation from \$150,000 to \$200,000 per annum, dependent upon the policy of the city department of public

works as to what type of pavement company will be obligated to lay.

The requirements of good service have been made the subject of separate study by the Commission, and there have just been completed the results of twenty-four hour observations at the points of greatest traffic density. The added requirements of the Commission in this respect will involve about 250 additional car-miles per day, and will entail about \$22,143 additional expenditure per annum.

An important service problem involved in electric railway operation is that of electrolysis, or the damage done to metallic structures by the electric current escaping from the rail return. A preliminary investigation of electrolysis conditions in Milwaukee has been made by the Railroad Commission, the results of which indicate that electrolysis damage is taking place, and that improvements and adoption of immediate measures will be necessary to reduce this to a practicable minimum. To what extent this may involve further investment and increase in operating costs can be determined only by future and more exhaustive investigation, which investigation it is the purpose of the Commission to undertake. It is reasonably certain that this item will increase the operating expenses within the near future. These claims upon surplus, excluding the provisions for electrolysis, are likely to aggregate from \$366,470 to \$416,469.

The reduction in fares claimed, aggregating 8 tickets for a quarter, would reduce surplus during 1911 about \$736,714; 7 tickets for a quarter would involve a reduction of about \$400,886; and 13 tickets for 50 cts. will involve a reduction of about \$171,784.

The average excess for the four years applicable to fare reductions after making the deductions already enumerated, which can be estimated with a reasonable degree of certainty, will aggregate from \$104,022 to \$154,021; the average excess for the last two years will aggregate from \$138,665 to \$188,665; the excess for 1911 will aggregate from \$202,811 to \$252,811.

In other words, taking into consideration the claims of employees for standard wages, the claims of the city for fulfillment of franchise and other regulative restrictions, and claims of suburban patrons for extension of service, and the constantly recurring need for service betterment, a reduction of fares has only been made possible in the last year of operation.

DISTRIBUTION OF NET EARNINGS BY LINES.

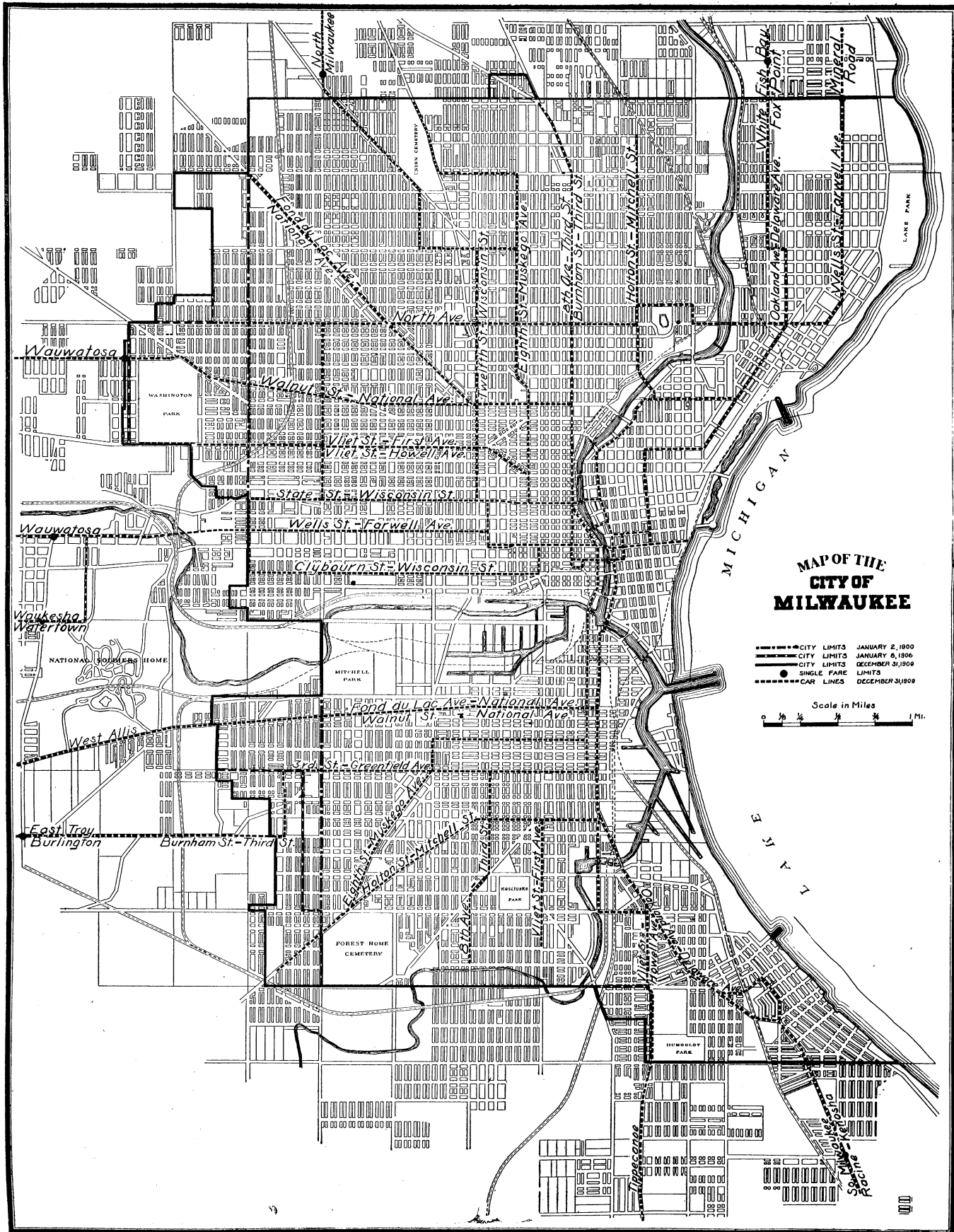
Any findings of fact as to the total cost of service and net return upon the investment of the company would be incomplete without an examination into the traffic conditions upon the separate lines under which the company is operating.

A localization of earnings, car-miles, car-hours, and the number of revenue, transfer and total passengers by separate lines has been kept by the company since its organization, and this with the data disclosed in an extensive investigation of traffic conditions by the engineer of the Commission, showing density and distribution of passengers, may form the basis of a separation of costs of operation by lines. The valuation of the Commission has been so compiled as to make a similar segregation possible of tangible values. With revenues definitely known and the cost of operation, depreciation and return upon the investment determined, it is possible to approximate the earnings of each separate urban, suburban and interurban system. The results obtained, while to be accepted with some qualification, disclose within certain limits what are the profitable and what are unprofitable traffic areas. The passenger counts made also disclose valuable data as to the length of haul of the average passenger and form the basis of the determination of how far the company's business can be profitably extended.

While the complaint in this case relates to the Milwaukee urban traction business only, it is to be remembered that the respondent company operates in addition a suburban and interurban traction business for the Milwaukee Light, Heat and Traction Company. As has already been pointed out, the interrelation of expenditures for operation under the methods of accounting employed is such as to make difficult a segregation of what is Milwaukee urban service as distinct from other service.

Practically speaking, the entire traction plant must be construed as a single system, and with this as a basis there must be estimated what part of the total investment and expense of operation and upkeep it is equitable to charge to any particular service and to either of the two companies.

In the localizations already made between what is **traction** company and what city company expense, it has been pointed out that respondent's earnings and expenses, in addition to



MAP I.

urban business, consist of interurban business within the single fare limits. The distinction made as to what is urban and what city company traffic has been carried out in our analysis of earnings and expenditures by lines. Owing to the fact that there are pending before the Commission several cases involving the extension of single fare limits, these separations have been gone into in considerable detail and it has been deemed expedient to give full publicity to all the facts upon which the Commission has based its order.

Map I shows the location of the urban traction lines in Milwaukee. Such lines are fifteen in number, eight of which do a strictly urban business and seven a suburban and urban business. Based upon the routing in 1910, a brief description may be made of the routing, character, territory served, and the general trend of these earnings.

1. Wells Street—Farwell Avenue.

ROUTE: Beginning at 36th street and Wells, east to 11th street, on 11th street to Grand avenue, on Grand avenue, over bridge on Wisconsin to Jackson street, on Jackson to Ogden, on Ogden to Farwell, on Farwell to North avenue, on North avenue to Lake, on Lake to College, on College to Edgewood avenue, terminus. In going west cars run from Jackson and Mason, on Mason to East Water, on East Water to Wisconsin, over bridge and out. During 1910 from June to Oct. part of the trunk line cars were routed into Lake Park.

The entire line serves a residence district with the exception of portions of Jackson street, Wisconsin street, and Grand avenue, all of which are retail business districts. The passenger earnings on this line have increased from \$264,243 in the year 1898, to \$503,058 in 1910. In comparison with the other urban lines it has the largest amount of annual passenger earnings. The earnings per car-hour were \$2.25 in 1900, increased to a maximum of \$2.94 in 1903, decreased to \$2.57 in 1910, but never fell below the earnings of \$2.25 in 1900.

2. Fond du Lac Avenue—National Avenue.

3. Walnut Street—National Avenue.

ROUTE: The National avenue line has two legs: The Fond du Lac leg begins at 53rd avenue and National, while the Walnut leg begins at Soldiers Home depot and National. From these points both routes run along National to Reed, on Reed over bridge on West Water to Third street, on Third to Walnut, on

Walnut to Fond du Lac avenue. The Fond du Lac leg passes up Fond du Lac avenue to 35th street, while the Walnut leg continues out on Walnut to Lisbon, on Lisbon to North avenue, terminus. These routes have been used since 1897 with the exception of a few slight modifications at the northern termini.

The Fond du Lac leg serves the manufacturing district at 53rd ave. and National. Both routes serve the manufacturing districts of the Menomonee valley north of National ave., including the retail business and residence districts bordering on National ave. On Reed both routes serve the wholesale business district lying between National ave. and the river. On West Water and Third they serve a retail business district, and beyond Walnut and Third they serve the retail business and residence districts along Walnut and Fond du Lac avenue. In addition the Fond du Lac route serves the manufacturing district between 27th and 35th st. The passenger earnings of the Fond du Lac route increased from \$108,990 per annum in 1897 to \$286,940 in 1910, an increase of about 165 per cent. The earnings per car-hour increased from the minimum \$1.85 in 1900, to the maximum \$2.58 in 1910. The passenger earnings of the Walnut route increased from \$131,258 in 1897 to the maximum \$318,268 in 1910, an increase of 140 per cent. The minimum occurred in 1899, \$128,000. The earnings per car-hour were lowest in 1900, \$1.97; highest in 1904, \$2.63; and aggregated \$2.52 in 1910.

4. Eighth Avenue—Third Street—Burnham Street.

ROUTE: Beginning at Green Bay and Keefe, both routes run on Green Bay to Third, on Third to Sycamore, on Sycamore to West Water, on West Water over bridge on Reed to Greenfield, on Greenfield to 6th avenue. At Greenfield and 6th avenue the two routes separate; the Eighth ave. route proceeds south on 6th avenue to Windlake, on Windlake to 8th avenue, on 8th avenue to Bottom; the Burnham route proceeds west on Greenfield to 26th avenue, on 26th avenue to Burnham, on Burnham to 37th avenue.

Both routes serve the residence districts on the south side, with a sprinkling of retail business along Greenfield ave. and along Reed st. above National ave. Below National ave. on Reed st. the routes pass through the wholesale business district to the river, then through the retail business district along West Water and Third st. The routes also serve the residence

district adjacent to Third st. on the north side. The earnings of the Burnham route increased from \$120,258 in 1901, to \$247,912 in 1910, an increase of 106 per cent. The earnings per car-hour have fluctuated considerably. In 1901 these aggregated \$2.02, rose to \$2.35 within two years, fell again to the minimum of \$2.02 in 1906, rose to the maximum \$2.54 in 1909, and fell to \$2.14 in 1910. The total earnings of the Eighth ave. route have increased from \$117,395 in 1901 to \$240,635 in 1910. The earnings per car-hour increased from the minimum \$1.98 in 1901 to the maximum \$2.59 in 1910.

5. *Oakland Avenue—Delaware Avenue.*

ROUTE: Beginning at Oakland and Newton, on Oakland to Park Place, on Park Place to Murray, on Murray to Farwell, on Farwell to Brady, on Brady to No. Water, on No. Water to E. Water, on E. Water over bridge to Ferry, on Ferry to So. Water, on So. Water to Clinton, on Clinton to Kinnickinnie, on Kinnickinnie to Pryor, on Pryor to Ellen, on Ellen to Estes, on Estes to Delaware, on Delaware to Oklahoma, terminus.

A temporary bridge route was established via Michigan, W. Water, Reed and National to Clinton during the time the new E. Water street bridge was being constructed, Dec. 1908 to Feb. 1910. Another temporary bridge was established via Clinton and Lincoln ave. during the construction of the new Kinnickinnie bridge, July 1908, to June, 1910.

Beginning with the southern terminus at Delaware and Oklahoma, this line serves the residence district and manufacturing district in the southeast side of the city, passes through the wholesale and retail business districts along E. Water, serves the manufacturing and residence district on N. Water, and finally the residence districts on the northeast side. The earnings of this line increased from the minimum, \$213,841 in 1903, to \$249,618 in 1910. The maximum \$285,000 was reached in 1907. The earnings per car-hour fluctuated slightly during the entire period. In 1903 these amounted to \$2.05, were at a minimum in 1905, \$1.94, and reached the maximum in 1910, \$2.22.

6. *Holton Street—Mitchell Street.*

ROUTE: Beginning at Concordia and Holton, on Holton to Van Buren, on Van Buren to Brady, on Brady to N. Water, on N. Water to E. Water, on E. Water to Ferry, on Ferry to So. Water, on So. Water to Clinton, on Clinton to Mitchell, on Mitchell to Forest Home, out Forest Home to Layborn Park,

terminus. Route was changed over W. Water st. bridge due to construction of new E. Water st. bridge, Dec. 1908—Feb. 1910.

This line serves the residence district lying on both sides of Forest Home ave. and Mitchell st., the manufacturing district east of Clinton st., the wholesale district on Clinton near the river, the retail district on E. Water, the manufacturing district north of No. Water, and the residence district on both sides of Holton st. The earnings increased from \$81,522 in 1897 to \$253,763 in 1910, an increase of 200 per cent. The earnings per car-hour increased steadily from \$1.64 in 1900 to \$2.40 in 1910, the former being the minimum and the latter the maximum unit earnings.

7. Muskego Avenue—Eighth Street.

ROUTE: Beginning at Keefe and Teutonia, on Teutonia to Burleigh, on Burleigh to 8th st., on 8th st. to Germania, on Germania to 7th st., on 7th st. to State, on State to Third st., on Third to Sycamore, on Sycamore to W. Water, on W. Water over bridge on Reed to Washington, on Washington to 11th ave., on 11th ave. to Muskego, on Muskego to Forest Home ave., terminus.

This line serves a residence district along its route on both the north and south sides. Along Reed north of National ave. to the river it serves the wholesale and retail business district, and on W. Water, Sycamore and Third st. it serves the retail business districts. The earnings increased from the minimum \$100,891 in 1897 to the maximum \$240,925 in 1910, an increase of 138 per cent. The earnings per car-hour increased from the minimum \$1.81 in 1900 to the maximum \$2.31 in 1910.

8. Clybourn Street—Wisconsin Street.

ROUTE: From the C. & N. W. depot, on Wisconsin to Cass, on Cass to Michigan, on Michigan over bridge, on Sycamore to 6th st., on 6th to Clybourn, on Clybourn to 35th st. This line provides a direct transfer route between the C. & N. W. passenger depot and the C. M. & St. P. passenger depot.

This line serves the retail and wholesale business district along Michigan and Sycamore, the residence district north of Clybourn st., and the manufacturing district in the Menomonee valley. The earnings increased from \$61,730 in 1897 to \$161,583 in 1910, an increase of 164 per cent. The earnings per

car-hour increased steadily from the minimum \$1.68 in 1900 to \$2.86, the maximum, in 1909, but dropped to \$2.65 in 1910.

9. *Twelfth Street—Wisconsin Street.*

ROUTE: Beginning at the C. & N. W. depot, the route runs west on Wisconsin over bridge on Grand ave. to 11th st., on 11th st. to State, on State to 12th st., on 12th to Center, on Center to 17th st., on 17th st. to Hopkins road, on Hopkins road to Keefe, terminus.

This line connects the residence district along 12th st. on the north side with the retail business districts along Grand ave. and Wisconsin st. The earnings increased from the minimum, \$84,937 in 1897, to the maximum, \$302,302 in 1910, an increase of 255 per cent. The earnings per car-hour increased from the minimum, \$1.78 in 1900, to the maximum, \$2.78 in 1909. In 1910 the earnings per car-hour dropped to \$2.66.

10. *State Street—Wisconsin Street.*

ROUTE: From C. & N. W. Depot, on Wisconsin over bridge on Grand ave. to 3rd st., on 3rd st. to State, on State to 27th st. At this point one leg of the route continues out on State st. to 35th st., while the other leg extends up 27th st. to North ave., on North ave. to 30th st.

This line serves the residence district along 27th st. and State, and also the retail business district on Third st., Grand ave. and Wisconsin st. The earnings increased from the minimum, \$82,134 in 1897, to the maximum, \$290,724 in 1910, an increase of 254 per cent. The earnings per car-hour increased from the minimum, \$1.91 in 1900, to the maximum, \$2.86 in 1904. After 1904 they practically remained at an average of \$2.80 per car-hour. In 1910, the earnings amounted to \$2.78 per car-hour.

11. *First Avenue—Vliet Street—Howell Avenue.*

ROUTE: Beginning at 47th and Vliet, both routes run along Vliet to 12th st. Here the Vliet-Howell line runs via Winnebago to Chestnut, while the Vliet-First ave. line runs via 12th st. to Chestnut, on Chestnut to Winnebago. From here the routes meet and run along Chestnut to 3rd st., on 3rd st. to State, on State over bridge on Martin to E. Water, on E. Water over bridge, on Clinton to Mitchell. At this point the Vliet-First ave. proceeds west on Mitchell to First ave., on First ave. to Clarence, while the Vliet-Howell proceeds south on Clinton to Lincoln, on Lincoln to Howell, on Howell ave. out to Tippecanoe, terminus.

On the west side these lines serve the retail business on Vliet st. and the residence district in the vicinity. Along 3rd st. and E. Water the lines serve the retail business and the wholesale business bordering on E. Water between Michigan st. and the river. South of the river the route passes the manufacturing district east of Clinton st. The First ave. route serves the residence section bordering on Mitchell and First ave., while the Howell route serves the manufacturing district along Clinton below Mitchell and on Lincoln, and the residence district on Howell ave. to the city limits. The earnings of the Vliet-Howell increased from the minimum, \$104,778 in 1901, to the maximum, \$163,299 in 1910. Earnings per car-hour increased from \$1.47 to \$1.95 during the same period. The earnings of the Vliet-First ave. line increased from the minimum, \$80,012 in 1901, to the maximum, \$145,714 in 1910. During the same period the earnings per car-hour increased from \$1.43 to \$2.11.

12. *North Avenue.*

ROUTE: From North and Farwell, west on North ave. to Humboldt, on Humboldt to Lee, on Lee to Holton, on Holton to North, on North to 39th st., terminus.

This line serves a residence district along very nearly its entire route. The earnings increased steadily from \$29,530 in 1897 to \$136,093 in 1910. The earnings per car-hour also have increased similarly from \$1.33 to \$2.38 during the same period.

13. *Public Service Building—St. Francis.*

ROUTE: From P. S. B. on Sycamore to W. Water, on W. Water over bridge, on Reed to Greenfield, on Greenfield to Clinton, on Clinton to Kinnickinnie, on Kinnickinnie out to St. Francis, suburb. This route was temporarily changed over Clinton to Lincoln, on Lincoln to Kinnickinnie ave. during the period of constructing the new Kinnickinnie bridge, July 1908 to June 1910.

This line serves the suburb of St. Francis and the residence district along the line in the extreme southeastern section of Milwaukee and connects these with the manufacturing district along Clinton st., the wholesale business on Reed st., and the retail business of the down-town district. The earnings of this line are given separately since 1909; in which year they amounted to \$54,316, and in 1910 \$61,419. The earnings per car-hour were \$1.96 in 1909 and \$2.13 in 1910.

14. Center Street.

ROUTE: From Lake Park depot, on Folsom over bridge, on Locust to Humboldt, on Humboldt to Center, on Center to 27th st. Later was extended to Fond du Lac ave.

This line serves a residence district along its entire route. It has been in operation since June 26, 1909. The earnings have been \$36,646 in 1909, and \$79,843 in 1910. The earnings per car-hour have been \$1.58 in 1909, and \$1.73 in 1910.

15. Thirty-Fifth Street.

ROUTE: From Park Hill ave. and 35th st., on 35th st. to Center st.

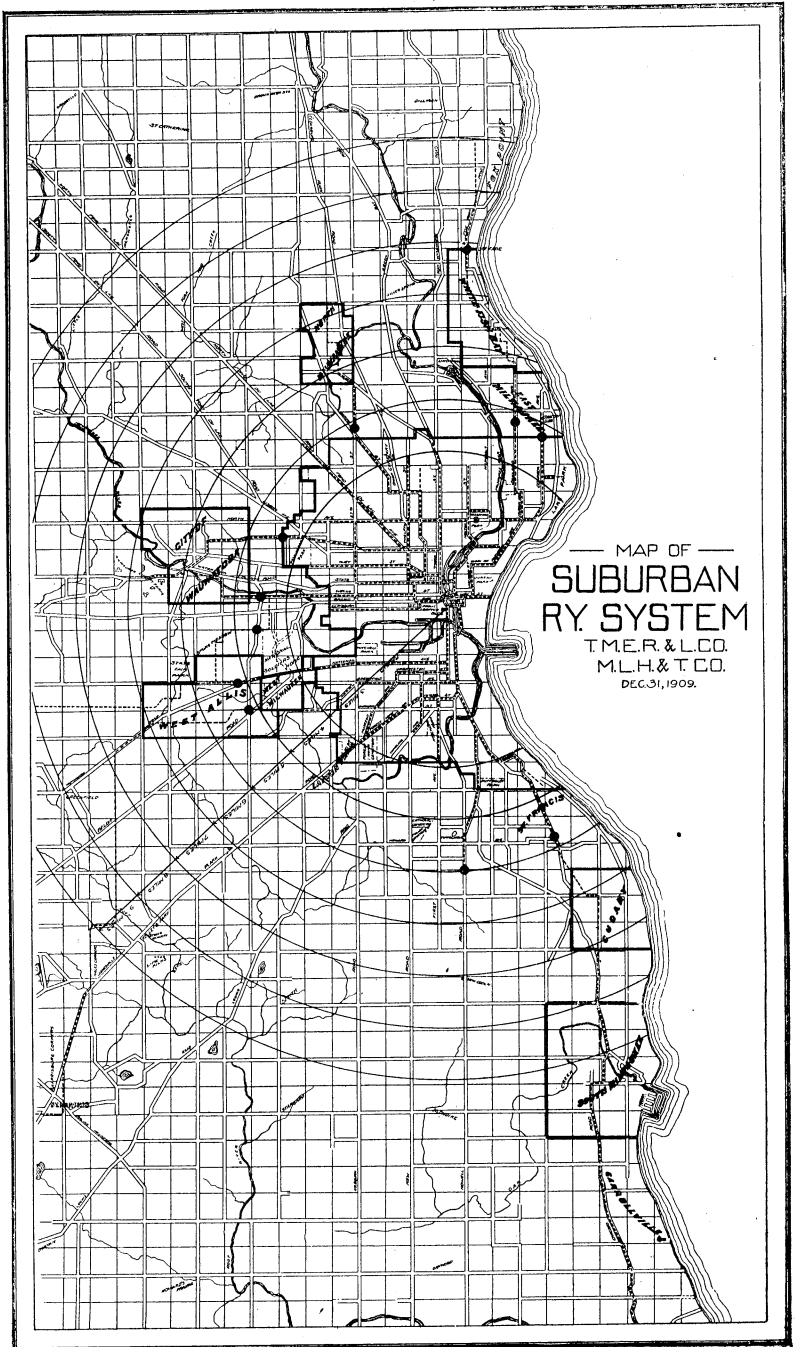
The route has been in operation since Sep. 5, 1909, and serves the residence section of the west side. The earnings for the part year operation in 1909 were \$9,678, in 1910 they were \$39,294. The earnings per car-hour were \$1.32 in 1909, and \$1.66 in 1910.

There are ten suburban routes operating beyond the single fare limit of Milwaukee. The suburban runs are made by cars operating upon regular city and interurban routes, the city run being extended to the suburbs at certain regular intervals. The earnings of these cars between the first and second fare points have been kept separate from the city earnings. In the following discussion the suburban routes have been arranged under the city routes of which they are an extension. Since the beginning of the year 1910 the company has also separated the suburban earnings of the interurban cars between the first and second fare points from the earnings of the city cars in suburban service. The location of routes may be noted from Map II, the large dot indicating in each instance the location of the single fare area.

*1. Wells Street—Farwell Avenue.**a. Wauwatosa.*

ROUTE: From the first fare point at Hawley road the route proceeds on Wells st. to 59th st., on 59th to Motor ave., on Motor ave., to Watertown plank road, on Watertown plank road to the Wauwatosa county buildings.

This line connects the suburban residence district in and about Wauwatosa with the down-town district of Milwaukee. No interurban cars operate over this route and the earnings are those of city cars only. In 1898 the earnings were \$5,857,



MAP II.

the minimum for the entire period. From this minimum the earnings increased to \$30,886 in 1910. The earnings per car-hour increased from the minimum, \$1.66 in 1900, to the maximum, \$4.15 in 1908. From this figure the earnings per car-hour dropped to \$3.68 in 1909, and rose again to \$3.75 in 1910.

b. West Allis.

ROUTE: The route runs from Hawley road, the first fare point, on private right of way to 62nd ave., on 62nd ave. to Greenfield, on Greenfield to 73rd ave., on 73rd ave. to Summit ave., on Summit ave. to Woodlawn ave.

This line is one of the three West Allis lines which afford transportation to the city of Milwaukee for the thousands of workmen employed in the West Allis industries. The earnings increased from the minimum, \$5,187 in 1899, to the maximum, \$46,341 in 1910. The earnings per car-hour began with \$6.35 in 1900, reached the maximum in 1903 of \$7.22 and then gradually decreased to \$4.07. The latter figure includes interurban and suburban earnings, the separate figures for 1910 are, upon interurban cars \$5.26 per car-hour and upon suburban cars \$3.15 per car-hour.

c. North College Avenue.

ROUTE: This suburban route extends from Edgewood and College ave. north on College to Mineral Spring road.

The earnings were \$551.99 in 1905 and rose to the maximum, \$604.20 in 1906, but from this time gradually decreased to the minimum, \$102.21 in 1910. The earnings per car-hour dropped from the maximum 36 cts. in 1905 to the minimum 12 cts. in 1910.

2. Fond du Lac Avenue—National Avenue.

a. West Allis.

ROUTE: From 53rd ave. and National, on National to Greenfield, on Greenfield to 73rd ave., on 73rd to Summit, on Summit to Woodlawn.

This route connected with the city route, Fond du Lac—National, gives the workmen of the large industries in West Allis direct transportation to the south side of Milwaukee. The earnings increased from the minimum, \$14,264 in 1905, to the maximum, \$25,879 in 1910. The earnings per car-hour have

fluctuated considerably. In 1905 these aggregated \$1.55 and increased to the maximum \$1.97 in 1907, and then decreased to \$1.72 in 1910.

3. *Walnut Street—National Avenue.*

a. *Wauwatosa.*

ROUTE: The route extends from Washington Park to the end of track in Wauwatosa.

This line connects the residence districts of Wauwatosa with the business districts of Milwaukee. The earnings decreased from \$10,963 in 1898 to the minimum, \$6,681 in 1901, after increasing and decreasing they began to increase slowly from \$10,174 in 1904 to the maximum \$14,560 in 1910. The earnings per car-hour were unsteady, increasing and decreasing year by year. In 1901 they were at the minimum of 97 cts., and in 1910 at the maximum of \$2.21.

4. *Burnham Street—Third Street.*

a. *West Allis, South.*

ROUTE: From Hawley road the route extends on private right of way to George st., on George st. to Woodlawn ave.

This line connects the manufacturing industries of West Allis with the residence districts of Milwaukee. The earnings increased steadily from the minimum \$4,417 in 1903 to the maximum \$24,313 in 1910. The earnings per car-hour were at the minimum, \$1.62, in 1903, and with a few interruptions increased to \$3.28 in 1910.

5. *Oakland Avenue—Delaware Avenue.*

a. *Whitefish Bay.*

ROUTE: From Oakland and Newton to North limits of Whitefish Bay.

The line is used mainly during the summer months to transport passengers from the city of Milwaukee to the summer homes and park attractions at Whitefish Bay. The earnings have increased from the minimum of \$10,259 in 1897 to the maximum \$21,205 in 1910. The earnings per car-hour did not increase regularly, but rose from the minimum, \$1.69 in 1897, to the maximum, \$2.97 in 1909, and then decreased to \$2.80 in 1910.

b. Fox Point.

ROUTE: This line is an extension of the Whitefish Bay line from the north limits of Whitefish Bay to Fox Point.

The earnings increased from \$2,213 in 1904 to \$3,572 in 1909, and decreased to \$2,442 in 1910. The earnings per car-hour were low and unsteady. One year after the line was opened, in 1905, the earnings per car-hour aggregated \$1.12, and reached the maximum \$1.55 in 1909.

*6. Twelfth Street—Wisconsin Street.**a. North Milwaukee.*

ROUTE: From Keefe ave. and Hopkins road to north limits of North Milwaukee.

The suburb of North Milwaukee is partly a residence district and partly manufacturing. The line gives the inhabitants and workingmen a direct route to the center of Milwaukee. The earnings increased from \$11,214 in 1900 to \$22,299 in 1910. The earnings per car-hour increased from the minimum, \$1.52 in 1900, to the maximum, \$2.96 in 1910.

7. St. Francis—Cudahy—South Milwaukee.

ROUTE: From St. Francis, the single fare point, to Cudahy and S. Milwaukee.

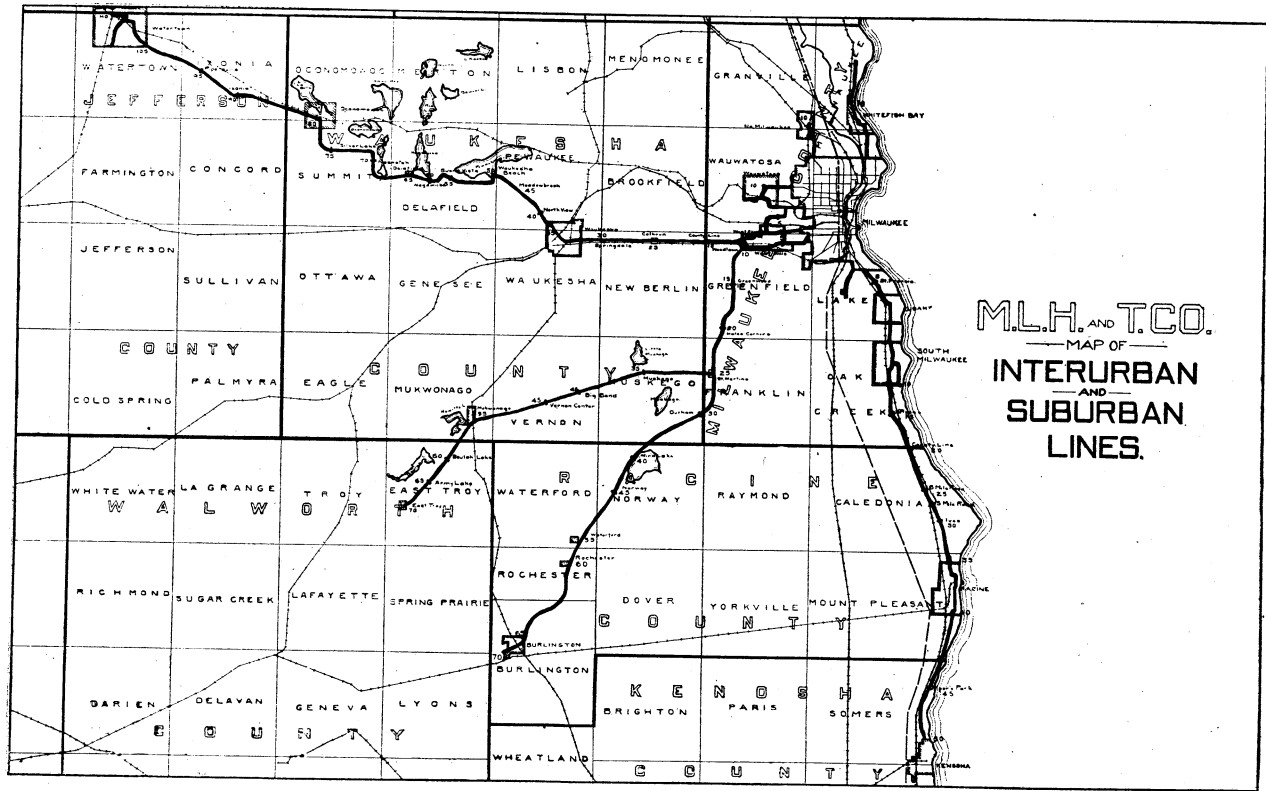
The earnings of this route were \$36,129 in 1897, dropped to the minimum, \$32,319 in 1899, rose irregularly to the maximum, \$76,000 in 1910. The earnings per car-hour increased from the minimum, \$2.28 in 1900, to \$3.15 in 1903, reached the maximum, \$3.18 in 1908, and decreased to \$2.73 in 1910.

The interurban lines are four in number, one operates between Watertown, East Troy, Burlington, and the Public Service Building, Milwaukee. This business is entirely interurban, no passengers being taken on while entering Milwaukee and no passengers being let off while leaving the city. The location of these lines is indicated upon Map III.

1. Milwaukee—Racine—Kenosha.

This line includes the municipalities of Cudahy, South Milwaukee, Racine, and north limits of Kenosha.

Until 1910 it has been the company's practice to keep the earnings of the interurban systems separate only from the second fare point out. The earnings between South Milwau-



MLH. AND TCO.
 MAP OF
**INTERURBAN
 AND
 SUBURBAN
 LINES.**

MAP III.

kee and Racine were \$29,648 in 1899, increased irregularly to the maximum, \$81,268 in 1907, and then decreased to \$53,106 in 1910. The earnings per car-hour show considerable variation. In 1900 they were at the minimum, \$3.40, in 1906 at the maximum, \$7.06, and ended in 1910 with \$6.72. The earnings of the section between Racine and Kenosha increased from the minimum, \$13,317 in 1899, to the maximum, \$31,458 in 1906, and then decreased to \$24,537 in 1910. The earnings per car-hour increased from the minimum, \$2.09 in 1901, to the maximum, \$4.53 in 1906, and ended in 1910 with \$4.21. The decrease in earnings of the sections on this line is undoubtedly due to the competition of the Chicago-Milwaukee Electric Railway, to which the line runs parallel.

2. *Milwaukee—Watertown.*

This line serves a summer resort section and connects the municipalities of Waukesha, Oconomowoc and Watertown with the city of Milwaukee. The earnings of this line between West Allis and Waukesha increased from the minimum, \$29,334 in 1898, to the maximum, \$102,884 in 1910. The earnings per car-hour, however, were irregular during this period. In 1900 they were at the minimum, \$5.97, in 1908 at the maximum, \$9.62, and aggregated \$8.40 in 1910. The earnings of the section between Waukesha and Waukesha Beach increased from the minimum, \$7,955 in 1898, to the maximum, \$33,704 in 1910. The earnings per car-hour increased with but few interruptions from the minimum, \$2.51 in 1900, to \$6.23 in 1910. The maximum of \$10.17 occurred in 1905. In June 1907 the line was extended to Oconomowoc. The earnings between Waukesha Beach and Oconomowoc increased from the minimum, \$19,178 in 1907, to the maximum, \$33,030 in 1909, and decreased to \$32,734 in 1910. The earnings per car-hour amounted to \$5.34 in 1907, \$6.26 in 1909, and \$5.43 in 1910. In June 1908 the line was extended to Watertown. The earnings per car-hour were \$3.34 for 6 months in 1908, and aggregated \$3.80 in 1910.

3. *Milwaukee—East Troy.*

St. Martins—Burlington.

These two interurbans above have a common route from West Allis to St. Martins. From St. Martins one leg extends to

East Troy and the other to Burlington. The earnings on this line began in 1903. During 1903 and 1904 the line extended from West Allis to Hales Corners, and during 1905 and 1906 to Muskego Lakes. The earnings in 1903 were at the minimum of \$6,155, and increased to \$34,131, the maximum, in 1906. The earnings per car-hour increased from the minimum, \$3.17 in 1903, to the maximum, \$6.93 in 1910. From 1907 to 1910 the section from West Allis to St. Martins was established. The earnings of this section increased from the minimum, \$16,412 in 1907, to the maximum, \$44,381 in 1910. The earnings per car-hour decreased from \$8.47 to \$7.11 during the same period, the minimum of \$6.94 occurred in 1909. The East Troy leg was established in 1907, but up to 1909 extended only to Muskego Lakes. The earnings of this leg decreased from \$36,181 in 1907 to the minimum, \$33,476 in 1909, and then increased to \$36,677, the maximum, in 1910. The earnings per car-hour decreased from \$5.08 in 1907 to \$4.24, minimum, in 1909, and amounted to \$4.26 in 1910. The leg from St. Martins to Burlington was placed in operation 1909. The earnings per car-hour were \$4.87 for six months operation in 1909, and \$4.61 in 1910.

In addition to these lines company does an urban business in Racine and Watertown. In the city of Racine the Milwaukee Light, Heat and Traction Company operates four urban routes. The combined earnings of these routes in 1899 amounted to \$41,598, the minimum, and steadily increased to \$199,062, the maximum, in 1910. The Watertown local was placed in operation during 1910. The earnings for that year were \$2,282 and the earnings per car-hour were \$1.13.

UNIT EARNINGS.

The annual unit earnings of The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company, expressed per mile, per car-hour, and per car-mile, and distributed by operating lines for the four years ending Dec. 31, 1911, are given in table 76. It will be noted that the total results for the year have been divided into three groups. There is first included a distribution of earnings by *systems*. For this purpose, urban and suburban lines have been treated as a unit and the earnings recorded are the annual

receipts for the entire round trip, irrespective of whether the terminus is located within or beyond the single fare area. Under suburban systems are included the earnings upon urban cars collected between the first and second fare points. Under interurban cars are included the entire earnings for interurban traffic from the Public Service Building to the termini at Kenosha, Watertown, East Troy and Burlington. In addition to these services, local traction business is done in Racine and Watertown and this together with the sum total of urban, suburban and interurban routes comprise total earnings of both companies for the year. The segregated distribution of earnings by *services* is included in the second classification and gives in sum total the receipts from traffic within the single fare area in Milwaukee, the receipts from urban traffic in Racine and Watertown, the receipts for suburban traffic beyond Milwaukee, the receipts from interurban traffic and receipts from private cars. The third classification is one of *companies* and has been made in accordance with the traffic agreement under which The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company are operated. By this agreement a single fare upon all interurban cars operated within the city is credited to The Milwaukee Electric Railway and Light Company. Similarly, suburban fares earned by city cars beyond the single fare limits have been credited to the Milwaukee Light, Heat and Traction Company. These bases of distribution have been consistently used in all succeeding tables.

In table 77 there are compared certain yearly operating averages of both traction and city companies. In these there is included the average speed, average miles per car-hour, the percentage of transfer to revenue passengers, and the density, or total passengers per car-mile.

TABLE 76.
COMPARATIVE ANNUAL UNIT EARNINGS.
OF THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

	Annual earnings per car. ¹				Annual earnings per car-hour.				Annual earnings per car-mile.			
	1908	1909	1910	1911	1908	1909	1910	1911	1908	1909	1910	1911
DISTRIBUTION BY SYSTEMS.												
<i>Urban and Suburban:</i>												
1. Wells-Farwell.....	\$10.588	\$10.121	\$8.983	\$10.155	\$2.68	\$2.71	\$2.63	\$2.74	30.08	29.44	29.15	30.20
2. Fond du Lac-National.....	10.268	9.835	9.256	8.788	2.29	2.42	2.48	2.51	24.96	25.07	26.10	26.71
3. Walnut-National.....	10.244	9.518	9.644	10.175	2.43	2.48	2.50	2.57	27.49	28.46	28.70	28.37
4. Eighth-Third-Burnham.....	10.115	10.535	11.208	11.034	2.25	2.43	2.52	2.62	23.85	25.68	26.79	28.02
5. Oakland-Delaware.....	7.476	8.376	8.915	8.725	2.06	2.08	2.23	2.31	20.61	21.41	23.56	24.65
6. Holton-Mitchell.....	8.459	8.350	8.750	8.708	2.26	2.27	2.40	2.45	25.01	25.00	26.93	27.48
7. Muskego-Eighth.....	8.958	7.373	8.031	7.605	2.20	2.17	2.31	2.33	24.00	24.19	25.57	25.44
8. Clybourn-Wisconsin.....	11.944	13.705	13.465	13.720	2.68	2.86	2.65	2.51	32.23	34.14	32.43	27.70
9. Twelfth-Wisconsin.....	9.181	8.785	7.935	8.674	2.62	2.77	2.68	2.88	30.92	32.56	31.23	33.30
10. State-Wisconsin.....	10.181	10.417	10.383	10.690	2.79	2.81	2.78	2.81	33.65	34.58	33.59	34.46
11. First-Howell-Vliet.....	8.537	9.086	9.364	9.477	1.86	1.99	2.02	2.07	21.24	22.15	22.44	22.96
12. North ave.....	11.724	10.672	12.372	13.391	2.27	2.29	2.38	2.58	26.16	26.91	28.51	30.96
13. P. S. B.-So. Milwaukee.....		3.504	3.628	3.196		1.94	2.18	2.16		16.03	18.91	19.42
14. Center st.....		4.072	8.871	10.007		1.58	1.73	1.93		19.13	18.94	20.73
15. Thirty-Fifth st.....		2.420	9.289	9.688		1.32	1.66	2.09		16.23	20.64	22.57
Weighted average.....	\$10.016	\$9.607	\$9.817	\$10.049	\$2.34	\$2.40	\$2.42	\$2.50	26.00	26.37	26.86	27.53
<i>Suburban Systems:</i>												
1. Wells-Farwell.....					\$4.15	\$3.68	\$3.75	\$3.09	33.76	30.88	34.43	29.91
a. Wauwatosa.....					3.30	3.01	3.15	2.17	28.94	28.80	31.83	20.44
b. West Allis.....					34	13	12	44	3.28	1.43	1.12	4.78
c. North College ave.....												
2. Fond du Lac-National.....					1.53	1.69	1.72	1.55	14.54	16.75	18.48	16.83
a. West Allis.....												
3. Walnut-National.....					1.90	1.91	2.21	2.25	20.79	20.83	23.26	21.35
a. Wauwatosa.....												
b. Burnham-Third.....												
c. West Allis, South.....					67	83	93	78	6.48	7.90	8.33	6.55

5. Oakland-Delaware.....					2 87	2 97	2 80	2 84	25.69	23.62	22.24	22.96
a. Whitefish Bay.....					1 40	1 55	99	1 56	10.96	11.63	7.94	12 81
b. Fox Point.....												
6. Twelfth-Wisconsin.....					2 61	2 67	2 96	2 92	25 10	25.09	26.93	26.69
a. North Milwaukee.....					2 48	2 28	2 43	2 56	14.06	16.14	19.62	20.06
7. St. Francis-Cudahy-So. Milwaukee.....												
Weighted average.....					\$2 31	\$2 29	\$2 41	2 25	19.21	19.88	21.74	20.20
<i>Interurban:</i>												
1. Milwaukee-Racine Kenosha.....	\$21.138	\$21.066	\$31.315	\$26.226	\$3 28	\$3 43	\$4 50	\$4 23	22.56	22.89	30.08	30.93
2. Waukesha Oconomowoc-Watertown.....	32.170	29,257	29,167	34,404	6 30	6 06	6 08	6 81	36.88	34.12	36.70	36.54
3. Milwaukee-East Troy.....	23.333	20,467	23,444	24,770	4 56	4 42	4 67	5 58	39.52	31.90	35.15	35.72
4. St. Martins-Burlington.....		20,523	34,775	33,823		4 87	4 61	5 14		27.75	24.54	26.04
Weighted average.....	\$25.746	\$24.225	\$28.965	\$29.959	\$4 43	\$4 57	\$5 12	\$5 48	28.91	28.91	33.21	33.74
<i>Miscellaneous:</i>												
1. Racine.....	\$37,907	\$8,799		\$9,368	\$1 27	\$1 45	\$1 71	\$1 77	16.44	18.89	22.33	22.92
2. Watertown.....				2,686		1 26	1 13	1 33		23.90	13.62	13.32
3. Private cars.....					4 98	4 55	5 11	5 28	47.84	53.45	50.26	47.33
Weighted average of total urban and sub-urban, interurban and miscellaneous..	\$10.794	\$10.370	\$10.614	\$10.855	\$2 43	\$2 50	\$2 54	\$2 63	25.92	26.35	27.30	27.95
DISTRIBUTION BY SERVICES.												
1. Urban, Milwaukee.....	\$9,990	\$9,410	\$9,610		\$2 34	\$2 40	\$2 42	\$2 52	25.46	26.79	27.19	28.04
2. Urban, Racine and Watertown.....	37,907	8,392	8,926		1 27	1 45	1 69	1 76	16.44	18.95	22.13	22.69
3. Suburban, Milwaukee.....	10,210	16,147	16,011		2 31	2 29	2 41	2 25	19.21	19.88	21.74	20.19
4. Interurban.....	25,746	24,225	28,965		4 43	4 57	5 12	5 48	28.91	28.91	33.21	33.74
5. Private cars.....					4 98	4 55	5 11	5 28	47.84	53.45	50.26	47.33
Weighted average of total.....	\$10.794	\$10.370	\$10.614		\$2 43	\$2 50	\$2 54	\$2 63	25.92	26.35	27.30	27.95
DISTRIBUTION BY COMPANIES.												
1. T. M. E. R. & L. Co.....	\$10,205	\$3,600	\$9,769		\$2 34	\$2 40	\$2 43	\$2 52	26.38	26.74	27.20	28.01
2. M. L. H. & T. Co.....	14,492	16,131	17,124		2 94	3 00	3 20	3 27	24.04	24.73	27.60	27.70
Weighted average of total.....	\$10.794	\$10.370	\$10,614	\$10,855	\$2 43	\$2 50	\$2 54	\$2 63	25.92	26.35	27.30	27.95

¹ NOTE:—Cars, average maximum daily operated. Annual earnings per suburban car are not available because the city cars are used interchangeably on suburban and city routes.

² Under Oakland-Delaware in 1908.

³ Racine only for 1908.

⁴ Above 2 per cent of earnings of T. M. E. R. & L. Co. are earned by M. L. H. & T. cars.

TABLE 77.
YEARLY OPERATING AVERAGES
OF THE MILWAUKEE ELECTRIC RAILWAY & LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

	Speed: Average miles per car-hour.				Per cent of transfer to revenue passengers.				Total passengers per car-mile.			
	1908	1909	1910	1911	1908	1909	1910	1911	1908	1909	1910	1911
DISTRIBUTION BY SYSTEMS.												
<i>Urban and Suburban:</i>												
1. Wells-Farwell.....	8.90	9.22	9.01	9.08	30.48	30.64	32.38	30.42	9.03	8.84	8.85	9.02
2. Fond du Lac-National.....	9.20	9.66	9.49	9.39	30.08	30.13	29.72	29.22	7.52	7.54	7.82	8.17
3. Walnut-National.....	8.83	8.70	8.73	9.06	32.20	32.44	31.53	31.41	8.43	8.76	8.79	8.69
4. Eighth-Third-Burnham.....	9.45	9.46	9.41	9.26	33.30	33.40	34.50	34.56	7.45	8.05	8.48	8.88
5. Oakland-Delaware.....	9.99	9.74	9.47	9.38	32.19	30.28	31.78	32.33	6.18	6.48	7.21	7.59
6. Holton-Mitchell.....	9.03	9.08	8.92	8.91	32.09	30.77	32.63	33.22	7.79	7.71	8.44	8.66
7. Muskego-Eighth.....	9.17	9.04	9.05	9.14	30.38	30.76	31.76	39.09	7.37	7.47	7.98	8.39
8. Clybourn-Wisconsin.....	8.33	8.36	8.16	9.06	37.37	34.85	35.86	35.22	10.37	10.80	10.32	8.83
9. Twelfth-Wisconsin.....	8.46	8.51	8.59	8.65	49.33	43.49	44.92	46.01	10.55	10.70	10.35	11.16
10. State-Wisconsin.....	8.28	8.13	8.28	8.16	33.50	33.02	33.37	33.72	10.64	10.91	10.64	10.92
11. First-Vliet-Howell.....	8.75	9.00	9.02	9.02	33.44	32.31	36.50	38.40	6.68	6.92	7.26	7.54
12. North ave.....	8.68	8.49	8.35	8.40	72.46	71.41	66.12	67.65	10.61	10.89	11.22	12.30
13. P. S. B.-So. Milwaukee.....		12.08	11.51	11.15		37.00	36.53	25.61		4.58	5.18	5.39
14. Center st.....		8.27	9.14	9.29		61.84	63.79	65.44		7.30	7.34	8.09
15. Thirty-Fifth st.....		7.89	8.05	9.28		76.16	73.88	75.96		6.97	8.48	9.40
Total.....	9.01	9.10	9.02	9.09	35.19	34.74	36.25	37.07	8.18	8.28	8.52	8.79
<i>Suburban Systems:</i>												
1. Wells-Farwell.....												
a. Wauwatosa.....	12.28	11.92	10.90	10.34	34.18	35.97	35.25	44.14	7.99	7.38	8.16	7.61
b. West Allis.....	11.41	10.44	9.89	10.63	37.22	40.75	37.77	60.30	6.75	7.03	7.58	5.70
c. North College ave.....	10.26	9.17	10.80	9.22	7.13	7.27	1.03	2.04	.70	.30	.23	10.01
2. Fond du Lac-National.....												
a. West Allis.....	10.55	10.12	9.33	9.17	21.94	23.41	22.59	16.78	3.45	3.95	4.35	3.78
3. Walnut-National.....												
a. Wauwatosa.....	9.16	9.17	9.52	10.53	37.26	37.13	32.76	31.56	5.15	5.17	5.65	9.72
4. Burnham-Third.....												
a. West Allis, South.....	10.34	10.51	11.13	11.93	18.23	22.54	23.24	22.91	1.39	1.71	1.83	1.45

5. Oakland-Delaware	11.16	12.56	12.59	12.39	9.87	12.05	10.63	13.12	5.45	4.94	4.68	4.94
a. Whitefish Bay	12.74	13.31	12.44	12.17	.....	.....	.....	.....	2.22	2.35	1.61	2.59
b. Fox Point	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6. Twelfth-Wisconsin	10.42	10.55	11.00	10.92	34.32	34.41	32.12	32.61	5.74	5.73	6.08	6.06
a. North Milwaukee	17.64	14.12	12.65	12.75	18.97	20.37	18.62	20.33	13.23	3.96	4.43	4.61
7. St. Francis-Cudahy-So. Milwaukee	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	12.05	11.51	11.02	11.13	25.07	26.56	25.09	27.99	4.42	4.60	4.98	4.76
<i>Interurban:</i>	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1. Milwaukee-Racine-Kenosha	14.56	14.99	14.95	13.67	12.37	11.17	10.34	10.96	2.25	2.54	3.14	3.37
2. Waukesha-Oconomowoc-Watertown	17.09	17.76	16.57	18.65	8.94	8.88	9.08	6.72	1.97	1.84	1.91	1.78
3. Milwaukee-East Troy	14.92	13.86	13.29	15.63	10.09	12.02	11.46	10.68	1.57	1.45	1.44	1.41
4. St. Martins-Burlington	.....	17.56	18.79	19.74	.....	.....	1.96	3.43	.....	1.58	1.38	1.46
Total	15.42	15.79	15.42	16.19	10.95	10.12	9.56	9.05	2.09	2.05	2.16	2.13
<i>Miscellaneous:</i>	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1. Racine local	7.73	7.70	7.63	7.70	16.61	16.19	15.05	15.27	3.87	4.43	5.28	5.44
2. Watertown local	.....	5.27	8.28	10.01	.....	2.41	1.03	1.27	.....	4.95	2.80	2.73
3. Private cars	.....	8.51	10.16	8.63	.....	.....	.....	.....	.....	.....	.....	.....
Weighted average	9.39	9.47	9.32	9.42	33.68	33.21	34.61	34.39	7.26	7.39	7.76	7.99
DISTRIBUTION BY SERVICES:²	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1. Urban, Milwaukee	8.86	8.98	8.92	8.97	35.58	35.04	36.70	37.42	8.43	8.51	8.75	9.08
2. Urban, Racine	7.73	7.67	7.63	7.70	16.61	16.00	14.87	15.27	3.87	4.44	5.23	5.44
3. Suburban, Milwaukee	12.04	11.51	11.08	11.13	25.07	26.56	25.09	27.99	4.42	4.66	4.98	4.76
4. Interurban	15.42	15.79	15.42	16.19	10.95	10.12	9.56	9.05	2.09	2.05	2.16	2.13
5. Private cars	.....	8.51	10.16	8.63	.....	.....	.....	.....	.....	.....	.....	.....
Weighted average	9.39	9.47	9.32	9.42	33.68	33.21	34.61	34.39	7.26	7.39	7.76	7.99
DISTRIBUTION BY COMPANIES.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1. T. M. E. R. & L. Co.	8.88	8.99	8.93	9.41	35.34	34.79	36.48	35.38	8.39	8.48	8.74	7.99
2. M. L. H. & T. Co.	12.22	12.11	11.58	11.81	13.32	13.93	13.92	15.03	3.13	3.30	3.72	3.74
Weighted average	9.39	9.47	9.32	9.42	33.15	32.71	34.18	34.39	7.35	7.46	7.82	7.99

¹Under Oakland-Delaware in 1908.

²The private car mileage has been excluded from the annual average of the total under distribution of systems and service.

BASIS OF PRORATING OPERATING EXPENSES.

In apportioning the cost of service as between The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company, it is to be noted that no single basis has been used. Certain of the costs in the analysis made have been divided on the basis of expenses actually incurred in the interurban as distinct from the urban lines. Other costs have been apportioned on what seemed the best available stationary or movement unit. It is possible within certain limits to prorate both classes of costs upon an arbitrary unit and thus to extend the analysis made over the various urban, suburban and interurban lines. From a close analysis of the results already obtained, the following basis seems feasible and has been used in determining the operating expenses of the separate systems.

Varying with the cost per car-hour there have been included the expenses of motormen, conductors, lighting and heating cars, and similar expenses. This group aggregated 32.24 per cent of the total operating expenses of The Milwaukee Electric Railway and Light Company in 1909.

Varying with the car-mile have been included all of the expenses of maintenance of equipment and a portion of the expenses of maintenance of way and a portion of power plant expenses where the weight, size and speed of cars operated are similar. This group aggregated 22.35 per cent of the total operating expenses of The Milwaukee Electric Railway and Light Company in 1909.

Varying with the passengers carried are included the cost of injuries and damages, cost of dispatchers and car station employes, special inspection, tickets and transfers and the operation of the telephone system. This group aggregated 8.93 per cent of the total operating expenses of The Milwaukee Electric Railway and Light Company in 1909.

Varying with the miles of single track, there have been included such a part of the maintenance of way expenses which seemed unaffected by traffic conditions. This group aggregated 3.06 per cent of the total operating expenses of The Milwaukee Electric Railway and Light Company.

Expenditures for general expenses, for taxes and the reserves for fire insurance and legal expenses, amounted to 16.19 per cent in 1909.

Where the cost of reproduction new is carefully localized, depreciation and rate of return may be separately determined for each physical subdivision of property.

In table 78 there is summarized the analysis of the traction costs for the system as a whole for The Milwaukee Electric Railway and Light Company and for urban Milwaukee business, showing for the four years the distribution of the main groupings of expenses over those varying with the miles, the car-miles, the car-hours, the passengers, and other units. The surplus indicated is the amount available for return upon the investment after deducting all operating expense reserve charges, taxes, and depreciation from the operating revenues. This table is an expansion of the information contained in table 75, wherein a similar comparison is made between the amounts distributed to the city and traction companies according to the companies' books and the redistribution made by the Railroad Commission.

TABLE
SUMMARY OF ANALYSIS OF
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY

	Total.	Proportion of Total Varying with				
		Power plant.	Miles of track.	Car-miles.	Car-hours.	Pas-sengers.
<i>1908.</i>						
Revenues.....	\$3,953,652 13					
Operating Expenses:						
Power plant.....	\$342,959 42	\$342,959 42				
Way and structures.....	142,408 87		\$72,429 04	\$69,979 83		
Rolling stock.....	194,458 49			194,458 49		
Conducting transportation.....	904,322 96		26,043 75	31,835 60	\$767,143 52	\$79,300 09
Inj. and damages reserves.....	138,377 82					138,377 82
Total.....	\$1,722,527 56	\$342,959 42	\$98,472 79	\$296,273 92	\$767,143 52	\$217,677 91
Other reserves.....	56,803 37					
General.....	154,289 47					
Taxes.....	243,322 73					
Depreciation.....	516,548 04					
Total.....	\$2,693,482 17					
Surplus available for return on investment.....	\$1,258,169 96					
<i>1909.</i>						
Revenues.....	\$4,246,606 87					
Operating Expenses:						
Power plant.....	\$356,681 46	\$356,681 46				
Way and structures.....	149,768 22		\$99,147 09	\$50,620 53		
Rolling stock.....	215,789 17			215,789 17		
Conducting transportation.....	971,405 85		28,621 61	35,713 14	\$825,068 78	\$82,002 32
Inj. and damages reserves.....	148,631 24					148,631 24
Total.....	\$1,842,275 94	\$356,681 46	\$127,769 30	\$302,122 84	\$825,068 78	\$230,633 56
Other reserves.....	49,943 83					
General.....	155,388 72					
Taxes.....	251,422 50					
Depreciation.....	541,495 94					
Total.....	\$2,840,526 93					
Surplus available for return on investment.....	\$1,406,079 94					
<i>1910.</i>						
Revenues.....	\$4,649,354 55					
Operating Expenses:						
Power plant.....	\$424,711 82	\$424,711 82				
Way and structures.....	250,751 23		\$168,137 05	\$82,614 18		
Rolling stock.....	255,245 63			255,245 63		
Conducting transportation.....	1,113,153 43			76,333 91	\$919,288 65	\$117,530 89
Inj. and damages reserves.....	162,727 41					162,727 41
Total.....	\$2,206,589 52	\$424,711 82	\$168,137 05	\$414,193 72	\$919,288 65	\$280,258 30
Other reserves.....	52,812 50					
General.....	167,334 45					
Taxes.....	261,237 08					
Depreciation.....	610,447 62					
Total.....	\$3,298,421 17					
Surplus available for return on investment.....	\$1,350,933 38					
<i>1911.</i>						
Revenues.....	\$4,853,314 41					
Operating Expenses:						
Power plant.....	\$463,303 87	\$463,303 87				
Way and structures.....	212,146 54		\$119,063 96	\$93,082 58		
Rolling stock.....	196,088 31			196,088 31		
Conducting transportation.....	1,147,700 26			72,431 33	\$953,650 38	\$121,618 55
Inj. and damages reserves.....	170,011 37					170,011 37
Total.....	\$2,189,250 35	\$463,303 87	\$119,063 96	\$351,602 22	\$953,650 38	\$291,629 92
Other reserves.....	35,863 65					
General.....	98,036 04					
Taxes.....	304,046 52					
Depreciation.....	644,240 63					
Total.....	\$3,271,437 19					
Surplus available for return on investment.....	\$1,581,877 22					

78.

TRACTION COSTS OF OPERATION.
AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

T. M. E. R. & L. Co. total.	Proportion of Total Varying with					Urban Milwaukee.
	Power plant.	Miles of track,	Car-mile.	Car-hours.	Pas- sengers.	
\$3,223,179 82						\$3,155,889 84
\$242,086 27	\$242,086 27					\$231,262 58
89,201 35		\$43,833 54	\$45,367 81			88,315 01
155,800 14			155,800 14			152,085 99
766,463 73		10,811 28	25,595 90	\$657,873 50	\$72,183 05	751,309 40
112,811 29					112,811 29	112,047 05
\$1,366,362 78	\$242,086 27	\$54,644 82	226,763 85	\$657,873 50	\$184,994 34	\$1,335,020 03
40,353 33						40,079 96
121,974 14						118,410 26
196,186 85						196,186 85
379,082 31						379,082 31
\$2,103,959 41						\$2,068,779 41
\$1,119,220 41						\$1,087,110 43
\$3,466,684 94						\$3,398,875 13
\$359,455 86	\$259,455 86					\$248,772 37
83,342 28		\$55,172 59	\$28,169 69			82,741 54
173,602 39			173,602 39			169,890 81
822,363 45		11,981 71	28,825 65	\$707,064 76	\$74,491 33	807,369 22
121,333 97					121,333 97	120,616 80
\$1,460,097 95	\$239,455 86	\$37,154 30	\$230,597 73	\$707,064 76	\$195,875 30	\$1,429,390 74
35,196 52						34,988 48
122,788 17						118,002 19
187,106 37						197,106 37
377,717 18						377,717 18
\$2,192,906 19						\$2,157,204 96
\$1,273,778 75						\$1,241,670 17
\$3,787,323 15						\$3,726,115 72
\$308,882 98	\$308,882 98					\$297,196 65
134,650 25		\$90,282 99	\$44,367 26			133,959 30
208,433 58			208,433 58			205,319 58
961,180 65			62,511 91	\$791,770 21	\$106,898 56	949,200 93
132,556 31					132,556 31	131,990 02
\$1,745,703 80	\$308,882 98	\$90,282 99	\$315,312 75	\$791,770 21	\$239,454 87	\$1,717,666 48
36,876 75						36,719 21
132,026 88						126,320 78
200,328 37						200,328 37
408,898 00						408,898 00
\$2,523,833 80						\$2,489,932 84
\$1,263,489 35						\$1,236,182 88
\$3,963,071 86						\$3,898,992 24
\$340,320 42	\$340,320 42					\$326,049 29
118,427 69		\$66,461 62	\$51,936 07			117,520 95
159,792 36			159,792 36			156,988 30
991,192 76			59,203 45	\$821,513 40	\$110,475 91	977,636 86
138,852 88					138,852 88	138,260 47
\$1,748,586 11	\$340,320 42	\$66,461 62	\$270,961 88	\$821,513 40	\$249,328 79	\$1,716,455 87
25,849 83						25,739 54
78,183 74						74,684 84
239,037 57						239,037 57
434,567 00						434,567 00
\$2,526,224 25						\$2,490,434 82
\$1,436,847 61						\$1,408,557 42

TABLE 79.
DISTRIBUTION OF OPERATING UNITS.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGET, HEAT AND TRACTION COMPANY.
Year Ending Dec. 31, 1909.

	Passengers.	Percent.	Car-miles.	Percent.	Car-hours.	Percent.	Track-miles ¹	Percent.
DISTRIBUTION BY SYSTEMS.								
<i>Urban and Suburban Systems:</i>								
1. Wells-Farwell.....	15,609,054	14.05	1,764,953	13.15	191,345	12.97	21,367	11.80
2. Fond du Lac-National.....	8,656,772	7.79	1,147,680	8.55	118,854	8.06	14,029	7.75
3. Walnut-National.....	9,481,215	8.53	1,082,730	8.07	124,407	8.43	12,535	6.93
4. Eighth-Third-Burnham.....	14,194,115	12.78	1,764,164	13.14	186,474	12.63	19,752	10.91
5. Oakland-Delaware.....	7,582,562	6.83	1,171,628	8.72	120,369	8.16	20,564	11.35
6. Holton-Mitchell.....	7,213,940	6.49	935,313	6.97	103,025	6.98	11,216	6.19
7. Muskego-Eighth.....	7,061,738	6.36	945,055	7.04	104,489	7.08	12,131	6.70
8. Clybourn-Wisconsin.....	4,766,846	4.29	441,573	3.29	52,781	3.58	4,743	2.62
9. Twelfth-Wisconsin.....	9,869,817	8.88	922,545	6.87	108,303	7.34	11,790	6.51
10. State-Wisconsin.....	8,546,374	7.69	783,148	5.83	96,338	6.53	7,326	4.04
11. First-Vliet-Howell.....	9,368,939	8.43	1,353,356	10.08	150,371	10.19	16,222	8.96
12. North ave.....	5,181,884	4.66	475,755	3.54	56,015	3.80	7,910	4.37
13. Public Service Bldg.-So. Milwaukee.....	1,778,310	1.60	587,951	2.89	32,113	2.18	10,801	5.96
14. Center st.....	1,398,980	1.26	191,596	1.43	23,165	1.57	7,257	4.01
15. Thirty-Fifth st.....	402,195	.36	57,866	.43	7,332	.50	3,437	1.90
Total.....	111,112,741	100.	13,425,313	100.	1,475,446	100.	181,080	100.
<i>Suburban Systems:</i>								
1. Wells-Farwell								
a. Wauwatosa.....	654,724	17.29	88,773	10.93	7,445	10.55	3,360	9.47
b. West Allis.....	397,658	10.50	56,565	6.96	5,419	7.68	2,157	6.08
c. North College ave.....	2,715	.07	8,926	1.10	973	1.38	0,502	1.41
2. Fond du Lac-National								
a. West Allis.....	523,510	13.83	132,645	16.33	13,110	18.58	3,518	9.91
3. Walnut-National								
a. Wauwatosa.....	325,103	8.59	62,828	7.73	6,851	9.71	2,849	8.03
4. Burnham-Third								
a. West Allis, South.....	92,788	2.45	54,292	6.68	5,166	7.32	2,996	8.44
5. Oakland-Delaware								
a. Whitefish Bay.....	440,792	11.64	89,244	10.99	7,108	10.07	5,800	16.34
b. Fox Point.....	72,234	1.91	307,19	3.78	2,308	3.27	2,280	6.42
6. Twelfth-Wisconsin								
a. North Milwaukee.....	439,375	11.60	76,634	9.43	7,193	10.19	3,850	10.85

7. St. Francis-Cudahy-So. Milwaukee.....	838,036	22.12	211,751	26.07	14,999	21.25	8,182	23.05
Total.....	3,786,935	100.	812,377	100.	70,572	100.	35,494	100.
Interurban Systems:								
1. Milwaukee-Racine-Kenosha.....	1,872,581	50.37	736,450	40.53	49,140	42.70	29,593	19.30
2. Waukesha-Oconomowoc-Watertown.....	1,264,570	34.01	685,989	37.75	38,611	33.54	67,446	43.99
3. Milwaukee-East Troy.....	463,996	12.48	320,801	17.65	23,141	20.10	31,178	22.29
4. St. Martins-Burlington.....	116,707	3.14	73,984	4.07	4,214	3.66	22,100	14.42
Total.....	3,717,854	100.	1,817,224	100.	115,106	100.	153,317	100.
Miscellaneous:								
1. Racine local.....	3,300,257		745,123		96,724		16,759	
2. Watertown local.....	39,994		8,032		1,533		3,650	
3. Private cars.....			23,372		2,745			
Total.....	3,340,251		776,577		101,002		20,409	
Total of urban and suburban, interurban and miscellaneous.....	118,170,846		16,019,114		1,691,554		354,806	
DISTRIBUTION BY SERVICES.								
1. Urban, Milwaukee.....	107,325,806	90.82	12,612,936	78.73	1,404,874	83.05	145,586	41.03
2. Urban, Racine and Watertown.....	3,340,251	2.83	753,205	4.70	98,257	5.81	20,409	5.75
3. Suburban, Milwaukee.....	3,786,935	3.20	812,377	5.07	70,572	4.17	35,494	10.01
4. Interurban.....	3,717,854	3.15	1,817,224	11.35	115,106	6.81	153,317	43.21
5. Private cars.....			23,372	.15	2,745	.16		
Total.....	118,170,846	100.	16,019,114	100.	1,691,554	100.	354,806	100.
DISTRIBUTION BY COMPANIES.								
1. T. M. E. R. & L. Co.....	109,248,041	91.36	12,887,776	80.45	1,433,060	84.72	145,586	41.03
2. M. L. H. & T. Co.....	10,325,336	8.64	3,131,338	19.55	258,494	15.28	209,220	58.97
Total.....	119,573,377	100.	16,019,114	100.	1,691,554	100.	354,806	100.

¹ As apportioned by the engineer's staff of the Commission.

In table 79 are given in detail the passengers, car-miles, car-hours and track miles for the various systems, services and companies together with the proportion each bears to the grand total. These data have been used in prorating the total cost of service as shown in table 78. The number of passengers is the total passengers carried, including transfers. It will be noted that the grand total of distribution by companies is somewhat in excess of the distribution by services and the distribution by systems, this being due to a duplication, interurban passengers being considered as The Milwaukee Electric Railway and Light Company passengers within the city limits and Milwaukee Light, Heat and Traction Company passengers without the city limits. The number of car-miles is computed from trip distances and was designed to exclude dead car mileage. The number of car-hours is computed from trainmen's platform time. Some change has been made in the apportionment of track miles from that reported by the company. It has been the practice, in determining the mileage of the separate lines, to divide joint track equally between the various lines served. For purposes of distributing joint track values in the apportionment of cost of reproduction new it has been deemed advisable to base the apportionment of joint track upon the relative headway of the various lines using such track and this basis has also been used in apportioning the operating expenses varying with the track mile.

Dividing results obtained in table 78 by the units in table 79, we note that for 1909 unit costs per car-mile for the entire traction system combined aggregated 1.886 cts., car-hour expenses per unit aggregated 48.775 cts., passenger expenses per unit aggregated 0.1929 cts., and track mile expenses aggregated \$360.11. Similar units for The Milwaukee Electric Railway and Light Company aggregated 1.789 cts. per car-mile, 49.339 cts. per car-hour, 0.1792 cts. per passenger, and \$461.27 per track mile.

BASIS OF PRORATING PLANT VALUES.

In segregating the tangible values applicable to the different lines, the appraisal of the engineer of the Commission has been directly localized wherever possible. In instances, however, where track and other equipment has been used jointly, the separation of values has necessarily been made upon an arbitrary unit basis. There follows a detailed statement of the basis of the apportionment of plant values common to two or more lines or systems:

Land, Power Plants and Substation Sites: Apportioned to the different lines on the same basis as the electrical and mechanical equipment contained in the buildings.

Car Barn Sites: Each property was apportioned between the lines operated by the cars it stored in the proportion that the number of cars used on each of these lines bears to the total number of cars stored. The cars not used on any particular line are classed as emergency cars and their proportion to the property value determined the same as for one of the lines. The emergency portion of the value of each car barn site was summed up and divided between all the lines in proportion to the total car-hours.

Right of Way: The value of right of way common to several lines was divided between them on the car-mile basis.

Kinnickinnic Shops Site: Divided on the proportion of total car-miles.

Public Service Building Site: Portion of Public Service Building site apportionable to railway was divided on the basis of total car-hours.

Roadway and Paving: The value of the track and track structures and paving within a given section over which two or more systems are operated was apportioned to each system in the ratio of the yearly system car mileage within a given section to the total car mileage within the same section.

The value of car barn and storage yard layouts was apportioned between different systems in the ratio of the different system cars stored to the total number of cars stored.

Transmission and Distribution: The trolley overhead within a given section over which two or more systems are operated was apportioned to each system in the ratio of the yearly system car mileage within a given section to the total yearly car mileage within the same section.

The transmission system was apportioned to the various systems according to the weighted car-hours used by each line, fed by a given joint transmission system.

TABLE
ANALYSIS OF COST OF
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY
Railway Property, as

	Land.	Per cent.	Road-way and paving.	Per cent.	Trans-mission and distribu-tion.	Per cent.
DISTRIBUTION BY SYSTEMS.						
<i>Urban and Suburban, Milwaukee</i>						
1. Wells-Farwell.....	\$109,319	19.30	\$447,627	13.16	\$164,130	13.23
2. Fond du Lac-National.....	37,374	6.60	245,610	7.22	100,827	8.13
3. Walnut-National.....	39,288	6.94	208,946	6.14	90,670	7.31
4. Eighth-Third-Burnham.....	66,325	11.71	331,922	9.76	148,750	12.00
5. Oakland-Delaware.....	55,609	9.82	392,214	11.53	135,486	10.93
6. Holton-Mitchell.....	35,430	6.25	237,893	7.00	87,376	7.05
7. Muskego-Eighth.....	35,128	6.20	242,439	7.13	80,934	6.53
8. Clybourn-Wisconsin.....	16,375	2.89	97,982	2.88	42,227	3.41
9. Twelfth-Wisconsin.....	40,195	7.10	211,277	6.21	62,872	5.07
10. State-Wisconsin.....	32,650	5.76	160,773	4.73	76,249	6.15
11. First-Viet-Howell.....	46,877	8.27	332,850	9.79	129,294	10.43
12. North Ave.....	17,456	3.08	150,235	4.42	35,732	2.89
13. P. S. B. So. Milwaukee.....	20,326	3.59	135,905	4.00	52,505	4.24
14. Center St.....	10,664	1.88	144,812	4.26	22,713	1.83
15. Thirty-Fifth.....	3,444	.61	60,124	1.77	9,882	.80
Total.....	\$566,460	100.00	\$3,400,609	100.00	\$1,239,707	100.00
<i>Suburban Systems</i>						
1. Wells-Farwell						
(a) Wauwatosa.....	\$16,843	20.31	\$33,067	8.54	\$11,098	8.79
(b) West Allis.....	6,557	7.96	26,536	6.86	6,884	5.45
(c) Nor. College Ave.....	1,684	2.03	5,883	1.52	1,983	1.57
2. Fond du Lac-National						
(a) West Allis.....	6,707	8.08	42,041	10.86	18,707	14.82
3. Walnut-National						
(a) Wauwatosa.....	4,132	4.98	21,123	5.46	8,373	6.63
4. Burnham-Third						
(a) West Allis, South.....	10,408	12.55	37,598	9.71	10,005	7.92
5. Oakland-Delaware						
(a) Whitefish Bay.....	13,497	16.27	70,255	18.15	18,702	14.81
(b) Fox Point.....	6,471	7.81	23,493	6.07	9,412	5.08
6. Twelfth-Wisconsin						
(a) North Milwaukee.....	9,459	11.40	37,132	9.59	8,923	7.07
7. St. Francis-Cudahy So. Milwaukee.....	7,200	8.68	89,961	23.24	35,173	27.86
Total.....	\$82,958	100.00	\$387,089	100.00	\$126,260	100.00
<i>Interurban Systems</i>						
1. Milwaukee-Racine-Kenosha.....	\$24,490	8.87	\$378,717	16.98	\$207,206	34.49
2. Waukesha-Oconomowoc-Watertown.....	134,265	48.63	1,020,880	45.78	186,242	31.00
3. Milwaukee-East Troy.....	68,993	24.98	508,780	22.82	143,244	23.84
4. St. Martins-Burlington.....	48,373	17.52	321,410	14.42	64,078	10.67
Total.....	\$276,121	100.00	\$2,229,787	100.00	\$600,770	100.00
<i>Miscellaneous</i>						
1. Racine local.....	\$41,621	86.84	\$371,792	85.94	\$30,077	72.51
2. Watertown local.....	6,309	13.16	60,816	14.06	11,404	27.49
Total.....	\$47,930	100.00	\$432,608	100.00	\$41,481	100.00
Total of urban, suburban, interurban and miscellaneous (grand total).....	\$890,511	100.00	\$6,063,004	100.00	\$1,881,958	100.00
DISTRIBUTION BY SERVICES.						
1. Urban, Milwaukee.....	\$483,502	54.29	\$3,013,520	49.70	\$1,113,447	59.17
2. Urban, Racine & Watertown.....	47,930	5.38	432,608	7.14	41,481	2.20
3. Suburban, Milwaukee.....	82,958	9.31	387,089	6.39	126,260	6.71
4. Interurban.....	276,121	31.01	2,229,787	36.78	600,770	31.92
5. Private cars.....						
Total.....	\$890,511	100.00	\$6,063,004	100.00	\$1,881,958	100.00
DISTRIBUTION BY COMPANIES						
1. T. M. E. R. & L. Co.....	\$529,200	59.43	\$2,850,685	47.02	\$1,150,925	61.16
2. M. L. H. & T. Co.....	361,311	40.57	3,212,319	52.98	731,033	38.84
Total.....	\$890,511	100.00	\$6,063,004	100.00	\$1,881,958	100.00

80.

REPRODUCTION NEW.

AND MILWAUKEE LIGHT, HEAT, AND TRACTION COMPANY.

of Jan. 1, 1910.

Bldgs. Fixtures and grds.	Per cent.	Power plant equipment.	Per cent.	Rolling stock and equipm.	Per cent.	Total.	Per cent.	12 per cent overhead.	Per cent.	Grand total.	Per cent.
\$120,204	13.06	\$110,441	13.63	\$300,148	12.24	\$1,251,869	13.34	\$150,224	13.34	\$1,402,093	13.34
75,867	8.25	81,647	10.08	186,598	7.62	727,923	7.75	87,351	7.75	815,274	7.75
68,332	7.43	70,312	8.68	193,991	7.92	671,530	7.15	80,585	7.15	752,124	7.15
122,545	13.32	118,489	14.63	292,021	11.91	1,080,052	11.51	129,605	11.51	1,209,657	11.51
81,751	8.89	69,954	8.63	189,455	7.75	924,469	9.85	110,936	9.85	1,035,405	9.85
73,354	7.97	56,065	6.92	161,828	6.60	651,946	6.94	78,234	6.94	730,180	6.94
57,407	6.24	56,712	7.00	164,047	6.69	638,667	6.78	76,400	6.78	713,067	6.78
24,269	2.64	14,395	1.78	82,232	3.36	277,480	2.96	33,298	2.96	310,778	2.96
57,723	6.27	57,532	7.10	168,778	6.87	598,371	6.37	71,805	6.37	670,182	6.37
56,246	6.11	23,628	2.92	149,755	6.10	499,081	5.32	59,890	5.32	558,971	5.32
92,582	10.06	66,476	8.20	235,470	9.61	903,549	9.63	108,426	9.63	1,011,975	9.63
30,434	3.31	31,157	3.85	87,753	3.58	352,827	3.76	42,339	3.76	395,166	3.76
41,278	4.49	35,884	4.43	190,098	7.76	475,996	5.07	57,120	5.07	533,116	5.07
14,582	1.58	15,471	1.91	36,788	1.60	245,030	2.61	29,404	2.61	274,434	2.61
3,465	0.39	1,962	.24	11,555	.47	90,432	.96	10,852	.96	101,284	.96
\$920,039	100.00	\$810,125	100.00	\$2,450,297	100.00	\$9,387,237	100.00	\$1,126,469	100.00	\$10,513,706	100.00
\$6,532	8.97	\$1,710	2.33	\$13,791	11.65	\$83,041	9.67	\$9,965	9.67	\$93,076	9.67
4,442	6.15	3,444	4.80	11,844	10.01	59,747	6.95	7,170	6.95	66,917	6.95
3,168	4.35	703	.98	2,183	1.84	15,004	1.82	1,872	1.82	17,476	1.82
13,771	18.90	14,690	20.46	15,306	12.93	111,222	12.94	13,347	12.94	124,569	12.94
5,191	7.13	4,385	6.11	8,213	6.94	51,417	5.98	6,170	5.98	57,587	5.98
7,820	10.73	7,513	10.46	9,285	7.85	82,629	9.62	9,915	9.62	92,544	9.62
7,245	9.94	5,227	7.28	8,456	7.14	123,382	14.36	14,806	14.36	138,188	14.36
3,962	5.44	5,053	2.40	5,053	4.27	47,114	5.48	5,654	5.48	52,768	5.48
4,518	6.20	4,693	6.53	7,735	6.54	72,460	8.43	8,695	8.43	81,155	8.43
16,168	22.19	27,711	38.60	36,493	30.83	212,706	24.75	25,525	24.75	238,231	24.75
\$72,857	100.00	\$71,799	100.00	\$118,359	100.00	\$859,322	100.00	\$103,119	100.00	\$962,441	100.00
\$44,733	30.79	\$83,945	41.33	\$292,062	44.42	\$1,031,153	25.07	\$123,738	25.07	\$1,154,891	25.07
58,513	40.28	77,966	38.38	214,317	32.60	1,692,183	41.15	203,062	41.15	1,895,245	41.15
35,678	24.56	36,578	18.01	127,763	19.43	921,036	22.40	110,524	22.40	1,031,560	22.40
6,348	4.37	4,621	2.28	23,576	3.55	468,206	11.38	56,185	11.38	524,391	11.38
\$145,272	100.00	\$203,110	100.00	\$657,518	100.00	\$4,112,578	100.00	\$493,569	100.00	\$4,606,087	100.00
\$58,209	96.48	\$57,608	14.42	\$75,552	90.04	\$34,839	87.29	\$76,183	87.29	\$711,045	87.29
2,123	3.52	3,492	5.58	8,361	9.96	92,415	12.71	11,090	12.71	103,505	12.71
\$60,332	100.00	\$31,010	100.00	\$83,913	100.00	\$727,274	100.00	\$87,273	100.00	\$14,547	100.00
\$1,125,643	100.00	\$1,074,245	100.00	\$3,191,728	100.00	\$14,227,089	100.00	\$1,707,251	100.00	\$15,934,340	100.00
\$847,182	75.26	\$738,376	68.73	\$2,331,938	73.06	\$8,527,915	59.94	\$1,023,350	59.94	\$9,551,265	59.94
69,332	5.36	61,010	5.68	83,913	2.63	727,274	5.11	87,273	5.11	814,547	5.11
72,857	6.47	71,799	6.66	118,359	3.71	859,322	6.04	103,119	6.04	962,441	6.04
145,272	12.91	203,110	18.91	657,518	20.60	4,112,578	28.91	493,569	28.91	4,606,087	28.91
\$1,125,643	100.00	\$1,074,245	100.00	\$3,191,728	100.00	\$14,227,089	100.00	\$1,707,251	100.00	\$15,934,340	100.00
\$1,003,546	89.16	\$185,601	75.92	\$2,402,549	75.28	\$8,752,506	61.52	\$1,050,391	61.52	\$9,802,897	61.52
122,097	10.84	258,644	24.08	799,179	24.72	5,474,583	38.48	656,960	38.48	6,131,533	38.48
\$1,125,643	100.00	\$1,074,245	100.00	\$3,191,728	100.00	\$44,270,899	100.00	\$1,707,251	100.00	\$15,934,340	100.00

TABLE
ANALYSIS OF
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY
Railway

	Roadway & paving.	
	Total reserve.	Per cent.
DISTRIBUTION BY SYSTEMS.		
<i>Urban and Suburban, Milwaukee:</i>		
1. Wells-Farwell.....	\$31,202	13.16
2. Fond du Lac-National.....	17,120	7.22
3. Walnut-National.....	14,565	6.14
4. Eighth-Third-Burnham.....	23,136	9.76
5. Oakland-Delaware.....	27,338	11.53
6. Holton-Mitchell.....	16,582	7.00
7. Muskego-Eighth.....	16,899	7.13
8. Clybourn-Wisconsin.....	6,830	2.88
9. Twelfth-Wisconsin.....	14,727	6.21
10. State-Wisconsin.....	11,207	4.73
11. First-Vliet-Howell.....	23,201	9.79
12. North Avenue.....	10,472	4.42
13. P. S. B. So. Milwaukee.....	9,474	4.00
14. Center street.....	10,094	4.26
15. Thirty-Fifth.....	4,192	1.77
Total.....	\$237,039	100.00
<i>Suburban Systems:</i>		
1. Wells-Farwell		
(a) Wauwatosa.....	\$2,305	8.54
(b) W. Allis, 62nd Greenfield.....	1,850	6.86
(c) No. College ave.....	410	1.52
2. Fond du Lac-National		
(a) West Allis.....	2,930	10.86
3. Walnut-National		
(a) Wauwatosa.....	1,472	5.46
4. Burnham-Third		
(a) West Allis, South.....	2,621	9.72
5. Oakland-Delaware		
(a) Whitefish Bay.....	4,897	18.15
(b) Fox Point.....	1,637	6.07
6. Twelfth-Wisconsin		
(a) North Milwaukee.....	2,588	9.59
7. St. Francis-Cudahy-So. Milw.....	6,270	23.23
Total.....	\$26,980	100.00
<i>Interurban Systems:</i>		
1. Milw.-Racine-Kenosha.....	\$13,709	16.98
2. Waukesha-Oconomowoc-Watertown.....	36,956	45.79
3. Milwaukee-East Troy.....	18,418	22.82
4. St. Martins-Burlington.....	11,635	14.41
Total.....	\$80,718	100.00
<i>Miscellaneous:</i>		
1. Racine local.....	\$13,459	85.94
2. Watertown local.....	2,201	14.06
3. Private cars.....		
Total.....	\$15,660	100.00
Total of urban & suburban, interurban and miscellaneous.....	\$333,417	
DISTRIBUTION BY SERVICES.		
1. Urban Milwaukee.....	\$10,059	63.00
2. Urban Racine & Watertown.....	15,660	4.70
3. Suburban Milwaukee.....	26,980	8.09
4. Interurban.....	80,718	24.21
5. Private cars.....		
Total.....	\$333,417	100.00
DISTRIBUTION BY COMPANIES.		
1. T. M. E. R. & L. Co.....	\$216,858	65.04
2. M. L. H. & T. Co.....	116,559	34.96
Total.....	\$333,417	100.00

81.
DEPRECIATION ALLOWANCE.
AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.
Property, 1910.

Transmission and distribution.		Buildings, fixtures & grounds.		Power plant equipment.		Rolling stock & equipment.		Total.	
Total reserve.	Per cent.	Total reserve.	Per cent.	Total reserve.	Per cent.	Total reserve.	Per cent.	Total reserve.	Per cent.
\$5,499	13.22	\$1,777	13.09	\$5,258	13.63	\$16,300	12.25	\$60,036	12.54
3,379	8.13	1,120	8.25	3,887	10.08	10,133	7.61	35,634	7.68
3,039	7.32	1,009	7.43	3,348	8.68	10,536	7.92	32,497	7.01
4,984	12.00	1,811	13.33	5,641	14.63	15,860	11.92	51,432	11.09
4,539	10.93	1,207	8.89	3,331	8.64	10,290	7.73	46,705	10.07
2,928	7.05	1,083	7.98	2,669	6.92	8,789	6.60	32,051	6.91
2,712	6.53	847	6.24	2,699	7.00	8,910	6.69	32,067	6.91
1,416	3.41	357	2.63	685	1.77	4,467	3.36	13,755	2.97
2,107	5.07	852	6.27	2,739	7.10	9,166	6.89	29,591	6.38
2,556	6.15	830	6.11	1,125	2.92	8,123	6.10	23,841	5.14
4,333	10.43	1,368	10.07	3,164	8.20	12,790	9.61	44,856	9.67
1,200	2.89	448	3.30	1,484	3.85	4,763	3.58	18,372	3.96
1,760	4.24	608	4.48	1,778	4.43	10,325	7.76	23,876	5.15
762	1.83	213	1.57	738	1.91	2,001	1.50	13,808	2.98
332	.80	49	.36	93	.24	639	.48	5,305	1.14
\$41,546	100.00	\$13,579	100.00	\$38,569	100.00	\$133,098	100.00	\$463,831	100.00
\$371	8.77	\$97	8.96	\$82	2.40	750	11.65	\$3,605	8.55
230	5.44	67	6.19	164	4.80	644	10.01	2,955	7.01
66	1.56	47	4.34	33	.97	120	1.86	676	1.64
627	14.83	205	18.95	699	20.46	832	12.93	5,293	12.56
281	6.64	77	7.12	209	6.11	447	6.94	2,486	5.90
335	7.92	117	10.82	358	10.47	505	7.85	3,936	9.34
627	14.83	108	9.98	249	7.28	460	7.15	6,341	15.03
215	5.08	57	5.27	82	2.40	275	4.27	2,266	5.37
299	7.07	67	6.19	223	6.52	421	6.54	3,598	8.53
1,178	27.86	240	22.18	1,319	38.59	1,983	30.80	10,990	26.07
\$4,229	100.00	\$1,082	100.00	\$3,418	100.00	\$6,437	100.00	\$42,146	100.00
\$7,563	34.49	\$998	30.80	\$3,895	41.33	\$16,122	44.42	\$42,287	27.89
6,798	31.00	1,305	40.28	3,618	38.39	11,830	32.60	60,507	39.91
5,228	23.84	796	24.57	1,637	18.01	7,053	19.43	33,192	21.89
2,539	10.67	141	4.35	214	2.27	1,290	3.55	15,619	10.31
\$21,928	100.00	\$3,240	100.00	9,424	100.00	36,295	100.00	151,605	100.00
\$1,098	72.52	\$1,298	96.51	\$2,673	94.42	\$4,170	90.03	\$22,698	87.36
416	27.48	47	3.49	158	5.58	462	9.97	3,284	12.64
\$1,514	100.00	\$1,345	100.00	\$2,831	100.00	\$4,632	100.00	\$25,982	100.00
\$64,988	.....	\$18,164	.....	\$50,824	.....	\$174,025	.....	\$641,418	.....
\$37,317	57.42	\$12,497	68.80	\$35,151	69.17	\$126,661	72.78	\$421,685	65.74
1,514	2.33	1,345	7.41	2,831	5.57	4,632	2.66	25,982	4.05
4,229	6.51	1,082	5.96	3,418	6.72	6,437	3.70	42,146	6.57
21,928	33.74	3,240	17.83	9,424	18.54	36,295	20.86	151,605	23.64
\$64,988	100.00	\$18,164	100.00	\$50,824	100.00	\$174,025	100.00	\$641,418	100.00
\$38,327	58.97	\$15,438	84.99	\$38,824	76.39	\$130,422	74.94	\$439,869	68.58
26,661	41.03	2,726	15.01	12,000	23.61	43,603	25.06	201,549	31.42
\$64,988	100.00	\$18,164	100.00	\$50,824	100.00	\$174,025	100.00	\$641,418	100.00

In this last case car-hours were used because they were found to bear a direct relation to the kilowatt hours used by the various lines.

Buildings and Fixtures: Practically the same basis for apportioning buildings and fixtures was used as was used in the case of the grounds on which the buildings were located.

Power Plant Equipment: All apparatus that was used entirely for railway or lighting was apportioned to the division in which it was used. That given as common was apportioned between railway and lighting according to the amount of use it rendered to each class of service, as measured by the total kilowatt hours output during the year preceding the date of the valuation. The railway portion was apportioned between the various lines according to the weighted car-hours used by each line.

Rolling Stock and Equipment: The rolling stock is apportioned between the various lines on the basis of the total car-miles operated on those lines.

The results of this separation are given in table 80. Based upon such a segregation, depreciation reserves have been computed for each separate portion of the investment. The resulting figures are summarized in table 81.

In table 82 are summarized income accounts for the calendar year 1909, covering systems, services and companies, of the combined traction business of The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company, together with the percentage return for the four years ending Dec. 31, 1911. These returns have been estimated upon the basis of tangible value of the Commission's engineer's cost of reproduction new, and the combined net return does not take into consideration interest and profit upon the intangible elements of value, neither are there included in earnings receipts from miscellaneous sources. These omissions, in a measure, offset one another and the net result as here reported can be easily calibrated to compensate for the remaining difference.

An examination of a single item will make clear the basis upon which returns have been computed. Earnings upon the Wells-Farwell line aggregate 14.67 per cent of the total urban and suburban business. From this there is deducted operating expenses aggregating 13.14 per cent of the total, expense burden aggregating 13.14 per cent of the total and depreciation consisting of 12.94 per cent. The percentage of surplus available

for return upon the investment earned by the Wells-Farwell line aggregated 17.59 per cent of the total urban and suburban business and resulted in a return upon the investment ranging from 14.40 per cent in 1910, to 17.58 per cent in 1909, this return being based upon 13.34 per cent of the tangible property value localized to the urban and suburban group.

Percentage returns upon tangible property of both companies aggregate from 8.27 per cent in 1910 to 9.80 per cent in 1909. Percentage returns upon The Milwaukee Electric Railway and Light Company business range from 11.91 per cent in 1910 to 13.43 per cent in 1909. Similarly, the rate of return upon urban Milwaukee business ranges from 12.50 per cent in 1910 to 14.60 per cent in 1909. In securing these results the Commission has of necessity carried its analyses to a degree of particularism which, with a less important issue involved, would not have been practicable. The interrelation of companies and services and the arbitrary designation of corporate and franchise limits and geographical zones have been elements of confusion with which the attorneys for the city and its complaining suburbs have struggled for days of cross-examination. Results similar to these must be obtained before any findings of fact can be made as to whether it is profitable to extend the single fare limits as suggested in the complaints under consideration from East Milwaukee, West Allis, Wauwatosa and Waukesha. The analysis presented in table 82, covering the entire traction business, and in table 83, covering the traction business of The Milwaukee Electric Railway and Light Company, rests upon the assumption that it is possible to segregate operating expenses and plant values to conform with the division of revenues maintained by the company. An investigation of the reasonableness of each succeeding division and the assumptions upon which it is based lead to the conclusion that the analysis cannot be far removed from the actual facts in the case.

TABLE
ANALYSIS OF EARNINGS AND OPERATING
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY
With Comparison of Rate of Return Upon Tangible Property

Italic figures denote deficits.

	Passenger earnings.	Per cent.	Operating expenses.	Per cent.	Expense burden.	Per cent.
DISTRIBUTION BY SYSTEMS.						
<i>Urban and Suburban Lines:</i>						
1. Wells-Parwell.....	\$519,474 19	14.67	\$200,930 74	13.14	\$49,832 62	13.14
2. Fond du Lac-National.....	287,748 58	8.13	125,093 04	8.18	31,022 14	8.18
3. Walnut-National.....	308,134 00	8.70	126,291 06	8.25	31,287 61	8.25
4. Eighth Third-Burnham.....	453,021 27	12.80	195,096 93	12.75	48,353 57	12.75
5. Oakland-Delaware.....	250,813 27	7.09	256,976 30	8.30	31,477 23	8.30
6. Holton-Mitchell.....	233,801 13	6.60	105,142 18	6.87	26,054 04	6.87
7. Muskego-Eighth.....	228,574 79	6.46	106,282 12	6.95	26,357 44	6.95
8. Clybourn-Wisconsin.....	150,756 76	4.26	54,145 36	3.54	13,425 23	3.54
9. Twelfth-Wisconsin.....	300,341 14	8.48	112,596 01	7.36	27,912 34	7.36
10. State-Wisconsin.....	270,841 00	7.65	97,084 51	6.35	24,081 98	6.35
11. First-Vliet-Howell.....	299,840 42	8.47	150,676 56	9.85	37,355 51	9.85
12. North ave.....	128,068 80	3.62	58,992 13	3.86	14,638 81	3.86
13. Public Serv. Bldg.-So. Milwaukee	62,204 38	1.76	38,303 64	2.50	9,481 09	2.50
14. Center st.....	36,645 89	1.04	24,195 99	1.58	5,992 05	1.58
15. Thirty-Fifth.....	9,678 32	.27	7,888 28	.52	1,972 06	.52
Total.....	\$3,539,943 94	100.	\$1,529,694 85	100.	\$379,243 72	100.
<i>Suburban Systems:</i>						
1. Wells-Parwell						
a. Wauwatosa.....	\$27,410 78	16.98	\$10,633 96	11.09	\$2,639 08	11.09
b. West Allis.....	16,291 17	10.09	7,074 98	7.37	1,753 83	7.37
c. North College ave.....	128 02	.08	1,115 49	1.16	276 05	1.16
2. Fond du Lac-National						
a. West Allis.....	22,212 73	13.75	15,438 20	16.09	3,828 93	16.09
3. Walnut-National						
a. Wauwatosa.....	13,088 16	8.10	8,200 49	8.55	2,034 64	8.55
4. Burnham-Third						
a. West Allis, South.....	4,289 47	2.66	6,542 99	6.82	1,622 95	6.82
5. Oakland-Delaware						
a. Whitefish Bay.....	21,081 29	13.06	10,961 30	11.42	2,717 61	11.42
b. Fox Point.....	3,572 50	2.21	3,651 32	3.81	906 66	3.81
6. Twelfth-Wisconsin						
a. North Milwaukee.....	19,225 03	11.91	9,651 93	10.06	2,393 97	10.06
St. Francis-Cudahy-So. Milw.....	34,175 84	21.16	22,679 74	23.63	5,623 22	23.63
Total.....	\$161,474 99	100.	\$95,956 40	100.	\$23,796 94	100.
<i>Interurban Systems:</i>						
1. Milwaukee-Racine-Kenosha.....	\$168,530 16	32.07	\$78,698 32	36.05	\$19,512 23	36.05
2. Waukesha-Oconomowoc-Watertown.....	234,058 90	44.54	83,223 63	38.12	20,632 63	38.12
3. Milwaukee-East Troy.....	102,334 57	19.48	42,096 17	19.28	10,435 39	19.28
4. St. Martins-Burlington.....	20,527 91	3.91	14,301 84	6.55	3,545 22	6.55
Total.....	\$525,451 54	100.	\$218,319 96	100.	\$54,125 47	100.
<i>Miscellaneous:</i>						
1. Racine, Watertown.....	\$142,716 91	.....	\$92,487 83	.....	\$22,929 10	.....
2. Private cars.....	12,492 66	.....	1,773 30	.....	456 76	.....
Total.....	\$155,209 57	.....	\$94,261 13	.....	23,385 86	.....
Total urban and suburban, interurban & miscellaneous	\$4,220,605 05	.....	\$1,842,275 94	.....	\$456,755 05	.....
DISTRIBUTION BY SERVICES.						
1. Urban-Milwaukee.....	\$3,378,468 95	80.04	\$1,433,738 45	77.82	\$355,446 78	77.82
2. Urban-Racine and Watertown.....	142,716 91	3.38	92,487 83	5.02	22,929 10	5.02
3. Suburban-Milwaukee.....	161,474 99	3.83	95,956 40	5.21	23,796 94	5.21
4. Interurban.....	525,451 54	12.45	218,319 96	11.85	54,125 47	11.85
5. Private cars.....	12,492 63	.30	1,773 30	.10	456 76	.10
Total.....	\$4,220,605 05	100.	\$1,842,275 94	100.	\$456,755 05	100.
DISTRIBUTION BY COMPANIES.						
1. T. M. E. R. & L. Co.....	\$3,446,278 76	81.66	\$1,460,097 94	79.26	\$355,091 06	77.75
2. M. L. H. & T. Co.....	774,326 29	18.34	382,178 00	20.74	101,663 99	22.25
Total.....	\$4,220,605 05	100.	\$1,842,275 94	100.	\$456,755 05	100.

¹ Includes private cars.

82.

EXPENSES BY SYSTEMS, SERVICES AND COMPANIES.
AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY. 1909.
Obtained from Similar Analyses for 1908, 1910 and 1911.

Depreciation.	Per cent.	Total operating expense.	Per cent.	Surplus available for return on investment.	Per cent.	Tangible values of property.	Per cent.	Percentage relation of surplus to tangible value of property.			
								1908	1909	1910	1911
\$50,667 31	12.64	\$301,430 67	13.11	\$218,043 52	17.59	\$1,239,996 72	13.34	17.36	17.58	14.40	15.52
30,144 79	7.70	186,264 97	8.10	101,483 61	8.19	720,387 89	7.75	12.56	14.09	12.24	12.95
27,487 27	7.02	185,065 89	8.05	123,068 11	9.93	664,615 93	7.15	17.50	18.52	15.91	16.27
43,580 15	11.13	287,030 65	12.48	165,990 62	13.39	1,069,892 22	11.51	12.96	15.51	13.72	14.94
39,351 35	10.15	197,804 88	8.60	53,008 39	4.28	915,589 77	9.85	3.52	5.79	5.15	6.39
27,095 66	6.92	158,291 88	6.88	75,509 25	6.09	645,095 74	6.94	11.69	11.71	10.52	11.66
27,017 34	6.90	159,056 90	6.94	68,917 89	5.56	631,223 21	6.78	9.12	10.94	9.21	10.61
11,629 20	2.37	79,199 79	3.44	71,556 97	5.77	275,141 50	2.98	24.13	23.01	21.26	15.07
24,942 10	6.57	165,450 45	7.19	134,890 69	10.88	592,112 37	6.37	21.78	22.78	19.01	21.89
20,204 27	5.16	141,370 76	6.14	139,470 24	10.45	494,511 43	5.32	24.87	26.18	22.51	22.88
37,902 59	9.68	225,934 66	9.82	73,905 76	5.96	895,141 05	9.63	6.73	8.26	5.73	6.61
15,427 29	3.94	89,058 23	3.87	39,010 57	3.15	349,504 32	3.76	9.93	11.16	9.51	11.97
20,165 12	5.15	67,943 85	2.15	5,745 47	.46	471,273 11	5.07	.....	1.22	.....	.....
11,511 74	2.94	41,699 78	1.81	5,053 89	.41	242,608 05	2.61	.....	2.08	1.70	4.07
4,424 58	1.13	14,284 92	.6	4,606 60	.37	89,235 14	.96	.....	5.16	2.68	10.01
\$391,555 71	100.	\$2,300,494 28	100.	\$1,239,449 66	100.	\$9,295,327 65	100.	12.90	13.33	11.46	12.50
\$3,032 51	8.55	\$16,311 55	10.51	\$11,099 23	177.49	\$82,284 08	9.67	15.34	13.49	13.29	9.58
2,482 76	7.00	1,311 57	7.29	4,979 60	79.62	59,139 02	6.95	11.43	8.42	9.75	4.15
574 58	1.62	1,366 12	1.27	1,838 10	29.39	15,486 77	1.82	10.40	11.87	11.37	7.82
4,486 70	12.65	23,753 83	15.30	1,541 10	24.64	110,109 20	12.94	2.98	1.40	1.37	2.07
2,099 71	5.92	12,334 84	7.95	753 32	12.05	50,885 09	5.98	2.78	1.48	2.18	3.17
3,312 71	9.34	11,478 65	7.39	7,189 18	114.96	81,858 62	9.62	9.64	8.78	8.64	9.14
5,302 43	14.95	18,981 37	12.23	2,099 92	33.58	122,192 28	14.36	3.67	1.72	3.37	1.13
1,901 08	5.33	6,459 06	4.16	2,886 56	46.16	46,630 48	5.48	6.28	6.19	9.07	5.28
3,011 23	8.49	15,057 13	9.70	4,167 90	66.66	71,732 65	8.43	6.90	5.81	6.19	7.08
9,204 24	26.12	37,567 20	24.20	3,391 36	54.25	210,602 99	24.75	1.88	1.61	.81	2.12
\$35,467 98	100.	\$155,221 32	100.	\$6,253 67	100.	\$50,921 18	100.	1.24	.74	1.05	1.11
\$35,456 47	27.71	\$133,667 02	33.38	\$34,863.14	27.88	\$1,021,068 35	25.07	3.23	3.42	2.25	2.24
51,169 40	39.99	155,075 66	38.72	79,033 24	63.20	1,675,985 76	41.15	4.03	4.72	2.72	3.26
28,060 64	21.93	80,592 20	20.13	21,742 37	17.39	912,322 74	22.40	1.27	2.33	1.79	2.63
13,268 98	10.37	31,116 04	7.77	10,583 13	8.47	463,492 54	11.38	.....	2.28	2.12	1.75
\$127,955 49	100.	\$400,400 92	100.	\$125,050 62	100.	\$4,072,869 39	100.	3.10	3.05	1.84	2.35
\$21,984 74	.....	\$137,401 67	.....	\$5,315 24	.....	\$719,901 86	.....	1.35	.74	2.25	4.40
.....	.....	2,230 06	.....	10,262 60	.....	.....	.....	.....	.....	.....	.....
\$21,984 74	.....	\$133,631 73	.....	15,577 84	.....	\$719,901 83	.....	.....	.....	.....	.....
\$541,495 94	.....	\$2,640,526 93	.....	\$1,380,078 12	.....	\$14,088,098 90	.....	9.40	9.80	8.27	9.24
\$3,6,087 73	65.76	\$2,145,272 96	75.52	\$1,233,195 99	89.36	\$8,444,406 47	59.94	14.07	14.60	12.50	13.65
21,984 74	4.06	137,491 67	4.84	5,315 24	.39	719,901 86	5.11	1.35	.74	2.25	4.00
35,497 98	6.59	155,221 32	5.46	6,253 67	.45	850,921 18	6.04	1.24	.74	1.05	1.11
127,955 49	23.63	400,400 92	14.10	125,050 62	9.06	4,072,869 39	28.91	3.10	3.05	1.84	2.36
.....	.....	2,230 06	.08	10,262 60	.74	.....	.....	.....	.....	.....	.....
\$541,495 94	100.	\$2,840,526 93	100.	\$1,380,078 12	100.	\$14,088,098 90	100.	9.40	9.80	8.27	9.24
\$377,717 18	69.75	\$1,192,906 18	77.20	\$1,253,372 58	90.82	\$3,105,629 31	61.52	12.25	13.43	11.91	12.95
163,778 76	30.25	647,620 75	22.80	126,705 54	9.18	4,982,469 59	38.48	3.35	3.18	2.47	3.22
\$541,495 94	100.	\$2,840,526 93	100.	\$1,380,078 12	100.	\$14,088,098 90	100.	9.40	9.80	8.27	9.24

TABLE 83.
ANALYSIS OF EARNINGS AND OPERATING EXPENSES BY LINES.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY, 1909.

With Comparison of Rate of Return Upon Tangible Property Obtained from Similar Analyses for 1908, 1910, and 1911.
Italic figures denote deficits.

Lines.	Passenger earnings.	Per cent.	Operating expenses.	Per cent.	Expense burden.	Per cent.	Depreciation.	Per cent.	Total operating expense.	Per cent.
1. Wells-Farwell.....	\$498,910.55	14.50	\$185,584.79	12.71	\$45,132.07	12.71	\$51,851.44	13.73	\$282,568.30	12.89
2. Fond du Lac-National.....	265,535.85	7.72	112,383.40	7.70	27,342.01	7.70	25,663.09	6.79	165,388.50	7.54
3. Walnut-National.....	295,045.84	8.56	119,996.32	8.22	29,188.49	8.22	25,387.51	6.72	174,572.32	7.96
4. Eighth-Third st.-Burnham.....	432,001.50	13.43	191,025.51	13.08	46,445.91	13.08	45,501.77	12.05	282,973.19	12.90
5. Oakland-Delaware.....	226,159.48	6.57	115,324.61	7.90	28,052.19	7.90	32,147.81	8.51	175,524.61	8.01
6. Holton-Mitchell.....	233,801.13	6.79	106,526.88	7.29	25,886.14	7.29	24,084.43	6.38	156,497.45	7.14
7. Muskego-Eighth st.....	228,574.79	6.64	107,789.89	7.39	26,241.23	7.39	17,753.10	4.70	151,784.22	6.92
8. Clybourn-Wisconsin.....	150,756.76	4.38	54,621.39	3.74	13,280.41	3.74	11,629.20	3.08	79,531.00	3.63
9. Twelfth-Wisconsin.....	281,116.11	8.17	104,664.21	7.17	25,460.03	7.17	24,942.10	6.60	155,066.34	7.07
10. State st.....	270,841.00	7.87	97,902.52	6.71	23,836.61	6.71	20,204.27	5.35	141,933.49	6.47
11. First ave.-Howell.....	299,840.42	8.71	152,815.21	10.47	37,178.03	10.47	37,902.50	10.04	227,895.83	10.39
12. North ave.....	128,068.80	3.73	59,791.74	4.09	14,523.22	4.09	15,427.29	4.08	89,742.25	4.09
13. P. S. Bldg & St. Francis.....	54,315.82	1.58	18,418.98	1.26	4,474.15	1.26	29,286.26	7.75	52,179.39	2.38
14. Center st.....	35,645.89	1.07	25,012.12	1.71	6,072.06	1.71	11,511.74	3.05	42,595.92	1.94
15. Thirty-Fifth.....	9,678.32	.28	8,240.38	.56	1,988.51	.56	4,424.58	1.17	14,653.47	.67
Total.....	\$3,441,392.26	100.00	\$1,460,097.95	100.00	\$355,691.06	100.00	\$377,717.18	100.00	\$2,192,906.19	100.00

Lines.	Surplus available for return on investment.	Per cent.	Tangible values of property.	Per cent.	Percentage relation of surplus to tangible value of property.			
					1908	1909	1910	1911
1. Wells-Farwell.....	\$216,342.25	17.33	\$1,198,300.82	13.16	16.102	18.75	15.474	15.95
2. Fond du Lac-National.....	100,147.35	8.02	641,945.87	7.05	13.294	15.60	14.478	17.22
3. Walnut-National.....	120,473.52	9.05	645,589.12	7.09	16.489	18.66	16.99	17.11
4. Eighth-Third st.-Burnham.....	179,028.31	14.34	1,117,260.72	12.27	12.218	16.02	15.60	16.55
5. Oakland-Delaware.....	50,634.87	4.05	783,994.68	8.61	3.854	6.46	6.71	7.71
6. Holton-Mitchell.....	77,303.68	6.19	678,369.38	7.45	10.629	11.39	10.94	11.95
7. Muskego-Eighth st.....	76,790.87	6.15	661,979.25	7.27	9.195	11.60	10.61	11.90
8. Clybourn-Wisconsin.....	71,225.76	5.70	288,648.45	3.17	21.46	24.98	21.35	14.97
9. Twelfth-Wisconsin.....	126,049.77	10.09	547,245.32	6.01	20.59	23.03	20.15	23.10
10. State st.....	128,907.60	10.33	519,020.88	5.70	22.19	24.84	22.58	22.75
11. First ave.-Howell.....	71,944.59	5.76	939,700.94	10.32	5.71	7.66	5.67	6.47
12. North ave.....	38,326.55	3.06	396,956.86	4.03	8.634	10.44	9.44	11.79
13. P. S. Bldg & St. Francis.....	2,136.43	.02	367,867.42	4.04	.58	.58	1.23	.68
14. Center st.....	5,959.03	.65	254,957.62	2.80	2.33	2.33	.53	3.83
15. Thirty-Fifth.....	4,973.15	.04	93,787.98	1.03	5.30	5.30	2.30	9.73
Total.....	\$1,248,386.07	100.00	\$9,105,629.31	100.00	12.26	13.71	12.57	13.514

PAYING HAUL.

Supplementary to the question of what is the net return upon the tangible property of the separate city lines as indicated in table 83, is the question of what adjustments are necessary in the haul of the separate car or separate passenger to yield not to exceed a reasonable return upon the investment. Data of this kind are necessary to a determination of where extensions can be reasonably made. Such facts, however, are subject to important qualifications. In a measure the entire city traction system is a single unit and it cannot be said that each line must be self-sustaining. Where new extensions are made or new lines built these cannot be expected to pay as well during the first years as the older and more traveled routes, and where single deficits occur other lines must show compensating surpluses. It is desirable to know, however, in any careful study of traffic conditions the comparative distance it is profitable to haul a car or carry a passenger. Frequently routes are too long and extend into territory which cannot reasonably be expected to grow and become self-sustaining. The elimination of surplus transportation facilities where such facilities are not needed is of as great an interest to the public as it is to the company's management.

Computations of this character have been made in a number of ways. Two of these methods are those evolved in similar studies now being undertaken by the American Electric Railway Association. A third method has been developed by the Commission as more accurate and suitable in its work. In all cases a return has been computed as 8 per cent upon the cost of reproduction new, as localized to the separate lines. These results are subject, of course, to adjustments to suit a return of $7\frac{1}{2}$ per cent upon tangible plus intangible values. These differences, however, are not large and will not affect the comparative value of the results obtained.

A computation of the distance which cars can be operated with profit, worked out upon the basis proposed by Mr. H. T. Bradlee, of the Stone & Webster Management Association, is submitted by Mr. C. N. Duffy, comptroller of the respondent company. The total of operating expenses per car-mile, exclusive of depreciation, for the year 1910 is found to be 12.36 cts. To this there is added 6 cts. and 0.3 cts., respectively, to

cover depreciation and obsolescence and extraordinary contingencies, making a total cost of 18.66 cts. per car-mile. The investment of the company for each dollar of gross business is estimated at \$5.84 and upon this amount there is computed an earning of 8 per cent, making total fixed charges 46.72 per cent of operating revenues. It is further estimated from the traffic records for the year that the average number of revenue passengers carried per car-hour will aggregate 57, and that the average earnings per round trip will aggregate \$2.50. With 46.72 per cent of all expenses claimed by fixed charges, 53.28 per cent is available for operating expenses and depreciation, and this amount will aggregate, on the basis of company's average fare of 4.26 cts., about 57.01 cts. for operating expenses upon a half round trip. Dividing this latter figure by the total cost per car-mile, aggregating 18.66 cts., gives the total distance of 3.06 miles which is estimated as the average distance upon which cars may be operated with profit. In checking over these computations, however, it is noted that the total miles of single track, 136 miles, are divided by 17 lines, giving 8 miles as the average distance per round trip. These total miles of track, however, existing in the city are not the same as the total trip distances of the separate lines, since considerable track is operated in common by two or more lines. The total of the round trip distances, therefore, was 220.49 miles upon Dec. 31, 1910, and substituting this figure for the one used by the comptroller, the result obtained is an average possible car haul of 5.035 miles instead of 3.06 miles per single trip, or 2.5175 miles per one-half trip as corrected.

To determine the profitable average car haul in the city of Milwaukee by lines, the Commission has employed the above method or so-called Bradlee formula. The car-miles of each line were divided by the respective trip distances as measured between single fare points. Although there is some short routing of trippers and regular cars, these results may be accepted as the approximate number of full trips on each line. Dividing the passenger revenue of each line by the number of single trips and dividing the result by two, gave the passenger revenue per one-half trip. The investment per one dollar of passenger revenue was then determined by dividing the apportioned cost of reproduction new by the passenger revenue. The result indicated the number of cents out of each dollar required for a re-

turn of 8 per cent on the tangible value, and subtracting this result from 100 per cent, the percentage allowance of revenue per half trip for operating expenses plus depreciation was found. This percentage applied to the revenue per half trip, as determined above, gave the amount of revenue of each line available for operating expenses, including depreciation, and dividing this amount by the expense per car-mile gave the average profitable car haul per line. On this basis the average profitable car haul per one-half trip for the entire city system was determined for the calendar years 1908 to 1911, inclusive.

This process is indicated in detail for the year 1909 in table 85, and the results obtained for that year are compared with similar results obtained for the years 1908, 1910 and 1911. In comparing the results of 1910 above with those obtained by the comptroller, it will be noted that the Commission's method shows 4.221 miles as the average profitable car haul per half trip, while the comptroller's corrected computations show a 2.5175 mile haul. This is due to the difference in estimated investment per dollar of passenger revenue. According to the engineer's valuation as of date Jan. 1, 1910, investment per dollar of passenger revenue is \$2.61, while the comptroller's figure is based upon book values and amounts to \$5.84 investment per dollar of revenue. An actual average car haul of the entire city system for 1912 is summarized in table 84. Total trip distances as listed aggregated 114.974 miles. The weighted average haul has been obtained by weighting each line in proportion to the car-miles run and will amount to 3.615 miles as against the simple average of 3.193 miles. Since some regular cars and nearly all trippers do not run the entire distance between the single fare points, a corrected average car haul would not amount to more than about 3 miles. The Bradlee formula for the four years does not show an average car haul below 4.2 miles, indicating that the company upon the basis of present revenues would be enabled to increase the actual average car haul for the entire city by about 1.2 miles.

TABLE 84.

ACTUAL CAR HAUL OR TRIP DISTANCE IN MILES BETWEEN SINGLE
FARE POINTS.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.

	Single fare distance.
Wells-Farwell	8.02
Fond du Lac-National	9.20
Walnut-National	8.45
Eighth-Third	6.96
Burnham-Third	9.01
Oakland-Delaware	9.04
Holton-Mitchell	7.55
Muskego-Eighth	7.22
Clybourn-Wisconsin	3.08
Twelfth-Wisconsin	5.29
State-Wisconsin	5.08
First-Vliet	7.12
Howell-Vliet	9.43
North avenue	4.58
Public Service Building-St. Francis	5.00
Center street	4.10
35th street	2.92
11th street-11th avenue	2.92
Weighted average per $\frac{1}{2}$ trip	3.615
Simple average per $\frac{1}{2}$ trip	3.193

TABLE 85.
 PAYING HAUL PER CAR.
Bradlee Formula.
 THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.

Lines.	1909 ¹						Possible average haul in miles.			
	Revenue passengers per $\frac{1}{2}$ trip.	Passenger revenue per $\frac{1}{2}$ trip in cents.	Investment per \$1.00 of passenger revenue.	Per cent allowance for operating expenses.	Passenger revenue for operating expenses in cents.	Operating expenses per car-mile in cents.	1909	1908	1910	1911
1. Wells-Farwell.....	-32.52	138.682	\$2.4018	80.79	111.621	16.618	6.717	6.569	6.144	6.289
2. Fond du Lac-National.....	27.26	116.567	2.4176	80.66	94.023	16.294	5.770	5.368	5.523	6.033
3. Walnut-National.....	28.70	122.624	2.1881	82.50	101.165	17.117	5.910	5.571	5.559	5.661
4. Eighth-Third.....	21.13	94.402	1.992	84.06	79.354	15.946	4.976	4.544	4.882	4.970
5. Burnham-Third.....	26.24	111.622	2.887	76.90	85.837	15.947	5.383	4.805	5.256	5.686
6. Oakland-Delaware.....	22.10	93.777	3.4666	72.27	67.773	16.690	4.061	6.259	4.114	4.301
7. Holton-Mitchell.....	21.73	92.492	2.9015	76.79	71.024	16.732	4.245	4.026	4.157	4.336
8. Muskego-Eighth.....	21.85	92.721	2.8961	76.83	71.237	16.061	4.435	4.018	4.265	4.467
9. Clybourn-Wisconsin.....	12.34	52.761	1.9147	84.68	44.678	18.011	2.481	2.291	2.219	1.948
10. Twelfth-Wisconsin.....	19.63	84.470	1.9467	84.43	71.318	18.331	3.890	3.621	3.532	3.829
11. State-Wisconsin.....	18.62	78.742	1.9163	84.67	66.671	18.123	3.679	3.497	3.404	3.482
12. First ave.-Vliet.....	18.45	78.685	2.913	76.70	60.351	16.838	3.584	3.245	3.353	3.598
13. Howell-Vliet.....	23.24	98.693	3.325	73.40	72.440	16.839	4.302	3.909	3.891	3.869
14. North ave.....	12.96	55.026	2.8653	77.08	42.414	18.863	2.249	2.080	3.735	2.374
15. P. S. B.-St. Francis.....	10.37	45.582	6.7727	45.82	20.886	18.073	1.156	.....	1.275	1.108
16. Center st.....	9.09	38.606	6.9573	44.34	17.118	22.232	.770	.....	1.492	1.709
17. Thirty-fifth st.....	4.02	17.076	9.6905	22.48	3.839	25.323	.152	.....	.866	1.071
Total.....	23.55	100.396	\$2.6460	78.83	79.142	17.026	4.648	4.829	4.221	4.379

¹Basis for 1909.

According to the basis suggested by Mr. Frank R. Ford on Oct. 9, 1911, in the report of the committee of the American Electric Railway Association, upon the determination of the proper basis for rates and fares, it is suggested that the following facts are necessary to determine the profitable length of haul per passenger:

(1) The amount of investment or value of the property upon which a return must be earned, unless the amount of outstanding securities is used.

(2) The reasonable rate of return upon this capital value, unless the interest and dividend rates on outstanding securities be used.

(3) The division between lines on the passenger-mile basis of operating expenses and return upon the investment with corrections where desirable for speed, weight of car, and for segregation of physical property.

(4) For each line the length of average passenger ride which will yield a reasonable profit at 5 cts. or other rate of fare, deriving zone limits for each line corresponding with maximum rate allowed for these fares.

According to the above basis, or Ford formula as it has been called, the Commission has determined the profitable average passenger haul for each line and for the entire city system for four years ending Dec. 31, 1911. The method used is shown in table 87, based upon 1909 figures and the results thus obtained are compared with similar calculations for the years 1908, 1910, and 1911. The average fare was computed by dividing the passenger revenue by the number of revenue passengers. The passenger-miles were obtained by multiplying the revenue passengers by the actual passenger haul as estimated in the company's count of the distance of passengers carried in September 1911. This estimate has been corroborated by similar counts made by the service inspection staff of the Commission in 1909 and the comparative results obtained are summarized in table 86. The operating expenses, including depreciation, as apportioned by the Commission, were divided by the passenger-miles and to this result was added the interest allowance of 8 per cent upon the tangible property per passenger-mile. The profitable average passenger haul was obtained by dividing the average fare by the total operating expense plus fixed charges per passenger-mile.

Comparing the actual passenger haul in 1910, or 2.74 miles, with the paying passenger haul as computed by the Ford formula for the year 1910, or 3.19, it is noted that an additional passenger mileage of 0.45 can be profitably cared for upon the basis of present revenues.

TABLE 86.

PASSENGER HAUL IN MILES.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.

Lines.	1909 Railroad Commission estimate.	1911	
		Company's estimate.	
		City.	Suburban.
1. Wells-Farwell	1.95	2.3	3.1
2. Fond du Lac-National	2.77	3.37	2.0
3. Walnut-National	2.74	3.37	2.0
4. 8th-3rd-Burnham	2.93	2.8	2.0
5. Oakland-Delaware	3.92	3.0	2.7
6. Holton-Mitchell	3.73	2.9	.....
7. Muskego-8th	3.46	2.6	.....
8. Clybourn-Wisconsin	2.85	2.1	.....
9. 12th-Wisconsin	2.40	2.6	1.4
10. State-Wisconsin	2.39	2.0	.....
11. Vliet-First ave.-Howell	3.13	2.7	.....
12. North ave	2.90	2.7	.....
13. P. S. B.-St. Francis .....	.....	4.9	4.2
14. Center .....	.....	2.3	.....
15. 35th st .....	.....	2.4	.....
16. 11th st.-11th avenue .....	.....	1.7	.....
Arith. average, weighted .....	.....	2.74	2.9
" " simple	2.93	2.73	2.5

TABLE 87.
PAYING HAUL PER REVENUE PASSENGER.

Ford Formula.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.

Lines.	1909. ¹			Possible haul in miles.			
	Average fare.	Operat- ing ex- pense per pass. mile.	Interest at 8% on cost of repro- duction new per pass. mile	1909	1908	1910	1911
1. Wells-Farwell.....	4.2645	1.0501	0.3563	3.0322	2.9612	2.8223	2.89
2. Fond du Lac-National.....	4.2761	.6829	.2121	4.7778	4.523	4.6200	4.95
3. Walnut-National.....	4.2726	.6482	.1918	5.0864	4.8395	4.8514	4.97
4. Eighth-Third-Burnham.....	4.2595	.3918	.2943	3.4740	3.2000	3.4187	3.55
5. Oakland-Delaware.....	4.2433	1.0378	.3923	2.8477	2.8429	2.8744	2.97
6. Holton-Mitchell.....	4.2564	.9824	.3407	3.2170	3.1988	3.1684	3.27
7. Muskego-Eighth.....	4.2435	1.0838	.3781	2.4027	2.6898	2.8176	2.93
8. Clybourn-Wisconsin.....	4.2756	1.0741	.3119	3.0845	2.8550	2.8253	2.53
9. Twelfth-Wisconsin.....	4.3031	.9129	.2578	3.6757	3.4054	3.4066	3.63
10. State-Wisconsin.....	4.2289	1.1081	.3242	2.9525	2.8394	2.7789	2.84
11. First-Vliet-Howell.....	4.2551	1.1978	.3951	2.6713	2.4873	2.5081	2.56
12. North avenue.....	4.2458	1.1019	.3605	2.9033	2.7355	2.8174	3.03
13. P. S. B.-St. Francis.....	4.3356	.8618	.4860	3.2613	.....	3.4119	3.23
14. Center.....	4.2471	2.1484	1.0278	1.3389	.....	1.8303	2.03
15. Thirty-fifth.....	4.2476	3.7830	1.9370	.7423	.....	2.0927	2.49
Total.....	4.2631	0.9354	0.3207	3.3148	3.2078	3.1929	3.36

¹Basis of 1909.

The calculation of what is a paying haul per revenue passenger used in the Commission's findings has proceeded along somewhat different lines. A division has been made between costs affected by the length of haul per passenger as distinct from costs more or less fixed in their nature, which, since service is shaped to meet the public demand, must be assessed against each passenger irrespective of his haul. Borrowing a terminology current in railway transportation cost analyses, these classes may be respectively termed *movement* and *terminal* costs.

Assuming that traffic is temporarily at a standstill, certain expenses would doubtless continue. Among these are a portion of the cost of maintenance and repair of roadway and rolling stock, power plant costs varying with the demand, depreciation due to the action of the elements, and a portion of interest upon the investment. Such costs are dependent upon the size or location of the entire traction plant and are not affected by any possibility of increased traffic. Such expenditures have been grouped in our analysis as *terminal* costs.

Assuming a limited demand for service certain additional costs are occasioned. Among these are wages of conductors and motormen, the output cost of power, and that portion of the maintenance and depreciation of roadway and rolling stock occasioned by travel and wear. Such costs are dependent upon the frequency of schedule, as expressed in car-hours run, the necessary length of trip, as expressed in car-miles run, and the total weight transported, as expressed in ton-miles. A portion of such costs will vary with the number of passengers hauled. If there is no demand for service, the headway can be reduced or the route shortened. In its very nature, however, the traction business is somewhat inflexible and cannot adjust itself readily to meet momentary changes in the demand for service. It is necessary to run a car whether three or two dozen passengers are accommodated and it is necessary to complete a trip whether all passengers have reached their destination or not. Moreover, it is necessary to maintain a constant schedule in order that all patrons may know when service will again be available. It is obvious that the expenditures within this group will be partly fixed and partly variable and may hence be divided between *terminal* and *movement*, dependent upon the traffic conditions upon each line. Assuming that all cars can be filled to a comfortable load at all times and for the entire trip, all of such costs would vary with the passenger-miles and be classed in our analysis as movement costs. Due, however, to the variable demand for traction service such a condition is not possible. Facilities must be held in readiness to serve the demand for transportation at the morning, noon, and evening peak, while throughout the day cars are compelled to operate, and costs varying with the car-hour, car-mile and ton-mile, are continued at far less patronage than the full comfortable seating capacity will accommodate. To decrease the number of patrons served when facilities are furnished in compliance to a demand for a through trip and a constant headway is to occasion a definite loss. When losses of a similar character occur in a competitive industry where the supply of in-put and out-go can be somewhat regulated by the management, such losses, or stand-by costs as they are called, will but remotely affect the price. In a public utility business, where the demand for service must be met and satisfied whenever and wherever occasioned, these stand-by losses are generally outside of the control of the management and are

therefore properly to be considered a part of the cost of service. The ratio of the average carload to the comfortable load will, therefore, determine what portions of this class of expenditures are *movement* and what portions *terminal* costs.

Under any condition of operation there are additional costs which undoubtedly vary with the number of passengers carried or density of traffic. Among these may be placed cost of injuries and damages and a certain part of the transportation expenses, notably the cost of car station employes, dispatchers, operation of the telephone system, and the cost of printing tickets and transfers. Such costs are affected entirely by the number of passengers hauled and would cease if traffic were at a standstill. This entire group of expenses will vary with the passenger-miles and are grouped in our analysis as *movement* costs.

In addition to the above three groups there is a small additional portion of the total expenditures which cannot be definitely localized, such as administrative costs. Such overhead costs have been prorated in our analysis in the proportion that the direct movement and terminal costs bear to their total.

The results of this process for the year ending Dec. 31, 1909, are given in table 88, together with similar results obtained from analyses made upon the same basis for the calendar years 1908, 1910 and 1911. Of the total cost of furnishing service during the former year 57.92 per cent were classed as *terminal* costs and amounted to 2.096 cts. per passenger and 42.08 per cent were classed as *movement* costs and amounted to 0.5412 cts. per passenger-mile. Upon the basis of an average fare of 4.263 cts. per passenger a possible haul for the year will aggregate 4.004 miles. This is about 1.25 miles in excess of the present single fare limits.

TABLE 88.
PAYING HAUL PER REVENUE PASSENGER.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.
Commission Basis.

Lines.	Total cost of service including return upon investment.	1909. ¹						Possible haul in miles, present revenue.				
		Terminal.	Per cent.	Movement.	Per cent.	Terminal cost per revenue passenger in cents.	Movement cost per revenue passenger mile in cents.	Present revenue per revenue passenger in cents.	1909.	1908.	1910.	1911.
1. Wells-Farwell	\$379,426 16	\$231,402 96	60.99	\$148,023 20	39.01	1.978	0.5501	4.2645	4.157	3.788	3.637	3.741
2. Fond du Lac-National...	215,610 43	97,946 55	45.43	117,663 88	54.57	1.577	.4859	4.2761	5.555	5.097	5.205	5.006
3. Walnut-National.....	224,296 71	89,347 13	39.83	134,949 58	60.17	1.294	.5011	4.2726	5.944	5.650	5.531	4.865
4. Eighth-Third-Buroham	371,008 89	217,190 36	58.54	153,818 53	41.46	2.002	.5065	4.2595	4.457	3.759	4.250	4.429
5. Oakland-Delaware.....	239,281 73	152,218 26	63.61	87,063 47	36.39	2.856	.5445	4.2433	2.548	1.534	2.635	2.881
6. Holton-Mitchell.....	210,463 15	124,563 93	59.19	85,899 22	40.81	2.268	.5392	4.2564	3.688	3.531	3.505	3.727
7. Muskego-Eighth.....	203,192 43	128,772 85	63.37	74,419 58	33.63	2.391	.5314	4.2435	3.486	2.920	3.187	3.512
8. Clybourn-Wisconsin.....	101,699 75	58,938 72	57.95	42,761 03	42.05	1.672	.5775	4.2756	4.508	4.184	3.962	3.334
9. 12th-Wisconsin.....	197,366 43	101,591 16	51.47	95,775 27	48.53	1.555	.5639	4.3031	4.873	4.602	4.382	4.741
10. State-Wisconsin.....	181,710 00	106,418 66	58.57	75,291 34	41.43	1.662	.5878	4.2289	4.367	4.136	3.972	4.039
11. First-Vliet-Howell.....	302,701 02	198,727 04	65.65	103,973 98	34.35	2.320	.5465	4.2551	2.626	2.132	2.134	2.321
12. North avenue.....	119,033 43	61,264 05	58.19	49,774 38	41.81	2.296	.6112	4.2453	3.190	2.827	2.951	3.370
13. P. S. Bldg.-St Francis	87,814 76	48,858 21	55.64	38,956 55	44.36	3.954	.6434	4.3956	.685	.....	1.401	1.538
14. Center.....	64,785 61	48,805 39	75.33	15,980 22	24.67	5.656	.8052	4.2471	.....	.....	.557	1.385
15. Thirty-fifth.....	22,960 68	17,963 79	78.24	4,996 89	21.76	7.884	1.2900	4.2476	.....	.....	1.481	2.795
Total.....	\$2,921,356 18	\$1,692,009 06	57.92	\$1,229,347 12	42.08	2.096	0.5412	4.2631	4.004	3.704	3.699	3.792

¹ Basis for 1909.

The question arises as to what increases are possible in the car haul and passenger haul where reductions are made in the present revenues, to aggregate the difference in revenue from 13 tickets for 50 cts. and the present rates of fare, and where the rate of return is placed at $7\frac{1}{2}$ per cent upon the valuation, both tangible and intangible, as fixed by the Commission. Such results are summarized for the entire city in table 89. It is noted that an average increased haul is possible upon the basis of the Railroad Commission's method, aggregating 0.75 miles in 1910 and 0.83 miles in 1911.

TABLE 89.
ACTUAL AND PAYING HAUL PER REVENUE PASSENGER AND PER CAR.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.
Basis of contemplated fare reduction.
1908-1911.

	1908	1909	1910	1911
<i>Revenue passenger haul.</i>				
Actual haul, company ¹	2.74	2.74	2.74	2.74
Paying haul, Ford formula.....	3.11	3.21	3.14	3.11
Paying haul, Commission.....	3.46	3.70	3.49	3.57
<i>Car haul.</i>				
Average $\frac{1}{2}$ trip distance ²	3.62	3.62	3.62	3.62
Paying haul, Bradlee formula.....	4.58	4.38	3.93	4.10

¹ Basis September, 1911, table 86.

² Basis 1912, table 34, corrected distance about 3 miles.

Similar results have been computed for the separate lines affected in the inquiries before this Commission for extension of fare limits, all of which are referred to in later decisions.

The Central Zone in Which a Single Fare is Applicable.

An additional possible solution of the problem of readjusting fare limits in Milwaukee is the zone system and is suggested by a memorandum of Vice-President R. B. Stearns. The zone idea is based upon the assumption that it is more desirable to maintain the single fare points at a constant distance from the center of the city than to extend single lines upon the basis of the cost of the separate services to points which are not symmetrical to the other single fare zones. The memorandum states:

"1. The cost of street railway service is a function of, and more or less directly proportional to, the distance passengers are carried. With the extension of the city fare zone into outlying territory, the average length of ride increases, and cor-

respondingly the cost of carrying a passenger. In any system a limit must sooner or later be reached where the added haul is supplied at less than cost.

"2. This leads us to the conclusion that there is an economic limit beyond which passengers can not be carried for the single city fare. The city fare limits should be determined at points that are equitable for the city as a whole, and they should be approximately symmetrical with respect to the center of traffic. Lack of symmetry opens opportunities for claims of discrimination as between different sections of the suburban territory. Where the single fare limit has been unduly extended, it should be contracted in the interest of symmetry.

"3. Outside of the central or city zone there should be small zones of such a length that the cost of service may be properly apportioned between the traffic originating in the various zones, and which will leave no reasonable grounds for claims of discrimination between districts. The smallest practical zone seems to be one mile, and the proper rate of fare for a ride across such zone seems to be 2 cts. The rate of fare depends in a measure on the density of traffic, assuming the same character of construction, and it might prove advisable at some date subsequent to the installation of such a system to either enlarge the outside zones or change the rate of fare.

"4. As a practical solution of some of the suburban fare problems now confronting us, and others which will arise with the extension of certain of the city lines into outlying territory, we propose to install zones of one mile in width, surrounding the majority of the present city fare limits, which are approximately three and one-half miles from Grand avenue and West Water street. The charge for an added ride across each of these zones would be 2 cts., and the charge for a ride in the zone would be 5 cts.

"A passenger, originating in the city and desiring to travel to a point near the outer edge of the second zone, would pay the city fare, in either cash or a ticket, of 5 cts., $4\frac{1}{6}$ cts., or 4 cts., and in addition thereto two zone fares of 2 cts. each. The total charge for the ride would be 9 cts., $8\frac{1}{6}$ cts., or 8 cts., depending upon the price paid for the ride in the city. On his return trip he would indicate to the conductor that he desired to ride into the city, and the charge for the ride would be the same as on the outgoing trip. For such places as now have commutation rates this fare scheme would be alternative to the present commutation rates. Our investigation indicates the entire practicability of collecting fares under such a system.

"5. The proposed two-cent-one-mile zone system would apply to the suburban districts. We could further extend it from time to time along what are now interurban lines, as the density of business increased.

"6. We believe that such a system is in line with good business management and proper public policy, that it will prove popular, assist materially in the development of the outlying territory, foster the extension of the street railway system into outlying territory, and remove the barrier that apparently now exists."

In support of such a zone system it is the claim of the respondent company that the traffic contributed by outlying districts is long haul traffic and hence the most expensive increment to the company's city traffic, and that the relative proportion of such long haul business will be greatly increased with the development of population in the future. It is assumed that the number of revenue passengers carried is proportionate to the population served and an elaborate and detailed forecast has been made as to Milwaukee's population for each decade till 1930 by quarter-mile sections. It is estimated that the revenue passengers contributed by the central or 3½-mile zone, aggregating 93.3 per cent in 1912, will decrease to 76.5 per cent in 1930, while the passenger contribution made by the next successive mile zones will be correspondingly increased. The results of Mr. Stearns' forecast are given in table 90:

TABLE 90.
DISTRIBUTION OF ESTIMATED REVENUE PASSENGERS TO ZONES.
Based on Forecasts of Population Growth.

By R. B. STEARNS.

Year.	Central 3½ mile zone, per cent.	4½ mile zone, per cent.	5½ mile zone, per cent.	6½ mile zone, per cent.
1912.....	93.3	5.6	0.9	0.2
1915.....	90.0	8.0	1.7	.3
1920.....	86.0	10.0	3.4	.6
1925.....	81.2	12.0	5.9	.9
1930.....	76.5	13.3	9.4	.8

In order to determine the reasonableness of a zone system, an income account has been drawn up for the four years reviewed for a central 3½ and 4 mile area and for each succeeding one-half mile. The detail of income account is given for 1909 and significant comparative results are summarized from similar income accounts for 1908, 1910 and 1911.

The results obtained in table 91 clearly establish that present fares within a central three and one-half, or even four mile zone are somewhat excessive even when the deductions are made

from such surplus to meet increases in wages, service betterment and the added municipal and franchise requirements.

The surplus available for return upon the investment in the five-mile area for 1911 aggregated \$1,449,218.34. The investment, including tangible and intangible values for both the city and traction company property involved, aggregated \$11,227,833. Deducting a $7\frac{1}{2}$ per cent return upon this investment, or \$842,087.48, there remains \$607,130.86 to cover the various additional claims upon operating expenses and gross earnings.

While it is undoubtedly true that the relative increase in population at the outskirts will increase the amount of long haul traffic, it is probable that this increase will not keep pace with population. The results for the four years summarized show a steady proportional increase of revenues within the $3\frac{1}{2}$ mile zone and a corresponding decrease in the outlying additions. The same tendency is true as regards operating expenses. Net income, however, within the $3\frac{1}{2}$ mile zone has remained relatively stationary; the proportion contributed, however, by the outlying zones from $4\frac{1}{2}$ to 6 miles shows a steady decrease. These facts are significant and indicate that some stimulation is necessary to promote the *movement* of population to and from the city to these outlying districts.

Such a free interchange of suburban and urban populations is not only desirable from the standpoint of gross earnings, but there seems to be sound economic and social reasons why a central zone, even at a reduced rate of fare, should not be restricted to a $3\frac{1}{2}$ mile area. Such a restriction may tend to cause undue congestion of population, especially in the central zone or from the places and zones so located as to give the lowest rates to those who regularly depend upon the street railway service. Such congestion is often inimical to both the health of the people and to their well-being in other respects. Such rates may also tend to materially increase the expenses of those whose homes are located some distance away from their work and business. This is a condition that may result in hardships to many, and that may be undesirable in other respects. Statistics of traffic in both this country and Europe indicate that the local transportation system is a prime factor in decentralizing population and that the attendant effects of such decentralization upon the cost of living, the ground rents, the physical and moral health and the economic advance of the community is so marked as to merit consideration.

TABLE 91.

INCOME ACCOUNT APPORTIONED TO ZONES.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY, AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

Italic figures denote deficits

1909.

	Total including Racine and Watertown	Total excluding Racine and Watertown	URBAN		SUBURBAN AND INTERURBAN.						Racine and Watertown.
			Central 3½ mile zone.	Central 4 mile zone.	4½ mile zone.	5 mile zone.	5½ mile zone.	6 mile zone.	6½ mile zone.	Beyond 6½ mile zone.	
Operating revenues.....	\$4,246,606.87	\$4,102,886.66	\$3,299,640.68	\$3,444,852.75	\$64,794.19	\$58,303.39	\$32,774.69	\$36,095.37	\$23,636.17	\$442,430.10	\$143,720.21
Per cent. (a).....	100.00	96.62	77.70	81.12	1.53	1.37	0.77	0.85	0.56	10.42	3.38
Operating expenses:											
Varying with the car-hour....	\$825,068.78	\$777,132.28	\$662,324.62	\$691,583.47	\$12,626.50	\$11,170.18	\$6,113.20	\$6,685.28	\$4,361.67	\$44,591.98	\$47,936.50
Varying with the car-mile....	302,122.84	287,923.07	229,886.98	240,435.70	4,942.50	4,716.17	2,782.29	3,001.03	2,088.18	29,557.20	14,199.77
Varying with the track miles.	127,769.30	120,422.57	54,250.15	57,248.43	2,322.82	2,903.22	1,922.02	1,997.28	1,553.83	52,474.97	7,346.73
Varying with the passengers..	230,633.56	224,106.63	199,469.20	207,820.33	3,248.09	2,448.91	1,282.83	1,397.06	838.36	7,071.05	6,526.93
Power plant proportion.....	356,681.46	340,203.56	252,623.15	264,492.35	5,770.55	5,713.79	3,446.17	3,716.99	2,727.58	54,336.13	16,477.90
Total.....	\$1,842,275.94	\$1,749,788.11	\$1,398,554.10	\$1,461,580.28	\$28,910.46	\$26,952.27	\$15,546.51	\$16,797.64	\$11,569.62	\$188,431.33	\$92,487.83
Expense burden.....	\$453,755.05	\$433,825.95	\$346,737.95	\$362,329.69	\$7,163.65	\$6,686.20	\$3,855.39	\$4,175.29	\$2,879.08	\$46,736.65	\$22,929.10
Depreciation.....	541,495.94	518,869.69	334,420.56	351,180.60	10,884.35	12,978.18	8,064.58	8,462.32	6,285.96	121,013.70	22,626.25
Grand total.....	\$2,840,526.93	\$2,702,483.75	\$2,079,712.61	\$2,175,090.57	\$46,958.46	\$46,616.65	\$27,466.48	\$29,435.25	\$20,734.66	\$356,181.68	138,043.18
Per cent. (b).....	100.00	95.14	73.22	76.57	1.65	1.64	0.97	1.04	0.73	12.54	4.86
Surplus available for return upon investment.....	\$1,406,079.94	\$1,400,402.91	\$1,219,928.07	\$1,269,762.18	\$17,835.73	\$11,686.74	\$5,308.21	\$8,660.12	\$2,901.51	\$86,248.42	\$5,677.03
Per cent. (c).....	100.00	99.60	86.76	90.31	1.27	0.83	0.38	0.47	0.20	6.14	0.40
Cost of reproduction new.....	\$13,675,559.00	\$12,955,657.00	\$7,844,977.00	\$8,240,615.00	\$254,305.00	\$298,292.00	\$188,477.00	\$197,867.00	\$148,875.00	\$3,627,226.00	\$719,902.00
Per cent. return upon cost of reproduction new—											
1909.....	10.28	10.81	15.55	15.41	7.01	3.92	2.82	3.37	1.95	2.38	0.79
1908.....	9.60	10.18	14.86	14.72	7.29	3.91	2.49	3.15	1.58	2.08	1.22
1910.....	8.48	8.80	13.14	13.00	6.02	3.08	2.38	1.92	1.40	1.27	2.42
1911.....	9.44	9.70	14.53	14.36	5.11	1.61	1.54	1.67	0.73	1.86	4.57

(a) Per cent of operating revenues.....												
1908.....	100.00	96.98	77.14	80.93	1.78	1.48	0.80	0.89	0.58	10.52		3.02
1910.....	100.00	96.32	77.51	80.83	1.54	1.39	.81	.88	.58	10.29		3.68
1911.....	100.00	96.25	77.77	81.24	1.49	1.23	.77	.83	.53	10.16		3.75
(b) Per cent of operating expenses.....												
1908.....	100.00	95.26	72.39	76.11	1.89	1.73	1.00	1.07	0.76	12.70		4.74
1910.....	100.00	95.41	73.24	76.53	1.63	1.64	.98	1.05	.75	12.83		4.59
1911.....	100.00	95.63	73.60	76.97	1.66	1.62	1.02	1.08	.75	12.53		4.37
(c) Per cent of surplus available for return.....												
1908.....	100.00	100.65	87.31	91.26	1.54	0.94	0.38	0.50	0.19	5.84		0.65
1910.....	100.00	98.54	87.92	91.31	1.31	.79	.38	.48	.18	4.03		1.46
1911.....	100.00	97.53	86.39	90.06	1.14	.42	.26	.30	.09	5.26		2.47

Owing also to the lack of other small coins than one-cent and five-cent pieces, zone or distance rates could not be put into general effect except through tickets sold in larger quantities and of which no one could avail himself unless he were in a position to purchase and use several tickets. While such use of tickets as this is in general practice throughout the country and has much to recommend it, it is not clear that it could be extended to meet zone or distance conditions without resulting in many inconveniences that might be both unjust and impracticable.

Where such disadvantages, however, can be obviated, the zone system is not without merit. Zone rates are to a certain extent distance rates, or rates which increase with distance though not in the same proportion. Such increases in the rates with the length of the haul are in line with the cost of the service, for this cost also increases with the length of the haul. The cost of transportation, as has been pointed out, is made up of items which vary with the length of the haul as well as of items which are independent of the haul. It is not easy to get away from the principle that for such services as those rendered by public utilities each person or class of persons should be charged in proportion to the cost of service he or they obtain.

Investigations into the matter have led to the conclusion that for a city and its suburbs which does not cover a greater area than Milwaukee and in which the population and industries are so distributed as is the case for this city, the best system of rates, for the present at least, is probably a system under which there is but one fare zone for an area that varies from about four to about five miles—depending upon conditions—from the business center of the city, and under which only one fare, based on the average cost, is charged within this zone. Such a system, it seems to us, would tend to cause people to move away from the more crowded districts into the sections where there is more room, air, and light. It will also enable many employes of all classes to go back and forth between their homes and the places where they work at lower costs than would be the case under distance rates. It is, of course, a fact that this system also has its shortcomings; that it causes some to pay more and others less than the cost of the service they obtain. On the whole, however, it would seem to meet the present needs of the city somewhat more fully than is likely to be the case for a

system made up of a single restricted 3½ mile central zone and outlying one mile zones.

It is questionable also whether it is desirable or necessary to place the single fare points in a symmetrical manner around the center of town. The analysis of costs by lines indicates, for example, that the traffic conditions are such as to permit extensions to the north and west and still maintain a paying haul, which are somewhat beyond extensions which would pay toward the south and southwest. It appears to be more equitable to apply the rule of cost to single areas and lines with such limitations and qualifications as local circumstances and the need for interrelation of service dictate, rather than to endeavor to merge and equalize the claims of all communities situated a stated distance from the center of the city.

CONCLUSION.

The purpose of this report has been to set forth and to explain and analyse as fully as possible the facts and conditions which constitute the basis for our conclusions and order herein. In addition to this we have also aimed to present the main facts and conditions, insofar as the respondent company in this case is concerned, which led to our conclusions and orders relating to the extension of the one fare limit into West Allis, Wauwatosa, and East Milwaukee, which orders were issued on the same date as the present order.

These facts and conditions, as may be noted, cover considerable ground. They bring out some of the main facts in connection with the organization, development and financial history of the company. They cover in detail the original cost of both the physical plant or property and the business or going value, the cost of reproduction new of both of these factors, and the cost of reproduction new less depreciation of the physical property alone. They also embrace a close examination of the operating expenses and extend to the apportionment of both the cost value of the property thus used in the service and of the operating expenses and fixed charges as between the urban, suburban and interurban traffic of the company, and as between the city and traction company. Depreciation has been discussed at some length, and so has the rate of return to which the com-

pany is entitled for interest and profit upon the fair cost-value of the property used and its business.

Through these and other facts were also determined: The net earnings of the company that were available for interest and profits; the amounts which, under the circumstances, constitute reasonable allowances for such interest and profit; and the surplus above these charges and other existing operating costs that would be available for such further increases in the operating expenses as are unavoidable or necessary, and for such reductions in the gross earnings as would result from needed extensions of the single fare limit and from needed reductions in the rates.

As investigations developed that necessary advances in wages, in the cost of additional and continuous requirements for paying and for improvements in the service of the company would require from \$250,000 to \$300,000 annually, it is manifest that the surplus left for extensions of the single fare limit and for lower fares was greatly diminished, and that the reductions which have been made herein in such fares are, therefore, less than would have otherwise been the case. The amount left, however, was high enough to permit something in the way of such changes. As it appeared that readjustments provided in the order herein were necessary and just, and as it also appeared that the readjustments in the single fare limits which are provided in the orders of the other cases mentioned were also reasonable and fair, such actions were decided upon. In order to determine the effects of these orders upon the gross and net earnings of the company, the investigation was so extended as to include all the facts involved which disclosed the gross and net earnings per line, the cost per unit of service, and other facts of this nature. To this end various methods of computing reasonable rates and charges have been studied and prescribed, and the possibilities of a zone system have been entered into.

With respect to the more important facts and classes of facts, the more specific findings of the Commission have already been given. The question of the improvements in the service will be fully dealt with in a separate report

From these facts and findings and from other facts and conditions which have been investigated we have reached the conclusion that the rate of fare of the respondent company should

be readjusted as required by the order herein. From these and other facts it further appears to us that the extensions of the single fare limit into West Allis, Wauwatosa, and to East Milwaukee, as provided in the other orders referred to, should be made.

IT IS THEREFORE ORDERED, That the Milwaukee Electric Railway and Light Company shall discontinue the present ticket rate of twenty-five for \$1.00, and shall sell through its conductors tickets in packages of thirteen for 50 cts., and each ticket shall entitle the bearer to one continuous passage in the same general direction, with privilege of usual transfers between the single fare points upon the city lines of the respondent.

Thirty days is deemed sufficient time to comply with the above order.

GEORGE F. DEAKIN ET AL.

vs.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.

Decided Aug. 23, 1912.

Complaint was made of excessive rates of fare charged by the T. M. E. R. & L. Co. upon its interurban electric line between Milwaukee and Waukesha, Wis. The rates in question are joint rates involving both the T. M. E. R. & L. Co. and the M. L. H. & T. Co. The latter company has title to the property up to Thirty-fifth and Wells streets, while the single fare limits of the city of Milwaukee extend to Hawley road, approximately 1.97 miles west of the ownership limits. The T. M. E. R. & L. Co. operates the entire interurban line under a traffic agreement by which it is credited with a single fare for each passenger carried within the single fare limits, and under which operating expenses upon the entire line are prorated upon the car-hour basis. The effect of this working agreement has already been fully entered into in *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1. The analysis of the facts in this case have been considered in connection with the application for reduction of fares in the city of Milwaukee and to the outlying suburbs of West Allis, Wauwatosa, and East Milwaukee. (*City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1; *Cusick et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 314; *Koenig et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 337; *Village of East Milwaukee v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 358.

A valuation of the property was made and the revenues and expenditures of respondent were investigated. The revenues and expenditures were apportioned between the T. M. E. R. & L. Co. and the M. L. H. & T. Co. and were further apportioned for the Milwaukee-Watertown interurban system. It appears that the passengers per car-mile and the earnings per mile of track for the interurban system are considerably below those for the traction company. The earnings per car-hour and per car-mile upon the interurban line, however, are somewhat in excess of those for the traction company. Where the returns for the total of the T. M. E. R. & L. Co. and the M. L. H. & T. Co. property combined have aggregated from 8.27 per cent in 1910 to 9.80 per cent in 1909, those of the M. L. H. & T. Co. only have been considerably less and have in no instance exceeded 3.35 per cent. The percentage return upon tangible property of the Milwaukee-Watertown interurban is somewhat in excess of the return upon the M. L. H. & T. Co.'s properties combined, but in no instance exceeds 4.72 per cent. These percentages make no allowance for additions to tangible property, for working capital and going value, all of which will increase the total valuation of the M. L. H. & T. Co., as of

Jan. 1, 1910, from \$6,131,533 to \$6,500,000. When a return of $7\frac{1}{2}$ per cent upon the cost of reproduction new plus an allowance to cover going value and cost of working capital is added to the other expenses of operation of the Milwaukee-Water-town interurban line, it is noted that the total cost of service for the calendar year 1911 will aggregate \$331,196.06 as against present revenues of \$240,862.34. Such a total cost may be apportioned in accordance with the basis suggested in *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, into movement and terminal costs. When such a separation is made it appears that of the total cost, or \$331,196.06, about 49.85 per cent, or \$165,087.74, are terminal costs and are properly borne by each revenue passenger irrespective of his length of haul, while 50.15 per cent, or \$166,108.32, are movement costs properly chargeable against each revenue passenger mile. From the traffic statistics submitted by the company it appears that there were 1,071,755 revenue passengers transported upon the line during the year. Using this as a divisor, the terminal expenses will aggregate 15.403 cts. per passenger. Dividing the total passenger revenues by the average rate of fare per mile, it is estimated that the total number of passenger miles for the year will aggregate 12,103,635. Using this as a divisor, the movement expenses per passenger mile will aggregate 1.372 cts. per passenger mile. It appears that a rate of fare based upon these terminal and movement expenses, sufficient to meet the operating expenses and a reasonable return upon the investment for a haul covering the distance from Milwaukee to Waukesha will aggregate 39 cts. The present rate of fare for such a haul aggregates 35 cents.

Held: Aside from the consideration of the cost of service, it does not appear that traffic conditions will warrant a change in the present rates of fare. While there has been a notable increase in the density of traffic since the line first began to operate, the type of traffic at the present time does not differ much from that usually observed between terminal and subterminal points the size of Milwaukee and Waukesha.

It does not appear that a decrease in the rate of fare is possible at the present time. The petition is dismissed.

This is a case involving the reasonableness of rates of fare upon the interurban electric railway operating between Milwaukee and Waukesha, Wis.

The petition, filed Feb. 18, 1907, and signed by George F. Deakin and forty-three other persons, residents of Waukesha, Wis., and Milwaukee, Wis., alleges in part that The Milwaukee Electric Railway and Light Company operates an interurban railway from the city of Waukesha and points westerly therefrom to the city of Milwaukee. The petitioners are patrons of the interurban line and have their homes along the railway and in the city of Waukesha, while their daily work and business lies in West Allis and in the city of Milwaukee, and in consequence the undersigned make the trip to and from their homes and work each working day.

The distance between Waukesha and Milwaukee is approximately twenty miles, the distance from Waukesha to West Allis is approximately fifteen miles, and the distance from Waukesha to Calhoun is approximately six miles. The single trip fare from Waukesha to Milwaukee is 35 cts., from Waukesha to West Allis 30 cts.; and the round trip fare from Waukesha to Milwaukee is 50 cts., from Waukesha to West Allis is 40 cts., from Calhoun to Milwaukee is 50 cts., and from Calhoun to West Allis is 40 cts.

Petitioners claim that the amount of passenger traffic carried annually on such interurban line is very large and the line earns a very large amount annually per mile. The net earnings, it is claimed, are more than a fair return upon the actual investment, causing the rates charged to passenger service on the line to be unjust and oppressive. The undersigned and others have appealed to the company for the establishment of a commutation rate or a straight lowering of rates, but all relief, it is asserted, was denied by the company, notwithstanding that a readjustment and lowering of the rates would result in an increase in travel and would be of great benefit in the development of the country adjacent to the lines and an increase in the population. The petition prays that the Commission, after due investigation, establish a just and equitable rate.

Respondent's answer, filed Feb. 27, 1907, while denying knowledge or information as to the residence of all the petitioners and the extent of their patronage, admits that it operates an electric railway between Milwaukee and Waukesha, and states that the distance from the Public Service Building at the corner of Sycamore and Third streets in Milwaukee to the corner of Delafield and Summit avenues in Waukesha is 18.80 miles, and that the distance from the same point in Waukesha to the Hawley road in West Allis is 14.51 miles, and that the distance from the same point in Waukesha to the Calhoun road is 6.04 miles. Respondent's answer admits further that the rates of fare are as described in the petition, but affirms that these rates have been carefully apportioned and adjusted to the amounts of traffic; that they have at all times been and are now reasonable and just; that the interurban cannot be operated at any less scale of fare; and that any law, rate regulation or requirement reducing this rate of fare would deprive the respondent of prop-

erty without due process of law and would be a denial to the respondent of the equal protection of the law.

Hearings were held on Feb. 25, 1908, in conjunction with the reasonable fare cases in Milwaukee, West Allis, and Wauwatosa, and at various times since that date. *Tullar & Lockney* appeared for the petitioner; *Miller, Mack & Fairchild* and *W. J. Curtis* for the respondent company.

No evidence, arguments or briefs were presented in the case, it being understood that these matters were to be considered together with other cases pending against the respondent company. The rate in question is a joint rate involving both The Milwaukee Electric Railway and Light Company, known as the city company, and the Milwaukee Light, Heat and Traction Company, known as the traction company. The latter company has title to the property up to 35th street and Wells, while the single fare limits of the city of Milwaukee extend to Hawley road, approximately 1.97 miles west of the ownership limits. The former company operates the entire interurban line under a traffic agreement by which a single fare is credited to The Milwaukee Electric Railway and Light Company for each passenger carried within the single fare limits, and operating expenses upon the entire line are prorated upon the car-hour basis. The effect of this working agreement has already been fully entered into in other matters involving the respondent company before the Commission and need not be elaborated upon at this time.

The analyses of the facts in this case have been considered in connection with the application for reduction of fares in the city of Milwaukee and to the outlying suburbs of West Allis, Wauwatosa and East Milwaukee and reference must necessarily frequently be made to the findings of the Commission in these cases.

The analyses of the cost of reproduction new are contained in table 1. In this table there is given as of date Jan. 1, 1910, the appraisal for both the city and traction companies combined; for that portion of the total property owned by the traction company; and for the prorated portion of the total property of both companies devoted to the uses of the Milwaukee-Watertown interurban system. It will be noted that the value of land prorated to the Milwaukee-Watertown interurban aggregates \$134,265; roadway and paving \$1,020,880; transmission

and distribution \$186,242; buildings, fixtures and grounds \$58,513; power plant equipment \$77,966; rolling stock, \$214,317. The total valuation, including a 12 per cent addition to cover interest during construction, maintenance, contingencies etc., aggregates \$1,895,245, which is 11.89 per cent of the total appraised value of the traction property of both The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company. The bases of securing the prorated values applicable to the interurban system in question have been fully discussed in the preceding case and need not be referred to at this time.

TABLE 1.

ENGINEER'S APPRAISAL.—COST OF REPRODUCTION NEW.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

Jan. 1, 1910.

Showing apportioned value to the Milwaukee Light, Heat and Traction Company and Milwaukee-Watertown Interurban System.

	T. M. E. R. & L. Co. & M. L. H. & T. Co.		M. L. H. & T. Co.		Milwaukee-Watertown System.	
	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
Land.....	\$890,511	100	\$361,311	40.56	\$134,265	15.08
Roadway and paving.....	6,063,004	100	3,212,319	52.99	1,020,880	16.84
Transmission and distribution.....	1,881,958	100	731,033	38.85	186,242	9.90
Buildings, fixtures and grounds.....	1,125,643	100	122,097	10.85	58,513	5.20
Power plant equipment.....	1,074,245	100	255,644	24.08	77,966	7.25
Rolling stock equipment..	3,191,728	100	789,179	24.73	214,317	6.71
Total.....	\$14,227,089	100	\$5,474,583	38.48	\$1,692,183	11.89
12% overhead.....	1,707,251	100	656,950	38.48	203,062	11.89
Grand total.....	\$15,934,340	100	\$6,131,533	38.48	\$1,895,245	11.89

In table 2 there have been summarized traffic and revenue units for The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company combined; for Milwaukee Light, Heat and Traction Company alone; and for the Milwaukee-Watertown interurban subdivided under the six sections for which company reports revenues. It will be noted that the number of passengers per car-mile for the interurban system is considerably below that for the traction company, and that the same is true as regards the earnings per mile of track. The earnings per car-hour and per car-mile upon the

interurban line, however, are somewhat in excess of the earnings per car-hour and per car-mile for the entire traction company. Of the separate divisions of the interurban line, Hawley road-West Allis has the largest earnings per mile of track; West Allis-Waukesha the largest earnings per car-hour; and Waukesha-Waukesha Beach the largest earnings per car-mile. Generally speaking, the section of interurban from Milwaukee to Waukesha Beach is a better paying proposition than the section from Waukesha Beach to Watertown.

TABLE 2.

TRAFFIC AND REVENUE UNITS.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY,
Year Ending Dec. 31, 1911.

Showing traffic and revenue units for the Milwaukee-Oconomowoc-Watertown interurban system by sections.

	T. M. E. R. & L. Co. and M. L. H. & T. Co.	M. L. H. & T. Co.	Milwaukee-Waukesha-Oconomowoc-Watertown Interurban						Com- bined.
			Mil- wau- kee- Hawley road.	Hawley road- West Allis.	West Allis- Wau- kesha.	Wau- kesha- Wau- kesha Beach.	Wau- kesha Beach- Ocono- mowoc.	Ocono- mowoc- Water- town.	
Traffic units:									
Miles per hour	9.42	11.82	12.32	13.02	22.57	15.69	22.13	22.83	18.65
Passengers per car mile.....	8.07	3.75	.....	.....	.....	.....	.....	.....	1.78
Transfer ratio	34.95	15.04	.....	.....	.....	.....	.....	.....	6.72
Unit earnings:									
Per mile of track.....	\$13,285 91	\$3,947 93	\$2,177 00	\$6,743 00	\$4,051 00	\$3,703 00	\$1,894 00	\$1,874 00	\$2,956 00
Per car hour..	\$2 63	\$3 27	\$2 78	\$6 57	\$11 14	\$7 95	\$6 02	\$4 49	\$6 81
Per car-mile (in cents)...	27.95	27.70	22.57	50.44	49.36	50.69	27.30	19.67	36.54

In table 3 are contained an income account of The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company combined, an apportioned income account for the Milwaukee Light, Heat and Traction Company only, and an apportioned income account for the Milwaukee-Watertown interurban; together with the percentage return upon the tangible property of each for the four years ending Dec. 31, 1911. It will be noted that where the returns for the total of The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company properties combined have aggregated from 8.27 per cent in 1910 to 9.80 per cent in 1909, those of the traction company only have been considerably less and have in no instance exceeded

3.35 per cent. The percentage return upon tangible property of the Milwaukee-Watertown interurban is somewhat in excess of the return upon the traction company's properties combined, but in no instance exceeds 4.72 per cent. These percentages make no allowance for additions to tangible property for working capital and going value, all of which will increase the total valuation of the Milwaukee Light, Heat and Traction Company, as of Jan. 1, 1910, from \$6,131,533 to \$6,500,000.

Operating expenses in table 3 have been prorated upon the basis of the most applicable unit. A complete discussion of the methods of determining what units of comparison are properly employed and what allowance is to be made for depreciation, has been fully entered into in the case *City of Milwaukee v. The Milwaukee Electric Railway and Light Co.* 1912, 10 W. R. C. R. 1. The net earnings obtained represent the closest approximation possible of the costs occasioned by each portion of the traffic.

TABLE 3.

APPORTIONED INCOME ACCOUNT.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

Year Ending Dec. 31, 1911.

Showing apportioned cost to the Milwaukee Light, Heat and Traction Company Milwaukee-Watertown interurban.

	T. M. E. R. & L. Co. & M. L. H. & T. Co.	M. L. H. & T. Co.	Milwaukee- Watertown interurban.
Revenue:			
Passenger earnings	\$4,819,595 78	\$884,256 36	\$240,862 34
Operating expenses:			
Varying with the car-hour.....	\$958,650 38	\$140,663 43	\$18,393 66
" " " " mile.....	361,602 22	66,932 57	13,830 49
" " " " mi. of track.....	119,063 96	70,212 02	22,631 77
" " " " passengers.....	291,629 92	25,051 01	2,480 20
Power plant proportion.....	463,303 87	85,757 55	38,476 10
Total.....	\$2,180,250 35	\$388,616 58	\$95,812 22
Expense burden.....	437,946 21	77,779 25	19,168 17
Depreciation.....	644,240 63	212,728 26	60,878 40
Total.....	\$3,271,437 19	\$679,124 09	\$175,858 79
Surplus available for return on investment.....	\$1,548,158 59	\$205,132 27	\$65,003 55
Cost of reproduction new, Jan. 1911.....	\$16,753,563 00	\$6,378,681 00	\$1,993,082 00
Per cent return on tangible property, 1911.....	9 24	3 22	3 26
1910.....	8 27	2 47	2 72
1909.....	9 80	3 18	4 72
1908.....	9 40	3 35	4 03

¹ Includes private car earnings.

When there is added to the expenses of operation of the Milwaukee-Watertown interurban line, contained in table 3, a re-

turn of $7\frac{1}{2}$ per cent upon the cost of reproduction new plus an allowance to cover going value and cost of working capital, it is noted that the total cost of service for the calendar year 1911 will aggregate \$331,196.06 as against present revenues of \$240,862.34. Such a total cost may be apportioned in accordance with the basis suggested in the case *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, into movement and terminal costs. When such a separation is made, it appears that of the total cost or \$331,196.06 about 49.85 per cent, or \$165,087.74, are terminal costs and are properly borne by each revenue passenger irrespective of his length of haul, while 50.15 per cent, or \$166,108.32, are movement costs properly chargeable against each revenue passenger mile.

From the traffic statistics submitted by the company, it appears that there were 1,071,755 revenue passengers transported upon the line during the year. Using this as a divisor the terminal expenses will aggregate 15.403 cts. per passenger.

The number of revenue passenger miles has been computed by dividing the total passenger revenues by the average rate of fare per mile, the average rate used being the simple average of the rate per mile from the Public Service Building to twenty-seven points along the line. It is estimated, upon this basis, that the total number of passenger miles for the year will aggregate 12,103,635, and using this as a divisor the movement expenses per passenger mile will aggregate 1.372 cts. per passenger mile.

It appears that a rate of fare based upon these terminal and movement expenses, sufficient to meet operating expenses and a reasonable return upon the investment for a haul covering the distance from Milwaukee to Waukesha will aggregate 39 cts. The present rate of fare for such a haul aggregates 35 cts.

Aside from the consideration of the cost of service, it does not appear that traffic conditions will warrant a change in the present rates of fare. While there has been a notable increase in the density of traffic since the line first began to operate, the type of traffic at the present time does not differ much from that usually observed between terminal and subterminal points the size of Milwaukee and Waukesha.

In consideration of these facts it does not appear that a decrease in the rate of fare is possible at the present time.

IT IS THEREFORE ORDERED, That the petition be and it hereby is dismissed.

FAY L. CUSICK, PETITIONER, AND THE
WEST ALLIS SINGLE FARE LEAGUE, INTERPLEADING PETITIONERS,
vs.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY,
MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

CITY OF WEST ALLIS

vs.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.

Decided Aug. 23, 1912.

Petitioner complains of excessive and discriminatory rates of fare charged by the T. M. E. R. & L. Co. between the cities of Milwaukee and West Allis, and prays that the single fare limits be extended to the western limits of West Allis. It is alleged that the traffic between the cities is a continuous metropolitan traffic and that West Allis is geographically no further distant from the center of traffic in Milwaukee than certain other points to which the traffic is considerably less and which are granted a single fare. Petitioner claims that over twelve thousand employes are being hauled to and from the West Allis factories daily, and that such traffic is sufficient to justify a single fare. At present West Allis pays a double cash fare or a 7½ ct. commutation rate. These commutation tickets, it is further complained, can be obtained at only two places and at inconvenient hours.

Respondent denies that its fares are excessive and alleges that any order or regulation requiring the company to charge less fare than is at present charged would impair the obligation of contracts; would deprive the respondent of property without due process of law; would be a denial of the equal protection of the law; and would be a violation of the constitution of the United States, particularly art. 1, sec. 10, and art. 14, sec. 1 of the amendments.

A valuation of the property was made and the revenues and expenditures were investigated. An apportionment was made as between the T. M. E. R. & L. Co. and the M. L. H. & T. Co., and a further apportionment as between the different systems involved. A comparison of the actual and paying haul per revenue passenger and per car indicates that an extension of the single fare limit can be made and that the reduced revenues will yield a fair return upon the combined investment of both companies in the property used and useful for the lines involved.

Held: Respondent's objection that an order of the Commission, decreasing the rates of fare below the point fixed by the terms of the present franchise, would constitute an impairment of the obligation of contracts does not seem tenable. A similar question as to the jurisdiction of the Commission in instances where ordinances have specified the rate of fare has been raised in the case *Manitowoc v. Manitowoc & Northern Tr. Co.* 1911, 145 Wis. 13; 129 N. W. 925. It is there held that in the

absence of specific authority to fix rates delegated to the municipality the right of the state to regulate where public policy demands has not been abrogated. Under the provisions of ch. 362, Laws of 1905, and acts amendatory thereto, the Railroad Commission has been created to determine the reasonableness of rates of traction utilities and where present rates are unreasonable to fix and determine the lawful rate.

In the present case the city boundary does not appear to be the practicable zone within which to limit the single fare. In view of all the factors affecting cost of service, geographical location and traffic conditions, an extension of the single fare to 62nd avenue is reasonable and would yield both companies combined a fair return upon their investment. Such a change will necessitate an extension of 1.611 miles upon the Wells-Farwell line and 0.44 miles upon the Fond du Lac-National lines. Upon the assumption that the companies are separate and distinct, the burden of the change in fares can be equitably prorated. By far the greater portion of the terminal expenses or the cost per passenger should be borne by the T. M. E. R. & L. Co. Only that part of the movement or passenger mile costs occasioned upon the M. L. H. & T. Co.'s property should be charged to that company. Such a basis of division would considerably lighten the burden now sustained by the M. L. H. & T. Co. under the present car-hour basis of dividing costs. It is difficult to estimate the effect upon gross earnings occasioned by these extensions, owing to the evident stimulation of traffic from 62nd avenue to Milwaukee which will result. Without such additional traffic, the losses in revenue should not exceed one-half the present receipts between the first and second fare zones upon the two lines specified. The respondent companies are ordered to discontinue charging the present rates of fare for transportation to and from any portion within the city of Milwaukee and the intersection of 62nd avenue and Greenfield avenue within the city of West Allis upon the Fond du Lac-National and Wells-Farwell lines, and to substitute in place of such present fares a joint rate of 5 cts. cash or ticket fare for one continuous passage. Respondents are further ordered to discontinue their present ticket fare and to sell through their conductors tickets in packages of thirteen for 50 cts., such tickets to entitle the bearer to one continuous passage in the same general direction upon the city lines and to the limits specified. Thirty days is deemed a reasonable time within which to comply with these orders.

Three complaints in the above entitled matters have been filed with this Commission, alleging that the rates charged by the respondent for transportation between Milwaukee and West Allis were excessive, unjust and unreasonable: a complaint of Fay L. Cusick, a resident of West Allis, filed Nov. 30, 1907; a complaint of the city of West Allis, filed Dec. 30, 1907; an amended complaint of Fay L. Cusick filed March 23, 1909; and an application of the West Allis Single Fare League to become interpleading petitioners with Fay L. Cusick, granted by the Commission on June 15, 1909.

In brief the complaints above enumerated complain that the respondents, The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company operate three car lines, namely, the Wells street line, the National avenue line, and the Greenfield avenue line, described hereinafter, between points in the city of Milwaukee and points in the city of West Allis, on which two fares are charged as follows:

1. From the city of Milwaukee to the western limits of the city of West Allis, 10 cts.
2. From all intermediate points between the city of Milwaukee and the city of West Allis, 10 cts.
3. From the western limits of the city of West Allis to the eastern limits of the city of West Allis, 10 cts.
4. From Forty-seventh avenue, the eastern limits of the city of West Allis, to Fifty-third avenue in such city, 5 cts.
5. From Fifty-third avenue in the city of West Allis to the Western limits of such city, 5 cts.

In addition to these rates of fare, it is further set forth that commutation tickets good for two fares between West Allis and Milwaukee were issued and sold only at the terminal buildings of The Milwaukee Electric Railway and Light Company in Milwaukee, and the First National Bank in West Allis, and at the latter point only during banking hours, the price being twenty tickets for \$1.50, a rate of 7½ cts. each. All charges as enumerated above are those complained of as excessive and an appropriate prayer is made for relief.

The original complaint of Fay L. Cusick alleges, in addition, that an entire total of 12,570 employes are being hauled to and from the West Allis factories daily, and that such traffic is sufficient to justify a single fare rate, that The Milwaukee Electric Railway and Light Company discriminates against real estate in the central and west portion of West Allis in carrying passengers for one fare to Fifty-third avenue of West Allis; that factories located in West Allis have considerable difficulty in securing men at the wages current in Milwaukee because of the double fare; and that the city is greatly inconvenienced during state fair week by the crowds walking from the fair grounds to the single fare point at Fifty-third avenue.

The amended complaint of Fay L. Cusick affirms in addition that the traffic between the city of Milwaukee and the city of

West Allis is a continuous metropolitan traffic and very great, and that West Allis is geographically within the single fare zone and is no further distant from the center of traffic in the city of Milwaukee than certain other points to which the traffic is considerably less; that the double fare is in consequence discriminatory and excessive; that the transportation of heavy through interurban trains through West Allis on the Waukesha lines is a burden to the people of West Allis and not contemplated or granted in the franchises; and that the transportation of passengers to within a short distance of the manufacturing center of West Allis for a single fare causes congestion on those lines and deprives the public of deserved comforts in riding.

The complaint of the city of West Allis alleges upon information and belief that a reasonable return upon the investment made by the company aside from the expenses of management and operation can be made for a much less rate than is now charged by the railway company.

It is the petition in the amended complaint of Fay L. Cusick that the railway companies be ordered to carry passengers to and from the city of Milwaukee to and through the city of West Allis on its separate lines for a single fare. It is the petition of the city of West Allis that an equitable and reasonable and just rate of fare between points in the city of West Allis and points in the city of Milwaukee be determined and established by the Commission.

The answer of the respondent to the original complaint of Fay L. Cusick was filed Dec. 2, 1907; the answer to the amended complaint of Fay L. Cusick was filed March 29, 1909; and the answer to the complaint of the city of West Allis was filed Jan. 11, 1909. In these respondent admits its common carrier relationship, but alleges that The Milwaukee Electric Railway and Light Company operates that part of the city railway which is in the city of Milwaukee and to the single fare limits, while that part outside the single fare limits is operated by the Milwaukee Light, Heat and Traction Company; that it operates three lines of railway between Milwaukee and West Allis and that rates of fare are and have at all times been just and not discriminatory.

Respondent alleges further that the franchises under which the West Allis lines are operated were properly granted prior to the organization of West Allis as a municipal corporation

by the Towns of Greenfield and Wauwatosa, and that these franchises contain conditions and agreements binding to both parties and constitute contracts between the state of Wisconsin and the towns, grantors, and the persons who were grantees of the franchises.

Respondent further alleges that The Milwaukee Electric Railway and Light Company had established its one fare limit at Fifty-third avenue in the town of Wauwatosa; that a single 5 ct. fare or one ticket purchased at the rate of six for 25 cts. or twenty-five for one dollar is charged for transportation between such point and points in the city of Milwaukee and carries with it transfer privileges; that this was in strict conformity with the law, and that any law, ordinance, rule or regulation requiring the company to charge less fare than is now being charged, or should require the company to establish the so-called second fare point west of Fifty-third avenue, or should require it to carry passengers to or from the city of Milwaukee for a fare of 5 cts. or less to any point west of Fifty-third avenue, whether west of or in the city of Milwaukee, for 5 cts. or less, or for any other sum less than 10 cts., would be a law impairing the obligation of contracts and would further be an act of the state of Wisconsin depriving the respondent of property without due process of law, would be a denial to respondent of the equal protection of the law, and would be a violation of the constitution of the United States, particularly sec. 10 of art. 1 of the constitution of the United States and of sec. 1 of article 14 of the amendments to the constitution of the United States.

Hearings in this matter were held at Milwaukee in connection with the case of the *City of Milwaukee v. The Milwaukee Electric Railway and Light Company*.

The following appearances were noted: *L. R. Worden*, city attorney, and *E. L. Wood* of counsel, for the city of West Allis. *E. M. McVicker* for Fay L. Cusick. *Miller, Mack & Fairchild*, and *W. J. Curtis* for The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company.

The city of West Allis is located immediately west of the city of Milwaukee. It was organized in June, 1902, with a population of 1,007 recorded, and since that date has had a remarkable growth. The charter was granted April 12, 1906. The

census of 1905 shows a population of 2,306; according to the city marshal's compilation this had increased to 3,060 in 1909. Various witnesses have estimated the present population as from 5,000 to 6,000. Election statistics show 222 votes in 1902, 533 in 1904, 572 in 1906, and 1,197 in April 1908. The registry list increased from 773 in 1906 to 1,336 in 1908. The school census shows 312 children between the ages of 4 and 24 years of age in 1902, with a gradual increase to 1,234 in 1908.

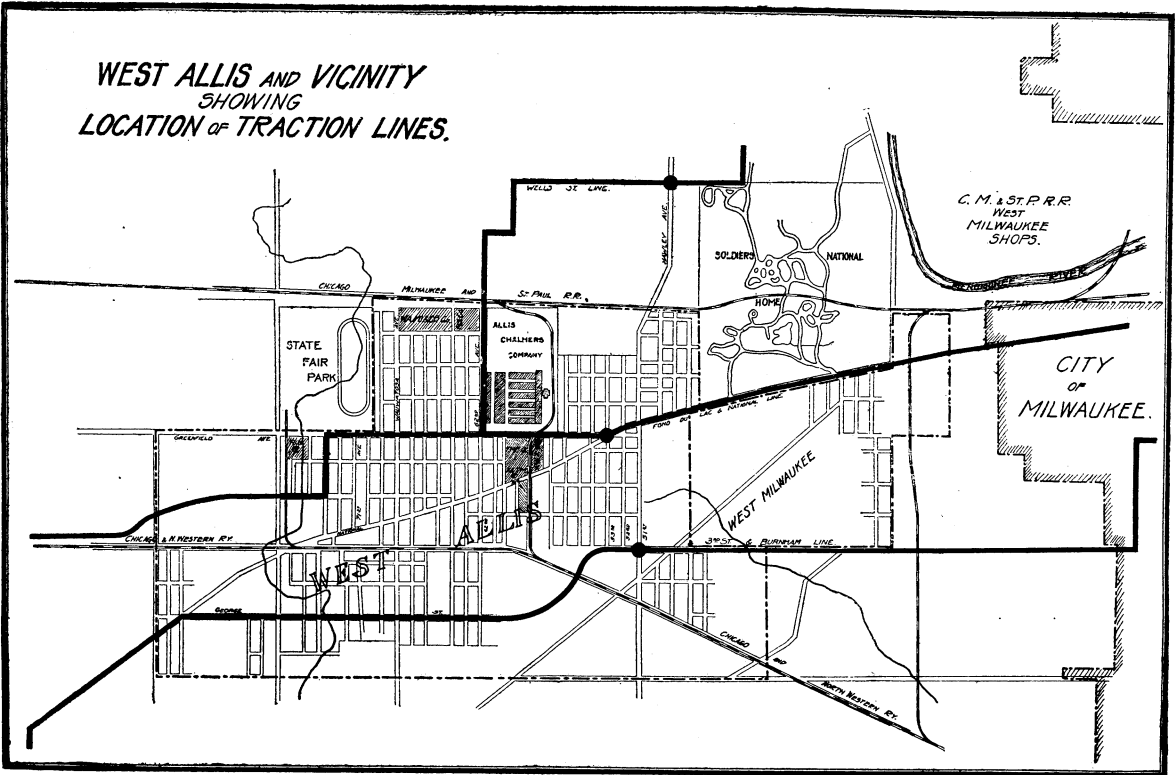
The city is principally a manufacturing center, the home of the Allis-Chalmers plant and a number of other large concerns, practically all of which have located there within the last ten years. The fact that land is 50 per cent cheaper than in Milwaukee, and the additional fact that there are few unobjectionable tracts for large factories still available in the city of Milwaukee, are stated as reasons for the industrial expansion of West Allis. Taxes were formerly less than those in Milwaukee but this factor, it was stated, no longer exists as an inducement to factories to locate at West Allis. The Allis-Chalmers Company, one of the first to locate in the city, originally purchased one hundred acres of land at \$500 per acre and received a bonus of \$30,000, but this was the only instance in which a cash bonus inducement was given to manufacturing plants to locate in West Allis. At present land is worth from \$800 to \$2,500 per acre. Some residence sites have sold at from \$1,500 to \$2,500. Other lots within two blocks of the Allis-Chalmers plant have been disposed of at \$250. Most of the land at present is in tracts of from one to five acres. Companies seeking larger tracts are usually metal or lumber companies.

Several of the witnesses testify that pleasanter homes, larger homes, and all the modern and sanitary conveniences are more cheaply obtained at West Allis than within the city of Milwaukee. The main drawback to the city's growth has been the double fare charged. Companies considering new localities for this reason refuse to consider West Allis, and workmen, even though they are employed in West Allis, live in Milwaukee so as to be more advantageously located, should their work in the suburbs cease. In turn, they demand a higher wage than that current in Milwaukee to compensate for the extra fare. Although real estate men have induced some factories to locate in West Allis by giving long time payment opportunities, yet the burden of the testimony tended to show that the city was

industrially at a standstill. All of these difficulties would be obviated, it is alleged, by the installing of a single fare.

West Allis has had a 7½ cts. commutation ticket since June 1, 1897, about the time when the steam dummy line from 36th and Wells street was taken over by The Milwaukee Electric Railway and Light Company and electrified. Before the dummy line, a stage coach had been in operation. Cars were first operated on the National avenue line to 51st avenue in the fall of 1892 and this was extended to a distance beyond the fair grounds in 1895. The Waukesha line, opened June 25, 1898, assumed the North Greenfield business on an hourly service until 1899, when the city cars operated to North Greenfield as far as Wauwatosa avenue. This line was again extended in 1904 to Woodlawn avenue. City cars operated to Hawley road and to Woodlawn on the Burnham street line in 1903. In 1906 city cars were placed on the Wells street-West Allis line and on the Soldiers Home line to 62nd avenue. Prior to this these lines had their terminus at 53rd avenue. George street was the city terminal on the Burnham street line until the extension to Wauwatosa avenue became effective.

Of the three routes now being operated to West Allis to which the petition applies, it appears that the line known as the National avenue line has cars with an eight minute headway to 62nd and Greenfield avenues, while every third car goes on to Woodlawn avenue. In addition to this the line is supplied with about twenty-five car trippers between 5:50 and 6:40 a. m. and 5:15 and 6:00 p. m. The Burnham-Third street line to the limits of West Allis is also operated under an eight minute headway and on to Woodlawn avenue every thirty minutes. The Wells street line is given regular Wells street-Farwell avenue service to 37th street, where more than one-half the cars turn back. Beyond this to 52nd street cars run every five minutes, while to 62nd and Greenfield avenues they run every thirty minutes. About ten extra cars are put on both morning and evening.



Traffic conditions, it is urged in the testimony, are objectionable as a result of the double fare charged. Among the exhibits presented at the hearing were tallies taken by the managers of various factories of such of their employes as are dependent upon cars for transportation to and from work. The results of several of the larger companies have been compiled and are presented in table 1:

TABLE 1.
SUMMARY OF NUMBER OF EMPLOYES USUALLY PAYING SINGLE FARE, DOUBLE FARE, AND WALKERS TO AND FROM MILWAUKEE.

	Total.	Double fare.	Single fare.	Walkers.
Exhibit "F" Allis Chalmers, except general office.....	2 404	203	1,368	833
Exhibit "G" Allis Chalmers office and club house.....	668	344	222	102
Exhibit "H" Milwaukee Stamping Co.....	2128	26	36	140
Exhibit "I" Prescott Steam Pump Co.....	3229	26	127	72
Exhibit "J" West Allis Malleable Iron & Chain Belt Co.	4155	10	33	91
Exhibit "K" Employes of Kearney Trecker Co.	90	8	39	43
Exhibit "L" Pressed Steel Tank Co.....	106	5	47	54
Radcliffe Manufacturing Co.....	32	7	15	10
	² 3,812	629	1,887	1,245

¹ Mere estimate.

² Of these 26 ride two fares on rainy days.

³ Four travel two fares in morning and one fare going back.

⁴ 21 ride on two fares during bad weather.

⁵ Of these 51 are classified separately in notes 2, 3 and 4.

These statistics indicate that of the larger part of the laborers employed in West Allis, about 16 per cent of employes pay double fare, 51 per cent single fare except at certain times, and the remainder walk. Many of the single fare passengers pay double fare in bad weather and many more who ride on single fare walk from four to fifteen blocks to and from the single fare limit. Many west side laborers, it appeared, travel to the center of Milwaukee and transfer back, in order to complete the trip for one fare. It was stated that because of the necessity of walking to single fare points and the general prejudice against paying two fares, it has been the experience of manufacturers in

West Allis, when times have been good, to have considerable difficulty in getting men to come to West Allis. This difficulty has not been so manifest, however, when times have been hard and men have been forced to work regardless of the wage or the extra fare. The Allis-Chalmers Company, it is claimed, pays 5 to 15 per cent higher wages than similar enterprises operating within Milwaukee. Other firms have successfully tried the plan of buying commutation tickets and selling them to the men at one-half price, or paying additional wages equivalent to the double fare. Unusual crowding, it is alleged, exists at times when factory men were leaving their work. As evidence of such crowding the petitioners have submitted reports of passengers boarding and leaving cars as taken on typical days. Such a report made by the Milwaukee Audit Company discloses the number of passengers taken on eastbound cars at National avenue and 53rd street from 3:30 to 6:30 p. m. on June 14 and 15, 1909, to be 1,452 and 1,525, respectively, on forty cars. The number of passengers boarding eleven eastbound cars on the Wells street line at Hawley road during the same period on June 15 was 142, as compared with 177 boarding twelve cars during the same period upon the following day. Boarding four eastbound cars at Burnham street and Hawley road on June 14 there were 99 passengers, and five cars the following day carried 96 passengers.

Much of the testimony and argument relates to the necessity of relieving congestion of population. Statistics are cited from the United States census reports in support of the contention that not a single city in the United States having a population over 100,000 has as large a population in proportion to its area as the city of Milwaukee. It appears that the portions of the city in which the laboring classes live are especially crowded. The city is now finding relief from this congestion by the spreading out of its population beyond its municipal borders into the outskirts. Without adequate transportation facilities and a low rate of fare any great extension of municipal boundaries would be impossible. It is pointed out in the argument that two public utilities have made effective identical rate schedules to apply to both Milwaukee and West Allis and the remaining companies make charges only slightly higher. West Allis, it is asserted, is in fact a part of the city of Milwaukee in every particular except that it has a separate corporate existence.

The rights and privileges under which these lines are being operated were acquired at various times during the years 1890 to 1906, inclusive, by franchises granted by the boards of supervisors of the towns of Wauwatosa and Greenfield. The essential features of such franchises may be summarized as follows:

National Avenue Line.

August 30, 1890.—Franchise granted for fifty years by board of supervisors of the town of Wauwatosa to the Milwaukee City Railroad Company, permitting extension from Milwaukee city limits along National avenue to the intersection of National avenue and 53rd street, all to be within the single fare limits.

April 2, 1892.—Franchise granted for fifty years by the board of supervisors of the town of Wauwatosa to the Milwaukee Street Railway Company, confirming franchises of Aug. 30, 1890, and granting further extension to the center of sec. 33 of the town of Wauwatosa.

July 10, 1894.—Franchise granted for fifty years by town boards of Greenfield and Wauwatosa, granting further extensions from the west line of sec. 35, town of Wauwatosa, along the town line between towns of Greenfield and Wauwatosa to the state fair park and to the intersection of State avenue and Division street. An additional 5 cts. fare was provided for from the west line of sec. 35. Franchise granted for fifty years.

March 15, 1897.—Franchise granted for fifty years to the North Greenfield and Waukesha Electric Railway Company authorized extension from the intersection of Wauwatosa ave. and Division street west to the westerly line of Division street.

Such of the line of the Milwaukee Light, Heat and Traction Company as extends from the westerly line of Division street to the west limits of the city of West Allis was obtained by deeds of the right of way and due condemnation proceedings.

Wells Street Line.

June 5, 1891.—Board of supervisors of town of Wauwatosa to the West Side Railroad Company. Franchise granted for fifty years provides extension of the Wells street line from the city limits of Milwaukee to the corner of Wells street and 36th street, a single fare to be charged.

June 20, 1898.—Board of supervisors of town of Wauwatosa to The Milwaukee Light, Heat and Traction Company. Franchise granted for fifty years provided that an extension from 52nd avenue should cross Grand avenue and the Blue Mound road and extend from the east side of Hawley road along Johnson street and Drake avenue and thence intersect the line of railway owned by the Milwaukee Light, Heat and Traction Company, known as the Greenfield avenue line at 62nd avenue

in the city of West Allis. The fare provision places Hawley road as the one fare limit.

The Milwaukee Light, Heat and Traction Company acquired by purchase of the Milwaukee and Wauwatosa Motor Railway Company the right to operate a line from 36th and Wells streets in the town of Wauwatosa through the town to the eastern limits of the city of Wauwatosa.

Burnham—Third Street Line.

April 4, 1902.—Board of supervisors of the town of Greenfield to the Milwaukee Light, Heat and Traction Company. Franchise granted for ninety-nine years and authorized an extension from the Milwaukee city limits at the intersection of Beloit road with the center of line of 22nd avenue along Burnham and George streets, Wauwatosa avenue and the Mukwongo road through the city of West Allis and thence through the town of Greenfield.

October 26, 1906.—Board of supervisors of town of Greenfield to the Milwaukee Light, Heat and Traction Company. Additional authority amending grant April 4, so that street railway line might be constructed leaving the city of Milwaukee at the intersection of Greenfield avenue and 22nd street and thence on 26th street to Beloit road. Second fare charged west from Hawley road.

Many of the facts relating to The Milwaukee Electric Railway and Light Company as regards the investment and appraised value of its traction property, its relation to the Milwaukee Light, Heat and Traction Company, the proper proportion of expenses to be borne by Milwaukee business and the present return upon the property used and useful in such business have already been fully entered into in the matter *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1.

West Allis service is furnished jointly by The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company, respectively referred to hereinafter as the city company and the traction company. On the Farwell—Wells—West Allis line the traction company has title to 3.94 miles of single track within the present first fare limits, on the Fond du Lac—National—West Allis line 2.96 miles of track, and on the Burnham—Third—West Allis line 1.89 miles of track. The traction company property is operated by the city company under an operating agreement by which fares earned without the single fare limits are credited to the traction company and the traction company is in turn charged a

proportion of operating expenses. The ownership of the two properties is practically identical. All of the common stock of the city company is held by the traction company while one-tenth of the stock of the traction company is held by the city company, and the remaining nine tenths by the North American Company of New Jersey. It is alleged that the ownership of bonds and preferred stock is separate and distinct.

Reference has already been made in the case of the *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, to the close relation of investment or book value of the city company to the appraised cost of reproduction new as found by the engineer of the Commission. The value of the tangible property of the city company devoted to railway purposes on Jan. 1, 1910, exclusive of materials and supplies, was placed at \$9,942,125 new and \$7,378,950 present value by the engineer, while the investment value on the same date was \$9,937,079. The unexpended depreciation reserve upon the same date aggregated about \$1,839,000. It was there held that with an addition for working capital and going value a fair value of the property upon that date would aggregate about \$10,300,000.

A somewhat similar relationship between investment and appraised values is noted in an examination of the property devoted to street railway purposes by the traction company. From a report submitted by the company's accountants, Messrs. Dickinson, Wilmont & Starrett, covering the accounts for the ten years ending Dec. 31, 1906, the estimated expenditures for railway property are placed at \$5,051,763.57. The sum total was arrived at by classifying all property items into three classes, railway, lighting and common, and by dividing the property listed as common on the arbitrary basis of 80 per cent to railway and 20 per cent to common. In the property values determined by the Commission this division is accepted. Additions since 1906 have been estimated in a similar manner, and disclose a book value or investment on Jan. 1, 1910, of \$7,490,830.89, after deducting \$274,114.15 expenditures incurred for discount on bonds, all of which is excluded for reasons already elaborated in the case *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1. The appraised value cost of reproduction new of the traction company railway property aggregated \$6,131,533, or \$6,133,033 when materials and supplies are included; and the present value \$5,108,711, or \$5,110,211 in-

cluding materials and supplies. The depreciation reserve upon the same date aggregated \$130,126.13. An examination of past revenues and operating expenses discloses the fact that the allowance for depreciation has been inadequate, notwithstanding the fact that \$1,278,476.68 have been declared in dividends prior to Jan. 1, 1910. Allowing for an increased depreciation reserve and increased operating expenses by prorating joint traction costs upon a car-mile rather than a car-hour basis, a going cost is obtained of \$620,985.20 as of Jan. 1, 1910. Since the traction company is operated by the city company, a large allowance of working capital is not necessary and \$100,000 should prove ample. Based upon these facts and with due consideration to the principles elaborated in the *City Company Case* already referred to, it appears that a fair value of the property for purposes of determining the reasonableness of charges for traction service should not exceed \$6,133,033 as of Jan. 1, 1910.

An apportionment of the appraisal of the traction company property was presented in the case *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, and the resulting division of plant values by companies, systems and services as affecting the West Allis single fare proposition is summarized in table 2. It will be noted that of the total appraised value, not including materials and supplies, devoted to traction purposes, aggregating \$15,934,340, some 38.48 per cent or \$6,131,533 is property to which the traction company has title. By a valuation of the property used exclusively for each system plus a pro rata proportion of the value of property jointly used it has been determined that 8.8 per cent of the total value is applicable to the Wells-Farwell system extending from the terminus at East Milwaukee to the termini at West Allis and Wauwatosa; 5.12 per cent to the National-Fond du Lac system; and 7.59 per cent to the Burnham-Third system. That portion of these properties situated between the first and second fare points will aggregate 1.78 per cent of the total, or \$284,030. The interurban systems passing through West Allis, extending to Watertown and East Troy, will aggregate 11.89 per cent and 6.47 per cent of the grand total.

TABLE 2.
ENGINEER'S APPRAISAL.—COST OF REPRODUCTION NEW.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

January 1, 1910.

Showing apportioned value to Milwaukee Light, Heat and Traction Company, urban and suburban systems, suburban and interurban services affected.

	T. M. E. R. & L. Co. & M. L. H. & T. Co.		M. L. H. & T. Co.		Urban and Suburban Systems.					
	Amount.	Per cent.	Amount.	Per cent.	Wells-Farwell.		National-Fond du Lac.		Burnham-Third.	
					Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
Land.....	\$890,511	100	\$361,311	40.56	\$109,319	12.28	\$37,374	4.20	\$66,325	7.45
Roadway and paving.....	6,063,004	100	3,212,319	52.99	447,627	7.38	245,610	4.05	331,922	5.48
Transmission and distribution.....	1,881,958	100	731,033	38.85	164,130	8.72	100,827	5.36	148,750	7.91
Buildings, fixtures and grounds.....	1,125,643	100	122,097	10.85	120,204	10.68	75,867	6.74	122,545	10.89
Power plant equipment.....	1,074,245	100	258,644	24.08	110,441	10.28	81,647	7.60	118,489	11.03
Rolling stock and equipment.....	3,191,728	100	789,179	24.73	300,148	9.40	186,598	5.85	292,021	9.15
Total.....	\$14,227,089	100	\$5,474,583	38.48	\$1,251,869	8.80	\$727,923	5.12	\$1,080,052	7.59
12% overhead.....	1,707,251	100	656,950	38.48	150,224	8.80	87,351	5.12	129,605	7.59
Grand total.....	\$15,934,340	100	\$6,131,533	38.48	\$1,402,093	8.80	\$815,274	5.12	\$1,209,657	7.59

	Suburban Systems.						Interurban Systems.					
	Wells-West Allis.		National-West Allis		Burnham-West Allis.		Total.		Milwaukee-Watertown.		Milwaukee-East Troy.	
	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
Land.....	\$6,557	0.74	\$6,707	0.75	\$10,408	1.17	\$23,672	2.66	\$134,265	15.08	\$68,993	7.75
Roadway and paving.....	26,536	.44	42,841	.69	37,598	.62	106,175	1.75	1,020,880	16.84	508,780	8.39
Transmission and distribution.....	6,884	.37	18,707	.99	10,005	.53	35,596	1.89	186,242	9.90	143,244	7.61
Buildings, fixtures and grounds.....	4,482	.41	13,771	1.22	7,820	.69	26,073	2.32	58,513	5.20	35,678	3.40
Power plant equipment.....	3,444	.32	14,690	1.37	7,513	.70	25,647	2.38	77,966	7.25	36,578	3.47
Rolling stock and equipment.....	11,844	.37	15,306	.48	9,285	.29	36,435	1.14	214,317	6.71	127,763	4.00
Total.....	\$59,747	0.42	\$111,222	0.78	\$82,629	0.58	\$253,598	1.78	\$1,692,133	11.89	\$921,036	6.47
12% overhead.....	7,170	.42	13,347	.78	9,915	.58	30,432	1.78	203,062	11.89	110,524	6.47
Grand total.....	\$66,917	0.42	\$124,569	0.78	\$92,544	0.58	\$284,030	1.78	\$1,895,245	11.89	\$1,031,560	6.47

The resulting value for the West Allis suburban portion of the plant compares favorably with an estimate made by the comptroller of the company, Mr. C. N. Duffy, and submitted in evidence, amounting to \$246,800. These estimates assume a cost per mile of \$20,000 for right of way, track and track structures, overhead line and distribution system, or \$188,800. The Commission's estimate for this group of items aggregates \$141,771. Cars and car equipment is placed in the estimate at \$20,000, or \$5,000 per car, as against \$36,435 allowed by the Commission. Power plant equipment, buildings and miscellaneous structures, overhead charges, etc., are placed at \$38,000, or \$9,500 per car in the estimate, as against \$105,824 allowed by the Commission.

In table 3 there are given certain traffic and revenue units, covering the calendar year 1911, for the city and traction companies combined; for the traction company separately; for the Wells-Farwell, Fond du Lac-National, and the Burnham-Third systems, comprising both urban and suburban business; for the separate suburban line extensions into West Allis and for the Watertown and East Troy interurban systems passing through West Allis. It will be noted that the passengers per car-mile on the Wells-Farwell and Burnham-Third are somewhat in excess of the passengers per car-mile for both companies combined, and that the passengers per car-mile upon the Wells and National avenue extensions into West Allis are somewhat in excess of the passengers per car-mile for the entire Milwaukee Light, Heat and Traction Company system. The earning per mile of track for the Wells-Farwell, Fond du Lac-National avenue, and Burnham-Third systems are all in excess of the earnings per mile of track of both companies combined. The West Allis-National extension is the only suburban line whose unit earnings are in excess of the average Milwaukee Light, Heat and Traction Company. Of the urban and suburban lines the Third-Burnham has the smallest earning power and this is also true of the Burnham extension into West Allis.

TABLE 3.
TRAFFIC AND REVENUE UNITS.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

Year Ending Dec. 31, 1911.

Showing traffic revenue units for the Wells-Farwell, Fond du Lac-National, and Third-Burnham systems, the West-Allis suburban systems, and the Watertown and East Troy interurban systems.

	T. M. E. R. & L. Co. and M. L. H. & T. Co.	M. L. H. & T. Co.	Urban and Suburban.		
			Wells-Farwell.	Fond du Lac-National.	Third-Burnham.
Traffic Units:					
Miles per hour.....	9.42	11.82	9.09	9.39	9.80
Passengers per car-mile....	8.07	3.75	9.02	8.01	8.22
Transfer ratio.....	34.95	15.04	30.42	29.22	33.05
Unit Earnings:					
Per mi. of track.....	\$13,285 91	\$3,947 93	\$26,944 03	\$23,016 82	\$17,950 71
Per car-hour.....	\$2 63	\$3 27	\$2 74	\$2 51	\$2 57
Per car-mile (in cents).....	27.95	27.70	30.20	26.71	26.23

	Suburban.			Interurban.	
	West Allis-Wells.	West Allis-National.	West Allis-Burnham.	Milwaukee-Watertown.	Milwaukee-East Troy.
Traffic Units:					
Miles per hour.....	10.63	9.17	11.93	18.65	15.63
Passengers per car-mile....	5.70	3.78	1.45	1.78	1.40
Transfer ratio.....	60.30	16.78	22.91	6.72	10.68
Unit Earnings:					
Per mi. of track.....	\$3,943 00	\$9,027 00	\$1,304 00	\$2,956 00	\$3,623 70
Per car-hour.....	\$2 17	\$1 54	\$0 78	\$6 81	\$5 50
Per car-mile (in cents).....	20.44	16.83	6.55	36.54	35.70

In table 4 is given an income account showing the total operating expenses for both city and traction companies combined for the year ending Dec. 31, 1911, together with the rate of return up the cost of reproduction new for the four years ending Dec. 31, 1911, together with an apportioned income account covering the traction company business; the Wells-Farwell National-Fond du Lac, Burnham-Third systems, the suburban extensions of these systems into West Allis; and the interurban systems to Watertown and East Troy. It will be noted that the three combined urban and suburban systems have net earnings somewhat in excess of the total net earnings for the traction and city companies combined. Of the extensions into West Allis that of the Wells street line is the only suburban addition which may be said to be self-sustaining.

TABLE 4.
APPORTIONED INCOME ACCOUNT.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.
Year Ending Dec. 31, 1911.

Showing apportioned cost to urban and suburban systems, suburban routes, and interurban systems.

Italic figures denote deficits.

	T. M. E. R. & L. Co. and M. L. H. & T. Co.	M. L. H. & T. Co.	Urban and Suburban Systems.			Suburban Routes.			Interurban Systems.	
			Wells- Farwell.	National and Fond du Lac.	Burnham and 3rd.	Wells- West Alis.	West Allis- National.	West Allis- Burn- ham.	Milwauk'e Watert'wn	Milwauk'e East Troy.
Revenues:										
Passenger earnings.....	\$4,819,595 78	\$884,256 36	\$75,713 00	\$322,902 90	\$511,614 48	\$20,032 32	\$24,100 84	\$4,640 75	\$240,862 34	\$123,850 70
Operating Expenses:										
Varying with car-hour.....	\$953,650 38	\$140,663 43	\$109,311 65	\$67,041 10	\$101,787 48	\$4,806 97	\$8,132 83	\$3,095 26	\$18,393 66	\$11,548 40
" " " "	361,602 22	66,932 57	39,972 78	25,338 78	38,271 16	2,056 43	3,005 09	1,487 63	13,830 49	7,276 64
" " " "	119,063 96	70,212 02	7,170 89	4,709 69	6,630 03	724 63	1,181 10	1,005 90	22,631 77	11,467 66
" " " "	291,629 92	25,051 01	36,410 93	20,488 02	34,348 37	1,184 20	1,147 86	218 09	2,480 20	1,032 72
" " " "	463,203 87	85,757 55	45,910 09	29,102 44	43,955 71	3,028 78	4,426 01	2,191 03	38,476 10	20,243 45
Power plant proportion.....										
" " " "	\$2,184,250 35	\$388,616 58	\$238,776 34	\$146,680 03	\$224,992 75	\$11,801 01	\$17,892 89	\$7,997 91	\$95,812 22	\$51,568 87
" " " "	437,946 21	77,779 25	47,773 68	29,353 98	44,750 97	2,359 00	3,577 58	1,597 96	19,168 17	10,314 58
" " " "	644,240 63	212,728 26	60,281 04	35,870 48	51,849 15	2,953 84	5,338 02	3,941 27	60,878 40	33,384 93
Expense burden.....										
Depreciation.....										
" " " "	\$3,271,437 19	\$679,124 09	\$346,836 06	\$211,904 49	\$321,592 87	\$17,113 85	\$26,808 49	\$13,537 14	\$175,858 79	\$95,268 38
Total.....										
Surplus available for return on investment.....	\$1,548,158 59	\$205,132 27	\$228,876 94	\$110,998 41	\$190,021 61	\$2,918 47	\$2,707 65	\$8,895 39	\$65,003 55	\$28,582 32
Cost of reproduction new Jan. 1 1911.....	\$16,753,563 00	\$6,378,681 00	\$1,474,605 00	\$856,685 00	\$1,272,316 00	\$70,329 00	\$130,942 00	\$97,346 00	\$1,963,082 00	\$1,084,934 00
Per cent return on tangible property										
do 1911.....	9.24	3.22	15.52	12.95	14.94	4.15	2.07	9.14	3.26	2.63
do 1910.....	8.27	2.47	14.40	12.24	13.72	9.75	1.37	8.64	2.72	1.79
do 1909.....	9.80	3.18	17.58	14.09	15.51	8.42	1.40	8.78	4.72	2.38
do 1908.....	9.40	3.35	17.36	12.56	12.96	11.43	2.98	9.64	4.03	1.27

¹Includes private car earnings.

The operating expenses contained in the table have been apportioned upon the basis outlined in detail in the case *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, and represent what is deemed to be the closest approximate division of where the operating cost is occasioned. It will be noted that the rates of return given are based upon tangible property only and would be somewhat revised by the addition of intangible elements.

From the above examination of the returns for the various classes of service into which both companies' have segregated their earnings, it appears that the question as to whether the company can lower its fare to West Allis patrons is dependent upon which portion of the business may be expected to bear the burden of the change. As long as the practice is maintained of considering all property within the single fare limits as city company property, the probable effect of an extension of single fare limits, such as becomes the issue in this case, must be reflected in the income account of the city company. Considered as a portion of the traction company business, any change must be determined in the light of its relation to the total traction company investment and return. Viewed as a part of a single traction system contributing both to interurban traffic beyond and the urban traffic within the city of Milwaukee, a reduction in the receipts from West Allis traffic is of concern to both companies.

Counsel for the city contend that the latter basis must govern in any inquiry as to reasonableness of rates.

Counsel for the respondent company claim that the ownership of both city and traction companies is distinct and separate, and that any adjustment of fare limits is of concern to the holders of securities of the traction company who originally financed the extension and who were guaranteed at that time a 5 ct. fare under the provisions of their franchise.

In determining the cost of service the operating expenses of both companies treated together and separately and the operating expenses of the separate lines carrying traffic to and from West Allis, are all elements to be given due consideration, depending upon their relation to West Allis service.

From an examination of net earnings by lines, contained in the case *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, and from a study of the traffic demands by lines con-

tained in the report submitted by the engineer of the Commission, it appears that the service in question is a continuation of city business and more closely allied to urban rather than inter-urban traffic. City lines having suburban outlets are as a rule upon a better paying basis than city lines without such an outlet. Generally speaking, increased density of traffic in the suburbs is accompanied by increased density of traffic within the city. The number of persons riding upon the car it appears is closely related to the population per tributary quarter square mile, and just as increased density of population within the city means a related increase at the outskirts, so it appears that the demand for service within the city is proportionately increased by the demand for service at the suburbs. The suburban or second fare zone is undoubtedly entitled to share the benefits of the increased traffic it occasions upon city lines.

The basis suggested by the company and upon which it has submitted calculations of estimated net earnings assumes that the traffic between first and second fare points shall be considered as a separate unit. It is difficult to see the justice of this assumption. No line is equally well paying upon each portion of the distance it covers and it is manifestly unfair to expect the farthest extremity to be self-sustaining. It seems clear from the relative traffic contributed by the city and the West Allis suburbs that the net earnings obtained by a segregation of revenues and expenses of the first-to-second-fare-zone section are no definite criterion of the value of that traffic to the entire system of which the suburban outlet is a part.

The limit of any extension must be measured by the paying haul per passenger and per car for the entire line and for the system as a whole. Few suburban extensions are paying at the start and the reasonableness of making additions to the present trackage must be determined largely by the profitableness of urban traffic.

The determination of the paying haul per car and per passenger in the following table has been based upon the analysis of total costs of furnishing urban service as outlined in the case *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, plus an addition to cover $7\frac{1}{2}$ per cent return on total investment, including intangible values.

TABLE 5.
COMPARISON OF ACTUAL AND PAYING HAUL PER REVENUE PASSENGER AND PER CAR.¹

Year ending December 31, 1911.

WEST ALLIS.

	T. M. E. R. & L. Co.	Wells- Farwell city line.	Fond du Lac National city line.	Burnham- Third city line.
<i>Revenue passenger haul.</i>				
Actual haul, company's estimate ²	2.74	2.30	3.37	42.80
Actual haul, Commission's estimate ³ ..	2.93	1.95	2.77	42.93
Paying haul, Ford formula.....	3.11	2.80	4.19	43.42
Paying haul, Commission basis.....	3.57	3.52	4.81	44.21
<i>Car haul.</i>				
Actual average $\frac{1}{2}$ trip distance.....	3.40	4.01	4.60	4.51
Paying haul, Bradlee formula.....	4.10	6.11	5.80	5.63

¹Out from Grand avenue bridge.

²Basis of Sept. 23, 1911.

³Basis of traffic survey 1909.

⁴Includes 8th-Burnham.

An explanation of the results obtained for the Wells-Farwell line will illustrate the purpose of the data contained in table 5.

The average half-trip distance upon this line between single fare points is 4.01 miles. It is estimated that the paying haul per car after making deduction for the revised fares in the city of Milwaukee computed upon the so-called Bradlee formula basis described in detail in the case *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, will aggregate 6.11 miles. Similarly the paying haul per passenger upon the Ford formula basis, described in detail in the *Milwaukee Single Fare Case*, after making reduction for the readjusted fares in Milwaukee, will aggregate 2.80 miles as against an actual haul per passenger estimated by the company as aggregating 2.30 miles, and by the Railroad Commission as 1.95 miles. Based upon a separation of terminal and movement costs, explained in detail in the case *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, the paying haul upon this line will aggregate 3.52 miles for city business. All three bases of computation indicate that an extension of the single fare limit can be made and that the reduced revenue will yield a fair return upon the combined investment of both companies in the property used and useful for Wells-Farwell business. Similar conclusions are reached from an examination of the results given for the Fond du Lac-National, Burnham lines, and entire city company.

Conditions other than the cost of service affecting the single fare limit brought out in the argument are the franchise stipulations, the municipal boundaries, and the probable traffic discharge points under a reduced fare.

Emphasis is placed by the respondent upon the provisions of the franchise under which both the Wells-Farwell line and the Fond du Lac-National line were extended into West Allis. Such franchises have specified Hawley road as the single fare point and made provision that no more than a single fare be charged for a continuous trip within the city limits of Milwaukee. A similar question as to the jurisdiction of this Commission in instances where ordinances have specified the rate of fare has been raised in the case of *Manitowoc v. Manitowoc & Northern Tr. Co.* 1911, 145 Wis. 13; 129 N. W. Rep. 925. It is there held that in the absence of specific authority to fix rates delegated to the municipality the right of the state to regulate where public policy demands has not been abrogated. Under the provisions of ch. 362, Laws of 1905, and acts amendatory thereto, the Railroad Commission has been created to determine the reasonableness of rates of traction utilities and, where present rates are unreasonable, to fix and determine the lawful rate. Aside from the alleged contractual relation contained in the franchise, no reason apparently exists why Hawley road should be construed as the first fare terminus. On the Wells-Farwell line this point lies just west of the viaduct. Upon the Fond du Lac-National line it lies just east of the natural passenger destination point in West Allis.

There is some merit to the proposition that a single fare should be restricted to the territory embraced by the city limits. Unfortunately, however, the suburban outskirts of Milwaukee have been slow to annex themselves to the city proper, even where population density would indicate a continuation of city life. The company itself has not observed the political boundary in several instances where traffic conditions would warrant an extension. In the present case the city boundary does not appear to be the practicable zone within which to limit the single fare.

From a study of traffic conditions, it appears that the probable destination of the larger number of passengers to and from West Allis will be the west end of the manufacturing district at 62nd avenue. Much of this traffic, however, is peri-

odic and will require an extension of tripper service from 53rd to 62nd avenue. During state fair week a large number of passengers are transported to the fair grounds, but this traffic is small compared to the entire year's business.

A consideration of all the factors affecting cost of service, geographical location and traffic conditions leads to the conclusion that an extension of the single fare line to 62nd avenue is reasonable and would yield both companies combined a fair return upon their investment. Such a change will necessitate an extension of 1.611 miles upon the Wells-Farwell line and 0.44 miles upon the Fond du Lac-National line.

Upon the assumption that the companies are separate and distinct, the burden of the change in fares can be equitably prorated. By far the greater portion of the terminal expenses or the cost per passenger should be borne by the city company. Only that part of the movement or passenger mile costs occasioned upon traction company's property should be charged to the traction company. Such a basis of division would considerably lighten the burden now sustained by the traction company under the present car-hour basis of dividing costs. It is difficult to estimate the effect upon gross earnings occasioned by these extensions, owing to the evident stimulation of traffic from 62nd avenue to Milwaukee which will result. Without such additional traffic, the losses in revenues should not exceed one-half the present receipts between the first and second fare zones upon the two lines specified.

IT IS THEREFORE ORDERED, That The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company discontinue charging the present rates of fare for transportation to and from any portions within the city of Milwaukee and the intersection of 62nd avenue and Greenfield avenue within the city of West Allis upon the Fond du Lac-National and Wells-Farwell lines, and that they substitute in place of such present fares a joint rate of 5 cts. cash or ticket fare for one continuous passage.

Respondent companies shall discontinue the present ticket fare and shall sell through their conductors tickets in packages of thirteen for 50 cts. and such a ticket shall entitle the bearer to one continuous passage in the same direction upon the city lines and to the limits specified above.

Thirty days is deemed sufficient time to comply with the above order.

HANS A. KOENIG

vs.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.

CHARLES GILLETT

vs.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY,
MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.Decided Aug. 23, 1912.

Petitioner alleges that the rates of fare charged by the T. M. E. R. & L. Co. between the cities of Milwaukee and Wauwatosa are excessive. Complaint is made that the respondent refuses to comply with those provisions of its franchise requiring it to extend its single fare limits to coincide with the extension of the city limits. Petitioner prays that the single fare limits on respondent's Wauwatosa-Wells and Wauwatosa-Walnut lines be extended from Thirty-fifth street to Spring avenue, the present city limits of Milwaukee. Petitioner further alleges inadequacy of service. In *Gillett v. T. M. E. R. & L. Co. et al.* 1907, 1 W. R. C. R. 689, the Commission disposed of the matter of adequacy of service and discrimination of rates, but postponed action as to reasonableness of rates until a future date.

A valuation of the property was made and the revenues and expenditures were investigated. An apportionment was made as between the T. M. E. R. & L. Co. and the M. L. H. & T. Co., and a further apportionment as between the different systems involved.

Held: When the city business is considered, some extension of the single fare limits can be made and the company still be able to earn a reasonable return upon the investment. It is obvious, however, that the suburban business of itself is not upon a paying basis, but that an extension must be largely determined on the basis of the paying haul of urban business, and that any reasonable extension cannot comprise the most populated portion of Wauwatosa. Respondents are ordered to discontinue charging the present rates of fare for transportation to and from any point within the city of Milwaukee and the intersection of Spring and Pabst avenues on the Walnut-National line, and the intersection of Wells and Fifty-ninth streets on the Wells-Farwell line in Wauwatosa, and substitute in place of such present fares a joint rate of 5 cts. cash or ticket fare for one continuous journey. Respondents are further ordered to discontinue the present ticket rate and to sell through their conductors thirteen tickets for 50 cts., such a ticket to entitle the bearer to one continuous passage in the same general direction upon the city lines and to the limits specified. Thirty days is deemed a reasonable time within which to comply with this order.

The petitioner, Hans A. Koenig, is secretary and treasurer of the Arthur Koenig Co. whose place of business is 305 Wat-

kins Building in the city of Milwaukee. The petition alleges that on May 9, 1910, the common council of the city of Milwaukee passed an ordinance No. 1, extending the city limits on the west to Spring avenue, such ordinance to become effective ninety days after passage and publication; that the franchise granted by the city of Milwaukee on Jan. 2, 1900, to the respondent company provides that in the event of an extension of the city limits the rate of one fare is to apply to the limits as extended; but that, notwithstanding the fact that the extension of city limits became effective on Aug. 15, 1910, no provision has been made to carry passengers for the rate of one fare to the new city limits. Wherefore, the petition prays that the respondent company be ordered to make effective a rate of one fare to the new city limits at Spring avenue.

The respondent, in its answer, filed on Aug. 23, 1910, does not controvert any of the facts alleged in the petition. It declares, however, that the portion of the railroad between 48th street in the city of Milwaukee and the eastern limits of the present city of Wauwatosa is constructed upon private right of way acquired and owned by the Milwaukee and Wauwatosa Rapid Transit Co. and its assigns, and that Pabst avenue west of 48th street was dedicated and became a highway subsequent to such construction and subject to such right of way; that thereafter, on Aug. 24, 1891, the Milwaukee and Wauwatosa Rapid Transit Co. conveyed all its property to the Milwaukee and Wauwatosa Electric Co. and in the year 1897 the property of this company was acquired by the Milwaukee Light, Heat and Traction Company, which company is now the sole owner of the line extending from the intersection of 48th street and Pabst avenue to the city of Wauwatosa. It is alleged that the respondent company has no ownership, right, title or interest whatsoever in the street railway line extending west from 48th street and Pabst avenue, except to operate it as agent of and for the benefit of the Milwaukee Light, Heat and Traction Company, and that under these circumstances the charge of one fare from points within the city of Milwaukee to the former city limits of the city of Milwaukee at the intersection of 48th street and Pabst avenue is made by virtue of its operation under franchises granted by the city of Milwaukee, and the charge of 5 cts. for passengers using the so-called Walnut street line from the intersection of 48th street and Pabst avenue to the city

of Wauwatosa is made pursuant to the rights and franchises owned by the Milwaukee Light, Heat and Traction Company.

It is thereupon claimed that any order or regulation to carry passengers for a single fare from the city of Milwaukee to points west beyond the intersection of 48th street and Pabst avenue would impair the obligation of a contract, take property without due process of law, and violate the constitution of the United States and the constitution of the state of Wisconsin. It was therefore prayed that the petition be dismissed.

On Oct. 8, 1906, Charles Gillet, a resident of Wauwatosa, filed a complaint with the Commission involving The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company, alleging that the service from Milwaukee to Wauwatosa was inadequate and that the rates were discriminatory and excessive. In a decision rendered July 11, 1907, *Gillet v. T. M. E. R. & L. Co.* 1907, 1 W. R. C. R. 689, the Commission disposed of that part of the complaint dealing with adequacy of service and discrimination in rates, but postponed action as to reasonableness of rates until a future date. It is alleged in the Gillett petition that after the respondent had instituted a 7½ ct. commutation ticket to Wauwatosa, it lowered the urban fare of Milwaukee from 5 cts. to 4 cts. and decreased the distance between the one fare point and Wauwatosa by moving that point farther out from the city of Milwaukee, thus increasing the Wauwatosa part of the commutation rate of fare from 2½ to 3½ cts. and at the same time decreasing the length of the Wauwatosa suburban haul. The petition prayed for a lawful and just rate between Milwaukee and Wauwatosa. The respondent in its answer denied that the rates were excessive and unjust and prayed that the petition be dismissed.

The hearings in the *Koenig* case were held in the city of Milwaukee on Nov. 25, 1910, and May 6, 1911. *Clifton Williams* appeared for the petitioner and *Miller, Mack & Fairchild* for the respondent. Argument was heard on Jan. 20, 1912. The arguments and testimony relating to reasonableness of rates presented in the *Gillett* case have been reviewed in the previous decision. In that case *Lynn S. Pease* appeared for the petitioner, and *Miller, Noyes & Miller* and *Clarke M. Rosencrantz* represented the respondent.

Wauwatosa has been incorporated as a city of the state of Wisconsin since May 27, 1897. It is situated approximately 4½ miles west of the business center of Milwaukee. A large portion of the population is composed of professional and business men of Milwaukee who make the suburb their home. According to the United States census, its population increased from 2,842 in 1900, to 3,346 in 1910, an increase of 17.73 per cent.

Two electric railway lines serve the Wauwatosa suburb, the Wauwatosa-Wells and the Wauwatosa-Walnut. The Wauwatosa-Wells is an extension of the Wells-Farwell line operating within the city of Milwaukee. Regular city cars proceed at thirty minute intervals from the city run upon Wells to 59th street in Wauwatosa, upon 59th street to Motor avenue, upon Motor avenue to West Main, upon West Main to Chestnut, upon Chestnut beyond the west city limits of Wauwatosa to the Wauwatosa county buildings. The franchises granted to construct this line were as follows:

On June 4, 1891, the town of Wauwatosa granted a franchise for fifty years to the West Side Railroad Co. to extend its Wells street line from 35th to 36th street.

The town of Wauwatosa granted a franchise to the Milwaukee-Wauwatosa Motor Ry. Co. to operate upon Wells from 36th street to the eastern limits of the village of Wauwatosa.

On Sep. 5, 1899, the city of Wauwatosa granted a franchise until May 11, 1941, to the Milwaukee & Wauwatosa Electric Co. to operate upon Wells from 51st street to 59th street, upon 59th street to Motor avenue, upon Motor avenue to 61st street, along the southerly right of way line of the C. M. & St. P. Ry. Co. to the center of West Main.

On July 2, 1896, the village of Wauwatosa permitted the Milwaukee Light, Heat & Traction Company to operate upon West Main from Church to Chestnut and on Chestnut to the village limits.

On April 24, 1899, the town of Wauwatosa granted a franchise for fifty years to the Milwaukee Light, Heat and Traction Company to operate upon Chestnut street from the city limits of Wauwatosa in a westerly and southwesterly direction upon what would be an extension of Chestnut street.

The Wauwatosa-Walnut line is an extension of the Walnut-National line operating within the city of Milwaukee. City cars, at regular thirty minute intervals, proceed west from Washington Park upon Pabst avenue entering Wauwatosa on

Washington street, upon Washington to Third avenue, upon Third to East Main, and upon East Main to the terminus at the Menomonee river.

The line runs upon private right of way and upon city streets granted by the following franchises:

In 1891 the city limits of Milwaukee and the limits of the town of Wauwatosa were at the center of 35th street, requiring two franchises to operate upon 35th street. On May 11, 1891, the town board of Wauwatosa granted a franchise to the Milwaukee & Wauwatosa Rapid Transit Co. to operate upon 35th street from Walnut to Pabst avenue. On June 1 of the same year the city of Milwaukee granted a franchise to the Milwaukee & Wauwatosa Rapid Transit Co. to operate on 35th street from Walnut to Pabst avenue.

From Pabst avenue and 35th street to 8th avenue in Wauwatosa the line operates on private right of way obtained by land grants from abutting land owners in 1891 and 1897.

On May 11, 1891, the town board of Wauwatosa granted a fifty year franchise to the Milwaukee & Wauwatosa Rapid Transit Co. to operate upon Third avenue in the village of Wauwatosa from Washington to Vliet street, and upon East Main from Vliet to the present terminus. This franchise provided that the rate of fare for any distance from the city limits of the city of Milwaukee to the terminus of the company in the town of Wauwatosa shall not exceed 5 cts.

On Aug. 4, 1903, the city of Wauwatosa granted a franchise until May 11, 1941, to the Milwaukee Light, Heat and Traction Company, successor to the Milwaukee & Wauwatosa Rapid Transit Co. and Milwaukee & Wauwatosa Electric Co., stipulating that "the rate of fare for one continuous passage upon the lines of railway within the city of Wauwatosa constructed under any franchise heretofore or hereafter granted shall not exceed 5 cts. for a single fare, except for children under ten years of age the rate shall be 3 cts. for one child, 5 cts. for two children riding together, and infants in arms under three years of age free. Each fare shall entitle the passenger to one transfer."

Since the granting of these franchises the original route of the Walnut line in Milwaukee has been changed. In August, 1903, the route from 24th street to 35th street upon Walnut and from Walnut to Lisbon upon 35th street, was abandoned and cars routed from Walnut and 24th street upon Lisbon to 25th street, upon 35th street to Pabst, upon Pabst to Washington Park. A part of the latter route was abandoned in September, 1908, from Lisbon to Pabst upon 35th street and from

35th street to 42nd street upon Pabst, the lines being placed upon Lisbon from 35th to 42nd street.

These changes have left the private right of way between 35th and 42nd street upon Pabst avenue inoperative and the track has been taken up by the respondent. The right of way upon 35th street between Walnut and Pabst, granted by franchise in 1891, is not used for regular operation.

The operating agreement of the city and traction companies dated March 15, 1899, provides that the city company shall operate all the railways, light and power plants, equipments, rolling stock, and other properties of the traction company; keep separate accounts of the receipts, earnings, and expenses of the traction company; provide for the interchange of service over traction and city lines and stipulates that common expenses be apportioned upon an equitable basis.

It appears from the testimony in the *Koenig* case that the city single fare rate in the early years did not apply beyond 35th street, which was then the city limits of Milwaukee and the terminal of The Milwaukee Electric Railway and Light Company. Since then the city limits have been extended to 48th street and Pabst avenue, and later, in 1910, to Spring avenue, making the east city limits of Wauwatosa identical with the west city limits of Milwaukee as far as the Wauwatosa-Walnut line is concerned. These changes caused the single fare of Milwaukee to apply on the traction company's tracks from 35th to 48th street on Pabst avenue. The traction company is required to carry its passengers to 35th street for a single fare by terms stipulated in its franchises. The city company has recognized its franchise requirements—to carry passengers to the city limits—to the extent that it carries them to the old city limits at 48th street. No fares are collected over the resulting dead strip lying between 35th street and 48th street. The evidence shows that there is no compensation given to the traction company for the use of its tracks by the respondent's cars over the dead strip. For the use of the traction company's tracks west of 48th street the respondent turns over all fares collected and charges the traction company its proportion of the expense of operation.

The petitioner's brief contends that the ordinance passed by the common council of Milwaukee on Jan. 2, 1900, requires the respondent to give one continuous ride for a 5 ct. fare upon its

lines either owned or operated in the city, and the brief contends that the line west of 48th street and Pabst avenue is operated by respondent.

In support of the contention that the traffic agreement between the respondent and the traction company is not a contract, but a thirty-year lease with a rental provision, the petitioner's brief points out that the agreement requires the lines of both companies to be operated as a unit, and it is alleged that the respondent is the operating company and not the agent of the traction company as operator. The clause providing that the rate of charge for joint use of track be reasonable and the same to each company is construed to be a provision for rental. Article 8 of the agreement provides that if the respondent shall make default in this agreement with the traction company, the latter may "assume possession and operation of all of its railways and property." Brief states that as a fundamental principle of law the respondent could not be operating the traction property as an agent because relinquishment of possession and control does not enter an agreement in agency and that the articles of incorporation of the respondent do not give it power to act as agent.

The petitioner further contends that the traction company possessed no title to the right of way on Pabst avenue from 35th street to Spring avenue, and that if the single fare limit were extended no private railway property would be affected. To substantiate this contention, the brief cites the following sequence of facts: The Milwaukee & Wauwatosa Rapid Transit Co., a railroad corporation, acquired through land grants most of the right of way between 35th street and Spring avenue on Pabst avenue in 1891. In the same year, on June 25, it attempted to assign its right of way to the Milwaukee & Wauwatosa Electric Co., a street railway. The assignment was void for the reason that the power to acquire land was not vested in a street railway company of this state until April 3, 1897, the date at which ch. 175, Laws of 1897, was approved. Also, the Milwaukee & Wauwatosa Electric Co. attempted to accept land grants for right of way purposes from E. S. Elliott and C. N. Graves several months before the above company had the statutory power to acquire land. Based upon these facts the petitioner's brief contends that when the Milwaukee & Wauwatosa Electric Co. assigned its property to the

Milwaukee Light, Heat and Traction Company no title to the land right of way in question passed to the latter since the former electric company had never held title.

It is also contended by the petitioner in its brief that the respondent accepted the blanket franchise of Jan. 2, 1900, almost a year after it had signed the traffic agreement, March 15, 1899. The respondent was aware that the franchise required the one-fare limit to be extended with every extension of the city limits, and if respondent's claim is true that the traffic agreement is a contract and will be impaired by removing the fare limit from 48th street to Spring avenue on Pabst avenue, then the respondent, as operator of the Pabst avenue line in 1900, impaired the contract by accepting the blanket franchise.

Respondent company's contention is that the line on Pabst avenue between Lisbon and Spring avenue is not owned and operated by the city company, and hence is exempt from the provisions of the ordinance of 1900, requiring extensions of the single fare limit when the city limits are extended. The traction property, it is claimed, is a separate property, financed in 1896, four years prior to the ordinance of 1900. Emphasis is laid upon the fact that the traction property has outstanding bonds held by the general public who are entitled to the earnings of this property to pay interest upon their investment. The division between the city company and the traction company, it is urged, was not made merely to separate a single ownership into two parts, but was made to permit the financing of two independent interests—one within the city and the other without.

It is counsel's contention that the respondent did not have to possess the specific power granted by the state to act as agent, but that the power granted to operate meant operation in its broad sense, that is, to operate its own and other properties.

To the claim of petitioner that the city company is operating on Pabst avenue from Libson to Spring avenue by virtue of the extension clause of the ordinance of 1900, reply is made that the city company is operating this strip by authority specially granted by the traction company which owns the strip exclusively as private right of way.

Counsel for respondent, in conclusion, denies that the traction company had no title to the right of way on Pabst avenue.

Power of condemnation, it is pointed out, was granted to street and interurban railways in 1897. Prior to this time railways had been granted the right to operate upon highways. This right had been specifically granted since they could not occupy the highways without it, and did not preclude railways from exercising an implied power to acquire land incident to their operation by grant or purchase. It is claimed that if the Milwaukee & Wauwatosa Electric Co. had no title in the land on Pabst avenue prior to 1897, its title was confirmed by the passage of ch. 175, Laws of 1897, and therefore title is properly held by the traction company.

The question of relative reasonableness of fares is raised in the *Gillett* case. It is there pointed out that respondent charged one fare to Tippecanoe, 6 miles from Grand avenue bridge, one fare to West Allis, via National, 5.2 miles from this central point, and one fare to St. Francis, 5.7 miles; while to Wauwatosa county buildings via Wells, a distance of 6 miles, two fares were charged. In addition it is shown that to South Milwaukee, 10 miles distant, and to North Milwaukee, 7.3 miles, passengers also paid two fares. On the basis of this testimony it is claimed that Wauwatosa should be placed within the single fare limit.

Respondents' answer to these allegations states that the travel on both of the Wauwatosa lines does not pay for service rendered; that the operating expense of cars to Wauwatosa is borne by the people who get on and off east of the city limits in Milwaukee; and that the business in the suburban regions is supported by the business in the congested portion, and at great expense. It is also stated that when the single fare point on the Walnut-Wauwatosa line was extended the people of Wauwatosa insisted upon their right to ride to the old Milwaukee limits for one fare, and to comply with their demand a dead zone was established between the new single fare point and the city limits in which no fare is collected.

TABLE 1.
ENGINEER'S APPRAISAL.—COST OF REPRODUCTION NEW.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT HEAT AND TRACTION COMPANY.
Jan. 1, 1910.

Showing apportioned value to Milwaukee Light Heat and Traction Company, Wells-Farwell and Walnut-National systems, Wauwatosa-Wells and Wauwatosa-Walnut suburban systems.

	T. M. E. R. & L. Co. & M. L. H. & T. Co.		M. L. H. & T. Co.		Urban & Suburban Systems.				Suburban Systems.					
					Wells-Farwell.		Walnut-National.		Wauwatosa-Wells.		Wauwatosa-Walnut.		Total.	
	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
Land.....	\$390,511	100	\$361,311	40.56	\$109,319	12.28	\$33,288	4.41	\$16,343	1.89	\$4,132	0.46	\$20,975	2.35
Roadway and paving.....	6,063,004	100	3,212,319	52.99	447,627	7.38	208,946	3.45	33,067	.55	21,123	.35	54,190	.90
Transmission and distribution.....	1,881,958	100	731,033	33.85	164,130	8.72	90,670	4.82	11,098	.59	8,373	.44	19,471	1.03
Bldgs. fixt. & grounds.....	1,125,643	100	122,097	10.85	120,204	10.68	68,332	6.07	6,532	.58	5,191	.46	11,723	1.04
Power plant equipment.....	1,074,245	100	258,644	24.08	110,441	10.28	70,312	6.54	1,710	.15	4,385	.40	6,095	.55
Rolling stock & equip.....	3,191,728	100	789,179	24.73	300,148	9.40	193,991	6.08	13,791	.43	8,213	.26	22,004	.69
Total.....	\$14,227,089	100	\$5,474,583	38.48	\$1,251,869	8.80	\$71,539	4.72	\$3,041	0.58	\$51,417	0.36	\$134,458	0.94
12% overhead.....	1,707,251	100	656,950	38.48	150,224	8.80	80,585	4.72	9,965	.58	6,170	.36	16,135	.94
Grand total.....	\$15,934,340	100	\$6,131,533	38.48	\$1,402,093	8.80	\$72,124	4.72	\$3,006	0.58	\$57,587	0.36	\$150,593	0.94

Aside from the questions raised with regard to compliance with franchise provisions the issues in the present case are similar to those discussed at length in the case *Cusick et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 314. The facts regarding investment, appraised value and intangible values of the city company and traction company, as applicable here, have been discussed in the matter *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, and in the matter *Cusick et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 314. Table 1 represents the engineer's appraisal of the property used and useful of both companies combined and the proportion charged to the traction company. The Wells-Farwell and Walnut-National urban and suburban systems have been charged with 8.8 and 4.72 per cent, respectively. The total appraised value, as used by the suburban service to Wauwatosa, is \$150,593, or 0.94 per cent, of which the Wauwatosa-Wells line is allotted \$93,006, or 0.58 per cent, and the Wauwatosa-Walnut \$57,587, or 0.36 per cent.

TABLE 2.

TRAFFIC AND REVENUE UNITS.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

Year Ending Dec 31, 1911.

Showing traffic and revenue units for the Wells-Farwell and Walnut-National systems and the Wauwatosa suburban systems.

	T. M. E. R. & L. Co. & M. L. H. & T. Co.	M. L. H. & T. Co.	Urban and Sub-urban.		Suburban.	
			Wells-Farwell.	Walnut-National	Wauwatosa-Wells.	Wauwatosa-Walnut-National
Traffic Units:						
Miles per hour.....	9.43	11.82	9.09	9.06	10.34	10.53
Passengers per car-mile.....	8.07	3.75	9.02	8.70	7.61	5.15
Transfer ratio.....	34.95	15.04	30.42	31.41	44.14	31.56
Unit Earnings:						
Per mile of track.....	\$13,285.91	\$3,947.93	\$26,944.03	\$27,179.54	\$8,125.00	\$5,313.00
Per car-hour.....	\$2.63	\$3.27	\$2.74	\$2.57	\$3.09	\$2.25
Per car-mile (in cents).....	27.95	27.70	30.20	28.37	29.91	21.35

In table 2 there are contained traffic statistics and unit earnings for 1911 for the city and traction companies combined; for the traction company only; for the Wells-Farwell and Walnut-National systems including suburbs; and for Wauwatosa-Wells

and Wauwatosa-Walnut suburban routes. As to speed the suburban routes show a higher average than do the systems of which they are a part, but as to passenger density per car-mile the average upon the systems is higher than that of the suburban routes. Of the transfer ratios the Wauwatosa-Wells has a 44.14 ratio, while the system Wells-Farwell, of which it is a part, has only 30.42; the urban and suburban systems have earnings per mile of track approximating \$27,000, the Wauwatosa-Wells suburban line has \$8,125, and the Wauwatosa-Walnut \$5,313. The car-hour earnings show that the Wauwatosa-Wells suburban with \$3.09 has a larger earning power than the Wells-Farwell system with \$2.74. The Wauwatosa-Walnut, however, has only \$2.25, while the entire system has \$2.57 per car-hour. For the Wells-Farwell system and its suburban extension the earnings per car-mile are about the same, 30.20 and 29.91 cts., respectively. The earnings per car-mile of the Walnut-National system were 28.37 cts., and for the suburban section 21.35 cts.

An apportioned income account for 1911 and the per cent of return on tangible property for four years, beginning with 1908, are given in table 3. The operating expenses contained in the table have been apportioned upon the basis outlined in detail in the case *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1. The apportionment to the systems represents what is considered to be the closest approximate amount of expense incurred by each system.

The percentage of return to the cost new in table 3 is considerably higher for the Walnut-National system and the Wells-Farwell system than for either the Milwaukee Light, Heat and Traction Company or for the two companies combined. The Wauwatosa-Wells suburban route shows an adequate return for the four years. Although the Wauwatosa Walnut shows a low rate of return, the rate has increased in 1911 to 3.17 per cent.

An element to be taken into consideration in determining the limits to which a passenger may be carried upon the Wauwatosa lines is the paying haul per passenger and per car. Such paying hauls have been computed by various methods described in detail in the case *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, and the results are summarized in table 4.

TABLE 3.
APPORTIONED INCOME ACCOUNT.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY
Year Ending Dec. 31, 1911.

Showing apportioned cost to Milwaukee Light, Heat and Traction Company, Walnut-National and Wells-Farwell systems, Wauwatosa-Walnut and Wauwatosa-Wells suburban systems.

	T. M. E. R. & L. Co. & M. L. H. & T. Co.	M. L. H. & T. Co.	Walnut- National.	Wells-Farwell.	Wauwatosa- Walnut.	Wauwatosa- Wells.
Revenues:						
Passenger earnings.....	\$4,819,595 78	\$884,256 36	\$340,695 50	\$575,713 00	\$15,089 49	\$27,300 01
Operating expenses:						
Varying with car-hour.....	\$953,650 38	\$140,663 43	\$69,070 08	\$109,311 65	\$3,498 80	\$4,598 55
" " " mile.....	361,602 22	66,932 57	25,184 09	39,972 78	1,483 65	1,915 23
" " " mile of track.....	119,063 96	70,212 02	4,211 38	7,170 89	957 04	1,128 66
" " " passengers.....	291,629 92	25,051 01	22,110 56	36,410 93	771 93	1,472 12
Power plant proportion.....	463,303 87	85,757 55	28,924 77	45,910 09	2,185 17	2,820 81
Total.....	\$2,189,250 35	\$338,616 58	\$149,500 88	\$238,776 34	\$8,896 59	\$11,935 37
Expense burden.....	437,946 21	77,779 25	29,907 83	47,778 68	1,779 59	2,386 59
Depreciation.....	644,240 63	212,728 26	32,702 70	60,281 04	2,498 11	3,607 91
Total.....	\$3,271,437 19	\$679,124 09	\$212,111 41	\$346,836 06	\$13,174 29	\$17,929 87
Surplus available for return on investment.....	\$1,548,158 59	\$205,132 27	\$128,584 09	\$228,876 94	\$1,915 20	\$9,370 14
Cost of reproduction new, Jan. 1911.....	\$16,753,563 00	\$6,378,681 00	\$790,361 00	\$1,474,605 00	\$60,513 00	\$97,852 00
Per cent return on tangible property, 1911.....	9.24	3.22	16.27	15.52	3.17	9.58
" " " " " 1910.....	8.27	2.47	15.91	14.40	2.18	13.29
" " " " " 1909.....	9.80	3.18	18.52	17.58	1.48	13.49
" " " " " 1908.....	9.40	3.35	16.27	17.36	2.78	15.34

¹ Includes private car earnings.

The results contained in this table are based upon the operating costs with an allowance of 7½ per cent upon the cost of reproduction new plus intangibles.

The actual passenger haul for the Wells-Farwell and Walnut-National systems and the entire company as given in table 4 has been independently derived from data compiled by the city company and Railroad Commission. The actual car haul is one-half the average trip distance.

For the entire city system the actual passenger haul according to the company is 2.74 miles, and according to the Commission is 2.93 miles. The maximum average paying haul according to the Ford formula is 3.11 miles, and according to the Commission formula 3.57 miles. The Bradlee formula shows that the paying car haul for the city system is 4.10 miles, while the actual haul is only 3.40 miles.

The Ford formula applied to the Wells-Farwell city system shows a possible increase over the company's actual passenger haul of 0.5 miles and an increase of 0.85 miles over the Commission's actual haul. The Commission formula applied to this line indicates that the passengers' average ride may be increased by 1.22 miles over the company's actual haul, and 1.57 miles over the Commission's actual haul. The Bradlee formula shows that the average car haul may be increased by 2.1 miles over the actual one-half trip distance in the city.

TABLE 4.
COMPARISON OF ACTUAL AND PAYING HAUL PER REVENUE PASSENGER AND PER CAR.¹
Year Ending December 31, 1911.
WAUWATOSA TRAFFIC.

	T. M. E. R. & L. Co. total system.	Wells-Farwell city line.	Walnut-National city line.
Revenue Passenger Haul:			
Actual haul, company's estimate ²	2.74	2.30	3.37
Commission's.....	2.93	1.95	2.74
Paying haul, Ford formula.....	3.11	2.80	4.11
Paying haul, Commission basis.....	3.57	3.52	4.69
Car Haul:			
Actual average ½ trip distance.....	3.40	4.01	4.23
Paying haul, Bradlee formula.....	4.10	6.11	5.44

¹ Out from Grand avenue bridge.

² Basis of September 29, 1911.

³ Basis of traffic survey, 1909.

The city system of the Walnut-National line according to the Ford formula may increase its average haul per passenger

from 3.37 miles to 4.11 miles, an increase of 0.74 miles, and according to the Commission formula from 2.74 miles, Commission's estimate, to 4.69 miles, an increase of 1.95 miles. The actual car haul on this system is 4.23 miles, while the paying car haul as shown by the Bradlee formula is 5.44 miles.

These results indicate that, when the city business is considered, some extension of the single fare limits can be made and the company still be able to earn a reasonable return upon the investment. It is obvious, however, that the suburban business of itself is not upon a paying basis, but that an extension must be largely determined on the basis of the paying haul of urban business, and that any reasonable extension cannot comprise the most populated portion of Wauwatosa.

IT IS THEREFORE ORDERED, That The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company discontinue charging the present rates of fare for transportation to and from any portion within the city of Milwaukee and the intersection of Spring and Pabst avenues on the Walnut-National line, and the intersection of Wells and 59th street on the Wells-Farwell line in Wauwatosa, and substitute in place of such present fares a joint rate of 5 cts. cash or ticket fare for one continuous passage.

Respondent companies shall discontinue the present ticket rate and shall sell through their conductors thirteen tickets for 50 cts. and such a ticket shall entitle the bearer to one continuous passage in the same direction upon the city lines and to the limits specified above.

Thirty days is deemed sufficient time to comply with the above order.

CITY OF MILWAUKEE

vs.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.
IN RE DOUBLE TRANSFERS.

Decided Aug. 23, 1912.

Petitioner complains that it is the practice of the T. M. E. R. & L. Co. in the city of Milwaukee to give one transfer upon the payment of one fare and that, as a result, many passengers find it necessary to use three different lines of traffic to reach their destination. It is claimed that, rather than use three lines and pay the double fare demanded, it is common practice for passengers to use one transfer and reach their destination by a long detour which, in the vast majority of cases, means transportation through the congested district of the city. It is contended that the present regulation of the company for one transfer upon the payment of a single fare is unreasonable and inimical to the interests of both the company and public. It is requested that the company be required to issue a double transfer with such limitations as will prevent back-transferring and such other abuses as will be found possible under its use. Under the order of the Commission in *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 8 W. R. C. R. 535, there is at present effective a system of double transfers over the 16th street viaduct, one of the respondent company's cross-town lines. The necessity for such a double transfer was the large amount of traffic to and from industries on the north and south sides of the Menomonee valley. It appears that to date this double transfer has not been extensively used. Owing to the change in direction of many of the car lines in Milwaukee, the issuance of a double transfer would necessitate a large number of restrictions in order to prevent the abuse of the transfer privilege. Such restrictions are not necessary in other cities where the entire traction system is laid out upon the gridiron or cross-town line basis, a type of routing which is not generally applicable to Milwaukee.

Held: Under present circumstances it does not appear necessary to extend the use of the double transfer. Circumstances may arise in the future when the large amount of cross-town travel through what is at present the outskirts of the city will have developed to such an extent as to make further use of the double transfer desirable. It does not appear, however, that such an extension is reasonable at the present time. The petition is dismissed.

The petition in this matter was filed on Feb. 3, 1912, by the city of Milwaukee, a municipal corporation organized under the laws of the state of Wisconsin.

It is alleged that The Milwaukee Electric Railway and Light Company is a common carrier engaged in the transportation of passengers and their usual baggage by street car in the city of Milwaukee and as such the street railway company is subject to chapters 362 and 348, Laws of 1905 and 1907, respectively. In the operation of its various lines of railway, it is the practice of the company to give one transfer upon the payment of one fare. It is stated that the city of Milwaukee is so situated in the valley of the Menomonee river that it is divided into a northern and southern part. Because of this separation the respondent has found it impossible to construct and operate its several lines upon the so-called cross-town line basis. At this time there are in operation only three lines across this valley from the north to the south sides. Many lines run at angles and follow the irregular topography of the city. Because of this unusual method of operation the petitioner claims that many passengers find it necessary to use three different lines of traffic in order to reach their destination. It is claimed that rather than use three lines and pay the double fare demanded, it is common practice for passengers to use one transfer and reach their destination by a long detour, which in the vast majority of cases means transportation through the congested district of the city. This habit of detouring in order to use one transfer and avoid the payment of a second fare results, it is alleged, in a loss of transportation and an unnecessary waste and use of rolling stock and facilities by the company, without any financial gain, and causes confusion in the down-town districts and loss of time on the part of the passengers.

In view of the above facts it is contended that the present regulation of the company for one transfer upon the payment of a single fare is unreasonable and inimical to the interests of both the company and public. It is requested that the company be required to issue a double transfer with such limitations as will prevent back-transferring and such other abuses as will be found possible under its use.

In its answer the company denies that the practice of giving only one transfer is unreasonable and alleges that rates have at all times been reasonable and just and service has been better than reasonably adequate. It contends further that the street railway in the city of Milwaukee is being operated under certain franchises, among which is a franchise embodied in an

ordinance enacted on Jan. 2, 1900. This franchise operated as an amendment to all existing franchises held by the respondent and provided especially that the payment of fare shall entitle each passenger "upon demand made at the time of payment of fare to one transfer" and it is claimed that it is the intent of this franchise that each passenger should be entitled to one transfer and no more. It is alleged that in consideration of other conditions and agreements such franchise became a contract when it was accepted by the respondent. It is therefore claimed that any order requiring the respondent to furnish more than one transfer to a passenger would be a law impairing the obligation of contracts and would involve the taking of property without due process of law and be a violation of the constitution of the United States.

Hearing was held on April 8, 1912, in the city of Milwaukee. *Clifton R. Williams* represented the petitioner, and *Miller, Mack & Fairchild*, by *Edwin S. Mack*, appeared for the respondent.

No attempt was made by the petitioner at the hearing to submit testimony of passengers relative to the inconvenience resulting to the public by the failure to issue a second transfer. There were submitted in evidence, however, a large number of petitions containing approximately 1,900 names of citizens of Milwaukee requesting a double transfer. These petitions were all prepared and signed during the period of three weeks prior to the day of the hearing and subsequent to the filing of the petition. They were circulated in saloons, drug stores, and at public meetings. Additional petitions containing individual signatures have been filed since the hearing, among these certified copies of resolutions filed by various trade councils and labor organizations of the city of Milwaukee, endorsing the petition.

In order to show in concrete form the amount of unnecessary and dead travel which would be eliminated by the inauguration of a second transfer privilege, the petitioner presented a series of maps entitled "Transfer follies." These exhibits disclose thirteen routes which at present compel passengers to detour. Ten of these call for two transfers upon the Center street line, one upon the 35th street line, one upon the North avenue line, and one upon the 12th street line. In all of these cases it was shown that a shorter route is possible by the use of two

transfers. In several instances the distance of unnecessary travel is shown to be between four or five miles.

That the present transfer privilege is liable to abuse was admitted by the petition, but no means were suggested for the protection of the double transfer privilege from even greater abuse.

The respondent contends that a double transfer is impracticable and would lead to an aggravated form of abuse, since many transfer points are at or near the ultimate destination of passengers and this fact would permit, in many instances, a round trip ticket for a single fare. It is the intention of the company to make the transfer applicable to a continuous ride. Notwithstanding a careful checking of time, however, it is claimed that there exists considerable trading in transfers by newspaper agencies, saloons and small shops. An extremely large number of transfers are issued in excess of the number lifted by the company's conductors. Studies of transfers called for and redeemed indicate that the number subject to this trafficking runs into thousands daily. It was maintained that notwithstanding an attempt to limit an issue of a second transfer to a general direction, there would still be several instances permitting a round trip. No particular instances are cited, however, by the respondent of where this abuse would be possible.

By the order of the Commission issued under date of Jan. 30, 1912, (*City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 8 W. R. C. R. 535) there is at present effective a system of double transfers over the 16th street viaduct, one of respondent company's cross-town lines. The necessity for such a double transfer was the large amount of travel to and from industries on the north and south side of the Menomonee valley. It appears that to date this double transfer has not been extensively used. The result of counts taken by the company of the special transfers issued for the first twenty-eight days following the installation of this service showed that an average of 340 transfers were issued daily. The maximum issued in any one day during that period was 425, while the minimum was 153. Approximately one-half as many were issued on Sundays as on week days. In order to amply supply its 240 conductors working on cars affected by this class of service, it was necessary to have 15,000 transfers printed daily. The company maintains that the above evidence is indicative of the fact that the demand for transfers is very

small compared with the cost of handling the additional business and contends that the demand upon other lines could not be greater than upon the 16th street viaduct line.

As an offset to the claim of economy of operation under two transfers, evidence was submitted to show the possibility of increased expense to the company because of the risk involved in handling the passengers. From 30 to 50 per cent of the total expense of injuries and damages is said to be due to accidents arising from boarding and alighting from cars. The use of two transfers, it is alleged, would necessitate a double risk. The desirability was also emphasized of reducing the duties of the conductors to a minimum in order that full attention might be devoted to the comfort and safety of the passengers. The keeping of additional transfers, together with the making up of transfer reports, would necessarily demand time necessary for other duties. The question of a slight shortening of the distance by reason of the second transfer was, therefore, held by the company to be of no consequence compared with the comfort of a through ride and the added element of risk involved in a second transfer.

To the allegations that double and universal transfers are issued in many other cities, the company replied that Milwaukee has a peculiar geographical situation making it impracticable to adopt such regulations.

It will be noted that all the instances cited calling for the use of double transfers relate to the cross-town lines, ten providing for the issuance of two transfers upon Center street, one upon 35th street, one upon North avenue, and one for a distance upon 12th street. Both the Center and 35th street lines are not as yet upon a paying basis and a study of traffic observations made in connection with the case *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, would indicate that there is but little tributary traffic which would avail itself of the double transfer privilege. Based upon such traffic records, the greatest necessity for a double transfer exists upon the 16th street viaduct and the double transfer ordered on Feb. 12, 1912, upon this single line should be given a thorough trial before extensions are considered elsewhere.

Owing to the change in direction of many of the car lines, the issuance of a double transfer would necessitate a large number of restrictions in order to prevent the abuse of the transfer privilege. Such restrictions are not necessary in other cities

where the entire traction system is laid out upon the gridiron or cross-town line basis, a type of routing which is not generally applicable to Milwaukee.

Another matter must be given careful consideration in the present cost of transfers. The annual reports of the respondent company for the years covering the period 1897-1912, inclusive, show a gradual increase in the use of transfers. The percentage of revenue passengers using transfers during the year 1897 was 25.52 per cent and this has steadily increased to 37.17 per cent in 1911. This increase naturally effects a decrease in the earnings per passenger and as a result the average fare from all passengers including transfers has shown a similar decrease from 3.94 cts. to 3.11 cts. Data compiled from the records of the company for the past fourteen years are given in table 1:

TABLE 1.
COMPARISONS OF AVERAGE FARE PER PASSENGER AND TRANSFER RATIOS.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY.

Year.	Average fare including transfer passengers, in cents.	Per cent of revenue passengers using transfers.	Per cent of revenue and free passengers using transfers.
1897.....	3.94	25.52	25.22
1898.....	3.92	25.80	25.46
1899.....	3.89	26.14	25.83
1900.....	3.76	27.44	27.14
1901.....	3.75	29.15	29.01
1902.....	3.76	29.65	29.53
1903.....	3.72	31.19	31.07
1904.....	3.71	31.14	31.00
1905.....	3.27	32.43	32.28
1906.....	3.22	33.40	33.23
1907.....	3.18	34.54	34.36
1908.....	3.15	35.34	35.15
1909.....	3.14	34.78	34.61
1910.....	3.12	36.49	36.26
1911.....	3.11	37.17	36.92

Under present circumstances it does not appear necessary to extend the use of the double transfer. Circumstances may arise in the future when the large amount of cross-town travel through what is at present the outskirts of the city will have developed to such an extent as to make further use of the double transfer desirable. It does not appear, however, that such an extension is reasonable at the present time.

IT IS THEREFORE ORDERED, That the petition be and it is hereby dismissed.

VILLAGE OF EAST MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN,

vs.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY,
MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

Decided Aug. 23, 1912.

The village of East Milwaukee complains of excessive rates of fare and asks that the T. M. E. R. & L. Co. be required to extend its single fare limits on the Wells-Farwell line from Edgewood avenue to Mineral Spring road, the present second fare limit. For this haul, of approximately 0.44 miles, respondent at present collects one fare. Complaint is also made that respondent sells no tickets within petitioner's corporate limits, and that respondent's street car service in East Milwaukee is irregular and inadequate.

A valuation of the property was made. The revenues and expenditures of respondents were investigated and apportioned as between the T. M. E. R. & L. Co. and the M. L. H. & T. Co. A further apportionment was made between the Wells-Farwell system and the North College avenue suburban service. It appears that the company has sustained an actual loss varying from 7.82 to 11.87 per cent upon that portion of its business transacted between the first and second fare limits. The entire Wells-Farwell avenue business, on the other hand, shows a percentage return upon tangible property considerably in advance of that of the entire traction business. An extension of the single fare limits from first to second fare points in the village of East Milwaukee will aggregate an increase of road mileage of about 0.44 miles. The resulting increase per car haul will be dependent upon the relative number of city cars and those completing the entire East Milwaukee trip. The increase per average passenger will be dependent upon the relative amount of the Wells-Farwell traffic within the city of Milwaukee and that contributed by the outlying suburbs.

Held: The reasonableness of the proposed extension of single fare limits must be considered in relation to the traffic and cost of traffic of the entire system of which the suburban unit is a part. The fact that under the company's present traffic conditions the suburban line, or that portion extending from the first to the second fare points, is not upon a paying basis is no indication that the traffic contributed by the East Milwaukee patrons is not a profitable addition to the entire Wells-Farwell system. One of the elements properly considered in determining the limit of an extension of the single fare point is the paying haul per passenger and per car. A comparison of actual and paying haul per revenue passenger and per car indicates that some extension is possible in the paying haul per revenue passenger upon the Wells-Farwell line. It appears that an extension of the single fare limit from Edgewood ave-

nue to the present terminus, Mineral Spring road, in the village of East Milwaukee is not an unreasonable requirement. The loss sustained under such an extension of the single fare limits will not exceed the present revenues of the M. L. H. & T. Co. between the first and second fare points. In case the proposed rate is continued as a joint rate between the T. M. E. R. & L. Co. and the M. L. H. & T. Co., the burden of the expense of the latter can be materially reduced by a reapportionment of costs upon a more equitable basis. Respondents are ordered to discontinue charging the present rates of fare for transportation to and from any points within the city of Milwaukee and the intersection of Mineral Spring road and Downer avenue within the village of East Milwaukee upon the Wells-Farwell line, and to substitute a joint rate of 5 cts. cash, or ticket fare, for one continuous passage. Respondents are further ordered to discontinue the present ticket rate and to sell through their conductors tickets in packages of thirteen for 50 cts., such tickets to entitle the bearer to one continuous passage in the same general direction upon the city lines and to the limits specified. Thirty days is deemed a reasonable time within which to comply with these orders.

The petitioner, the village of East Milwaukee, is a duly incorporated and organized village of the state of Wisconsin, situated in the county of Milwaukee, immediately north of that part of the city of Milwaukee which lies between the Milwaukee river and Lake Michigan.

The petition which was filed Jan. 4, 1912, alleges that the respondent company is engaged as a street and interurban railway company in the transportation of persons within the city of Milwaukee and the village of East Milwaukee and as such operates a line of street cars upon Downer avenue, which is a public highway in the city of Milwaukee, to the point of its intersection with Edgewood avenue, which is the southern boundary of the village of East Milwaukee and the northern boundary of the city of Milwaukee, and thence northerly in the village of East Milwaukee a distance of approximately 2,550 feet, terminating at a public highway in the village of East Milwaukee known as Mineral Spring road.

The petition relates that the charge for one adult person for transportation over this distance of approximately 2,550 feet, or any part thereof, is 5 cts. cash or one fare, whereas the fare from any place within the limits of the city of Milwaukee to any other place within the city limits is 5 cts. cash or fare tickets at 4 cts. for each such fare; that the respondent at some of its fare offices in the city of Milwaukee sells fare tickets for transportation over the line within the village of East Mil-

waukee and within the city of Milwaukee at the rate of 7½ cts. per ticket, the same constituting a charge of 3½ cts. for transportation over the distance of approximately 2,550 feet in the village of East Milwaukee, which charge, it is alleged, is unreasonable, unlawful, unwarranted, and exorbitant; that the respondent does not sell fare tickets for transportation within the city of Milwaukee nor for transportation within the village of East Milwaukee upon its street cars nor anywhere within the village of East Milwaukee, which failure to sell such fare tickets is unreasonable, unlawful, unwarranted, and of great inconvenience to passengers.

Besides the above allegations with respect to rates, the petition declares that the service furnished to the residents of the village of East Milwaukee is entirely insufficient and inadequate for the reason that the respondent operates and maintains but one car each hour over the distance from Edgewood avenue to Mineral Spring road, and that not at regular intervals. It is also alleged that the respondent fails to properly designate which cars go to Mineral Spring road, while others which are so designated are not operated to this point; that some cars which go to Edgewood avenue are not properly designated and that some cars marked Edgewood avenue are frequently diverted and switched back before reaching this point, all of which causes great inconvenience and loss of time to the residents of East Milwaukee who are wholly dependent upon this Downer avenue line for transportation.

The prayer of the petition is that the Commission order the establishment of a fair and reasonable rate to said Mineral Spring road, and the improvement of the service upon this line, together with such further order as may be deemed necessary.

The answer of the respondent, filed on March 28, 1912, alleged that it does not sell tickets on the Downer avenue line in the village of East Milwaukee because it would be burdensome and unprofitable to make such sale and the demand for such tickets would not warrant any such practice. It is admitted that the service to Mineral Spring road is hourly, but it is alleged that it is at regular hours. It is further maintained that the service on the Downer avenue line both in the city of Milwaukee and the village of East Milwaukee at all times, and now is better than reasonably adequate and that the rates of fare

charged are lower than a reasonable and just rate of fare. For this reason the respondent prays that the complaint be dismissed.

Hearing in this matter was held pursuant to notice in the city of Milwaukee on March 30, 1912. *George H. Gabel* appeared in behalf of the petitioner and *Miller, Mack & Fairchild* for the respondent.

The village of East Milwaukee is situated immediately north of the city of Milwaukee, there being no intervening territory between the two municipalities. It is one of the most recent of Milwaukee's residence suburbs. Much of the growth of the village has occurred during the past three years. Testimony was submitted showing that there are now approximately 112 houses, of which 82 were built since 1905, and about 64 during the past three years. The population of the village, according to the census taken on March 1, 1912, was 811. Much of the building construction has been of a substantial and permanent nature rather than the result of real estate boom schemes, the separate houses ranging in value from \$4,000 to \$20,000. The present value of property is placed at \$900,000. Because of restrictions placed upon the property the village will, in all probability, remain a residence community. There is no manufacturing and all the business of residents is transacted within the city of Milwaukee. The community is given daily rural mail delivery. The rates charged for gas and electric service are no different than the schedule of charges within the city of Milwaukee. For telephone service the rate is a slight increase over the Milwaukee rate for distances beyond Mineral Spring road. The village is being rapidly equipped with street curbing and cement sidewalks.

Downer avenue, upon which the line in question is located, is a street running north and south within the city of Milwaukee and into the village of East Milwaukee. Extending south on Downer to Hartford street, a point approximately 1,200 feet from Edgewood avenue, company is maintaining a single track. Beyond the switch, at this point, there is a double track.

From Hartford street within the city of Milwaukee north to Edgewood avenue company is operating upon what is now used as a highway, but what is conceded to be private right of way; likewise a section of track between Edgewood avenue and Newton avenue within the village of East Milwaukee, a distance

north of about one-fourth mile, is also private right of way. There is now pending a suit on appeal by the city of Milwaukee against the respondent for the condemnation of the thirty foot right of way on Downer avenue held by the company. The circumstances of this litigation, it is charged, have made it impracticable for the company to lay a double track upon Hartford street. The distance from Newton avenue to Mineral Spring road is a dedicated street, with the privilege granted by one property holder to respondent company to operate cars.

It appears from the record of franchises on file with the Commission that a fifty year franchise was granted March 8, 1898, by the town of Milwaukee to operate upon what is now Downer avenue from Edgewood to Marion, an intersection about one-fourth mile further north than is now being utilized by the company, this franchise to become effective as soon as the street was regularly opened. It appears from the testimony, however, that a portion of Downer avenue within the village of East Milwaukee is not as yet a public highway.

The company has considerable private right of way property in the village of East Milwaukee formerly occupied by the Whitefish Bay dummy line, which was purchased in 1897 and which operated on what is now known as Maryland avenue, extending to a point between Newton avenue and Cleveland, and thence running east to Downer avenue.

A new franchise has been negotiated for with the village board providing for an extension to Marion avenue and west on Marion to company's Oakland avenue line. Such a line of operation would provide for two routes reaching into the Whitefish Bay district, and would enable the company to route cars in either direction, and would solve many of the problems of furnishing adequate service. A line without this suggested outlet, it is contended, would not stimulate traffic.

It appears that the village demanded, as a part of such franchise, that a single fare be charged to any point within the city of Milwaukee; that a double track be laid immediately; that the company pave the streets over which it operated; that no interurban cars be permitted to operate upon the route; that no freight should be handled upon the cars; that no rights should be granted west of the intersection of the old dummy line right of way, which would practically prevent any junction with

the Oakland avenue route; that company should sprinkle streets; that company should operate a ten minute service during rush hours; and that company should dedicate all of its dummy line private right of way south of Olive street for street purposes. It appears that upon this basis no compromise could be effected and that the request for a franchise was finally rejected.

As illustrating traffic conditions on the line at Edgewood and north there has been submitted by the petitioner a record of the number of passengers getting on and off at Edgewood, being a count made upon seven days of the week. It appears from the data submitted that of a total of 2,455 people getting on and off at Edgewood, 1,149 walked north into the village of East Milwaukee. It is estimated that of this number 882 were non-residents. The number of passengers traveling within the second fare zone aggregated 98.

Under the present schedule cars are being operated to the switch at Hartford street every three minutes in the morning and every four minutes in the afternoon and every two minutes or less during the peak load. Cars to Mineral Spring road run every hour.

The facts relating to the valuation of the property of The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company have already been gone into in *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, and *Cusick et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 314. In the present case it will be noted that the Milwaukee Light, Heat and Traction Company has title to that portion of the track between the first and second fare points in the city of East Milwaukee. All cars are operated by The Milwaukee Electric Railway and Light Company, the Milwaukee Light, Heat and Traction Company being credited with the second fare collected and being charged with a proportionate part of the operating expenses incurred for the entire city, suburban, and interurban traction systems.

In table 1 there is given the engineer's appraisal of the cost of reproduction new as of Jan. 1, 1910, for both city and traction companies combined; for that portion of the total property to which the traction company now has title; the prorated portion of the total property devoted to the uses of the Wells-Farwell avenue system extending from the north limits of East Milwaukee to the West limits of Wauwatosa and West Allis; and, finally, the prorated portion of that portion of the rail-

way system used and useful for the North College avenue suburban system extending from the first fare point at the city limits of Milwaukee to Mineral Spring road.

In making this apportionment, the track used exclusively by the North College avenue trippers is here appraised at \$5,883. That portion of the transmission and distribution system actually used and necessary for such service is appraised at \$1,983. For the use of single cars utilized there has been estimated an addition to plant value of \$2,183, etc. The total valuation, including 12 per cent to cover interest during construction, superintendence, contingencies, etc., aggregates \$17,476, and amounts to 0.11 per cent of the total value of the traction property of both The Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company.

TABLE 1.
ENGINEER'S APPRAISAL.—COST OF REPRODUCTION NEW.
THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE
LIGHT, HEAT AND TRACTION COMPANY.

January 1, 1910.

Showing apportioned value to the Wells-Farwell system and North College Avenue suburban service.

	T. M. E. R. & L. Co. & M. L. H. & T. Co.		M. L. H. & T. Co.		Wells- Farwell.		North College ave.	
	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
Land.....	\$890,511	100	\$361,311	40.56	\$109,319	12.28	\$1,684	0.19
Roadway and paving	6,063,004	100	3,212,319	52.99	447,627	7.38	5,883	.10
Transmission and distribution.....	1,881,958	100	731,033	38.85	164,130	8.72	1,983	.10
Bldgs. fixtures and grounds.....	1,125,643	100	122,097	10.85	120,204	10.68	3,168	.28
Power plant equip....	1,074,245	100	258,644	24.08	110,441	10.28	703	.06
Rolling stock equip..	3,191,728	100	789,179	24.73	300,148	9.40	2,183	.07
Total.....	\$14,227,689	100	\$5,474,586	38.48	\$1,251,869	8.80	\$15,604	0.11
12% overhead.....	1,707,251	100	656,650	38.48	150,224	8.80	1,872	.11
Grand total.....	\$15,934,340	100	\$6,131,533	38.48	1,402,093	8.80	\$17,476	0.11

In table 2 there are given certain traffic and revenue units for both city and traction companies, for the traction company only, for the Wells-Farwell avenue system comprising both urban and suburban business, and for the North College avenue suburban branch, being that portion of the property operated within the village of East Milwaukee. It will be noted that the density of traffic and unit earnings upon the Wells-Far-

well avenue system are somewhat above the earnings for both companies combined. The earnings, however, upon the North College avenue line are very small and indicate that what is known as the East Milwaukee suburban traffic has not been a paying proposition.

TABLE 2.
TRAFFIC AND REVENUE UNITS.

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE LIGHT, HEAT AND TRACTION COMPANY.

Year Ending Dec. 31, 1911.

Showing traffic and revenue units for Wells-Farwell system and North College avenue suburban.

	T. M. E. R. & L. Co. and M. L. H. & T. Co.	M. L. H. & T. Co.	Wells-Far- well urban and suburban.	North College avenue.
Traffic units:				
Miles per hour.....	9.42	11.82	9.09	9.22
Passengers per car-mile.....	8.07	3.75	9.02	1.00
Transfer ratio.....	34.95	15.64	30.42	2.04
Unit earnings:				
Per mile of track.....	\$13,285.91	\$3,947.93	\$26,944.03	\$620.00
Per car-hour.....	\$2.63	\$3.27	\$2.74	\$0.44
Per car-mile (in cents).....	27.95	27.70	30.20	4.78

In table 3 there is given an apportioned income account showing the total operating expenses of both city and traction companies combined for the year ending Dec. 31, 1911, together with the rate of return upon the cost of reproduction new for the four years ending Dec. 31, 1911; the apportioned income account for the traction company alone when operating expenses are prorated on the basis of the operating unit being most appropriate; and similar income accounts for the Wells-Farwell avenue system, including both urban and suburban business, and for that portion of the Wells-Farwell avenue business transacted within the village of East Milwaukee. It will be noted that, due to the inadequate earnings disclosed in table 2, the company has sustained an actual loss varying from 7.82 per cent to 11.87 per cent upon that portion of its business transacted between the first and second fare points. The entire Wells-Farwell avenue business, on the other hand, shows a percentage return upon tangible property considerably in advance of that of the entire traction business.

TABLE 3.
 APPORTIONED INCOME ACCOUNT.
 THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY AND MILWAUKEE
 LIGHT, HEAT AND TRACTION COMPANY.
 Year Ending Dec. 31, 1911.
 Showing apportioned cost to Wells-Farwell system and North College avenue
 suburban service.

Italic figures denote deficits.

	T. M. E. R. & L. Co. & M. L. H. & T. Co.	M. L. H. & T. Co.	Wells- Farwell.	North College ave.
Revenues:				
Passenger earnings.....	\$4,819,595 78	\$884,256 36	\$575,713 00	\$309 92
Operating expenses:				
Varying with car-hour.....	\$953,650 38	\$140,663 43	\$109,311 65	\$368 06
" " miles.....	361,602 22	66,932 57	39,972 78	137 23
" " miles track.....	119,063 96	70,212 02	7,170 89	168 05
" " passengers.....	291,629 92	25,051 01	36,410 93	13 39
Power plant proportion ²	463,303 87	85,757 55	45,910 09	202 11
Total.....	\$2,180,250 35	\$388,616 58	\$238,776 34	\$888 84
Expense burden.....	437,946 21	77,779 25	47,778 68	177 04
Depreciation.....	644,240 63	212,728 26	60,281 04	683 60
Total.....	\$3,271,487 19	\$679,124 09	\$346,836 06	\$1,749 48
Surplus available for return on investment.....	\$1,548,158 59	\$205,132 27	\$228,876 94	\$1,439 56
Cost of reproduction new, Jan. 1911....	\$16,753,563 00	\$6,378,681 00	\$1,474,605 00	\$18,417 00
Per cent return on tangible property 1911.....	9.24	3.22	15.52	7.82
Per cent return on tangible property 1910.....	8.27	2.47	14.40	11.37
Per cent return on tangible property 1909.....	9.80	3.18	17.58	11.87
Per cent return on tangible property 1908.....	9.40	3.35	17.36	10.40

¹Includes private car earnings.

²Based upon estimated kilowatt hours consumed for each car-mile run.

The issues in the present case are almost identical with those passed upon in *Cusick et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 314. It has there been held that the reasonableness of a proposed extension of single fare limits must be considered in relation to the traffic and cost of traffic of the entire system of which the suburban unit is a part. The fact that under company's present traffic conditions the suburban line, or that portion extending from the first to second fare points, is not upon a paying basis, is no indication that the traffic contributed by the East Milwaukee patrons is not a profitable addition to the entire Wells-Farwell system. As has been pointed out in that case, one of the elements properly considered in determining the limit of an extension of the single fare limit is the paying haul per passenger car. Such facts are summarized in table 4:

TABLE 4.

COMPARISON OF ACTUAL AND PAYING HAUL PER REVENUE PASSENGER AND PER CAR.¹

Year Ending Dec. 31 1911.

EAST MILWAUKEE.

	T. M. E. R. & L. Co.	Wells-Farwell city line.
Revenue Passenger Haul:		
Actual haul, company's estimate ²	2.74	2.30
Actual haul, Commission's estimate ³	2.93	1.95
Paying haul, Ford formula.....	3.11	2.80
Paying haul, Commission basis.....	3.57	3.52
Car Haul:		
Actual average $\frac{1}{2}$ trip distance.....	3.40	4.01
Paying haul, Bradlee formula.....	4.10	6.11

¹Out from Grand avenue bridge.

²Basis of Sept. 29, 1911.

³Basis of traffic survey.

It will be noted that, upon both the basis suggested by Mr. Ford, and by this Commission, explained at length in *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, some extension is possible in the paying haul per revenue passenger upon the Wells-Farwell line, and this conclusion is also borne out by an examination of the results obtained by computing the paying car haul upon the basis suggested by Mr. Bradlee. An extension of the single fare limits from first to second fare points in the village of East Milwaukee will aggregate an increase of road mileage of about 0.44 mile. The resulting increase per car haul will be dependent upon the relative number of city cars and those completing the entire East Milwaukee trip. The increase per average passenger will be dependent upon the relative amount of the Wells-Farwell traffic within the city of Milwaukee and that contributed by the outlying suburbs.

A study of the traffic conditions, with a view to determine the adequacy of the service rendered to Edgewood and Mineral Spring road, has been made by the engineering department of the Commission, covering observations on May 21 and 22, 1912. The following facts are noted from the report of the inspecting engineer:

Double track on Downer avenue extends north to a point about 1,250 feet south of Edgewood avenue. Farwell avenue cars marked "Hartford" turn back at the end of double track; cars marked "Edgewood" turn back at Edgewood avenue which is the first fare limit; the cars marked "Mineral" run to the end of the line at Mineral Spring road, an extra 5 ct. fare

being collected for any distance beyond Edgewood avenue. Mineral Spring road is approximately one-half mile beyond Edgewood avenue.

While no actual count was made of the total cars running to the end of double track, it is estimated that approximately half the cars proceeded to Edgewood avenue during the periods of observation. It is understood that some of the village residents desire the double track extended to Edgewood avenue and all cars ordered to run to that point, but the observations of traffic in this territory do not indicate that there is any necessity for such additional service.

During ten hours' observation there were 38 northbound cars which carried a total of 172 passengers to Edgewood, and 13 cars to Mineral road which carried 9 passengers beyond Edgewood avenue.

There were 83 southbound cars which carried 185 passengers south from Edgewood avenue and 13 cars from Mineral road which carried 18 passengers between Mineral road and Edgewood avenue.

The maximum number on any northbound car arriving at Edgewood was 10, and the maximum number riding northbound north of Edgewood was 2. Twenty-one cars arrived at Edgewood northbound without passengers, and six cars ran to Mineral road with no passengers.

The maximum number on any southbound car leaving Edgewood was 10, and the maximum riding south from Mineral road was 5. Nineteen cars left Edgewood southbound with no passengers and four cars left Mineral road without passengers.

It is believed that average conditions were observed and as the data cover the morning, noon and evening periods, when the maximum riding would occur, there seems to be reason for believing that the average maximum riding was observed. Extremely bad weather might cause heavier riding within the second fare zone, but it is believed that the total riding would not differ widely from that observed.

As long as the present fare limits are maintained, there does not seem to be any reason why the average riding in the second fare zone should increase. The fact that a straight 5 ct. fare is charged for a half mile ride causes passengers to walk to Edgewood to take the car or seek other means of transportation. If the line is to be extended beyond Mineral Spring road, there might be conditions arising which would make Edgewood avenue the logical first fare limit, but as conditions exist to-day, Mineral Spring road appears to be the reasonable first fare limit rather than the second fare limit.

If the first fare limit should be extended to Mineral Spring road, the receipts of the company would not be noticeably decreased, but about 30 to 50 per cent of the people who now get off at Edgewood would ride two or three blocks farther, requir-

ing two or three more stops per car trip. It does not appear that very frequent service is needed to the end of the line, but as it is only about a five minute run from Edgewood to Mineral road and return, it would seem that two or three cars per hour could be run to Mineral road without seriously interfering with the present schedule on the rest of the line.

CONCLUSIONS: A large portion of the riding public in the territory served by the line under consideration lives within a reasonable walking distance of the first fare limit.

The service now furnished to the first fare limit appears to be adequate to meet all present needs.

The present second fare limit appears to be the reasonable first fare limit, and if it should become the first fare limit there should be at least two or three cars per hour north of Edgewood avenue.

In consideration of these facts it appears that an extension of the single fare point from the present single fare limits to the present terminus, Mineral Spring road in the village of East Milwaukee, is not an unreasonable requirement. The loss sustained under such an extension of the single fare limits will not exceed the present revenues of the Milwaukee Light, Heat and Traction Company between the first and second fare points, aggregating \$309.92 during the calendar year 1911. In case the proposed rate is continued as a joint rate between the city and traction company, the burden of the expense of the latter can be materially reduced by a reapportionment of costs upon a more equitable basis.

IT IS THEREFORE ORDERED, That the Milwaukee Electric Railway and Light Company and the Milwaukee Light, Heat and Traction Company discontinue charging the present rates of fare for transportation to and from any points within the city of Milwaukee and the intersection of Mineral Spring road and Downer avenue within the village of East Milwaukee upon the Wells-Farwell line, and that they substitute in place of such present fare a joint rate of 5 cts. cash, or ticket fare, for one continuous passage.

Respondent companies shall discontinue the present ticket rate and shall sell through their conductors tickets in packages of thirteen for 50 cts., and such ticket shall entitle the bearer to one continuous passage in the same direction upon the city lines and to the limits specified above.

Thirty days is deemed sufficient time to comply with the above order.

JOHN SCHULZ

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted Jan. 9, 1912. Decided Aug. 26, 1912.

Complaint was made that the rates on coal, feed and refuse on the C. M. & St. P. Ry. from Milwaukee to Lake, Wis., are excessive as compared with the switching rates to other stations at similar distances from Milwaukee, and as compared with rates on the C. & N. W. Ry. The rate exacted was 2.25 cts. per cwt. on coal and 2 cts. per cwt. on feed and refuse. While some of the points included in the switching tariffs on coal are farther from Milwaukee than Lake, all are manufacturing points, and may naturally be considered as a part of the Milwaukee manufacturing center. Lake is in the center of a farming region and its traffic is not properly a part of the railway company's city business. The special conditions which make very low rates proper for switching traffic are not entirely applicable to this station. However, the rate in question applies to all stations between Milwaukee and Racine, a maximum distance of thirty-two miles, and Lake is the first station out of Milwaukee. So wide a group, beginning within a few miles of the point of shipment, is hardly justifiable in this case, considering the fact that there is an actual movement of traffic to the point nearest the originating station. The rate of 45 cts. per ton on coal yields somewhat higher revenues than the railway company is entitled to receive when the length of haul, the value of the commodity, the loading per car, and all the other transportation factors are taken into account. As regards feed and refuse, if their movement is considered as a regular line haul and not a switching operation, the present rate of 2 cts. per cwt. seems reasonable.

Held: The haul from Milwaukee to Lake partakes of the nature of an eight mile line haul and not a switching operation. A reduction of the rate on feed and refuse does not seem warranted at this time. The respondent is ordered to discontinue its present rate of 45 cts. per ton on coal from Milwaukee to Lake, Wis., and to substitute a rate of 35 cts. per ton. Refund is ordered on this basis.

The petitioner, who is engaged in the fuel and supply business at Lake, Wis., complains that the respondent company's rates on coal, feed and refuse from Milwaukee to Lake are excessive as compared with rates of the respondent to other stations at similar distances from Milwaukee, and as compared with rates on the Chicago & North Western line. The rates complained of are 2.25 cts. per cwt. on coal, and 2 cts. per cwt. on feed and refuse. The petitioner asks for a rate of 0.75 ct. per cwt. on the commodities, and prays for a refund of the excess above such rate on certain shipments designated in the petition.

The respondent company, in its answer to the petition, denies the unreasonableness of the present rates and the reasonableness of the rate proposed by the petitioner, and asks that the petition be dismissed.

At the hearing, which was held at the office of the Commission on Jan. 9, 1912, the petitioner was represented by *W. J. Riley* and the respondent company by *O. W. Dynes*.

Lake station is 7.7 miles south of Milwaukee on the respondent's line between Milwaukee and Chicago. The petitioner retails fuel and such commodities as feed and refuse among the farmers in the vicinity of Lake, and comes into competition with dealers located at Cudahy, a point on the Chicago & North Western line two or three miles east of Lake and about the same distance from Milwaukee as Lake station. The main reliance of the petitioner in his request for lower rates on coal was the existence of lower switching rates on the respondent's line in and near Milwaukee, and similar rates on the Chicago & North Western line. The following table shows the switching rates on the two railway lines between Milwaukee and adjacent manufacturing points; the rates of the respondent company are in dollars per car, without regard to the commodity shipped, while those of the North Western company are in cents per cwt. on various commodities.

TABLE 1.
SWITCHING RATES BETWEEN MILWAUKEE AND MANUFACTURING POINTS.

1. Chicago, Milwaukee & St. Paul rates.

Between		And	Miles from Milwaukee sta.	Rate per car.
Milwaukee.	Reed st..... Muskego ave..... Fowler st..... West Milwaukee..... Grand ave.....	Stowell.....	2.2	\$5.00
		Bay View.....	3.0	5.00
		West Allis.....	5.1	5.00
		North avenue.....	5.2	5.00
		Wauwatosa.....	5.4	5.00
		North Milwaukee.....	8.3	5.00

2. Chicago & North Western rates.

Between	And	Miles from Milwaukee	Rate, cts. per ton.	
			Hard coal.	Soft coal.
Milwaukee..... Becher st..... Bay View.....	Lake Shore Jct.....	3.7	30	.....
	Lindwurm.....	5.3	30	.....
	Siding No. 6.....	7.4	30	.....
	Cudahy.....	7.4	30	14
	West Allis.....	8.5	30	.....
	South Milwaukee.....	10.3	30	16
	Carrollville.....	12.5	30	16

The petitioner called particular attention to the Chicago & North Western rates on coal between Milwaukee and Cudahy and South Milwaukee, distances of 7 and 10 miles, respectively, which rates were the subject of consideration in *So. Milwaukee Fuel & Supply Co. v. C. & N. W. R. Co.* 1911, 7 W. R. C. R. 1. It was his contention that the dealer at Lake, located about the same distance from Milwaukee as Cudahy and South Milwaukee, and competing with the former point in the sale of coal, should pay no higher rates than were paid by the Cudahy dealer on that commodity. The Cudahy and South Milwaukee rates of 30 cts. per ton on hard coal and 14 and 16 cts. per ton on soft coal were, however, not established by this Commission in the case above cited, but were merely made the basis for a refund, having already been established by the railway company. The soft coal rates to Cudahy and South Milwaukee are extremely low, and, as appears from the facts brought out in the case just referred to, were undoubtedly established with a view to aiding the manufacturers at Cudahy and South Milwaukee. These rates are so very low that their general application by the Commission for similar distances could hardly be justified.

All of the rates shown in table 1 are rates between Milwaukee, the coal-receiving port, and points which have been brought within the Milwaukee switching tariffs. Their position within the switching limits depends largely upon the character of the traffic between them and Milwaukee, and the industrial or residential nature of the region, as well as upon the distance from Milwaukee. Thus, while some of the points included in the switching tariffs are farther from Milwaukee than is Lake station, as for example North Milwaukee, West Allis, South Milwaukee and Carrollville, this fact does not necessarily entitle Lake station to be placed among the points to which the Milwaukee switching rates apply. All of the stations last named are manufacturing points, and, in spite of the distance between them and Milwaukee, they may naturally be considered as a part of the manufacturing center Milwaukee. Lake, on the other hand, though only eight miles from Milwaukee, seems to be in the center of a farming region and its traffic seems to be more properly that of a line station than a part of the railway company's city business. The haul from Milwaukee to Lake, then, partakes of the nature of an eight mile line haul and not a switching operation, and the special conditions which surround switching traffic

and make very low rates proper for such traffic are not entirely applicable to the station of Lake.

If the haul from Milwaukee to Lake represents a line haul rather than a switching movement, it may be profitable to examine into a number of rates on the respondent's and the Chicago & North Western line for short distance hauls of coal under conditions which seem fairly comparable with those involved in the present case. A number of such rates have been collected in table 2:

TABLE 2.
SHORT DISTANCE RATES ON COAL.
1. Chicago, Milwaukee & St. Paul rates.

From.	To	Miles.	Rate, cts. per ton.	
			Soft coal.	Hard coal.
Franklin Park, Ill.	Mannheim, Ill.	1	23	
Franklin Park	River Grove, Ill.	2	23	
Racine, Wis.	Racine Jct.	2	45	45
Davenport, Ia.	Rock Island, Ill.	3		30
Moline, Ill.	Rock Island	3.5		50
Moline	East Moline	4		50
Franklin Park	Hensenville, Ill.	4	27	
Franklin Park	Mont Clare, Ill.	4	27	
Racine	Gatlin, Wis.	5	45	45
Franklin Park	Wooddale, Ill.	6	32	
Milwaukee	Kenyon, Wis.	6	50	50
Moline	Davenport	6		50
Rock Island	Bettendorf, Ill.	6		30
Franklin Park	Dunning, Ill.	7	40	
Racine	Corliss, Wis.	7	45	45
Franklin Park	Itasca, Ill.	8	40	
Milwaukee	Lake, Wis.	8	45	45
East Moline	Rock Island	8		60
Moline	Bettendorf	9.5		50
Milwaukee	Elm Grove, Wis.	10	50	50
Chicago	Forest Glen, Ill.	10	40	40
Racine	Sylvania, Wis.	10	60	60
Franklin Park	Roselle, Ill.	11	45	
Chicago	Edgebrook, Ill.	11	40	40
Davenport	East Moline	11		60
Racine	Franksville, Wis.	11.5	45	45
Milwaukee	Oakwood, Wis.	13	45	45
Milwaukee	Brown Deer, Wis.	13	50	50
Milwaukee	Brookfield, Wis.	14	50	50
Chicago	Morton Grove, Ill.	14	40	40
East Moline	Bettendorf	14		60
Franklin Park	Ontarioville, Ill.	15	45	
Milwaukee	Granville, Wis.	15	50	60
Racine	Caledonia, Wis.	15	45	45
Racine	Union Grove, Wis.	15	60	60
Milwaukee	Caledonia, Wis.	16	45	45
Milwaukee	Duplainville, Wis.	16	60	60
Chicago	Golf, Ill.	16	40	40
Franklin Park	Bartlett, Ill.	17	50	
Milwaukee	Thiensville, Wis.	17	50	50
Chicago	Glennview, Ill.	17	40	40
Racine	Kansasville, Wis.	18	60	60
Milwaukee	Pewaukee, Wis.	19	60	60
Milwaukee	Menomonee Falls, Wis.	19	50	60
Milwaukee	Waukesha, Wis.	21	50	50
Chicago	Shermerville, Ill.	21	40	40
Racine	Dover, Wis.	21	60	60
Racine	Ranney, Wis.	22	60	60
Milwaukee	Cedarburg	22	50	50
Racine	Truesdell, Wis.	23	60	60
Racine	Lake, Wis.	23	45	45
Milwaukee	Hartland, Wis.	24	60	60

2. Chicago & North Western rates.

From	To	Miles.	Rate, cents per ton.		
			Soft coal.	Hard coal.	Coke.
Chicago.....	Maplewood, Ill.....	4	20	40	20
Sheboygan.....	Weedens, Wis.....	4	20	50	20
Chicago.....	Awendale, Ill.....	5	20	40	20
Milwaukee.....	Lindwurm, Wis.....	5	30	40	40
DeKalb.....	Sycamore, Ill.....	5	20	40	45
Sheboygan.....	Sheboygan Falls, Wis.....	5	30	30	20
Chicago.....	Ravenswood, Ill.....	6	20	20	20
Chicago.....	Summerdale, Ill.....	7	30	30	30
Chicago.....	Irving Park, Ill.....	7	20	40	20
Milwaukee.....	Silver Springs, Wis.....	7	45	50	50
Aurora, Ill.....	Batavia, Ill.....	7	20	40	40
Manitowoc.....	Two Rivers, Wis.....	7.5	30	30	30
Manitowoc.....	Newton, Wis.....	8	50	60	45
Chicago.....	Mayfair, Ill.....	8	20	40	20
Chicago.....	Rose Hill, Ill.....	8	30	30	30
Chicago.....	Rogers Park, Ill.....	9	40	40	40
Chicago.....	Oak Park, Ill.....	9	20	40	20
Chicago.....	Jefferson Park, Ill.....	9	40	40	40
Chicago.....	River Forest, Ill.....	10	20	40	20
Chicago.....	Maywood, Ill.....	10	20	40	20
Chicago.....	Calvary, Ill.....	10	40	40	40
Chicago.....	Peterson Ave., Ill.....	10	40	40	40
Chicago.....	Crawford Ave., Ill.....	10	40	40	40
De Pere, Wis.....	Duck Creek, Wis.....	10	40	40	40
Sheboygan.....	Oostburg, Wis.....	10	20	50	20
Chicago.....	Cragin, Ill.....	11	20	40	20
Chicago.....	Melrose Park, Ill.....	11	20	40	20
Chicago.....	Norwood Park, Ill.....	11	40	40	40
Chicago.....	Evanston, Ill.....	12	40	40	40
Chicago.....	Niles Center, Ill.....	12	40	40	40
Aurora, Ill.....	St. Charles, Ill.....	12	20	40	50
Milwaukee.....	Carrollville, Wis.....	12.5	20	40	45
Chicago.....	Proviso, Ill.....	13	20	40	20
Chicago.....	Edison Park, Ill.....	13	40	40	40
Chicago.....	Park Ridge, Ill.....	13	40	40	40
Chicago.....	Weber, Ill.....	13	40	40	40
Manitowoc.....	Cleveland, Wis.....	14	50	60	45
Sheboygan.....	Cedar Grove, Wis.....	14	20	50	20
Milwaukee.....	Granville.....	14	50	40	40
Chicago.....	Wilmette, Ill.....	14	40	40	40
Chicago.....	Emerson St., Ill.....	14	40	40	40
Chicago.....	Kenilworth, Ill.....	15	40	45	40
Chicago.....	Elmhurst, Ill.....	16	50	65	50
Chicago.....	Desplaines, Ill.....	17	40	40	40
Manitowoc.....	Mosel, Wis.....	20	50	60	45

The coal rate of 45 cts. per ton from Milwaukee to Lake is apparently about in line with the usual level of rates on the respondent's line for similar distances, so far as the above table shows, and seems to be a little higher than the general run of Chicago & North Western rates. On both lines it seems that the rates from Chicago to its suburbs are generally lower than the rates in Wisconsin.

The mere fact that the coal rate complained of is not materially higher than the respondent's other rates for similar distances does not, of course, prove that the present 45 ct. rate is reasonable. The main value of the comparison is to show about what the usual level of rates for a short distance line haul, as

distinguished from a mere switching haul, is. The facts of this case tend strongly to the conclusion that the 45 ct. rate is a little higher than the petitioner should be required to pay. This same rate applies from Milwaukee to all stations between Milwaukee and Racine, a maximum distance of 32 miles, and Lake is the first station out of Milwaukee. So wide a group, beginning within a few miles of the point of shipment, is hardly justifiable in this case, considering the fact that there is an actual movement of traffic to the point nearest the originating station. Furthermore, the cost analysis made by the Commission for the respondent's line indicates that a rate of 45 cts. per ton yields somewhat higher revenues than the railway company is entitled to receive when the length of the haul, the value of the commodity, the loading per car, and all the other transportation factors are taken into account. The rate which seems most fairly to satisfy the commercial requirements of the petitioner, and yet to return to the railway company a sufficient amount of revenue, is 35 cts. per ton or 1.75 cts. per cwt. Practically all of the respondent's line haul rates for short distances out of Milwaukee make no distinction between hard and soft coal, and the difference between the two in value and conditions of shipment does not seem to be such as to require a separation between them in this case. The respondent company will therefore be ordered to establish a rate of 35 cts. per ton on coal from Milwaukee to Lake station, and to refund to the petitioner the difference between this rate and the present rate of 45 cts. per ton on shipments tabulated in the petition.

The petition covers rates on two other commodities also, namely, feed and refuse. If we look upon the movement of these commodities to Lake as a regular line haul and not a switching operation, for the same reasons as have been set forth in the case of coal, it would seem that the present rate of 2 cts. per cwt. on these commodities is about as low as the respondent company can be expected to maintain. It is equal to the rate on brick as fixed by this Commission for the same distance, and is only 0.4 ct. higher than the Commission's rate on pulp wood. Considering the heavy loading of these commodities, which averages about 60,000 lbs. and 88,000 lbs. in the case of brick and pulp wood, respectively, while the average loading of the cars of feed and refuse on which the petitioner asks a refund is less than 40,000 lbs., it would seem that there is no occasion for a reduc-

tion below the 2 ct. rate, even, though the commodities here involved are of a comparatively low grade. No rates on these commodities lower than 2 cts. have been found on the respondent's line. Under the circumstances, a reduction of the rates on feed and refuse does not seem warranted at this time.

The coal shipments on which the petitioner asks a refund are as follows:

Date.	Commodity	Weight.	Charges.	Charges at 35 cts.	Refund.
1910					
Dec. 10	Hard coal.....	64,400	\$14.48	\$11.27	\$3.21
Dec. 31	Nut coal.....	54,300	12.22	9.50	2.72
1911					
May 8	Hard coal.....	51,600	11.56	9.03	2.53
May 12	Hard coal.....	48,200	10.85	8.44	2.41
May 23	Lump coal.....	58,000	12.60	9.80	2.80
May 23	Nut coal.....	53,500	12.04	9.36	2.68
June 2	Hard coal.....	47,100	10.60	8.24	2.36
Aug. 16	Soft coal.....	42,900	9.65	7.51	2.14
Oct. 31	Soft coal.....	40,000	9.00	7.00	2.00
Nov. 14	Hard coal.....	54,600	12.29	9.56	2.73
Nov. 14	Hard coal.....	52,800	11.88	9.24	2.64
Nov. 14	Soft coal.....	54,800	12.33	9.59	2.74
Nov. 17	Hard coal.....	59,900	13.48	10.48	3.00
Dec. 2	Hard coal.....	72,800	16.38	12.74	3.64
Dec. 2	Soft coal.....	44,100	9.92	7.72	2.20
Total refund.....					\$39.80

We find and determine that the rate of 45 cts. per ton, exacted of the petitioner on its shipments of coal from Milwaukee to Lake, Wis., as set forth above, was unusual and exorbitant, and that a reasonable rate to have been exacted for such shipments would have been 35 cts. per ton of 2000 lbs. The petitioner is entitled to a refund of \$39.80. We also find that a reasonable rate for the future on coal from Milwaukee to Lake, Wis., will not exceed 35 cts. per ton.

IT IS THEREFORE ORDERED, That the respondent, the Chicago, Milwaukee & St. Paul Railway Company, discontinue its present rate of 45 cts. per ton on coal from Milwaukee to Lake, Wis., and that it substitute in lieu thereof a rate of 35 cts. per ton.

IT IS FURTHER ORDERED, That the respondent company be and the same is hereby authorized and directed to refund to the petitioner, John Schulz, the sum of \$39.80, being the amount charged petitioner on fifteen shipments of coal from Milwaukee to Lake in excess of the rate herein found reasonable.

BLODGETT MILLING COMPANY

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Decided Aug. 26, 1912.

The petitioner alleged that the switching charges exacted by the C. & N. W. Ry. Co. on shipments of grain received at Janesville, Wis., and consigned to petitioner on the C. M. & St. P. Ry. were unusual and excessive. The respondent had formerly absorbed switching charges on such shipments but by a supplement to its tariff, effective June 30, 1911, the respondent changed its rule by providing for absorption only upon shipments moving from competitive points. The distinction between competitive and non-competitive points of origin was abolished by the next supplement to the same tariff, effective Oct. 20, 1911, and since that time no switching charges have been assessed against the petitioner. One of the shipments in question was an interstate haul and is excluded from this case. Five of the shipments moved prior to the effectiveness of the supplement complained of, and the collection of switching charges would seem to be unauthorized by any tariff. Therefore, unless there is some reason other than has appeared in this case for the charges on these five cars, refunds may be made upon them without any order from the Commission. The same would be true of one shipment which moved from a competitive point and was therefore not affected by this supplement.

Held: The absorption of switching charges on cars earning a given revenue is a common and reasonable practice. The rule previously in effect and subsequently reestablished seems entirely reasonable and the collection of a switching charge during the period under consideration was unusual and excessive. Refund is ordered.

The petitioner is engaged in the milling business at Janesville, Wis. It alleges that for many years past the respondent company has absorbed switching charges on grain received at Janesville and consigned to the petitioner on the lines of the Chicago, Milwaukee & St. Paul Railway Company; that between May 10 and Oct. 26, 1911, the respondent company collected switching charges to the amount of \$54 on such shipments and that such charges were illegal for the reason that no tariff provided for same; and that since Oct. 26, 1911, the respondent company has again absorbed all switching charges. Wherefore, petitioner prays that the respondent company be authorized to re-

fund to the petitioner the amount of such switching charges collected of it, or \$54.

The answer of the respondent company admits the exaction of the charges complained of, and offers to make the refund if the switching charges were collected because of failure of the respondent company, in making certain changes in its tariffs, to publish the proper rates and rules in Wisconsin.

The claim was submitted upon the papers, pleadings, vouchers, and documents on file.

By supplement No. 14, effective June 30, 1911, to its switching tariff G. F. D. No. 8408-B, the respondent company changed its rule as to absorption of switching charges by providing for such absorption only upon shipments moving from competitive points. The result was the collection of a \$2 switching charge on all of the petitioner's shipments from non-competitive points on the respondent's line. The distinction between competitive and non-competitive points of origin was abolished by the next supplement to the same tariff, effective Oct. 20, 1911, and since that time no switching charges have been assessed against the petitioner. During the time that the rule contained in supplement No. 14 was in effect, twenty-two of the twenty-seven shipments upon which refund was asked were made. The other five shipments were made in May, 1911, before supplement No. 14 became effective, and the collection of switching charges on these shipments would seem to be unauthorized by any tariff. Therefore, unless there is some reason other than has appeared in this case for the charges on these five cars, refunds may be made upon them without any order from the Commission. The same would seem to be true of one shipment moving from Chippewa Falls, Wis., which is a competitive point and therefore would not be affected by supplement No. 14. One more shipment must be excluded from the present case, inasmuch as it moved from Roscoe, Ill., to Janesville and involved an interstate haul. This leaves for consideration twenty shipments which moved from non-competitive points in Wisconsin to Janesville while supplement No. 14 was in effect.

The absorption of switching charges on cars earning a given revenue is a common and reasonable practice, and the distinction, as between points of origin of the shipments, between competitive and non-competitive business was found unsatisfactory and abandoned after a short trial by the respondent company. The

petitioner, who had long been shipping from Chicago & North Western line points to Janesville without paying switching charges at the latter point, was injured to the extent of \$2 per car by the temporary change in the rule. Since the old rule, now reestablished, seems entirely reasonable, and the change resulted in a charge which seems under the circumstances to have been unusual and excessive, the petitioner should have a refund of the extra exaction caused by the change.

The shipments on which refund will be authorized are as follows:

Car.	Date of switching bill, 1911.	Origin.	Commodity.	Switching charges.
C. & N. W. 71570	Aug. 14	Footville.....	Rye.....	\$2 0
C. & N. W. 105680.....	Aug. 19	Footville.....	Barley.....	2 0
Omaha 24148.....	Aug. 26	Evansville.....	Rye.....	2 00
C. & N. W. 79998.....	Aug. 26	Evansville.....	Rye.....	2 00
N. Y. C. 56896.....	Aug. 26	Evansville.....	Rye.....	2 00
Omaha 26568.....	Aug. 28	Footville.....	Barley.....	2 00
C. & N. W. 60584.....	Aug. 31	La Valle.....	Rye.....	2 00
C. R. I. & P. 31543.....	Aug. 31	Evansville.....	Barley.....	2 00
N.Y. N.H. & H. 92908.....	Aug. 31	Evansville.....	Barley.....	2 00
C. & N. W. 108298.....	Aug. 31	Evansville.....	Barley.....	2 00
I. C. 141031.....	Aug. 31	Evansville.....	Barley.....	2 00
C. & N. W. 72126.....	Sep. 7	Evansville.....	Barley.....	2 00
Omaha 26976.....	Sep. 12	Reedsburg.....	Barley.....	2 00
C. & N. W. 115150.....	Sep. 16	Galesville.....	Rye.....	2 00
A. T. & S. F. 41188.....	Sep. 16	Evansville.....	Rye.....	2 00
Omaha 27638.....	Sep. 18	Reedsburg.....	Barley.....	2 00
C. & N. W. 68426.....	Sep. 20	Midway.....	Rye.....	2 00
C. & N. W. 116430.....	Sep. 27	Evansville.....	Rye.....	2 00
I. C. 39015.....	Sep. 30	Reedsburg.....	Rye.....	2 00
Soo 20066.....	Oct. 3	Reedsburg.....	Rye.....	2 00
		Total switching	charges.....	\$40 00

We therefore find and determine that the exaction of switching rates of \$2 per car from the petitioner by the respondent company at Janesville, Wis., on the cars above set forth, resulted in unusual and excessive charges on such cars, and that the petitioner is entitled to a refund of the sum of \$2 per car, or a total refund of \$40.

IT IS THEREFORE ORDERED, That the respondent, the Chicago & North Western Railway Company, be and the same is hereby authorized and directed to refund to the petitioner, the Blodgett Milling Company, the sum of \$40, being the amount exacted of the petitioner in excess of the amount herein found reasonable upon the cars above designated.

W. R. LAW ET AL.

vs.

DARLINGTON ELECTRIC LIGHT AND POWER COMPANY.

Submitted Sept. 22, 1911. Decided Aug. 26, 1912.

Complaint was made that the average water level above the dam across the Pecatonica river at Darlington, Wis., has been lowered two or three feet, rendering all navigation impossible. It was contended that under the present management of the Darlington El. Lt. & P. Co. a wasteful use of water upon the part of the company has existed.

The specific sections under which the complaint arose relate to the powers of the Commission to regulate and control the level and flow of water in all navigable rivers in the state and provide "that the navigability of no stream shall be impaired," Laws of 1911, ch. 652, sec. 1596—47, 73. It appears that the Pecatonica river above the dam at Darlington is a navigable stream. Since the hearing in the present case, the supreme court of Wisconsin in the *Water Power Cases*, 1912, 148 Wis. 124, has held that these sections as well as all other sections of the statute referred to, known as the Water Power Act, except sec. 1596, are unconstitutional. Sec. 1596 relates only to the necessity for a permit from the legislature to construct dams and has no relation to the present case.

Held: The Commission is without jurisdiction in the matter. The petition is dismissed.

Petition in the above entitled matter was filed with the Commission on Aug. 11, 1911, by thirty-seven citizens of Darlington. It appears that a dam has been maintained for a period of fifty years across the Pecatonica river at Darlington and that the Darlington Electric Light & Power Company has been operating with water power for the past fifteen years. During all this time a sufficient body of water has been maintained to allow the free movement of pleasure boats except when repairs have been made on the dam. The petition claims that on June 1, 1911, the respondent company placed a new manager in charge of the plant and that since that time the average water level has been lowered from two to three feet, thereby rendering all navigation impossible. It is further set forth that there are a number of private craft as well as boats for public hire used upon the river, and that summer cottages have been built and picnic grounds installed along the stream on account of these

accommodations. As a result of the lowering of the water upon the river these places have been made inaccessible, thus depriving pleasure as well as revenue seekers of the privileges of the river. It is claimed that the Commission has jurisdiction to act in the present case under ch. 652, sec. 1596-73, and par. 2, sec. 1596-47 of the Laws of 1911, relating to navigable waters. An order is asked which will provide for the water level at the dam previously maintained. The material allegations are supported by affidavits filed with the Commission by some of the petitioners.

A hearing was held pursuant to notice on Sep. 22, 1911, at the office of the Railroad Commission in Madison. *W. R. Law*, *F. J. McConnell* and *L. A. Tarrell* appeared for the petitioner, while *E. J. Henning*, as counsel, appeared for the respondent.

It appears from the testimony that the Pecatonica river has been navigable for such small craft as motor boats, row boats and canoes for a distance of eight or nine miles above the dam. Below the dam navigation is possible by row boats for a distance of about three miles. Since the lowering of the water it has become dangerous to ply these small craft upon the river above the dam excepting for a distance of about two or three miles. It is contended that a wasteful use of water upon the part of the water power company has existed, since, according to the report of the United States weather bureau, there has been more than double the rainfall at Darlington during the summer months of 1911 than there was during the same months in 1910. Notwithstanding this fact, navigation was possible upon the river during 1910, whereas, due to the lowering of the water level during 1911, the inconvenience in getting boats from their stations and the restricted area have hindered any extensive use of the river. Respondent company, through its attorney, testified that it is the tenant of the owners of the water power and real estate upon which the power plant is located, and that the local manager has been instructed to use the water, first, with the view of giving maximum efficiency for the plant and, second, with the view of the accommodation of the public for the enjoyment of the water above the dam. Sec. 1596 of ch. 652, Laws 1911, refers to navigable waters as "All rivers and streams meandered or non-meandered which are navigable in fact for any purpose whatsoever are navigable waters." It would appear from the evidence that the Pecatonica river above the dam at Darlington is in fact a navigable stream. It is noted, however,

that the specific sections under which the complaint arose relate to the powers of the Commission to regulate and control the level and flow of water in all navigable rivers in the state and provide "that the navigability of no stream shall be impaired," ch. 652, Laws of 1911, sec. 1596-47, 73. Since the hearing has been held the supreme court of Wisconsin in the *Water Power Cases*, 1912, 148 Wis. 124, has held that these sections as well as all other sections of the statute referred to, known as the Water Power Act, except sec. 1596, are unconstitutional. Sec. 1596 relates only to the necessity for a permit from the legislature to construct dams and has no relation to the present case.

Under the circumstances the Commission is without jurisdiction and no order, therefore, has been issued.

OSCAR ANDERSON ET AL.

vs.

CHICAGO, ST. PAUL, MINNEAPOLIS AND OMAHA RAILWAY COMPANY.

Submitted March 21, 1912. Decided Aug. 27, 1912.

Complaint was made that the station facilities at Cobban, Wis., on the C. St. P. M. & O. Ry. are inadequate. At present the respondent maintains only an open platform without shelter for passengers or freight.

Held: The net income would not seem sufficient to warrant the maintenance of a depot with a regular agent. Respondent is ordered to erect a station building at Cobban which shall provide a sufficient waiting room for passengers and an adequate storeroom for freight, and to place such station in charge of a competent caretaker who will heat and light the waiting room and keep it open for the convenience of the public not less than twenty minutes prior to the scheduled time of arrival of each train carrying passengers. Sixty days is considered a reasonable period within which to comply with this order.

The petition, signed by one hundred residents of Cobban and vicinity, in Chippewa county, Wis., alleges that Cobban is situated on the respondent's line on the east side of the Chippewa river, about eighteen miles north of Chippewa Falls; that the nearest stations on the respondent's line are Jim Falls, a distance of about six miles south, and Cornell, about six miles north; that there is a prosperous farming community in the vicinity of Cobban with a population of between two and three hundred people, who transact business with the respondent at Cobban; that large shipments of forest and farm products are forwarded from Cobban, which would be materially increased if better station facilities were provided; that the respondent has provided no facilities for receiving or discharging passengers and freight at Cobban, other than an open platform without shelter or protection against the elements; that trains are very frequently late, sometimes for a number of hours, with the result that intending passengers are compelled to wait on the platform, exposed to inclement weather; and that there is a continuous demand and

necessity for better station facilities at Cobban. The petitioners, therefore, ask that the respondent be required to provide reasonable and adequate station service.

The respondent, in its answer, alleges that between Jim Falls and Cornell, a distance of 10.7 miles, it maintains three sidings at which trains stop: Cobban, Hatch, and Brunet; that present conditions do not warrant the installation of a regular station with all that is implied thereby at one of these three places; that the expense involved in so doing would be an unreasonable burden upon the respondent; and that it would be unreasonable to require it to do more than to furnish temporary shelter for passengers while waiting for trains.

A hearing was held at Cobban on March 21, 1912. The petitioners were represented by *W. H. Stafford* and the respondent by *George W. Peterson*.

The testimony shows that Cobban is situated 5.3 miles north of Jim Falls and 5.4 miles south of Cornell, on the Hannibal branch of the Chicago, St. Paul, Minneapolis & Omaha Railway, these being the nearest stations with agents. The station facilities at Cobban consist of an open platform and a sidetrack. About thirty persons live in the immediate vicinity of the stopping place, but the population tributary to the railroad at this point is between two and three hundred. From five to ten persons leave or arrive at Cobban daily. About three hundred carloads of freight are shipped or received during the year, consisting chiefly of legs, bolts, wood, and farm products, such as hay, grain, potatoes, and sugar beets. Small lots of freight consigned to Cobban parties are unloaded upon the bare platform and left there regardless of weather conditions to be taken care of by the consignee who receives no advice from respondent of its arrival. Outgoing freight in less than carloads is also left on the platform or held by the shipper until the train arrives. Because of the irregular schedule maintained patrons of the railroad at this point are thus put to considerable inconvenience, and some losses to perishable goods have resulted. There is also difficulty in securing cars for loading and in tracing them after they are shipped, because all such business is transacted through the conductors.

The passenger service consists of one mixed train each way daily, except Sunday. There is also a freight train in each direction on which passengers may ride. Owing to the mixed

character of the service the passenger schedule is very irregular and the train is often one or two hours late. This entails much discomfort and loss of time to passengers, many of whom travel a distance of five or six miles to take the train. During inclement weather the nearest place to the railroad platform at which shelter can be found is a general store situated about seven hundred feet away. The distance is too far to make it possible to catch the train if one waits until its approach is heard; therefore, intending passengers are compelled to telephone from the store to the nearest regular station to ascertain how soon the train is expected to arrive and then to estimate the time of its arrival. Thus, to be sure of making a train, persons must wait upon the exposed platform for a considerable length of time, regardless of the weather. Moreover, when a train is late and arrives after nightfall, as is often the case, the unlighted platform is a source of danger. Two weeks before the hearing a box car was placed at the platform for the accommodation of passengers and the storage of freight, but this is not regarded as satisfactory by the petitioners, because it is now necessary to drive up on the platform to take the consignment from the car. A considerable number of shippers located within from six to twelve miles of Cobban, who at present send their products to Cadott on the "Soo" railroad, testified that they would ship from Cobban were adequate station facilities provided there.

The exhibits of the respondent show that for the year ending Dec. 31, 1911, there were 2,949 passengers carried to or from Cobban, producing a revenue of \$938.85, and freight earnings to the amount of \$2,234.85. The passenger revenue statement, however, does not give the total amount which should be credited to Cobban, because passengers going to stations on the main line are compelled to purchase tickets at other points, usually Chippewa Falls. The superintendent of the railway company testified that the cost of maintaining a station and an agent at Cobban would be \$900 per year. He estimated that a telephone could be installed in a depot and a man employed as caretaker for about \$20 to \$25 per month. He stated that his company proposes to erect a station at Cobban when the traffic warrants it, but he believed that the present needs of the community and the amount of business in sight do not justify its immediate erection.

It seems unnecessary to comment on the inadequacy of the station facilities at Cobban, as this is clearly proven by the testimony. To what extent petitioners are entitled to relief largely depends upon the amount of revenue received by respondent for the transportation of freight and passengers to and from Cobban. The station earnings for the calendar year 1911 approximate \$3,200. After deducting the ordinary operating expenses, which may be regarded as not less than 65 per cent of the revenue, the net income would not seem sufficient to warrant the maintenance of a depot with a regular agent. Obviously the patrons of the railway should be provided by respondent with a place of shelter in inclement weather when waiting for trains, especially when people are obliged to travel long distances to reach the station and train schedules are irregular. Also provision should be made for protecting perishable freight in summer and winter. A suitable structure for the comfortable accommodation of passengers and for the proper storing of small lots of freight, with a caretaker to light and warm the building when necessary, would, we believe, afford adequate facilities for the present needs of respondent's patrons at Cobban.

Now, THEREFORE, IT IS ORDERED, That the respondent, the Chicago, St. Paul, Minneapolis & Omaha Railway Company, erect a station building at Cobban which shall provide a proper and sufficient waiting room for passengers and an adequate storeroom for freight, and that it place such station in charge of a competent caretaker who will heat and light the waiting room and keep it open for the convenience of the public not less than twenty minutes prior to the scheduled time of arrival of each train carrying passengers.

Sixty days is considered a reasonable period within which to comply with this order.

OSCAR A. ALTER ET AL.

vs.

BOARD OF WATER COMMISSIONERS OF THE CITY OF MANITOWOC.

H. L. MARKHAM ET AL.

vs.

CITY OF MANITOWOC.

Submitted May 22, 1912. Decided Aug. 27, 1912.

Complaint was made that the city of Manitowoc, a public utility furnishing water service in Manitowoc, Wis., charges unjust and unreasonable rates; attempts to compel consumers, and property owners who are not consumers, to furnish service pipes from the water mains to the curb lines at their own expense; and refuses to furnish meters or pay rent for meters furnished by the consumers.

The final adjustment of rates should not be made until all facts bearing upon the operation of the plant may be considered. The short period during which the plant has been operated under municipal ownership makes a study of conditions almost impossible at this time. In order to secure adequate water supply, additional investment will be necessary.

Held: The matter of rates is continued until the extent of new investment is known and the earnings and expenses of the plant under municipal ownership are determined.

For all practical purposes connected with a case of this kind, the property owner is interested in the property abutting on the street as far as the curb line, and the utility which has been granted the right to occupy the streets should have jurisdiction over all parts of the equipment placed in the streets. If services are installed by the utility, they constitute a part of the plant upon which the utility should be allowed to earn a return to provide for depreciation and interest; if put in by property owners, the cost of such services should not be included in the value upon which the utility is entitled to a return. The final result is the same in both cases as far as the cost of water to the consumer is concerned. In the present case all services have been installed at the expense of property owners. Where this practice has been consistently followed it may be best to continue this policy. No hardship is imposed thereby upon patrons of the utility, and the confusion resulting from a change in policy will be avoided. Before putting in a permanent pavement on York street the city decided to lay a permanent water main in that street and to compel connections to be made to this main, thus making useless the main and services already installed at the expense of property owners. As long as it has been the general rule that property owners should install services, it would seem that if

they installed pipes which were not suitable for use as a permanent part of the system, they must install permanent services when conditions arise which necessitate such installation. It may have been an injustice to require property owners to lay the temporary main previously referred to, but the justice of the city's requirement that permanent services be installed by property owners does not seem to be affected thereby. If they are to be regarded as a part of the street improvements there seems to be no reason why they should not be paid for by property owners. If they constitute a part of the utility in the sense that services in actual use constitute a part, they should be paid for in the same manner as other services. There may be instances where property owners would have money invested in the service for a number of years before any use is made of it. The same would be true if such services were installed at the expense of the utility, except that in such a case it would be the utility which had the money invested. In that case, the installation of such services would be a burden upon all water consumers instead of upon the owner of the property to be supplied.

Held: The city of Manitowoc, until otherwise ordered, may continue the present policy of requiring property owners to pay for the installation of services.

The law requires that meters be installed by the utility, except when exemption is made by the Commission. Up to the present time the city has required consumers or property owners to bear the expense of putting in meters. This policy can be approved only in cases where the financial condition of the utility is such that the expense of installing meters would constitute a hardship. The utility in the present case is on a good financial basis. The final adjustment of rates must be made as soon as sufficient information is secured, to this end it is important that the city comply with all requirements concerning the placing and ownership of meters.

Held: The city of Manitowoc is to furnish meters for all consumers whose premises are connected with sewer or cess-pool, and the city is to acquire meters now in use or pay owners a reasonable rental.

Complaints in the above entitled matters were filed on March 10, 1912, and March 20, 1912, respectively. The complaint of *Alter et al.* states that the utility compels consumers to pay the costs of putting in services to the curb, including the cost of labor, pipe, tapping the main, and the stop cock. Complaints ask that the utility be required in the future to lay service pipes from main to curb at its own expense.

The complaint of *Markham et al.* is broader in its scope. It charges that (1) rates, tolls, charges, and schedules for the regulation, measurement, transmission, delivery, and furnishing of water are unjust and unreasonable; (2) that the utility attempts to compel consumers and people who are not consumers or users of its water to furnish service pipes from its water mains to the curb lines, at the entire cost and expense of such

persons or consumers; (3) the utility refuses to furnish meters for the consumers free of cost to the consumers, and refuses also to pay any sum for rental to consumers for the use of meters furnished by them.

Hearing on both complaints was held at Manitowoc, on May 22, 1912. Appearances were: For complainants, *H. L. Markham* and *Oscar A. Alter* in the respective cases; for respondent, *H. F. Kelley*, city attorney.

Testimony and argument related mainly to the refusal of the utility to bear the expense of installing services and meters, but some reference was made also to the general level of rates for water.

Formal answer was filed on behalf of the utility in the case of *Alter et al.*, which answer respondent interposed in the case of *Markham et al.* without filing a separate answer in that case. H. L. Markham objected to the filing of this answer in his case, on the ground that he had had no opportunity to read the answer and prepare to meet any of the statements there included. As amended at the time of the hearing the answer is, in substance, as follows:

1. That up to Oct. 2, 1911, the water works in question were owned and operated by a private corporation; that on Oct. 2, 1911, the city took over the plant and that until the first part of the following December it was managed by a committee of the board of aldermen, but since that time by the city water commission, which was created by city ordinance.

2. That the entire service pipe system of the city was installed at the expense of the real estate owners.

3. That the right of the utility to require services to be installed at the expense of property owners has been an important element affecting the rates charged.

4. That the beginning of a systematic conduct of the business under city ownership dates from about Jan. 1, 1912, and that the city has no records to show what the net earnings would be under present conditions and will not have such records for a considerable time.

5. That the city water commission believes that experience will show that the present rates, rules and regulations are reasonable, and that it would be inadvisable to make any revolutionary changes in such rates, rules and regulations until more

complete information concerning the operation of the plant under city ownership is available.

6. That the only water service pipes the laying of which is planned or contemplated at this time are pipes upon parts of streets which are to be paved with a permanent pavement with a concrete base of five inches, during the year 1912, and includes the contemplated service pipes in the payment of which the petitioners in this matter are alone interested; that the city water commission has no exact knowledge of whether any such service pipes laid under parts of streets to be paved in 1912, if paid for by the utility, will furnish enough revenue to justify the utility laying such pipes as an investment, but the water commission believes that there will be virtually no income from such service pipes and that the laying of such service pipes to the curb from the mains would be utterly unjustified as an investment by the city water commission and will, if done at the expense of the utility, work a loss to the utility; that the city water commission is not concerned with whether these service pipes are or are not put in during the year 1912, or at any time in the near future, and does not consider their installation as an addition to the plant of the utility; that if the service pipes are put in upon the streets to be paved under pending proceedings it will be because their installation is required under a charter provision of the city, and not because of any demand or order by the city water commission; that the laying of services in question is not to serve any known purpose connected in any manner or degree with the business of the utility in furnishing water at any known time in the future; that the laying of service pipes as contemplated and ordered is a street improvement making more permanent, safe and complete the paving to be laid upon the streets where such pipes are laid, and that such pipes will add virtually nothing to the revenue of the utility or to its plant, but will add pecuniary benefits to property abutting on the streets.

7. That the plant of the utility was valued by the Railroad Commission of Wisconsin in October, 1911, at \$247,500, and that to pay the purchase price thereof the city of Manitowoc was bonded for \$230,000, and that the earnings of the utility are charged with the payment of principal and interest on this bonded debt during the period of twenty years, and that the debt draws interest at the rate of 4 per cent per annum.

8. That expensive additions and improvements to the plant of the utility are absolutely essential to make it adequate, but that these additions and improvements will add nothing to the revenue of the plant.

9. That the city water commission does not consider the Manitowoc water works as a profit-making concern, but as an instrument of service to all the people of the city of Manitowoc; that it desires to give a maximum of service at a minimum of cost; that it desires no earnings over what are necessary to maintain the plant and meet the requirements of its bonded debt; that it hopes and expects within a short time to begin gradually to inaugurate improvements in service, rates, and practices, and that it asks for time to gather experience of actual conditions before being compelled to inaugurate any great changes in its business.

The city argued especially that until the plant shall have been operated for a longer time under municipal ownership, no changes should be made. It was claimed that until a year or more should have passed, it would not be possible to determine what the effect of municipal ownership and operation would be upon earnings and expenses. With regard to earnings this argument does not seem to be sound. Rates are the same at present as under private ownership. There seem to have been no changes in the number of consumers or the use of water, other than such as result from the normal development of the business. Under these conditions it hardly seems necessary to wait for any length of time to determine the effect of city ownership on earnings. With regard to expenses, the situation is somewhat different. Certain of the expenses reported by the company from which the city acquired the plant have been materially reduced under the present ownership. Chief among these are salaries of general officers, which formerly were very high. Interest is another item which may be much less than under private ownership. What the effect of the change would be on other operating expenses cannot be stated, but so far as available facts indicate there will be no very marked change in the general level of expenses. The following table shows the earnings and expenses for three years for which reports are on file:

	1909	1910	1911
REVENUES—OPERATING			
Earnings from commercial sales.....	\$20,367 16	\$17,627 51	\$20,941 28
Earnings from industrial sales.....	6,732 65	9,470 57	9,949 19
Earnings from mun.—hyd. rentals.....	9,298 50	9,329 73	9,462 36
Earnings from street sprinkling.....	510 00	470 00	1,412 85
Misc. earnings from operation.....	188 02	762 80	.....
Total operating revenues.....	\$37,096 33	\$37,660 61	\$41,765 68
EXPENSES—OPERATING			
Pumping.....			
Distribution.....	\$3,731 88	\$3,896 91	\$4,005 60
Commercial.....	802 78	854 51	359 37
General.....	9,272 09	8,592 79	9,212 63
Undistributed.....	66 60	70 08	197 18
Total of above items.....	\$13,873 35	\$13,414 29	\$13,774 78
Taxes.....	3,019 80	3,404 01	3,408 44
Total operating expenses.....	\$16,893 15	\$16,818 30	\$17,183 22
Net operating revenue.....	\$20,203 18	\$20,742 31	\$24,582 46
Non-operating revenue.....	1,663 37	1,298 59	605 80
Gross income.....	\$21,866 55	\$22,040 90	\$25,188 26

The amounts available for interest and depreciation, even with general expenses left at their former high level, are rather large and there seems to be no doubt that some reductions in rates should be made. The final adjustment of rates should, however, be made only after all facts bearing upon the operation of the plant or in any way affecting rates have been carefully studied. The short period during which the plant has been operated by the city renders such a study of conditions almost impossible at this time. Without passing upon the question of rates, then, it seems best to continue this part of the case until such time as the results of municipal ownership and management can be more definitely known.

The utility is in a position where additional investment must be made in order to secure adequate water supply. The extent of this new investment cannot be determined now, as the scope of the work which must be undertaken in order to secure additional water supply is not known. It seems probable that the cost of new work will not be nearly as great as the maximum estimate submitted by the city, but it will be enough to make it inadvisable to attempt an adjustment of rates at this time.

Services. From the testimony it appears that resolutions bearing upon the pavement of York street and the installation of services in that street were passed by the council a number of

months before the city acquired the plant. On Oct. 2, 1911, the plant was transferred to the city and on the following day the city ordered services installed on York street, in order that it would not be necessary at some time later to cut through the permanent pavement to lay services. From information filed by the city clerk it appears that the total number of services ordered to be installed on York street was thirty-six, of which sixteen have been installed by property owners in accordance with the order. The situation seems to be that residents on York street have heretofore been supplied with water through a pipe laid by property owners and connected with their premises by service pipes, also installed by property owners. When it was decided to pave the street the city decided to lay a permanent water main in that street and to compel connections to be made to this main, thus making useless the main and services already installed at the expense of property owners. Property owners object to paying the cost of these services and demand that the city bear the expense of putting them in as far as the curb.

Reference is made by the applicant to the decision of the Commission in the case of *City of Janesville v. Janesville W. Co.* 1911, 7 W. R. C. R. 628-681. Counsel for the respondent took exception to the line of reasoning followed in that case, and undertook to show that services constitute a part of the equipment of the utility which should be installed at the expense of the consumer. In the Janesville decision cited above, it was held that the utility should own all parts of the equipment which are located in the streets, and as a general proposition this seems to be correct. In the present case, if the utility is to be exempted from the duty of putting in the service pipes from main to curb, that exemption must be based upon grounds other than those advanced by respondent, that the main constitutes the logical and natural point for the utility to cease constructing the distribution system and that all parts from the main to consumer's tap should be put in at the expense of property owners. For all practical purposes connected with a case of this kind, the property owner is interested in the property abutting on the street, as far as the curb line, and the utility which has been granted the right to occupy the streets should have jurisdiction over all parts of the equipment placed in the streets. This

seems to be the reasonable line of division between property which should be owned by the utility and that which should be put in at the expense of the owners of abutting real estate.

In many cases this distinction has unfortunately not been made. This has been true at Manitowoc. From the records in this case it appears that all services have been installed at the expense of property owners. Where this practice has been consistently followed, the results, in the end, are not materially different than they are when all services are installed at the expense of the utility. If services are installed by the utility they constitute a part of the plant upon which the utility should be allowed to earn a return to provide for depreciation and interest. If all services are put in by property owners, none of the cost of such services should be included in the value upon which the utility is entitled to a return. As far as consumers are concerned the results are practically identical. In one case they pay the utility an amount sufficient to provide for interest and depreciation on the service, and in the other no such amount is paid to the utility, but the consumer, or the property owner himself, has an investment upon which interest and depreciation equal the amount which would have been paid to the utility. The final result, as far as the actual cost of water is concerned, is the same in both cases. Although it seems clear, therefore, that services as far as the curb constitute a part of the equipment which should be installed by the utility, where the policy has been followed consistently of having property owners bear the expense of installing, it may be best to continue this policy. No hardship is imposed thereby upon patrons of the utility, and to continue the policy of having property owners pay for services will avoid whatever confusion might result from a change of policy. If, in the future, services were to be installed by the utility, rates, when finally adjusted, would probably have to be fixed at a point which would allow the utility to earn a return on all services, since the law provides that no consumer shall receive a lower rate than any other consumer because of his ownership of any part of the facilities incident to furnishing service. In order to equalize matters, then, the utility should pay a rental for the use of the facilities furnished by consumers to all consumers who owned their service pipes. Nothing would be gained by consumers by having the utility own the services.

As stated above, the services concerning the installation of which complaint has been made in this case were ordered installed in order that permanent street improvements might be made. Some of these services will replace others which were connected with a main laid by private parties but which is to be discontinued when the street is improved and a new main laid. Apparently, also, there will be a number of services laid to the curb which will not at present be connected with any premises. The sole purpose in having these laid at present is to prevent the necessity of cutting through the pavement at some later time. Whether these conditions justify an order that the city shall install the services, even though, in general, they are to be laid at the expense of property owners, may be a matter of dispute. It does not seem, however, that the fact that a water main had previously been laid by private parties, which main and services connected to it are now being replaced, materially alters the case. As long as it has been the general rule that property owners should install services, it would seem that if they installed pipes which were not suitable for use as a permanent part of the system, they must install such permanent services when conditions arise which necessitate such installation. It may have been an injustice to require property owners to lay the temporary main previously referred to, but the justice of the city's requirement that permanent services be installed by property owners does not seem to be affected thereby. The expense to consumers of laying permanent services to the main which it appears the city has had laid on York street, will hardly be greater than the expense of laying such permanent services to the privately owned main. The fact that the main is changed makes no difference. If the main which was laid by property owners were such that it could be used as a permanent part of the water system and the pavement put down without any changes in the main, it would still be essential that it be connected with consumers' premises by a good grade of service pipe. As long as the rule has been followed consistently of requiring property owners to pay for services, it appears only reasonable to require them to install a satisfactory grade of service, and the fact that a service had been installed by a property owner which answered its purpose under former conditions, would hardly throw upon the city the cost of replacing

that service by one of a different material or type when conditions were changed so that the original service was no longer satisfactory.

What has been said concerning the installation of services at the expense of property owners, has to do with cases where services are installed as needed to supply water to consumers' premises, or where one class of service is replaced by another whose substitution is made necessary by other changes in the distribution system. This case also involves the reasonableness of an order of the city that property owners lay services to the curb, even though there is no prospect that such services will be used for some time in the future, in order that permanent pavements which are to be laid will not have to be disturbed so that services may be put in. It was argued on behalf of the city that such services really constitute a street improvement and should be put in by property owners. Certainly their installation is made necessary as a result of street improvements and it is desirable that they be laid before permanent pavement is put down. If they are to be regarded as a part of the street improvements, there seems to be no reason why they should not be paid for by property owners. If they constitute a part of the utility in the sense that services in actual use constitute a part, they should be paid for in the same manner as other services. There may be instances where this would result in property owners having money invested in the services for a number of years before any use is made of them. The same would be true if such services were installed at the expense of the utility, except that in such a case it would be the utility which had the money invested. In that case the installation of such services would be a burden upon all water consumers instead of upon the owner of the property to be supplied. The installation of such services is one of the conditions of the water supply business which has to be met in most cities. It does not seem reasonable that the city, as distinct from the utility business of the city, should bear the cost of such services. Their installation is incidental to the growth of the utility business in any except the smaller villages and cities. Where it has been the policy for the utility to install services, the expense of such services as those under consideration should be borne by the utility. Where all the services have been installed by property owners,

there seems to be no sufficient reason for abandoning this practice in such cases as the present until conditions become somewhat more settled.

Meters. With regard to the installation of meters the situation is somewhat different. The law requires that meters be installed by the utility, except when exemption is made by the Commission. Up to the present time the city has followed the practice of the company from which it bought the utility, of requiring consumers or property owners to bear the expense of putting in meters. This policy can be approved only in cases where the financial condition of the utility is such that the expense of installing meters would constitute a hardship. No such condition exists at Manitowoc. Although not enough is known of the working of the plant under city ownership to furnish a basis for a final adjustment of rates at this time, there is no question whatever as to the business being a profitable one. Reference to the condensed income accounts, shown on an earlier page of this decision, is sufficient to show that the business is on a good financial basis.

The fact that meters have heretofore been installed by property owners makes no difference in this case, as the law clearly contemplates that the utility shall own the meters. The city of Manitowoc, therefore, should hereafter install meters at its own expense and should acquire those already in use or pay a reasonable rental to their owners.

At the present time the records show that there are about 490 flat rate consumers, and that about 450 meters would be required in order to place all consumers on a meter basis. On June 30, 1911, there were 1,276 meters in use, and it appears that about 100 have been added since that date. These should all be owned by the utility.

The final adjustment of rates for the Manitowoc water works must follow as soon as sufficient information is secured. To this end it is important that the city comply with all requirements concerning the placing and ownership of meters. Meters should be placed upon all services supplying premises which have sewer or cess-pool connections. Meters should be installed at the expense of the utility and the utility should acquire all meters now in use or pay the owners a reasonable rent for their use.

That portion of this case which relates to the rates charged for water is continued until such time as more definite information is available concerning the earnings and expenses of the plant under municipal ownership.

NOW, THEREFORE, IT IS ORDERED:

1. That the city of Manitowoc, until otherwise ordered, may continue its present policy of requiring property owners to pay for the installation of services.

2. That the city of Manitowoc shall furnish meters for all consumers whose premises are connected with sewer or cess-pool, and that the city shall acquire meters now in use or pay owners a reasonable rental for their use.

MILAN STORE COMPANY

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

Submitted Feb. 20, 1912. Decided Aug. 27, 1912.

Complaint was made that the station facilities at Milan, Wis., on the Athens branch of the M. St. P. & S. S. M. Ry. Co. are inadequate. The building is small and in need of repair and affords only partial protection to passengers or freight. No agent is in charge and there is considerable damage to freight and loss of time borne by the shippers. Sidetrack facilities are inadequate and respondent is willing to lengthen the spur track sufficiently to provide for all shippers.

Held: The revenue from this station does not warrant the construction of a new building at present. The respondent is ordered to make repairs and to place the station in charge of a competent caretaker who will heat and light the building and keep it open for the convenience of the public a reasonable time prior to the schedule time of the arrival of each train. Thirty days is deemed a reasonable time within which to comply with this order.

The petitioner is a corporation engaged in the general merchandise business at Milan, Wis., and as such ships forest products, stock, hay, and other commodities in carload lots over respondent's line from its station at Milan. It alleges that Milan is situated in a well settled and productive farming district, the products of which are shipped to other parts of the country; that the railway company does not maintain any passenger or freight depot or agent at Milan and has refused to do so; that the nearest station on respondent's line east of Milan is Athens, about 8½ miles distant, the nearest station on the west is Abbotsford, about 9 miles distant, and the nearest station on the south is Edgar, 15½ miles distant, and the nearest station on the north is Medford, about 18 miles distant; that by reason of the inadequate service at Milan those having freight to ship are obliged to be on hand when the train arrives to attend to their freight personally and to secure the setting out of cars for loading, also those expecting the arrival of freight must be present

to receive same and protect it from theft and damage by weather; that in order to render adequate service it will be necessary for the railway company to construct a depot for the accommodation of passengers and freight and provide a station agent who can bill out freight. Wherefore, petitioner prays that the respondent be required to construct and maintain a suitable and proper depot at Milan for the accommodation of passengers and the protection of freight, and an agent in charge thereof to attend to the matter of receiving, transporting and caring for freight.

The railway company, answering the petition, admits all the formal allegations thereof, and alleges that Abbotsford is not more than 8 miles and Athens not more than 7.1 miles distant from Milan; that its trains stop at Bushmann, which is about 1.1 miles from Milan, and at Corinth, which is not more than 2.6 miles from Milan; that it now maintains adequate buildings at Milan from which direct telephone communications can be had with Athens; that considering the amount of freight and passenger traffic originating at Milan, the facilities now furnished are reasonably adequate.

The hearing was held on Feb. 20, 1912. The petitioner was represented by *W. H. Stafford*, his attorney, and respondent by *A. H. Bright*, its general counsel.

The testimony introduced upon the hearing shows that Milan is situated on what is known as the Athens branch of the respondent railway company's lines and lies between Abbotsford and Athens, being 8 miles from Abbotsford and 7.1 miles from Athens, and has a population of 365 within a radius of 2.5 miles. Abbotsford was formerly on the main line of the Chicago division, but when the Owen-Spencer cut-off was completed, through trains from Chicago were routed over the cut-off, leaving Abbotsford off the main line.

Abbotsford and Athens are billing stations attended by regular agents. Bushmann, 1.1 miles west of Milan, and Corinth, 2.6 miles east of Milan, are flag stations. The latter is a pre-paid station. A mixed train is operated between Athens and Abbotsford, leaving Abbotsford in the morning and returning in the afternoon; this train is due at Milan at 10:45 a. m. and 3:10 p. m. On Sundays there is no train service. A platform and building are provided at Milan, but there is no agent stationed there. The building is about 16x12 feet. It has a

rough plank floor and is covered by a single sheet on the outside of the studding. The windows are poor and many panes broken. The distance between the building and the track is between 4 and 5 feet, and the roof projects over the platform from 4 to 5 feet. The building is used mostly for storing freight, and at times passengers are obliged to stand on the platform, subjected to the elements in inclement weather. Because of the windows being broken, freight placed in the building is exposed to rain and snow, and as all freight at this station is shipped at owner's risk, the loss falls upon him. The trainmen do not even place the freight in the building but unload it on the platform, leaving it to the consignee to put the same in the building. Under the circumstances the only safe course for a receiver of freight to pursue is to be present when the train arrives, prepared to take it away, but as the time of arrival of trains is generally uncertain, business men complain bitterly of the waste of time incident to attending to their freight during business hours.

It appears that a large part of the outgoing freight consists of carload lots, and that shippers, in order to secure cars, are obliged to go to Athens to arrange personally with the conductor of the train for cars. This causes great inconvenience to dealers. The billing is done at Athens by telephoning the agent from the petitioner's store. The railway company does not provide telephone facilities. Heretofore the petitioner has done this as an accommodation to the public. It usually happens that those desiring shipping bills made out find they are unable to get into communication with the agent at Athens for the reason that he is often too busy to answer the phone and when he is finally reached he is unable to do the billing in time to get the shipments out when the train arrives from Athens.

Relative to the complaint as to sidetrack facilities, witness for respondent admitted that the spur track was undoubtedly too short and that the railway company would be glad to lengthen it sufficiently to take care of all shippers, and also stated that the company would have no objection to placing a stove in the present building and provide window panes to replace those broken.

The freight earnings at Milan for the year 1907 are as follows:

	Local received.	Local forwarded.	Joint received.	Joint forwarded.
Carloads.....	\$785 94	\$315 79	\$126 44	\$1,811 23
Less than carloads.....	1,200 56	.....	203 46	25

Passenger traffic for the year 1911 showed the following receipts:

From Milan.....	1,058 passengers.....	\$157 76
To Milan.....	1,030	173 45

The branch line on which Milan is situated is 15.1 miles in length, and extends from Abbotsford, the connection with the Ashland division, northeasterly to Athens. Milan is about midway between the two termini. There is no regular station maintained on the branch other than Athens and Abbotsford stations. It would seem that with the development of the country surrounding Milan better station facilities must sooner or later be provided. However, at present the volume of traffic in and out of this station produces a total revenue of less than \$5,000 per annum. When we consider that the ratio of operating expenses to operating revenue of the Wisconsin Central lines is 66 per cent and that the branch in question is not self-sustaining, it is obvious that we would not be justified in requiring the construction of a new station and the installing of an agent to accommodate so small a volume of traffic.

There are a number of stations on respondent's lines as well as on the other lines of other railway companies which equal or exceed in importance the village of Milan, and which have no better station facilities than such point. But to require railway companies to construct new stations and install agents at such places would involve such an increase in operating expenses, to say nothing of the initial cost of station buildings, that an unjust burden would be necessarily placed upon the traffic in general. While shippers and receivers of freight at such points are placed somewhat at a disadvantage in comparison with those who are located where depots and agents are maintained, nevertheless, the inconvenience must be borne until the revenue of these stations will warrant the installing of more extensive facilities.

In the present case the building should be repaired and placed in good condition. It should also be in charge of some one who

would see that freight in less than carload lots is properly cared for and that the building is lighted and warmed when necessary. With these additional facilities the interests of the community will be served as well as existing conditions warrant.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, be and the same is hereby required to repair and place in proper condition its station building at Milan and that it place the same in charge of a competent caretaker, who will heat and light the same and keep it open for the convenience of the public a reasonable time prior to the schedule time of the arrival of each train.

Thirty days is deemed a reasonable time within which to comply with this order.

C. D. ANTISDEL ET AL.

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted April 8, 1912. Decided Aug. 27, 1912.

Petitioners pray that respondent, the C. M. & St. P. Ry. Co., be required to provide a shelter for passengers at the crossing just north of the village of Afton, Wis. All passenger trains on respondent's branch line between Beloit and Janesville stop at this point and petitioners allege that these trains are more convenient for the people of Afton than those of the C. & N. W. Ry. At the hearing, a request was also introduced for the handling of freight at this point. Freight billed for Afton over this line is left at Beloit or Janesville. It appears that while there are times when the people of Afton may be inconvenienced and experience some discomfort in waiting for respondent's trains, the C. & N. W. Ry. furnishes a passenger service superior to that of respondent. It also maintains adequate station facilities for the freight and passenger business. The station of the C. & N. W. is near the center of the village, while the crossing in question is distant about three-quarters of a mile.

Held: The small amount of traffic received at Afton does not justify the erection of a suitable shelter for passengers nor the building of a sidetrack for freight. The petition is dismissed.

The petition, signed by thirty-three residents of Afton and vicinity in Rock county, Wis., alleges that all passenger trains on respondent's branch line between Beloit and Janesville stop at the crossing of the Chicago & North Western Railway just north of the village of Afton, where a number of passengers enter and leave the cars; and that there is no depot at this place, with the result that passengers are exposed to cold and inclement weather while waiting for trains; wherefore, petitioners pray that an order be issued compelling the respondent company to erect and maintain at this crossing a suitable shelter for its patrons.

The respondent, in its answer, alleges that the passenger business at Afton averages less than two passengers per day; that the necessity from a passenger standpoint for the accommodations demanded is comparatively small and the compensation to the railway company wholly inadequate to warrant the expense of maintaining a station building, and that to require it to construct and maintain such structure would impose a burden unjustified by the revenue and out of proportion with and

unjustified by the convenience it would afford passengers. Wherefore, respondent asks that the petition be dismissed.

A hearing was held in the village hall at Afton on April 8, 1912. *O. D. Antisdel* appeared for the petitioners and *J. M. Davis* for the respondent.

While the petition refers only to station facilities for passengers, some testimony with regard to freight matters was introduced without objection from respondent. The testimony shows that the tracks of respondent cross the line of the Chicago & North Western Railway about 5.7 miles south of Janesville and 8.4 miles north of Beloit. All trains on the respondent's line between Beloit and Janesville stop at the crossing, where passengers are received and discharged, and as the trains are frequently late passengers are obliged to wait without any protection from the elements. The petitioners assert that the trains operated by the respondent are more convenient for passengers from Afton than those of the Chicago & North Western, especially the southbound train which passes Afton at 11:25 a. m., and the northbound train at 9:35 a. m. The former makes possible an afternoon business trip to Beloit and the latter is convenient to persons driving in from a distance who cannot reach the station in time for the 5:53 a. m. train on the Chicago & North Western for Janesville. The passenger service of both roads is shown by the following schedule:

CHICAGO & NORTH WESTERN

Southbound.

	Daily except Sunday	Daily except Sunday	Daily	Daily except Sunday	Daily	Daily	Sunday only
	a. m.	a. m.	a. m.	p. m.	p. m.	p. m.	p. m.
Leave Janesville via							
" Hanover Jct. ....	.....	8:50	10:35	3:20	5:00	6:25	3:05
" Afton	7:18	9:00	10:50	3:32	5:10	6:37	3:16
Arrive Beloit	7:30	9:15	11:10	3:45	5:25	7:00	3:30

Northbound

	Daily except Sunday	Daily	Daily	Daily	Daily except Sunday	Daily except Sunday	Daily	Sunday only
	a. m.	a. m.	p. m.	p. m.	p. m.	p. m.	p. m.	a. m.
Leave Beloit....	5:40	11:00	2:10	3:55	6:20	7:35	10:20	6:00
" Afton....	5:53	11:15	2:25	4:12	6:32	7:55	10:34	6:12
Arrive Janesville	6:05	11:25	2:40	4:25	6:42	8:05	10:50	6:25

CHICAGO, MILWAUKEE & ST. PAUL.

Southbound.

	Daily except Sunday.	Daily except Sunday.	Daily except Sunday.
Leave Janesville.....	8:40 a. m.	11:15 a. m.	5:20 p.m.
Afton.....	8:54	11:25	5:30
Arrive Beloit.....	9:15	11:47	5:51

Northbound.

	Daily except Sunday.	Daily except Sunday.	Daily except Sunday.
Leave Beloit.....	9:15 a. m.	12:18 p.m.	5:08 p.m.
Afton.....	9:35	12:34	5:40
Arrive Janesville.....	9:50	12:45	5:50

Petitioners claim that the stopping place on the respondent's line is more conveniently situated for at least one-fourth of the people at Afton than is the Chicago & North Western station.

With regard to freight service, no freight is carried by the respondent to or from Afton, although it operates two freight trains in each direction daily except Sunday. The respondent claims that to handle freight at Afton would involve a complete rearrangement of the freight schedule, since no way-freight is now operated between Beloit and Janesville. The testimony shows that shipments billed to Afton over the respondent's line are held at Janesville or Beloit and must be hauled from there by the consignees. Persons desiring to send goods from Afton to points on the Chicago, Milwaukee & St. Paul Railway are obliged to team them to Beloit or Janesville, or forward them by an indirect route over the Chicago & North Western Railway. The latter road operates four freight trains in each direction daily.

About thirty-five families reside at Afton, which has a post office, a church, blacksmith shop, general store, flour mill, and creamery. A population of about three hundred is tributary to the railroads at this point. The surrounding country is a well settled farming community and considerable freight is received and shipped out, consisting chiefly of stock, hay, straw, and creamery products. This business is now handled by the Chicago & North Western Railway Company, with the exception of small lots hauled to Beloit or Janesville to be shipped over

respondent's lines and occasional carload lots handled by the respondent from a siding maintained chiefly as a passing track at Riton, 2.4 miles south of Afton. The petitioners claimed that much of this traffic would be given to the respondent were station and sidetrack facilities provided.

The demands of the petitioners appear to be due in a great measure to inadequate freight service alleged to be provided by the Chicago & North Western Railway and to the failure on the part of that road to remedy certain grievances regarding depot platform and a street crossing, but witnesses testified that were those conditions rectified they would still desire that a shelter be erected at the stopping place of respondent's trains, adequate for both passenger and freight traffic.

A statement submitted by the respondent since the hearing shows the passenger traffic at Afton for the year ending Feb. 29, 1912, to be as follows:

Destination.	Number of passengers.	Revenue.
Afton to Janesville.....	422	\$49 75
Janesville to Afton.....	587	71 90
Afton to Beloit.....	54	8 10
Beloit to Afton.....	211	31 61
Total	1,274	\$161 36

The revenue shown is, however, less than should be credited to Afton, since persons traveling to distant points pay cash fares to Beloit or Janesville and purchase through tickets at those stations.

The respondent's engineers estimate that the cost of providing a shelter shed for passengers at Afton would be \$189.86, and that the construction of a siding for freight, including the grading necessary, would be \$2,185.41.

From a review of the testimony and all the facts in the case, it appears that while there are times when the people of Afton may be inconvenienced and experience some discomfort in waiting for respondent's trains, the Chicago & North Western Railway furnishes a passenger service to Janesville and Beloit superior to that of respondent. It also maintains adequate station facilities for the handling of freight and passenger business, as Afton is a junction point of two branches of its system. An

examination of the train schedules shows that petitioners can reach Janesville and Beloit by the Chicago & North Western Railway at reasonable intervals from 5:53 a. m. to 10:34 p. m., and not be compelled to expose themselves to the elements when waiting for trains. Moreover, the station of the Chicago & North Western Railway is near the center of the village, while the crossing where respondent stops its trains is distant about three-quarters of a mile. The stopping place is near the highway and a shelter structure there would tend to make the shed more or less objectionable for sanitary reasons, unless a caretaker was placed in charge to keep it clean. As there are no dwellings in the immediate vicinity, it would also serve as a resort for tramps and other persons of similar or worse character and thus render the safety of passengers waiting for trains in the evening more or less unsafe. The small amount of revenue received by the respondent from passenger business at Afton does not justify us in ordering the expenditure of the amount estimated to build a suitable place of shelter, nor does the amount of freight in sight warrant the construction of a sidetrack.

Therefore, the petition is dismissed.

NICHOLAS STREVELER ET AL.

vs.

MARATHON COUNTY RAILWAY COMPANY,
CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted May 14, 1912. Decided Aug. 27, 1912.

Petitioners pray for the establishment of joint rates between the Marathon County Ry. Co. and the C. & N. W. Ry. Co. The present rates on all freight shipped over the two lines consists of the sum of the locals, and petitioners allege that they are unreasonable, excessive and exorbitant. Both respondents admit that the present rates are excessive. Joint rates are very generally in existence between the small railway lines in the state and the larger lines with which they connect. In the present case, the establishment of reasonable joint rates is somewhat complicated by the lack of station and billing facilities on the Marathon County line. This fact should not deprive the petitioners of joint rates or their equivalent to which they are clearly entitled. Under the circumstances, perhaps the best arrangement that can be made at this time is to fix a series of arbitraries both on commodities, and if their use becomes necessary, on classes, which are to be added to the C. & N. W. rates to and from Stratford, to make up the rates to and from points on the Marathon County line. The carriers can then make such arrangements as they find convenient with regard to billing, subject to revision by the Commission if the provision made proves inadequate. In determining what the arbitraries above the Stratford rates should be, an important consideration is the cost of performing the service on the two lines. This cost includes the movement and terminal expenses of the haul as a whole and the cost of transfer. One cent per cwt. would probably cover the cost of transfer on most commodities, and the movement and terminal expenses would seem to be fully covered by the present single line rates for distances equivalent to the total length of the haul. Thus, in a general way, the through class rates should be made about equal to the single line class rate for a distance of ten or fifteen miles beyond Stratford, plus about a cent per cwt. for the cost of transfer. Specific commodity rates are generally fixed by groups rather than in direct relation to distances covered. A rate on the Marathon County line one cent higher than the rate to Stratford, would be in line with the joint commodity rates usually established. The exact amount of this arbitrary, however, depends somewhat upon the nature of the commodity, the loading per car and other transportation factors, and an arbitrary of a cent per cwt. would not be equally just on all commodities.

Held: The present rates are excessive and the respondent companies are ordered to establish commodity rates on the two lines not to exceed the C. & N. W. Ry. local commodity rates to

Stratford by more than the arbitraries provided by the Commission on lumber and logs, grain, hay, potatoes, cement, cattle, sheep, hogs, fuel wood, bark, pulp wood and bolts. Class rates are also suggested for use if the occasion exists or should in the future arise. The division of the total through rates between the two carriers is left to them for settlement, with recourse to the Commission in case of failure to agree.

The petitioners in this case, residents of the town of Emmett, Marathon county, Wis., are seeking the establishment of joint rates between the respondent companies, there being no such rates now in effect. The present rates paid by the petitioners on all freight shipped over the two lines consists of the sum of the Marathon County Railway Company's rates as fixed by this Commission *In re Appl. Marathon Co. R. Co.* 1911, 7 W. R. C. R. 392, and the local rates of the Chicago & North Western Railway Company to and from Stratford, the junction point of the respondents. The resulting total rates are alleged in the complaint to be unreasonable, excessive, and exorbitant.

In its separate answer to the complaint the respondent Marathon County Railway Company admits that no joint rates are now in effect, expresses its willingness to establish such joint rates as the Commission may find reasonable, and asks that the Commission make a just and equitable division of such rates between the two respondent companies. The answer of the respondent Chicago & North Western Railway Company denies that the present rates on through hauls over the respondents' lines are unreasonable, excessive, or exorbitant.

The hearing was held at the office of the Commission May 14, 1912. The petitioners were represented by *Nicholas Streveler*, and the respondent Chicago & North Western Railway Company by *C. C. Wright*. No one appeared for the respondent Marathon County Railway Company.

The material testimony in the case related mainly to the character of the shipments made from points on the Marathon County line to North Western line points. These shipments consisted mostly of forest products and hay. The usual market for the logs shipped is Wausau, while the hay is shipped to various parts of the state and, to a considerable extent, to Chicago. Cordwood is shipped for the most part to Milwaukee, Fond du Lac and Janesville; tan bark to Milwaukee and Kenosha. It was testified that practically the entire traffic, with the exception of the hay, was intrastate.

The only objection stated at the hearing by the respondent Chicago & North Western Railway Company to the establishment of joint rates between the respondents, was the lack of station and billing facilities on the Marathon County line. At no point on that line, it seems, is there a regular station building or a station agent. No bills of lading are issued; the shipper who has a carload of material ready to be shipped out merely telephones the office of the railway at Stratford and the car is sent out to him. It was requested, therefore, by the representative of the Chicago & North Western line, that the Commission fix a reasonable switching rate to be applied to that part of the haul of through shipments which takes place over the Marathon County Railway, and that no joint rates as such be fixed.

Joint rates are very generally in existence between the small railway lines in this state and the larger lines with which they connect. Such rates are usually voluntarily put into effect by the railway companies, but those existing between the Mattoon Railway Company and the Chicago & North Western Railway Company, and between the Big Falls Railway Company and the Chicago & North Western Railway Company, are the result of orders of this Commission. For purposes of comparison and study, the joint rates in force between a number of these small intrastate railway lines and a few important market points on large railway systems operating through the state, have been compiled as shown in the following table. This table shows in a general way the manner in which rates from connecting line points compare with rates from the junction points of the two lines. In each case the first column shows the junction point and the second the connecting line point. The class rates and the commodity rates on lumber, grain, hay, and live stock generally apply in both directions, while the rates on potatoes and fuel wood usually apply only from the connecting line point to the North Western line market point, and the rates on cement are in effect toward the smaller connecting line only.

JOINT RATES ON CLASSES AND VARIOUS COMMODITIES BETWEEN SMALL WISCONSIN RAILWAYS AND LARGER INTERSTATE RAILWAYS.

1. MATTOON RY. CO. AND CHICAGO & NORTH WESTERN RY. CO.

	Mil-waukee.		Manitowoc.		Green Bay.		Fond du Lac.		Janesville.		Madison.	
	Aniwa.	Mattoon.	Aniwa.	Mattoon.	Aniwa.	Mattoon.	Aniwa.	Mattoon.	Aniwa.	Mattoon.	Aniwa.	Mattoon.
Miles.....	168	178	117	127	80	90	165	115	191	201	196	206
Class 1....	47	52.5	42.5	48	35	41.5	39.5	47.4	49	63.5	.....	.....
Class 2....	38	44	33	39	29	35	31.5	37.8	41	54	.....	.....
Class 3....	29	35	26	31.5	24	29.5	25	30	32	43	.....	.....
Class 4....	21	28.5	20.5	26.5	17	23	19	20.8	24.5	30.5	.....	.....
Class 5....	16	20	16	18	13.5	15	15.5	18.6	19.5	22	.....	.....
Class A....	20.5	22	17	19	13.5	15.5	16	19.2	22.5	24.5	.....	.....
Class B....	15	17	12	13	10.5	11.5	11.5	13.8	17.5	26	.....	.....
Class C....	12	13.5	9.5	10.5	8	9	9	10.8	14.5	17.5	.....	.....
Class D....	9	10.5	7.5	8.5	6.5	7.5	7	8.4	11.5	14.5	.....	.....
Class E....	8	9.5	7	7.5	6	6.5	6.5	7.8	10.5	12.5	.....	.....
Lumber....	10	11	8.5	9	8.5	8.5	8.5	9	10.5	11	10	11
Grain....	11	11.5	11	10.5	10	9	11	9.5	12.5	12.5	12.5	12.5
Potatoes....	10.5	11	10.5	10	.....	.....	10.5	9	13.5	12	10.5	12
Wood-A....	5.5	6	5.5	5.6	5	5	5	5.5	7	6.5	5.5	6.5
Wood-B....	4	5	4	4.2	3.5	4	3.5	4.1	5	5.5	4	5.5
Cattle....	12.5	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hay.....	12	11	10	10	10	8.5	10	9	13.5	12	15	12

2. BIG FALLS RY. CO. AND CHICAGO & NORTH WESTERN RY. CO.

	Milwaukee.		Manitowoc.		Green Bay.		Fond du Lac.		Janesville.		Madison.	
	Hunting.	Big Falls.	Hunting.	Big Falls.	Hunting.	Big Falls.	Hunting.	Big Falls.	Hunting.	Big Falls.	Hunting.	Big Falls.
Miles.....	139	145	91	97	64	70	76	82	162	168	167	173
Class 1....	44	45	36.5	38.5	32	34	35	35.5	46.5	47	44	45
Class 2....	35	36	30	31	26.5	28	29	29.5	37.5	38	35	36
Class 3....	27	27.5	24.5	25	22	23	24	24	28.5	29	27	27.5
Class 4....	20	20	18	19	15.5	16.5	17	17.5	23	23.5	20	20
Class 5....	14	14	14	14	12.5	13	13.5	14	18.5	18.5	14	14
Class A....	18.5	19	14.5	15.5	12.5	13	13.5	14	20	20.5	18.5	19
Class B....	13	13	11	11.5	10	10.5	10.5	11	14.5	15	13	13
Class C....	10.5	10.5	8.5	9	7	7.5	8	8.5	11.5	12	10.5	10.5
Class D....	8	8.5	7	7.5	6	6.5	6.5	6.5	8.5	9	8	8.5
Class E....	7.5	7.5	6	6.5	5.5	5.5	6	6	8	8	7.5	7.5
Lumber....	9	9	7.5	7.5	8	8	8	8	10.5	10.5	10	10
Grain....	10	10	10	10	10	10	10	10	12.5	12.5	12.5	12.5
Potatoes....	10.5	10.5	10.5	10.5	.....	.....	10.5	10.5	13.5	13.5	10.5	10.5
Wood-A....	5.5	5.5	5.5	5.5	5	5	5	5	7	7	5.5	5.5
Wood-B....	4	4	4	4	3.5	3.5	3.5	3.5	5	5	4	4
Cattle....	11.5	11.5	.....	.....	.....	.....	.....	.....	14.5	15.5	14.5	15.5
Cement....	8	8	8	8	8	8	8	8	.....	.....	.....	.....
Hay.....	10.5	10.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	11.5	12

5. MARINETTE, TOMAHAWK & WESTERN RY. CO. AND CHICAGO & NORTH WESTERN RY. CO.

	Milwaukee.		Manitowoc.		Green Bay.		Fond du Lac.		Janesville.		Madison.	
	Harrison.	Spirit Falls.	Harrison.	Spirit Falls.	Harrison.	Spirit Falls.	Harrison.	Spirit Falls.	Harrison.	Spirit Falls.	Harrison.	Spirit Falls.
Miles.	252	262	175	185	135	145	160	170	246	256	250	260
Class 1.....	55	56	47	50	43.5	50	46	50	58	60	55	56
Class 2.....	46.5	47	38.5	42	34.5	42	37	42	49.5	50	46.5	47
Class 3.....	36.5	37	29.5	33	27	33	28.5	33	38.5	40	36.5	37
Class 4.....	23	23	23	23	21.5	23	23	23	25	25	23	23
Class 5.....	18	18	18	18	17	18	18.5	18	20	20	18	18
Class A.....	23	23	21	23	18	23	20	23	25	25	23	23
Class B.....	18	18	15.5	18	12.5	18	14	18	20	20	18	18
Class C.....	15	15	12.5	15	10	15	11	15	17	17	15	15
Class D.....	13	13	9.5	12	8	12	8.5	12	14	14	13	13
Class E.....	12	12	8.5	11	7.5	11	8	11	12.5	13	12	12
Lumber.....	10	10	8.5	8.5	8.5	8.5	8.5	8.5	10.5	10.5	10	10
Potatoes.....	12.5	12.5	12.5	12.5	.....	.....	12.5	12.5	15.5	15.5	12.5	12.5
Cattle.....	13.8	14.2	.....	.....	.....	.....	.....	.....	18.8	19.2	18.8	19.2
Cement.....	10	10	10	10	10	10	.....	.....	.....	.....	.....	.....
Hay.....	15	12	10	10	10	10	10	10	15	15	15	15

6. FAIRCHILD & NORTHEASTERN RY. CO. AND CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA (AND C. & N. W.) RY. CO.

	Milwaukee.			Manitowoc.			Green Bay.			Janesville.		
	Fairchild.	Tioga.	Greenwood.	Fairchild.	Tioga.	Greenwood.	Fairchild.	Tioga.	Greenwood.	Fairchild.	Tioga.	Greenwood.
Miles.	234	244	257	310	320	333	184	194	207	191	201	214
Class 1.....	53.5	53.5	53.5	53.5	53.5	53.5	48	49	52	58	58	58
Class 2.....	45	45	45	45	45	45	39.5	41	43.5	48	48	48
Class 3.....	34	34	34	34	34	34	30.5	32	34.5	37	37	37
Class 4.....	21	21	21	21	21	21	24	24.5	25	23	23	23
Class 5.....	16	16	16	16	16	16	19	19.5	20	18	18	18
Class A.....	21	21	21	21	21	21	21.5	22.5	23.5	23	23	23
Class B.....	16	16	16	16	16	16	16.5	17.5	18.5	18	18	18
Class C.....	14	14	14	14	14	14	13.5	14.5	15.5	16	16	16
Class D.....	12	12	12	12	12	12	10.5	11.5	12.5	13	13	13
Class E.....	10	10	10	10	10	10	9.5	10.5	11.5	11	11	11
Potatoes.....	11.5	11.5	11.5	11.5	11.5	11.5	.....	.....	.....	14.5	14.5	14.5
Cement.....	8	8	8	8	8	8	8	8	8	.....	.....	.....
Lumber.....	10	10	10	10	10	10	10	10	10	10.5	10.5	10.5
Hay.....	14	14	14	14	14	14	14	14	14	11	11	11

7. WISCONSIN & NORTHERN RY. CO. AND CHICAGO & NORTH WESTERN RY. CO.

Miles.....	Milwaukee.			Manitowoc.			Green Bay.			Janesville.		
	Shawano.	Gresham.	Neopit.	Shawano.	Gresham.	Neopit.	Shawano.	Gresham.	Neopit.	Shawano.	Gresham.	Neopit.
142	153	162	75	86	95	38	39	58	165	176	185	
Class 1....	40	46	52	34	35.5	45.5	26.5	29	42.5	43	50	60
Class 2....	33	37	43.5	28	29.5	36.5	21.5	23.5	33	36	42	50
Class 3....	25	28.5	34.5	23	24	28	18	19.5	26	29	33	40
Class 4....	20	21	25	16.5	17.5	22.5	13	14	20.5	23	23	25
Class 5....	15	16	20	13	14	18	10.5	11.5	16	17	17	20
Class A....	17.5	20	23.5	13	14	19.5	10.5	11.5	17	20	22	25
Class B....	13.5	14	18.5	10.5	11	13.5	7	9	12	17	17	20
Class C....	10.5	11	15.5	8	8.5	11	6.5	7	9.5	15	15	17
Class D....	8.5	8.5	12.5	6.5	6.5	8.5	5	5.5	7.5	12	12	14
Class E....	7.5	8	11.5	5.5	6	7.5	4.5	5	7	10	10	13
Lumber....	8.5	10	10	7	8.5	8.5	6.5	8	8	10	10.5	10.5
Grain....	10	10	11	10	10	12	7.5	9	12	.....	.....	.....
Potatoes....	10.5	10.5	.....	.....	8.5	11	.....	.....	.....	.....	.....	.....
Hay.....	.....	.....	.....	.....	.....	.....	5.5	7	9.5	.....	.....	.....
Wood—A....	5.5	6	6	4.5	6	6	4	5.5	5.5	7	7.5	7.5
Wood—B....	4	4.5	4.5	3	4.5	4.5	2.75	4	4	5	5.5	5.5
Cattle....	11.5	12.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cement....	8	9	10	8	9	10	.....	.....	.....	.....	.....	.....

8. STANLEY, MERRILL & PHILLIPS RY. CO. AND MINNEAPOLIS, ST. PAUL & S. S. M. RY. CO.

Miles.....	Milwaukee.		Manitowoc.		Fond du Lac.	
	Stanley.	Bellinger.	Stanley.	Bellinger.	Stanley.	Bellinger.
237	247	185	195	178	188	
Class 1.....	58	58	49	49	58	58
Class 2.....	49.5	49.5	41	41	49.5	49.5
Class 3.....	38.5	38.5	32	32	38.5	38.5
Class 4.....	25	25	24.5	24.5	25	25
Class 5.....	20	20	19.5	19.5	20	20
Class A.....	15	25	22.5	22.5	25	25
Class B.....	20	20	17.5	17.5	20	20
Class C.....	17	17	14.5	14.5	17	17
Class D.....	14	14	11.5	11.5	14	14
Class E.....	12.5	12.5	10.5	10.5	12.5	12.5
Lumber.....	10	10	10	10	9	9
Hay.....	15	17	13	14.5	.....	.....
Potatoes....	12.5	14	12.5	14	.....	.....
Wood.....	4.25	6	4.25	6	3.75	5.5
Cattle.....	15.2	15.5	20	20	.....	.....
Cement.....	8	10	8	10	.....	.....

NOTE:—Where rates on wood are accompanied by the letters "A" and "B" the former is the rate applicable in connection with the lower and the latter with the higher minimum weight as specified in the tariffs.

It will be seen from the foregoing table that there is no uniformity in the plan upon which joint rates from connecting line terminals to the various market points of the state are made. In many cases the rates from the junction point and the connecting line terminal are the same, while in other cases there is a more or less marked difference between the two. In the present case, the establishment of reasonable joint rates is somewhat complicated by the fact, pointed out by counsel for the respondent Chicago & North Western Railway Company, that the Marathon County Railway Company maintains no stations and issues no bills of lading. This fact should not, of course, deprive the petitioners of the advantages of joint rates or their equivalent, if they were entitled to them; and that they are so entitled is practically conceded by the carriers and is fully demonstrated by a review of the facts in the case. Under the circumstances, perhaps the best arrangement that can be made at this time is to fix a series of arbitraries, both on commodities and, if their use becomes necessary, on classes, which are to be added to the Chicago & North Western rates to and from Stratford, to make up the rates to and from points on the Marathon County Railway line. The carriers can then make such arrangements as they find convenient with regard to billing, subject, of course, to revision by the Commission if the provision made proves inadequate.

The class and commodity rates between Stratford and various Wisconsin points are inserted here for comparison with the rates shown in the table above, and to illustrate more clearly what the joint rates will be when the arbitraries are added. The distance from Stratford to the principal shipping region on the Marathon County line appears to be from twelve to fourteen miles.

RATES BETWEEN STRATFORD, WIS., AND WISCONSIN POINTS.

	Mil- waukee.	Manito- woc.	Green Bay.	Fond du Lac.	Janes- ville.	Madison.
Miles.	197	158	121	135	220	189
Applying between:						
Class 1.....	50	44	43	43.5	50	50
Class 2.....	42	55	33.5	34.5	42	42
Class 3.....	32	27	26.5	27	33	32
Class 4.....	21	21	20.5	21.5	23	21
Class 5.....	16	16	16.5	17	18	16
Class A.....	21	18.5	17.5	18	23	21
Class B.....	16	13	12.5	12.5	18	16
Class C.....	13	10.5	10	10	15	13
Class D.....	11	8	8	8	12	11
Class E.....	10	7.5	7	7.5	11	10
Lumber.....	10	8.5	8	8.5	10.5	10
Grain.....	10	10	11	10	12.5	12.5
Hay.....	13	12.5	10	12.5	13.5	12.5
Cattle.....	13.4				18	18
Sheep.....	18				23	23
Hogs.....	16				21	21
From Stratford:						
Potatoes.....	10.5	10.5		10.5	13.5	10.5
Wood A.....	5.5	5.5	5	5	7	5.5
Wood B.....	4	4	3.5	3.5	5	4
Tan bark.....	9.5					
To Stratford:						
Cement.....	8	8	8			

In determining what the arbitraries above the Stratford rates should be, an important consideration is the cost of performing the service on the two lines of railway. This cost, in the case of a joint haul, includes the movement and terminal expenses of the haul as a whole, and also the cost of transfer between the two lines. The cost of transfer necessarily varies somewhat with different commodities and different conditions of operation, but one cent per cwt. will probably cover it in most cases. The movement and terminal expenses of the haul as a whole, disregarding the fact of transfer between two lines, would seem to be fully covered by the present single line rates for distances equivalent to the total length of the haul. Thus, in a general way, the through class rates between the two respondent companies should be made about equal to the single line class rate for a distance of ten or fifteen miles beyond Stratford, plus about a cent per cwt. for the cost of transfer. In the case of specific commodities the rates are generally fixed by groups rather than in direct relation to the distances covered, and, as will be seen from the compilation in the first table, the rate to or

from the connecting line point is often the same as that to or from the junction point, or else exceeds the junction point rate by no more than the transfer cost mentioned above, or about a cent per cwt. This suggests that in the case of specific commodities a rate to or from the Marathon County Railway line about a cent higher than that to or from Stratford would be in line with the usual policy of the railway companies in the establishment of joint commodity rates. The exact amount of this arbitrary, however, depends somewhat upon the nature of the commodity, the loading per car, and various other transportation factors, and an arbitrary of a cent per cwt. would not be equally just on all commodities. In the case of hay, for example, the loading is so light that the commodity is much more expensive to the railway companies per unit of weight than a comparatively heavy loading commodity like logs.

With the foregoing facts and principles in mind, the arbitraries named in the order herein have been made up to be applied on joint traffic to and from the Marathon County line in addition to the Chicago & North Western local rates to or from Stratford. The arbitraries named are believed to be high enough to cover fully, if fairly divided, the cost to the two carriers, and at the same time they seem to be in line with the general relation of rates as between junction points and points on small connecting lines in Wisconsin. The arbitraries named in the order apply only upon commodity rates, for the reason that, so far as appears from the record, the entire traffic between the respondents is in carload commodities covered by such rates. The less than carload and class rate shipments appear to be very small, if they exist at all. If, however, the occasion exists, or should in the future arise, for the use of through class rates between the respondents, the Commission suggests that the following arbitraries be employed. These arbitraries, like those on commodities, have been made up with a view to both the cost of the service and the present relation usually existing between class rates at junction points and connecting line points.

**SUGGESTED ARBITRARIES FOR MARATHON COUNTY RAILWAY COMPANY
TO BE ADDED TO STRATFORD RATES.**

Class Rates.

Between points on Mar. Co. R. Co. and	Amount to be added to Stratford rates, cts.									
	1	2	3	4	5	A	B	C	D	E
Milwaukee ¹	4	3.5	3	2	1.5	2	2	2	2	1.5
Manitowoc ¹	3	2.5	2	1.5	1.5	2	1.5	1.5	1.5	1.5
Janesville ²	4	3.5	3	2	1.5	2	2	2	2	1.5

¹ And other Wisconsin points taking same rates to and from Stratford.

² And other Wisconsin points taking Chicago rates to and from Stratford.

The division of the total through rates between the two carriers involved in this proceeding will be left to them for settlement, with recourse to the Commission in case of failure to agree.

IT IS THEREFORE ORDERED, That the respondents, the Chicago & North Western Railway Company and the Marathon County Railway Company, establish commodity rates between points on the Marathon County Railway Company's line and Wisconsin points on the Chicago & North Western Railway Company's line, which do not exceed the Chicago & North Western Railway Company's local commodity rates between the latter points and Stratford, Wis., by more than the arbitraries named below:

**ARBITRARIES ON COMMODITIES ON WHICH SPECIFIC RATES ARE NAMED
TO OR FROM STRATFORD.**

Commodity.	Amount to be added to Stratford rates, cts.	Commodity.	Amount to be added to Stratford rates, cts.
Lumber, logs.....	1	Sheep.....	2
Grain.....	1	Hogs.....	2
Hay.....	2	Fuel wood—A.....	1
Potatoes.....	1	Fuel wood—B.....	1
Cement.....	1	Bark.....	1
Cattle.....	2	Pulp wood, bolts.....	1

Note:—In the case of fuel wood, rate "A" applies where the lower minimum weight is used, and rate "B" with the higher minimum weight.

Between points on the Marathon County Railway and Chicago & North Western points in Wisconsin taking Wisconsin distance tariff commodity rates to or from Stratford, the rate will be the distance tariff rate for 15 miles beyond the Stratford distance, plus 1 cent per 100 lbs.

TOWN OF CALEDONIA

vs.

CHICAGO AND MILWAUKEE ELECTRIC RAILWAY COMPANY.

Submitted March 23, 1912. Decided Aug. 28, 1912.

Complaint was made that the crossing of the Chi. & Mil. El. Ry. Co. with the Five Mile road north of Racine, in the town of Caledonia, Racine county, Wis., is dangerous. The view of the tracks is obstructed by the depot and by the sides of the cut through which both the highway and the track run. The automatic bell and electric signal are unreliable and misleading. The highway is narrow, making it difficult to back or turn aside in case of an emergency. The bell is inspected daily and the motormen are instructed to exercise care in approaching the crossing.

Held: The crossing is dangerous to public travel and because of the irregularity in the operation of the warning signal respondent is ordered to remove the corners of the cut at the crossing so as to give a better view of the tracks and to change the highway to an effective width of 24 ft. within its right of way. Thirty days is deemed a reasonable time within which to comply with this order.

The petition submitted by the town board of Caledonia in Racine county, Wis., and signed by fifty-one residents of that place, alleges that a highway crossing on the line of the respondent at the Five Mile road north of Racine is dangerous to human life because the physical surroundings of the crossing and the location of the station building result in obstructing the view of the track from the highway, and because the warning bell provided by the respondent is unreliable and misleading. It requests the Commission to require the respondent to provide proper safeguards at the crossing.

The answer of the respondent by its receiver, W. O. Johnson, denies that the crossing is dangerous if persons approaching the same use care in doing so; admits that the view of the tracks from the highway is partially obstructed until a traveler is within fifty or sixty feet of the crossing, but alleges that the physical situation is such that it is impossible to change conditions. It further alleges that a bell is provided at the crossing which is inspected daily; that motormen are instructed to exercise

care in approaching the crossing; and that all proper safeguards are now provided.

A hearing was held on March 23, 1912, at the city hall in Racine. *E. R. Burgess* appeared for the petitioner, and *Bull & Johnson*, by *Walter M. Johnson*, for the respondent.

The testimony shows that the electric railroad runs approximately north and south, and the highway east and west at the crossing. The railroad passes through a cut, the embankments of which make it difficult for a traveler to see an approaching car until within a few feet of the track. The view to the south, when approaching from the east, is further obstructed by the presence of a station building located about one hundred feet south of the crossing. The highway at this point is narrow, about sixteen feet from ditch to ditch, making it difficult to back up or turn aside in case of an emergency. The automatic bell and light at times ring and show light when no car is approaching, and at other times fail to give warning of approaching cars. Cars frequently do not whistle on approaching the crossing. As a result of these conditions numerous narrow escapes from accidents are reported. About twenty-five vehicles are said to pass over the highway at this point each day. Testimony introduced by the respondent shows that the warning bell and light installed at the crossing are of standard make and general use. The bell is inspected daily, and the reports of the engineering department of the railway show that during the year 1911 it was out of order nineteen times, due principally to weather conditions, which, by expanding or contracting the rails, interfere with the electric circuit. No whistling posts are installed, but the rules of the company require motormen to whistle at a distance of five hundred or six hundred feet from the crossing.

From an examination of the testimony and facts obtained by our engineer after an investigation on the ground, we find that the crossing is dangerous to public travel and because of the irregularity in the operation of the bell installed there, it is essential that the corners of the cut at the crossing be removed so as to give a better view of the tracks, and that the highway be widened.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Chicago & Milwaukee Electric Railway Company, at the high-

way crossing known as the Five Mile road north of Racine, remove the corners of the cut at the crossing so as to give a better view of the tracks, and that it widen the highway to an effective width of twenty-four feet within its right of way.

Thirty days is deemed a reasonable time within which to comply with this order.

CITY OF BOSCOBEL

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted March 25, 1912. Decided Aug. 28, 1912.

Petitioner alleged that three grade crossings on the C. M. & St. P. Ry. in Boscobel, Wis., located at Church and Walnut streets, Wisconsin ave. and Park st. are dangerous to public travel. No protective devices are provided. Warning bells would not be satisfactory because of the numerous tracks and the switching movements. Respondent alleges that the traffic does not warrant the installation of watchmen and gates. Since the hearing the parties have come to an agreement as to the means of protection as given in the order.

Held: The crossings in question are dangerous. The respondent is ordered to reduce the speed of all trains to twelve miles per hour when crossing Wisconsin ave., Park st., and Church and Walnut streets and to discontinue the practice of making "flying switches" where cars are run over such streets detached from an engine. It is further ordered that, before any switching is done on Wisconsin ave., either on the main track or sidetracks, the respondent is to station some person at such crossing to give warning to travelers on the street and sidewalks and to see that the passage is clear at all times when switching is done over this highway.

The petitioner, a municipal corporation of Grant county, Wis., sets forth, in substance, that three grade crossings on the respondent's line through Boscobel, located at Church and Walnut streets, Wisconsin avenue, and Park street are dangerous to human life because no guards, signals, or other devices for protecting travelers are provided, and, therefore, prays for such order as the Commission may deem necessary and just in the premises.

The answer of the respondent alleges that the view of the tracks at the crossings in question from the highways is not obstructed by buildings or physical objects within forty feet of the tracks; that because all trains stop at Boscobel their speed is slow and the danger from them slight; that no accidents have occurred at the points complained of for five years; and that to require the respondent to install the crossing protection

desired by the petitioner would impose a burden not warranted by existing conditions; and, therefore, respondent prays that the petition be dismissed.

A hearing was held on March 25, 1912, at the city hall in Boscobel, Wis. *John J. Blaine* appeared for the petitioner and *W. J. Underwood* for the respondent.

The testimony shows that the streets at the crossings in question run north and south, and the railroad northeast and southwest. Traffic is greatest at Wisconsin avenue, which is the main thoroughfare of Boscobel. A toll bridge over the Wisconsin river connects with Wisconsin avenue, and traffic over it, with few exceptions, crosses the railroad at one of the three crossings. From the toll receipts it appears that the average number of teams passing over the bridge daily for a number of months in 1911 and 1912 was as follows:

Month.		Average No. teams per day.	Month.	Average No. teams per day.	
May	1911.....	124	October	1911.....	170
June,	"	133	November	"	117
July	"	120	December	"	120
August	"	160	January	1912.....	183
September	"	137	February	"	123

During the winter considerable traffic crosses the river on the ice, and this would not be included in the figures given above. Moreover, there is considerable local traffic over the crossings which does not go over the bridge. A count of pedestrians crossing at Wisconsin avenue, and Church and Walnut streets, shows that in less than five minutes, about noon, seventy persons went over the former and eleven over the latter crossing. It is estimated that about four hundred persons cross the tracks every day on foot. More than sixty school children are obliged to use the crossings on their way to and from school. It is shown that the view of approaching trains at Wisconsin avenue is obstructed by buildings near the track at each corner. Moreover, at times several trains are standing on the tracks at once, which interferes with a clear view of a moving train. At such times pedestrians and teams are often obliged to pass between trains. At the Church and Walnut street crossing, the view of approaching trains is obstructed by buildings in all except the northeast

angle. At Park street the northwest angle of the crossing is unobstructed, and the hindrances to vision in the other angles are less important than at the other crossings. Some freight trains at times do not stop at Boscobel, and occasionally pass there at a speed of thirty miles an hour. Moreover, trains that do stop often coast in without making much noise. Considerable "flying switching" is done across all three streets. Four passenger trains and two way-freights pass Boscobel every day, and occasionally special freights also move through the city. No fatal accident has occurred at the crossings in question since 1906, when a man was struck at Park street, but numerous narrow escapes, due chiefly to shy horses, were reported. The division superintendent of the railway company stated that warning bells would not be satisfactory because of the numerous tracks and the necessary switching, and that the traffic is not sufficient to warrant the installation of watchmen and gates. He suggested that the situation would be met by reducing the speed of all trains to eight miles an hour at these crossings.

Since the hearing the parties have stipulated that an order be issued requiring the respondent to reduce the speed of all trains at the crossings in question to twelve miles per hour, to discontinue the practice of "flying switching" and to station a man at the crossings during switching movements to warn travelers.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Chicago, Milwaukee & St. Paul Railway Company, at the intersection of its tracks with Wisconsin avenue, Park street, and Church and Walnut streets, in the city of Boscobel, reduce the speed of all trains to twelve miles per hour when crossing such streets and that it discontinue the practice of making "flying switches" where cars are run over such streets detached from an engine. It is further ordered that before any switching is done on Wisconsin avenue, either on the main track or sidetracks, the respondent shall station at the crossing on Wisconsin avenue some person to give signals and warning to travelers on such street and the sidewalks thereon crossing the railroad tracks and to see that the passage is clear at all times when switching is done over such highway.

TOWN OF WAUZKA

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted March 26, 1912. Decided Aug. 28, 1912.

Petitioner alleges that the crossing of the C. M. & St. P. Ry. Co. with the Wauzeka-Boscobel road, about $1\frac{1}{4}$ mi. north of the village of Wauzeka, Crawford county, Wis., is unsafe and prays that adequate protection be provided. The tracks at the crossing are flooded occasionally and a type of bell is required which will operate even when the tracks are under water.

Held: The crossing requires protection and the respondent is ordered to install and maintain an alarm bell operating independently of a track circuit, plans for which are to be submitted to the Commission for approval. Respondent is further ordered to provide whistle signals and to widen the crossing by extending the planking further south. Sixty days is deemed a reasonable period within which to comply with this order.

The petition sets forth that the petitioner is a duly organized town located in Crawford county, Wis.; that a highway known as the Wauzeka-Boscobel road extends north from the village of Wauzeka, paralleling the tracks of the above named railway company, and crosses such tracks about $1\frac{1}{4}$ miles north of the village; that by reason of the impossibility of obtaining a clear view of approaching trains such crossing is unsafe and dangerous to human life; wherefore, the petitioner prays that after due hearing and investigation an order be made commanding respondent to install at such crossing an electrically operated crossing alarm with an illuminated sign for night indication, or other safety device, and asks for such other and further order as the Commission may deem necessary and just in the premises.

The respondent, in its answer, alleges that approaching from the west on the highway southbound trains can be seen at a distance of 340 feet and northbound trains at a distance of 900 feet; that approaching from the east southbound trains can be seen at a distance of 600 feet and northbound trains at a distance of 1,500 feet, constituting a view sufficient to make the protections demanded unnecessary. It alleges that the traffic

over the crossing is about thirty teams per day on the highway and four trains on the railroad. It further states its willingness to slow southbound trains to six miles an hour at the crossing, and to erect a whistle signal and require engineers to whistle 600 feet from the crossing, and to erect special warning signs at each side of the crossing.

A hearing was held at the town hall of Wauzeka, on March 26, 1912. *Joc Schwartz*, town chairman, appeared for the petitioner, and *W. J. Underwood* for the respondent.

The testimony shows that at the crossing in question the railroad track is on a curve, running approximately north and south, and that the highway crosses it diagonally. The view of approaching trains from the north is obscured from the west by a bluff around which the tracks curve. The whistle of trains from the north cannot be clearly heard at the crossing when the wind is toward the bluff. Furthermore, drivers are hindered from hearing the whistle because of the noise made by the wagons on the rocky road. It was agreed that the point of greatest danger is to teams traveling east from southbound trains. An additional source of danger is the down-grade of the west approach of the highway which makes difficult the control of unruly teams and diverts the driver's attention from approaching trains. Moreover, the angle of the crossing is such that drivers are obliged to look backward to see trains approaching from the southwest. Two trains from each direction pass the crossing every day during daylight at a speed not exceeding twelve miles per hour; there are no night trains. About twenty-five teams use the highway during the day. Several minor accidents have occurred at the crossing.

The division superintendent of the railway company admitted that the crossing is a dangerous one and stated that protection would be best obtained by slowing down trains to about ten miles per hour at the crossing and by installing a whistle signal within a few hundred feet of the crossing and requiring engineers to whistle there. He also suggested an improvement by extending the planking farther south, so as to make the crossing wider and more level. He did not believe that an electric warning bell would add to the safety of the crossing, as the track is occasionally flooded in wet weather and at such times the bell would doubtless not work satisfactorily.

An investigation of the crossing has been made by one of the engineers of the Commission who recommends that a crossing alarm bell operating independently of a track circuit be installed; that a whistle sign be placed within a few hundred feet of the crossing for trains to sound the station whistle; and that the crossing be widened by extending the planking further south. The safety service expert of the Commission makes the following remarks in regard to the type of bell most suited to the conditions as described by the respondent's representative at the hearing:

"Automatic bells for the protection of highway crossings on steam roads may be operated one of two ways.

"The most common way is by a track circuit, the track rails being bonded together so as to make a continuous conductor between the crossing and the starting point of the bell at which point a special track joint is placed for insulating adjoining rails, making an end of the track circuit. A battery is located at this point and housed in a cast iron chute for protection against the weather and to prevent freezing in the winter months. A relay is located at the crossing and the bell is operated by a local battery at the crossing, being controlled by what is known as the back contact of the relay, or, in other words, a switch which will be closed when a train occupies the track circuit at any point between the starting point and the crossing. On single track roads what is known as an interlocking relay is provided, the arrangement being such that the bell rings as the train approaches the crossing and stops ringing as the rear end of the train passes over the crossing. On double track roads, or on tracks where a train moves in one direction only, standard relays without the interlocking feature are provided. The local battery at the crossing may be housed either in a wood box or concrete battery well, the type of construction used depending somewhat upon local conditions and upon the standards of the various roads.

"For a track circuit to operate successfully good drainage must be provided, and should the tracks become flooded the action of the water between the rails would be the same as that of a train standing on the track section and the bell would ring continuously for several hours until the battery operating the bell becomes exhausted. Where illuminated signs are used they are operated from the same battery as is used for the bell.

"The second method of operation is by track trips or track instruments, the arrangement being such that when a train passes over the starting point the bell is caused to start ringing, a second track trip being placed at the crossing to stop the bell as the train passes. Under this arrangement the bell may be

operated either electrically or by a local battery as in the case of the track circuit system, or mechanically. In the mechanical arrangement apparatus is provided at the crossing for storing up power in springs, the springs being wound by a lever which is placed in operating relation to the track rail, the lever being operated by the rise and fall of the rail due to the passage of the engine and car wheels. This method of operation is not subject to interference on account of the poor drainage as the track instruments are set on top of the ties and the wire leading from the track instruments to the crossing are usually placed on the pole line, the cross connections between the pole line and track instruments being placed in either trunking or conduit and rubber insulating wires being used for the connections.

“Where conditions are such that a track circuit cannot be successfully operated, it is recommended that the track trip or track instrument scheme be installed.”

Now, THEREFORE, IT IS ORDERED, That the respondent, the Chicago, Milwaukee & St. Paul Railway Company, install and maintain at the Wauzeka-Boseobel crossing an alarm bell operating independently of a track circuit, plans of which are to be submitted to the Commission for approval; that it place a whistle sign within a few hundred feet of the crossing for trains to sound the station whistle and that it widen the crossing by extending the planking further south.

Sixty days is deemed a reasonable period within which to comply with this order.

MONS LARSON

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

Submitted March 20, 1912. Decided Aug. 28, 1912.

Petitioner alleges that the station facilities on the M. St. P. & S. S. M. Ry. at Campia, Wis., are inadequate. The respondent does not maintain an agent, and a station building, formerly used, is now boarded up with the exception of one room which is occasionally used as a shelter for freight.

Held: The freight and passenger business at Campia is not sufficiently remunerative to justify an order requiring the maintenance of a regular agent. Respondent is ordered to place its station building in proper condition for the accommodation of passengers and the storing of freight and to place it in charge of a competent caretaker who is to heat and light the building and keep it open for the convenience of the public not less than twenty minutes prior to the schedule time of the arrival of each train. Thirty days is deemed a reasonable time within which to comply with this order.

The petition sets forth that the petitioner is a general merchant and a dealer in farm products at Campia, Wis., and alleges that the respondent does not maintain an agent at Campia, although the traffic at that place warrants such service, and its failure to do so is in violation of ch. 362, Laws of 1905, and acts amendatory thereto. Wherefore, petitioner prays for such relief as the Commission may deem necessary and just in the premises.

The respondent, in its answer, admits that it does not maintain an agent at Campia, but denies that the needs of the people there require such service. It therefore requests that the petition be dismissed.

A hearing was held at Campia on March 20, 1912. The petitioner appeared in person, and the respondent was represented by *Kenneth F. Taylor*.

The testimony shows that the respondent does not maintain an agent at Campia, and that a station building, formerly used, is now boarded up with the exception of one room which is occasionally used as a shelter for freight. Two mixed trains,

one north and one south, pass Campia in the afternoon, daily except Sunday. The northbound train is almost invariably late, sometimes as much as four hours. The southbound train keeps nearer to its schedule but is usually late. Passengers are accustomed to wait for the train at petitioner's store, located about forty rods from the station building, and often miss the train because it is difficult to reach the station in time after the train can be heard approaching. Persons desiring to obtain information as to train movements are obliged to telephone to Rice Lake from the store. The passenger business is not large, being estimated at less than ten persons per day, but the traffic tributary to Campia extends three or four miles south, five or six miles southeast, and eight miles east. About 350 people reside within a radius of one mile of the station and the population is increasing.

As to freight service it appears that all less than carload shipments to Campia must be prepaid and that numerous delays have occurred by the apparent failure of agents at forwarding points to collect the necessary charges from shippers. This freight is unloaded on the platform and left to the care of the consignee, except in very inclement weather when it is placed in one of the rooms of the abandoned station building. Consignees receive no advice from respondent of the arrival of freight but the petitioner as an accommodation to his customers looks after their shipments and notifies them by telephone when the goods arrive. Some damage has occurred to goods from exposure on the platform. Out-shipments of freight in less than carloads consist largely of poultry, eggs, veal, and other farm produce. During the winter these commodities are forwarded principally by express, same being delivered to the conductor who, however, furnishes no receipt for the shipment. The conductor is not an agent of the express company but handles express shipments as an accommodation to the patrons of the railway company. Small lots of freight are delivered to the conductor with the necessary shipping instructions and the usual receipt is given. These conditions, connected with express shipments and less than carload freight, combined with the irregularity of the train service, causes much loss of time and considerable inconvenience to those who ship from Campia and who are compelled to drive a considerable distance with their

goods. Very little carload freight is received, but the number of cars shipped out is quite large. Orders for cars are placed with the agent at Rice Lake by telephone or through the train conductor and tracers for shipments as all other inquiries regarding the movement of freight are handled in the same manner. Carload shipments consist largely of logs, bolts, wood, potatoes, beets, and hay, of which there were shipped last year, according to the testimony of one witness, approximately 310 cars. It was stated that were proper station facilities provided a large amount of freight which is now shipped from Brill, a station on the line of the Chicago, St. Paul, Minneapolis & Omaha Railway, would be hauled to Campia. Considerable veal and cheese which is now forwarded from Brill would also be shipped from Campia if the respondent offered refrigerator cars for this business.

An exhibit introduced by respondent covering freight earnings at Campia for the year 1911 shows the weight and respondent's revenue as follows:

	Weight.	Revenue
Less than carload shipments.....	<i>Recd.</i> 520,693 lbs.	\$900 21
	<i>Forw.</i> 79,204 "	120 07
Carload shipments.....	<i>Recd.</i> 384,600 "	307 05
	<i>Forw.</i> 9,959,550 "	3,883 33
Total.....	10,944,047 lbs.	\$5,210 66

The same exhibit gives as respondent's revenue on Campia passenger traffic \$291.48, and shows that there were 2,177 passengers carried to or from Campia. The statement of passenger revenue appears to cover only cash fares paid to the conductor and is an incomplete return of the passenger earnings of Campia. Passengers destined to points on respondent's line south of Rice Lake purchase tickets at that station, thus Rice Lake is credited with much of the passenger business which originates at Campia.

It is doubtless true that the patrons of the railway residing in the vicinity of Campia are greatly inconvenienced by respondent's failure to maintain an agent at that station, but the total revenue derived from the freight and passenger business of the station after deducting the operating expenses is not sufficiently remunerative to justify an order requiring the main-

tenance of a regular agent. However, we can see no reason why the present station building should not be placed in good condition and in the charge of some one who will see that it is properly lighted and warmed when necessary. When people are obliged to travel long distances to reach the station and the schedules of trains are irregular, they should not be compelled to seek warmth and shelter in private residences or stores. The employment of a caretaker at Campia would entail but little expense to respondent. It appears from the testimony that at one time this was done. With these additional facilities the needs of the community will be served as adequately as present conditions warrant.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, place in proper condition its station building at Campia for the accommodation of passengers and the proper storing of freight and that it place the same in charge of a competent caretaker who shall heat and light the same and keep it open for the convenience of the public not less than twenty minutes prior to the schedule time of the arrival of each train.

Thirty days is deemed a reasonable time within which to comply with this order.

TOWN OF MENTOR

vs.

CHICAGO, ST. PAUL, MINNÉAPOLIS AND OMAHA RAILWAY COMPANY.

Submitted March 12, 1912. Decided Aug. 28, 1912.

Complaint was made by the town of Mentor, Clark county, Wis., that the crossing known as the King street crossing, near the depot at Humbird on the G. St. P. M. & O. Ry., is dangerous to human life. View of the tracks is obstructed and the highway is heavily traveled.

Held: The crossing requires continuous protection and the respondent is ordered to install and maintain an automatic electric alarm bell with an illuminated signal for night indication. Sixty days is deemed a reasonable time within which to comply with this order.

The petitioner, a regularly organized town under the laws of the state of Wisconsin, through its town board, alleges that a highway crossing known as the King street crossing, located about 165 feet from the Humbird depot on the respondent's line, is dangerous to human life, because the view of the tracks is obstructed by buildings and by cars standing on a house track; that a fatal accident recently occurred at this crossing; that the highway is a main thoroughfare supporting a heavy traffic; and that school children are obliged to cross the tracks daily. The Commission is therefore requested to require the respondent to provide reasonable protection to life and property at the crossing.

The respondent, in its answer, denies that the crossing in question is dangerous to travelers on the highway who exercise ordinary care.

A hearing was held at the office of the Commission in Madison, on March 12, 1912. *Fred Theiler*, chairman of the town board, appeared for the petitioner, and *Geo. W. Peterson* for the respondent.

The testimony shows that the crossing in question is at an angle of about 60 degrees, the highway running north and south,

and the railroad northwest and southeast. The approaches are approximately level and the crossing is planked and in good condition. Two main tracks and a house track are crossed by the highway. Approaching the crossing from the south the view of trains coming from the northwest is obstructed by the depot building, a large warehouse, some stock pens, and often by cars standing on the house track. It is not possible to see an eastbound train beyond the depot until the main track is almost reached. To the southeast, from the south approach of the highway, and in both directions from the north approach no serious obstruction to the view exists. The traffic over the crossing is heavy. The town chairman stated that he ordered a count taken between 8 a. m. and noon on March 11, 1912, which showed that during that period ninety teams and one hundred and thirty pedestrians crossed the tracks. The road is used to a considerable extent by automobiles. Moreover, school children from one section of the town have to pass over the tracks on their way to and from school. On Jan. 13, 1912, a man and team were killed at the crossing. Other less serious accidents and narrow escapes have occurred.

The superintendent of the railway company expressed a willingness to install an automatic warning bell and light but did not believe a flagman to be necessary. Petitioner regarded a bell as insufficient protection and desired that gates be installed and a flagman stationed at the crossing.

The Commission's engineer, after inspection of the crossing, reports that the installation of the proposed automatic crossing bell and light will afford sufficient protection to travelers on the highway. He further states that the traffic does not warrant the maintenance of gates and flagman at all hours and that the suggested device would give greater protection because it would be continuous.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Chicago, St. Paul, Minneapolis & Omaha Railway Company, install and maintain at the King street crossing, near Humbird depot in the town of Mentor, an automatic electric alarm bell with an illuminated signal for night indication.

Sixty days is deemed a reasonable time within which to comply with this order.

SOUTHERN WISCONSIN SAND AND GRAVEL COMPANY

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

CLARK & FISHER

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted June 11, 1912. Decided Aug. 30, 1912.

Complaint was made by the shippers of sand and gravel at Janesville, Wis., that the collection of switching charges on these commodities for the haul from the companies' sidetracks to the main line of the C. & N. W. resulted in a charge which was unreasonable and excessive and prohibitive of further shipment on this line. Petitioners alleged that the sidetracks were constructed from the quarries to the lines of the respondent and the C. M. & St. P. Ry. Co. with the understanding that cars would be switched to the respondent's line without charge. Switching charges were absorbed on such shipments until Dec. 11, 1911, but since that date charges amounting to \$2 per car have been assessed against the petitioners. The refusal to absorb applied only where commodity rates were in effect and not where traffic moved on distance rates. Since the hearing, however, the respondent has put into effect on its line in Wisconsin the distance rates on sand and gravel ordered by the Commission in *Waukesha Lime & Stone Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 87, 347, and in this tariff no provision is made for absorption of switching charges. The refusal to absorb switching charges seems now to affect all of the petitioners' shipments within Wisconsin as well as those moving on commodity rates from Janesville to Illinois points. Since Dec. 11, 1911, respondent's tariffs have provided for collection of switching charges on interstate shipments, and respondent alleges that the reasonableness of such charges on interstate shipments is beyond the jurisdiction of the Commission, and further that absorption of such charges would be an unjust discrimination in favor of the petitioners. The respondent denied the power of the Commission in ascertaining the reasonableness of the charge to consider any equitable estoppel or implied contract of the railway company for the absorption of the charges in question. It is not necessary in this case to rely upon the existence of any form of estoppel, and the extent of the Commission's power to do so need not be determined here. It is apparently the theory of the companies that a car loaded so heavily or moving so far as to earn a given amount, often fixed at \$15.00, is sufficiently profitable for the carrier to make a concession in order to get business, and the absorption of switching charges on such ship-

ments is a very general custom and in line with good business policy. In making an order for the absorption of charges in the present case, the reasonableness of the \$15 minimum revenue need not be investigated since the loading of sand and gravel is so heavy that the earnings per car seldom fall below that figure. Nor are the present reduced rates for the line haul in any way involved, because with the minimum revenue at \$15, as it has been in the past, the earnings of the car must be as great as they were under the former rates before the switching charge will be absorbed.

Held: The absorption of the switching charge in the present case would seem to be so reasonable a practice that its continuance should be required where the car yields enough revenue to the railway company to make such absorption good business policy. Respondent is ordered to cease and desist from collecting switching charges on cars of sand and gravel switched from the side tracks of the petitioners, the Southern Wisconsin Sand & Gravel Co. and Clark & Fisher, at Janesville, Wis., to the respondent's line for shipment over that line, where the revenue accruing to the respondent from the haul of such cars equals or exceeds \$15 per car.

The petitioners asked for a refund of the switching charges assessed but no freight bills have been submitted to the Commission. The respondent offers to refund any switching charges that may have been collected on intrastate shipments between June 30 and Oct. 20, 1911, because such charges were due to failure of the respondent to publish in Wisconsin a tariff providing for absorption of freight charges; but denies the jurisdiction of the Commission over switching charges upon interstate shipments. In view of the absence of sufficient data as to the shipments upon which refunds are claimed, the matter of refund will be held in abeyance and will be the subject of a later report.

The petitioners are shippers of sand and gravel, with quarries located at Janesville, Wis. Their complaints involve the same question and were heard together. They allege in substance that the petitioners at their respective quarries have constructed sidetracks connecting with the lines of the respondent and the Chicago, Milwaukee & St. Paul Railway Company, with the understanding that cars would be switched from such side track to the respondent's line without charge; that in reliance upon such agreement the petitioners invested large sums of money in their plants and have made shipments of sand and gravel to various points on the respondent's line in Wisconsin and Illinois without being subjected to a switching charge for the haul from their sidetrack to the respondent's line. Since Dec. 11, 1911, however, the respondent company has exacted a charge of \$2 per car for such switching service, which charge the petitioners allege to be excessive and unreasonable, and to be prohibitive of further shipment of sand and gravel from their

respective quarries to North Western line points. The complaints contain further allegations as to the character of the commodity shipped, its value, and conditions of shipment; these matters will be touched upon later in this opinion. The petitioners pray that the switching charge of \$2 per car now collected by the respondent company on shipments originating on the petitioners' sidetracks be discontinued, and that refunds be made to the petitioners of the switching charges collected on such shipments since Dec. 11, 1911.

In answer to the petitions, the respondent company alleges that the sidetracks at the plants of the petitioners are owned by the Chicago, Milwaukee & St. Paul Railway Company, and are reached by the respondent only through reciprocal agreement with that company; offers to refund any switching charges that may have been collected on intrastate shipments between June 30 and Oct. 20, 1911, because such charges were due to failure of the respondent to publish in Wisconsin a tariff providing for absorption of freight charges; but denies the jurisdiction of the Commission over switching charges upon interstate shipments and alleges that absorption of such charges by the respondent would be an unjust discrimination in favor of the petitioners. The respondent further alleges that since Dec. 11, 1911, its tariffs have provided for collection of switching charges on interstate shipments, and that the reasonableness of such charges is beyond the jurisdiction of this Commission. Further answering, the respondent denies all allegations of the petitioners not otherwise answered.

The hearing was held at the office of the Commission, June 11, 1912. *W. H. Dougherty* appeared for the Southern Wisconsin Sand & Gravel Company, *Charles E. Pierce* for Clark & Fischer, and *C. A. Vilas* for the respondent railway company. Briefs were filed on the part of both of the petitioners and of the respondent company.

The testimony offered at the hearing brought out in greater detail what was alleged in the complaint, namely, that for some years up to December, 1911, the respondent company absorbed switching charges on cars moving from the petitioners' sidings, but since that date such charges have been assessed against the petitioners, amounting to \$2 per car. At the time of the hearing, this refusal to absorb applied only where the respondent

had commodity rates in effect; where the traffic moved on distance rates, the railway company still absorbed the switching charge. Since the hearing the respondent company has put into effect on its line in Wisconsin the distance rates on sand and gravel ordered by this Commission in *Waukesha Lime & Stone Co. v. C. M. & St. P. R. Co. et al.* 1912, 9 W. R. C. R. 87, 347, and in the tariff by which these distance rates are made effective no provision is made for absorption of switching charges. The refusal to absorb switching charges, therefore, seems now to affect all of the petitioners' shipments within Wisconsin, as well as those moving on commodity rates from Janesville to Illinois points.

The result of the collection of the switching charge is an addition of about 0.22 cts. per cwt. to the freight charge upon the petitioners' average shipments of sand and gravel. The loading per car averages about 90,000 lbs. and the value of the carload ready for shipment is only about \$7 to \$8, or a little less than 0.9 ct. per cwt. The switching charge thus adds to the cost of shipment nearly a quarter of the value of the article shipped. The petitioners claim that it is out of the question for them to ship sand if they are required to pay the \$2 charge, because the margin of profit on the commodity is very small without such a charge.

The allegation in the petitions that the sidetracks to the petitioners' plants were the joint tracks of the respondent and the Chicago, Milwaukee & St. Paul Railway Company, was denied in the answers of the respondent, and in its testimony at the hearing. The petitioners were unable to offer any positive evidence in support of the allegation, and the record would hardly justify the Commission in assuming that the tracks are the property, in whole or in part, of the respondent company. The real situation seems to be, as alleged by the respondent company, that the switching service from the sidings to the respondent's line is a service from a St. Paul line sidetrack to the North Western line.

Much emphasis was placed by the petitioners at the hearing upon the existence of an understanding or agreement between the railway companies and shippers, that no switching charges should be assessed against shippers having sidetracks in Janesville. It was claimed that the petitioners had made large investments upon the faith of such understanding, and that it

would be inequitable for the railway company now to assess the switching charge, especially as the charge was practically prohibitive of further shipments. The respondent company, on the other hand, denied the power of this Commission to consider any equitable estoppel or implied contract of the railway company in ascertaining the reasonableness of the charge. It does not become necessary in this case, however, to rely upon the existence of any form of estoppel, and the extent of the Commission's power to do so need not be determined here. The facts before the Commission make the decision of the issues here involved reasonably clear without considering any but the usual transportation and commercial elements present in the case.

It has been a very general custom on the part of the railway companies to absorb switching charges at one or both terminals where the revenue derived from the car exceeded a given amount. This practice has undoubtedly been based upon the idea that a car loaded heavily enough, or moving far enough, to earn the prescribed revenue, is carried at sufficient profit so that the railway company can afford to remit the payment of the transfer charge for bringing the car upon its own tracks from another railway line. And is well known, a heavily loaded car is moved at much less expense per unit of weight than a car of light loading; and in the same way a long haul is ordinarily more profitable to the railway company than a short haul. Thus it is apparently the theory of the railway companies that a car loaded so heavily or moving so far as to earn a given amount, often fixed at \$15, is sufficiently profitable for the carrier to make a concession in order to get business which might otherwise move over the railway line on which the shipper's siding is located.

This practice of absorbing switching charges on cars earning a given amount is not only common but it is also in line with good economic policy on the part of the railway companies. It is but natural and proper that a railway company should seek some of the business of a shipper whose sidetrack, though located in the same city, happens to be upon the line of another railway company; and there is no doubt that a concession of from \$2 to \$5 per car in switching charges is often fully compensated by the extension of business resulting therefrom. The shipper is also benefited in having more than one railway line over which he can ship directly from his own siding. No reason

has been advanced by the respondent company for the recent change in rules which results in the collection of the \$2 charge from the petitioners. The absorption of such charge by the railway company would seem to be so reasonable a practice in this case that its continuance should be required where the car yields enough revenue to the railway company to make such absorption a good business policy. The revenue which the carriers usually require a car to earn before absorption of switching charges will take place is \$15. The reasonableness of this \$15 minimum revenue need not be inquired into here, for the reason that the loading of sand and gravel is so heavy that the earnings per car seldom fall below that figure. Nor are the respondent's present rates for the line haul in any way involved here, because, with the minimum revenue fixed at \$15 as it has been in the past, the earnings of the car must be as great under the present rates as they were under the former rates before the switching charge will be absorbed.

The petitions in these cases contain a claim for refund, but no freight bills have been submitted to the Commission. One of the petitioners filed a statement setting forth a number of cars as having been shipped since December, 1911, but the data given are not sufficient to assure the Commission that a refund based thereon would be correct, and, furthermore, many of the cars were shipped from Janesville to Illinois points. It is claimed by the attorneys for the petitioners that the switching service is entirely a local matter, and thus is subject to regulation by this Commission even though the final destination of the car proves to be outside of the state. In view of the uncertainty as to the shipments upon which refunds are claimed, and of the question as to the jurisdiction of the Commission where the shipments move outside of the state, the refund matter will be held in abeyance and will be the subject of a later report.

IT IS THEREFORE ORDERED, That the respondent, the Chicago & North Western Railway Company, cease and desist from collecting switching charges on cars of sand or gravel switched from the sidetracks of the petitioners, the Southern Wisconsin Sand & Gravel Company and Clark & Fischer at Janesville, Wis., to the respondent's line for shipment over that line, where the revenue accruing to the respondent company from the haul of such cars equals or exceeds \$15 per car.

JOHN SAVAGE ET AL.

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted Aug. 10, 1912. Decided Sep. 5, 1912.

Petitioners alleged that side track facilities at Union Grove, Wis., are inadequate for the traffic during the harvest season. Large quantities of cabbage and sugar beets are grown in the vicinity and the two crops are ready for shipment at the same time. Great damage results if these crops are not handled at once when ready for harvesting and the insufficient car service has caused considerable loss to shippers for some years past.

Held: The urgency of the situation demands that additional shipping facilities be provided at the earliest possible moment. The respondent is ordered to furnish additional sidetrack facilities adequate to serve the convenience and necessity of the public.

The petition, signed by twenty farmers and shippers residing near Union Grove, Wis., alleges in substance that a large quantity of cabbage and sugar beets are grown in that vicinity and shipped over the respondent's line during October and November every year; that great damage results if these crops are not handled at once when ready for harvesting; that if an average crop is yielded from the 700 acres of cabbage and the 1,100 acres of sugar beets now planted, at least 2,000 cars will be shipped from Union Grove during the fall of 1912; that the sidetrack now maintained by the respondent at that place is inadequate for the traffic during the harvest season, with the result that shippers in the vicinity have suffered loss for some years past; and that the road on the respondent's right of way at the sidetrack is not in proper condition to bear heavy traffic. The Commission is therefore asked to require the respondent to construct and maintain additional sidetrack facilities at Union Grove and to maintain properly the road at the sidetrack.

The respondent in its answer alleges that it contemplates providing for handling shipments at Union Grove and similar places on its line with reasonable promptness, and that it will endeavor to maintain adequate service at Union Grove. It therefore asks the dismissal of the petition.

A hearing was held on Aug. 10, 1912, in the I. O. F. Hall, Union Grove, Wis. *John T. Gettings* appeared for the petitioner and *B. C. Dougherty* for the respondent.

The testimony shows that cabbage has been grown for many years in the vicinity of Union Grove, but that sugar beet culture was not introduced until about 1907. Both crops have increased from year to year. Estimates of witnesses place the cabbage shipments of 1911 at about 300 carloads, and the beet shipments at between 300 and 400 carloads. The record of the respondent's agent at Union Grove shows that the shipments from that place in 1911 were 146 carloads of cabbage and 348 carloads of beets. In 1911 the yield was somewhat below the average, but because of favorable weather conditions the yield in 1912 is expected to be above the average. Moreover, there is a considerable increase in the acreage devoted to these crops over that in 1911. Beets from 200 acres, and cabbage from 60 or 70 acres, which were shipped from Union Grove in 1911, will in 1912 be handled from Dale's Siding, about two miles east. It is estimated, however, that approximately twice as many beets and cabbage will be shipped from Union Grove in 1912 than were handled there in 1911.

The cabbage harvest begins about the first of September and continues until December. Beets are gathered during approximately the same period, beginning about the middle of September and continuing into December. Thus the entire crop of beets and cabbage must be moved within three months. Unless cabbage is handled promptly when ready, it deteriorates rapidly. Moreover, during the short harvest season, the teams of the growers are utilized to the uttermost, and delays make it difficult to move the crops. In the case of the cabbage, the earliest shipment possible is advantageous; but beets are less perishable and premiums are fixed by sugar refineries for late shipments, 25 cts. per ton more in November than in October, 25 cts. more in December than in November.

At present there are three sidetracks maintained at Union Grove. One is used primarily to supply a "kraut" factory, one, located near the station, serves for general merchandise, and the third, located about fifty rods from the station, is used for loading cabbage and beets. The busy season at the "kraut" factory comes at the same time as the harvesting season, so that

little room is available on that track for the use of produce shippers. The general merchandise track is usually full, and furthermore, objection is made to loading cabbage there because of the stench. In extreme cases, however, these tracks are used for loading beets and cabbages, but normally only one track is at the service of produce growers. This siding, known as the "cabbage track", measures 782 feet east of the highway crossing and 132 feet west of it. It will hold twenty cars, but only about fifteen can be placed so as to be available for loading at one time. From fourteen to twenty cars are ordinarily filled in a day during the busy season, and occasionally as many as twenty-four are loaded.

The testimony shows that frequently empty cars destined for Union Grove have been carried past that place and not returned, because of the lack of room on the sidings there, and that the lack of cars occasioned thereby is a constant source of delay and loss to shippers. When growers drive in from a distance and are unable to load because of the lack of cars, they often pile their produce on the ground until cars are supplied. It is claimed that one sugar beet company placed 1,137 tons of beets in pits temporarily because of the insufficient car service. Shippers of cabbage frequently leave their wagons standing overnight at the siding when no cars are available, and return home with their teams. From five to eighteen loads are often left in this way, and on one occasion fifty loads were allowed to stand overnight. The delays resulting from the lack of cars vary from a few hours to more than a day in duration. This insufficient car service results in loss of time to the shippers and injury to the produce by reason of additional handling.

Testimony introduced by the respondent shows that there is considerable delay on the part of shippers in loading cars. Some have six or eight teams at work and some only three or four. The time it takes to load a car depends on the distance of the haul and the number of teams used. The average time of loading a car at Union Grove is a little over one day. The respondent claims that if cars were loaded promptly when supplied, the present trackage would be adequate, since during the three harvest months an average of only about eight or ten cars per day were loaded in 1911.

It developed that the roadway maintained by the respondent

at the side track has been built about eight years and has had little attention during that time. The cinders, originally placed over the black dirt, are now mixed in with it, and the road will not bear heavy traffic. Extra horses are used to draw heavy loads up to the cars, and even then teams are frequently stuck and harness broken. The wheels sink up to the hub, and occasionally it is necessary to unload wagons beside the road in order to extricate them.

The petitioners desire that track facilities be provided adequate to handle about thirty cars a day, or about double the present trackage. They suggest that a new siding be placed on the respondent's right of way north of the present one, and of about the same capacity. This could be done with an allowance of about twenty-four feet between tracks, which would be sufficient for the passing of teams. It is suggested, however, that by moving the present track farther north, and building a new siding south of the main track, provision could be made for loading cars from both sides, which is more convenient and saves extra handling of the produce. The petitioners assert that the extension of the "kraut" factory track east would give room for teams, but would be less satisfactory than the other suggested changes. They object to the westward extension of the "kraut" factory track, because of the interference occasioned by the factory business, and because adequate room for teaming could not be provided.

The respondent, by its roadmaster, states that it is willing to extend the "kraut" factory siding to the west. It claims that ample room for teaming could be provided in this way, and that the factory business would not interfere with the loading of produce cars as much as it would in case of the eastward extension. The proposed westward extension could be provided at once, in time for the movement of the 1912 crops. New sidings are objected to because, for reasons of safety, the railroad company desires to have as few switches as possible on its main track.

The urgency of the situation apparently demands that the additional track facilities be constructed at the earliest possible moment. Under the circumstances it will be advisable for the railway company to extend the "kraut" factory siding westward. However, if for any reason such course is impracticable,

the company should supply additional trackage at such point as will render it convenient for the public to have access to the same with teams for the purpose of loading cars. The order will therefore be general and not specific in its terms.

Now, THEREFORE, IT IS ORDERED, That the Chicago, Milwaukee & St. Paul Railway Company be and the same is hereby required to furnish additional sidetrack facilities at the point mentioned and described in the petition which shall be adequate to serve the convenience and necessity of the public at that point.

MADISON REALTY COMPANY ET AL.
vs.
CITY OF MADISON.

Submitted Aug. 20, 1912. Decided Sep. 6, 1912.

Petitioners prayed for an order requiring the city of Madison, Wis., to lay and construct an extension of its system of water mains into the subdivision recently annexed, known as Highland Park. One of the rules of the water board relating to the making of main extensions requires that the estimated income shall not be less than 5 per cent upon the cost of the extension. In the present case the Realty Co. offered to guarantee the specified income in any manner prescribed by the city or by the Commission. Petitioners alleged that the extension would provide necessary fire protection in a large district; provide city water to the cemeteries where large quantities are required; furnish domestic service to a number of immediate takers and encourage a development of the territory which cannot occur without city water service; and improve the quality of the water in the present western extremity of the system by creating a better circulation and flow of water through the mains in this district. An estimate of the probable consumption of water in this section seems to indicate that a 6" pipe would be adequate and an increased demand in the near future can be met by parallel mains laid along other streets. The more rapid flow in the smaller main than in the proposed 8" main would insure a better quality of supply for domestic use. A change in the proposed route to another point of connection with the present system was also suggested for the improvement of the service in this respect. The change, however, would leave some of the prospective consumers temporarily off the route. It appears that the city is amply able to provide the necessary funds for the extensions in question.

Held: The changes in the size of the pipes and the point of connection will be left to the parties directly involved. If they can come to an agreement there will be no opposition from this Commission. The city of Madison is ordered to proceed without unnecessary delay to extend its water mains substantially as indicated in the petition. Three months is deemed a sufficient time within which to comply with this order.

This proceeding arises by the filing with the Commission, on July 22, 1912, of a petition, signed by the Madison Realty Company and twenty-seven others, praying for an order requiring the city of Madison to lay and construct an extension of its system of water mains along and in certain streets of the city and to thereby furnish water service and fire protection to resi-

dents and property owners along the designated route of the extension.

The petition sets forth, among other things: that all of the petitioners are property owners and some are residents in the territory along the route of the desired extension; that they had previously petitioned the board of water commissioners of the city of Madison for the laying of the water mains as designated; that the water board, by but one less than a unanimous vote, recommended to the common council of the city that the petition be granted, and although the finance committee of the council, consisting of seven members to which the matter had been referred, reported unanimously in favor of the petition, the council failed to give the necessary three-fourths vote in favor of a resolution introduced by the finance committee to issue additional bonds to provide for the expense of this and other work, and that the petition to the city had not secured the desired result. The vote of the council on the resolution to issue bonds to provide funds for this and other extensions was thirteen for and six against. Only nineteen of the twenty councilmen were present and voting. The petition further shows that the desired extension is in a territory annexed by unanimous vote of the council on Jan. 12, 1912, and is in the direction in which the city has had a remarkably rapid growth during the last few years. It is further stated in the petition that the assessed value of the territory recently annexed is approximately \$337,000, on which the 1912 taxes, due in January, 1913, will amount to about \$5,897, and that the introduction of city water mains in the territory will permit and stimulate a further development thereof to an extent not possible otherwise, resulting in further increases in taxable property and city income.

The petition further shows that the Madison Realty Company, the signer having the largest holdings of property in the district referred to, has, agreeable to the rules of the water board governing the granting of petitions for main extensions, submitted to the water board a written guarantee that the annual income derived by the city from the extension shall be 5 per cent of the cost of the extension.

Petitioners allege that the extension is a desirable and necessary one for many reasons, among which are:

1. Necessity for fire protection in a large district.

2. Providing city water to the cemeteries, where large quantities are required.

3. Furnishing domestic service to a number of immediate takers.

4. Permitting a development of the territory which cannot occur without city water service.

5. Improving the quality of the water in the present western extremity of the system, where it has caused much and serious complaint, owing to the fact that the consumption in that district is insufficient to cause any considerable circulation in the mains, and the water was discolored, and offensive to taste and smell.

The petition further sets forth that at the time when the common council had under consideration the resolution to issue bonds to provide for this and other extensions, a petition signed by a large number of residents of the old Tenth ward, in which the city water was so objectionable, was presented to the council, praying for the laying or making of the extension above referred to, on the ground that it would materially improve the quality of the water furnished them, owing to the creation of a better circulation and flow of water through the mains in their district.

The respondent city of Madison, by its city attorney, William Ryan, at the instance of the mayor, John B. Heim, filed answer to the petition in the above entitled action, and, among other things, including facts set forth in the original petition to this Commission, alleges: That the territory recently annexed to the city, in which the extension above referred to is desired, is thinly populated; that on the best information obtainable there are not to exceed nine parties along the route of the main who desire to be supplied with water; and that, if the main be laid and these nine parties served therefrom, the city's resulting revenue would be about \$50 per year.

The answer further alleges that, by reason of the few takers along the extension, the water in the pipe line would become stale and unfit for drinking purposes, and that the city would be compelled to incur a large expense by wasting great quantities of water in frequent flushings of the main.

The answer asserts further that one of the petitioners, the Madison Realty Company, a corporation organized under the

laws of the state of Wisconsin for the purpose of buying and selling and dealing in real and personal property, is largely interested in property in the territory recently annexed to the city and along the route of the proposed extension and that the officers of the company have been chiefly instrumental in urging the extension of water mains in the new territory for the sole purpose of assisting the company in exploiting the territory and disposing of its holdings of real estate therein; also, that others among the petitioners do not reside in the territory to be served by the proposed extension and have no other interest in the territory than the ownership of vacant and unimproved property.

Respondent further argues that the guarantee given by the petitioner, the Madison Realty Company, to the water board is invalid and void as its execution was beyond the authority conferred in the company's articles of incorporation. Respondent further contends that the city has other and greater obligations for public improvements which are more urgently needed than the water main extension in question, and which, when cared for, will bring the city's bonded debt altogether too near the legal bond limit.

A hearing on the petition in the above entitled matter was held by the Commission, beginning on Tuesday, Aug. 20, and which was continued to the 22nd and completed on Aug. 23. Petitioners were represented by *J. A. Aylward*. The respondent was represented by City Attorney *William Ryan*.

In a second petition to the Commission, dated Aug. 15, 1912, and signed by the Madison Realty Company and twenty-seven others, which also appears in the case, referring to the previous petition, there appears the statement "and we respectfully represent that if such extension be granted that in the near future we shall avail ourselves of the use of such water."

The extension prayed for runs as follows: Commencing on University avenue at the intersection of Forest street and thence along University avenue to Grand avenue, along Grand avenue to Harper street, thence along Harper street to Highland avenue, along Highland avenue to Regent street and the cemeteries, along Regent street to Nelson street, along Nelson street to Rowley avenue, along Rowley avenue to Spooner street and along Spooner street to Regent street and the present system of mains.

The total length of the pipe line as above indicated is given as 8,646 feet, and the city engineer's estimate of its cost, including seventeen fire hydrants and their connections to the main, is about \$10,400. It was proposed that the main shall be laid with 8 inch pipe, and the estimate was made on that basis. The line would form a complete circuit, connecting with the present system at or near the present western extremities thereof, and at or near the locations from which the most serious complaints as to the quality of the city water in the existing mains have come.

Mr. George Rentschler, the superintendent of Forest Hill cemetery, which cemetery is under the control of a board of seven members appointed by the mayor, testified that the cemetery now has its own water supply, taken from wells within the grounds and distributed, after pumping by gasoline power to elevated tanks, through various lines of pipes to about thirty-five faucets and two toilets. About 1,200 of the 3,000 lots in this cemetery, which have been sold, are regularly cared for by him or by private parties. Large quantities of water, estimated by this witness at probably about 9,000 gallons daily, are required in the cemetery for about six months of the year. Witness stated that at times the cemetery supply is inadequate; that the cost of operation is large and that the water from the cemetery well is objectionable to many of the visitors for drinking purposes. The superintendent further stated that some of the present water supply equipment of the cemetery is in bad condition and will require early renewal unless city water is made available. This witness also operates a large floral business and has his residence and several extensive greenhouses adjacent to the cemeteries. He estimated that he has about one acre of ground under glass, and uses at least 6,000 gallons of water daily in his greenhouses during seven months, and half that amount during the remainder of the year. His own supply is taken from a private well and pumped by gasoline power to an elevated tank on his premises. This also is his residence supply. Witness testified that the two smaller cemeteries adjacent to Forest Hill have private supplies, taken from wells, and pumped by gasoline power in one case and by hand in the other. Witness thought the city water service would be cheaper for him and for all the cemeteries than maintenance and opera-

tion of private supplies, and that all the above water business could be counted upon in estimating the revenue to be gained by making the extension prayed for in this case.

It was shown by the testimony of the former city engineer, who made computations based on the estimates by Mr. Rentschler as to the average amounts of water required in his floral business and in each of the cemeteries, that the additional water department income to be derived by making the extension in question, including the revenue from 30 private consumers along the route, was likely to be between \$650 and \$700 annually. The additional income required by the rules of the board of water commissioners of the city of Madison in reference to the making of extensions applied for, namely, 5 per cent of the cost of the extension, would be about \$520. The following is one of the rules of the water board relating to the making of main extensions requested by parties desiring service:

“Section 9. (p. 53—W. D. Report 1907).

“When the prospective annual income from same in the judgment of the board will justify the expenditure, which income shall not be less than 5 per cent upon the cost of the extension.”

In accordance with one of the conditions precedent to the granting of extensions, it appears that the water board has customarily required that the fixed minimum income of 5 per cent of the cost of the extension shall be guaranteed to the city.

While it may be that the estimates of water consumption and additional revenue resulting from the making of the extension may have been too liberal, and the estimators too optimistic, it appears that the original and supplementary guarantees given by one of the petitioners, the Madison Realty Company, to the city were satisfactory to the water board. Mr. A. T. Rogers, an officer of that company, testified that if the guarantee already furnished is not a valid and binding obligation, the same petitioner stands ready to furnish any other form of guarantee prescribed by the city or by this Commission. It therefore appears that reasonable assurance has been given to the city through its water department that the income required under its rules in such cases will be forthcoming.

It was shown by the testimony of the present city engineer that the estimated daily consumption of new consumers along the

proposed extension was only about one-half the volume of water contained at any time by the pipe line, or, in other words, that the capacity of the pipe and the estimated consumption therefrom were such that about two days would be required for the water to pass through the line. This witness also expressed an opinion that the extension, as planned, would not materially improve the now satisfactory service in the University Heights section. It was his opinion that the extension could be so modified as to improve the circulation and quality of water in that district. In addition to the testimony introduced concerning the effect of the additional consumption along the route of the proposed Highland Park extension upon the present poor circulation and quality of water in the University Heights district, the Commission has the following report from its engineering staff, discussing this and related matters:

“The territory which will be served by the proposed Highland Park extension is as yet but thinly settled. The construction of the extension will apparently result, however, in the immediate acquirement of at least two large consumers and a number of smaller ones. Their combined consumption will, during several months of the year, amount to probably 20,000 gallons or more per day, assuming Mr. Rentschler's estimates of the quantities used in his greenhouses and the cemeteries are approximately correct. It appears reasonable to suppose that nearly all of that amount would be used during about ten out of twenty-four hours of the day. It may also be reasonably supposed that one-half of the amount will be carried by the northerly and one-half by the southerly side of the pipe circuit formed by the extension as now planned. This would mean that during the summer months, when the above quantities were required, each line would carry only about 1,000 gallons per hour. This would be approximately the maximum rate of consumption from the line except in case of a simultaneous fire demand. The possible fire demand in a territory of this kind cannot reasonably be assumed to be large, as the buildings are of moderate size and widely scattered. No fire in such territory seems likely to call for the use of more than 500 gallons per minute or 30,000 gallons per hour, if as much.

“The maximum rate of flow occasioned by private service, 1,000 gallons per hour in each line, amounts to the low average velocity of 6.3 feet per minute in the 8 inch pipe and involves but a negligible pressure loss from friction. The two lines of 8 inch pipe would carry the combined maximum fire and private demands (16,000 gallons per hour in each) at a rate of flow or velocity of 102 feet per minute or 1.7 feet per second. The

loss of pressure within the proposed mains under such extreme demand conditions would be quite low.

“The above computations were made to show clearly that the entire capacity of the proposed 8 inch pipe circuit is not needed at the outset; nor can it be needed until this new territory and more territory beyond is much better developed. It was probably not believed by those who proposed that 8 inch pipe be used that the capacity of such size is or soon will be needed. The territory is generally expected to show a rapid development. There is no question that more capacity than that of a 6" pipe circuit will be needed in that territory in the near future, but when it is needed it will be provided by parallel mains laid along other streets. These future parallel mains will, without doubt, be cross-connected at various places to the extension now proposed and made to reinforce it. The first extension into a new territory need not be the main artery of the future network of mains which will be developed along with the growth of population in that territory. It is of doubtful wisdom to use larger than 6" pipe in making the proposed Highland Park extension.

“The interest of good domestic water service requires a moderate rate of flow in the mains. A very low velocity would result if 8" pipe be used in this case. The city engineer testified that the relation between the volume of water contained within the proposed extension and the daily consumption therefrom was such that about two days would be required for the water to pass through the line. During a good portion of each year the consumption from the line is apparently unlikely to exceed one-half that considered above, resulting in a three or four days' supply being contained by the proposed pipe line of 8" pipe used.

“The cross-sectional area of, or the volume of water contained by an 8" pipe line is about 78 per cent more than, or nearly double, that of a 6" pipe. It is therefore obvious that a 6" pipe extension for Highland Park is much more desirable than an 8" from the standpoint of good domestic service.

“Another good reason for substituting 6" pipe for the proposed 8", which, however, is not regarded as of as much importance as that discussed above, is the saving in cost. The line, if laid with 6" pipe, should cost about \$2,000 less than if laid as proposed. This saving in cost will reduce the required income of 5 per cent by about \$100 per year.

“There is the further advantage of a 6" over an 8" pipe that the probability of required flushing and wasting of water from the extension will be very largely reduced by using the smaller pipe. This indicates a probable saving in operating expense.

“The question of proper pipe sizes in various portions of a system of water mains is one of much importance and should be given careful consideration. The city had a considerable amount of 8" pipe laid during the past few years in Bowen's Addition, Wingra Park and University Heights, all in the western end of the city. The supply for these and the other mains of those subdivisions is carried through a large territory served entirely by 4" and 6" pipe, principally the smaller of those sizes.

“There is a great need of a large feeder main in the older western portion of the city, as was demonstrated by the test made in 1910 by the Commission's engineering staff. Such new supply main should be carried on beyond what appears to be the present proposed destination of the 12" main on Park and Johnson streets, to which reference was made in the proceedings. It should be carried on to the eastern ends of the existing 8" mains in the extreme western subdivisions. The recent westward growth of the city and its system of water mains has undoubtedly increased the urgent need, which was shown to have existed two years ago, for a reinforcing main.

“It is quite evident that the city engineer was correct in his testimony concerning the probable effect of the additional consumption along the proposed Highland Park extension upon the present unsatisfactory situation in the University Heights district. The extension, as already planned, would doubtless permit most, if not all, of the supply for the new territory to bypass University Heights and not materially affect the circulation of water therein. The proposed extension to Highland Park, if laid, should be so connected to the mains in the westerly portion of University Heights as to draw its supply through, and not around, the latter subdivision.

“It appears by testimony taken in this case that the present and former city engineer have, during their respective terms as engineers for the water board, received numerous and serious complaints from residents in the University Heights district as to the unsatisfactory quality of the water which they received from the city mains. To improve the quality of water in that district the mains in that section were frequently flushed by opening fire hydrants and wasting large quantities of water. The effect of each flushing was but temporary. It is believed that if the supply for Highland Park is drawn through University Heights, the necessity for flushing mains in that territory will be largely reduced if not entirely eliminated.

“The question of size of pipe for the Highland Park extension is of but little importance from the standpoint of improving the service in the district from which so much complaint has been made. From the same standpoint the manner of connecting the extension to the existing system is of great importance.

The connections most effective in improving that service would probably be at the intersection of Forest street and Chamberlain avenue, and the intersection of Prospect and Chadbourne avenues, both sides of the proposed circuit running westward from those points one block to Allen street before turning north and south to reach the route already planned. The principal objection to this change probably is that the extension would then fail to reach several immediate takers along the proposed route. The map, 'Exhibit 12,' shows nine prospective patrons along University avenue in the one block between Forest and Allen streets and three along Rowley street between Spooner and Allen. These twelve prospective patrons are located along sections of the proposed extension which, in the interest of improving service in University Heights, should be temporarily omitted altogether or reduced in size. One of the twelve is, however, already served by a 4" dead ended main extending along Prospect avenue from Regent to Rowley streets. The Regent street main is reported to be an 8" line and as this parallels the proposed Rowley street main, only one short block distant from it, there appears to be no good reason for using 8" pipe on Rowley street. The section on Rowley street between Spooner and Allen streets is a proper location for 4" pipe.

"If the northerly side of the proposed pipe circuit be laid as heretofore planned, becoming an extension of the existing 8" main on University avenue now terminating at Forest street, it appears improbable that such portion of the new mains could materially affect the circulation of water in the University Heights district unless the doubtfully expedient method of having a partially closed gate valve in the existing main east of Forest street be adopted. It is realized that such method is objectionable from the standpoint of the best fire service along the Highland Park extension. The effect of the adoption of such method is to prevent water from flowing to the new territory by the most direct route, and causing it to flow through University Heights, thereby involving a somewhat increased loss of pressure. Fire service would not be affected anywhere except on the Highland Park extension. In case of a fire in that territory the gate could readily be opened wide. If such method should be adopted it should be with the full knowledge of various water works officials and employes and the fire department. It is not expected that the method would be approved by the fire department, but if adopted it should be done with that department's knowledge, for the sake of increasing the number of those who could see to it that the gate was opened promptly upon receipt of a fire alarm from territory served by the proposed extension. The adoption of the above method would call for special precautions against delay in opening, or failure to open, the valve wide in case such an emergency arose."

The above report by the Commission's engineering staff indicates two feasible methods of modifying the proposed extension so as to improve the service in the University Heights district. Each method appears to be somewhat objectionable on different grounds, but the proposed plan of the extension is also objectionable from another important standpoint. The various engineers have agreed that it would fail, if so laid, to accomplish one of the desired and important objects to be attained. Evidently the service in a certain district is now seriously defective. This is a district in which the service can doubtless be materially improved by some modifications of the extension as heretofore proposed. Whatever improvement of such service can be made by the proposed extension or a modification thereof should be obtained.

The respondent in this proceeding attempted to show that the city has too many other important and costly public improvements to provide for to justify the increase of the public debt of the city to the extent necessary for meeting the expense of this extension into the new subdivision known as Highland Park.

It was shown that the bonded indebtedness of the city on June 15, 1912, including the \$60,000 issue provided by ordinance of June 14, 1912, for school building purposes, and after deducting a sinking fund of \$166,400, amounted to \$988,600. It was further shown that the assessed valuation of the city for the year 1912 was likely to exceed that of the year 1911 by about \$5,000,000, making a total for this year of about \$37,000,000. The legal debt limit (5 per cent) on this sum is \$1,850,000, which exceeds the bonded indebtedness, less sinking fund, by \$861,400.

Examination of the city's budget for 1912 shows that no fund has been provided out of which the cost of water works extensions and improvements can be met, so that an additional bond issue might seem to be necessary for improvements and extensions of this kind. The bookkeeper of the water department testified that it has been, and still is to some extent, the practice for the water board to use, in payment of current construction expenses, any water department funds on hand, and to make adjustments with the city council or finance committee thereof at the end of the year, receiving credit for amounts so used in

lieu of direct advance appropriations by the council for construction purposes.

The city's budget for 1912 shows an estimated gross city income from the water works amounting to \$75,000 and an appropriation of \$40,000 to the water board for operating expenses, with no appropriation to the board for construction purposes. It has been customary for the city to group expenditures for water works extensions and improvements made from time to time and cover the total with one bond issue, rather than to make a separate bond issue for each piece of new work done. It appears that the general funds or the earnings of the water department have frequently been used temporarily to meet construction expenses as they came due and that the general funds (which include the net earnings of the water works) have been restored by the proceeds from the sales of bond issues.

In the case of the Highland Park extension now prayed for, the estimated cost was included in a proposed bond issue of \$40,000, which covered the cost of a certain extension of a 12" reinforcing main on portions of Johnson and Park streets, amounting to about \$15,000, also some minor extensions which had been authorized by the council, the cost of which latter minor extensions was estimated at \$8,300. These latter extensions are completed, although no bond issue has yet been provided to meet their cost, part of which has already been paid out of the general funds, or the earnings of the water department which are charged to such funds.

It was shown that the average annual cost of water main extensions and water plant improvements made by the city during the last six years was approximately \$43,000, and that the only water extensions heretofore authorized by the council for this year were estimated to cost \$8,300. The Park and Johnson streets extension of the 12" main and the Highland Park extension prayed for in the petition underlying these proceedings have apparently not been ordered by the city council, although that body acted upon a resolution to provide for their cost. The city engineer testified that in order to keep pace with the growth of the city and the demand for city water the city might be reasonably expected to spend on its water works, during this year, as much as the average of its annual expenditures during the last six years. It was shown by the testimony of the same witness that the various extensions mentioned above, in-

cluding the 12" main and the desired Highland Park extension, were estimated to cost less than the estimated net earnings of the water department for this year, or less than \$35,000. Consistency and avoidance of discrimination would seem to require that the city's grant of the original petition for the Highland Park extension be not withheld on the ground of lack of funds, nor can the city refuse the petition on the ground of legal inability to issue additional bonds. It appears that the city is amply able to provide the necessary funds for the extension in question.

Respondent in this case contended that city water service was not generally in demand until a sewer system was available, and that some of the parties living along the proposed route of the Highland Park extension had stated that they would not avail themselves of the city water supply from such extension until the city sewer system was also extended to their premises. It appears that respondent assumed the position that the sewer system should precede the public water supply, but the usual order of these improvements is the reverse. Testimony was introduced to show that in only a few exceptional cases has the Madison sewer system preceded the extension of water mains in the various parts of the city. The water works plant itself was built before the city had any sewer system whatever.

Testimony was also introduced to show that no new territory had ever been materially developed and settled without the extension of city water service into it. Water supplied by some means or other is unquestionably an absolute necessity to human life. City water service is generally much more satisfactory and probably also generally less expensive than private individual supplies. Surely the availability of city water service has a decided influence on the development of new subdivisions on the borders of a city.

There appears ample reason to believe that the construction of the proposed Highland Park extension will materially increase the rate of development of the newly annexed portion of the city; such development is undoubtedly for the best interests of the city.

There may be those who would not concede that the extension is a desirable and proper one on the ground of any one of the reasons advanced for its construction, but there can be no rea-

sonable doubt that its various advantages, taken together, amply justify the granting of the petition.

From the evidence and the facts we have reached the conclusion that the extension of the water mains substantially as prayed for in the petition herein is needed; that it is for the best interest of the city that it should be made, and that it should be so constructed at this time. It further appears to us that its construction is in line with the lawful rules and practices of the city in such matters and that there are no valid reasons of a financial nature against the construction of the same. It also seems to us that 6" pipes would under the circumstances be more suitable for this extension than the proposed 8" pipes; and that through slight alterations in the plans, such as that involved in changing the connection from the intersection of University avenue and Forest street to some point in the neighborhood of Prospect or Chamberlain street, this extension might also be made to materially improve the situation mentioned on University Heights. These changes in the size of the pipes and in the point of connection, however, will not be provided for in the order herein, but will be left to the parties directly involved in these proceedings. If these matters can be agreed upon between the parties, there will be no opposition thereto from this Commission.

IT IS THEREFORE ORDERED, That the city of Madison, without unnecessary delay, proceed to extend its water mains substantially as indicated in the petition herein and as set forth above in this decision.

Three months from the date hereof is deemed sufficient time in which to comply with this order.

TORREY CEDAR COMPANY

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted June 11, 1912. Decided Sep. 11, 1912.

Complaint was made that the rate exacted on four shipments of posts and poles from Galloway to Clintonville, Wis., for concentration and reshipment out of Clintonville via respondent's line are excessive. The rate exacted was $5\frac{1}{2}$ cts. per cwt. and petition was made for a rate of 4 cts. per cwt. and for a refund of excess charges. The basis for the rate complained of and for concentration rates in general on posts and poles via the C. & N. W. is 3 cts. per cwt. flat for concentration, plus the difference, if any, between the rates to Chicago, Ill., direct from shipping point and concentration point, and for branch line points, as in the present case, 1 ct. per cwt. over main line rates. In order to maintain a flat 3 ct. rate for concentration it is necessary to take into account differences between the rate from original shipping point and concentrating point to the final destination, and as the final destination is not known at the time the concentration shipment is made, it is necessary to either keep a transit account at concentration points and in the general office or fix an arbitrary amount to be added in order to offset these differences. It appears that up to within a few years ago the transit account method was followed by the respondent but, owing to some difficulty in keeping this record, the present method was adopted. No good reason appears, however, why Chicago rates were taken as a basis. It would seem that insofar as Wisconsin traffic is concerned an arbitrary rate of 1 ct. would fully provide for all differences properly added to the flat concentration rate. The fixing of the branch line rates at 1 ct. over main line rates has not been satisfactorily accounted for by respondent. It is quite probable that there is some additional expense in connection with branch traffic but no more so in handling posts and poles than in handling other traffic generally, nor is this expense apt to vary greatly from the expense of main line traffic that passes a division or terminal point where it is switched and rearranged in another train. The attention of the respondent has been called to irregularities in connection with these concentration rates and it has been suggested that the matter be investigated and the proposed changes be submitted to the Commission. Inasmuch as the petition in this case involves the Galloway-Clintonville rate only, the order is confined to that rate.

Held: The rate exacted is unreasonable and it is ordered that the C. & N. W. Ry. Co. discontinue its present charge upon shipments of posts and poles between the points in question and charge in lieu thereof the rate of 4 cts. per cwt. It is recom-

mended that the respondent revise the concentration rates on posts and poles in line with the rates ordered in the present case to avoid further controversies. Refund is ordered.

The petition in this case is for refund of charges in excess of 4 cts. per cwt. on four carload shipments of posts and poles from Galloway to Clintonville for concentration and reshipment out of Clintonville via respondent's line. The shipments on which such refund is asked are as follows:

Date of shipment.	Car initials.	Car numbers.	Weight charged.	Rate.	Charges paid.
July 27, 1911.....	C&NW	64287	Double load	5½ cts.	\$41.44
	C&NW	62431			
July 29, 1911.....	C&NW	36405	40.200	5½ "	22.11
Aug. 1, 1911.....	C&NW	37311	34.000	5½ "	18.70
Aug. 4, 1911.....	C&NW	61611	30.000	5½ "	16.50
Total			179,550	.....	\$98.75

The following statement of shipments out of Clintonville, rates applicable thereto and at other points, and remarks relative thereto, accompanied the petition.

The stock shipped to Clintonville from Galloway was re-shipped to the following stations, as near as we can determine:

	Chi- cago.	Green Bay.	Clin- ton- ville.	Elm- hurst.	Wit- ten- berg.	Eland.	Gallo- way.	Weights.
Ledyard, Ia		\$0.15	\$0.15	\$0.15	\$0.15	\$0.15	\$0.15	29,700
Menasha, Wis .....		.06	.06½	.08	.07	.08	.08	49,100
Gibson, Ill .....		.16½	.16½	.16½	.16½	.16½	.16½	30,000
Lake Geneva, Wis	\$0.05	.10½	.11	.11	.11	.11	.11	46,400
Lida, Ia .....		.18	.18½	.19	.19	.19	.19	28,200

The rate from Rosholt, Galloway and Elderon to Wittenberg is 3½ cts. Rosholt, Galloway and Elderon take the same group rate, therefore Galloway should not have a higher rate into Clintonville than Elderon. Allowing 3 cts. for stopping car and 1 ct. to cover the average reduction of rate by shipping into Clintonville, 4 cts. will be a reasonable rate from Rosholt, Galloway and Elderon to Clintonville.

Rates into Clintonville should be lower than Green Bay, for the reason that Clintonville rates are higher than Green Bay on shipments moving out. And further, the stock shipped into

Clintonville is odds and ends, pick-up of yard to vacate landing, while Green Bay shipments are woods run and sorted sizes.

The respondent, in its answer to the petition, denies that the rate complained of is excessive, unreasonable or unjust and denies that a rate of 4 cts. per cwt. would be reasonable, as alleged in the petition.

The matter came on for hearing June 11, 1912. *H. W. Anthes* appeared for petitioner and *H. C. Cheyney* appeared for respondent.

In explanation of the situation presented in this case, the representative of the railway company said that the rates on posts and poles for concentration and reshipment from and to main line points, where such rates are published, were established on the basis of 3 cts. per cwt. plus the difference, if there is a difference, between the rate from shipping and concentration points to Chicago, Ill., and that the basis for the concentration rates to apply on shipments from branch line points is, or ought to be, 1 ct. per cwt. higher than concentration rates between main line points. He also stated that the reason for the difference between main line and branch line concentration rates is that there is an additional expense connected with the latter traffic, but that he did not know that such reason should be particularly insisted upon; that this condition had been in existence and was followed in making the concentration rate complained of; and that if it was deemed essential that rates on branch lines should not be higher than main line rates, he thought that a $4\frac{1}{2}$ ct. rate should be substituted for the present $5\frac{1}{2}$ ct. rate. He further stated that concentration rates were equalized on the basis of Chicago rates, but that petitioner desired to have them so established that all would be the same to all points.

On the part of the respondent the testimony was to the effect that prior to 1907 the rate on posts and poles for concentration and reshipment was 2 cts. per cwt. over the rate from original point of shipment to final destination, that the expense of loading and unloading in connection with concentration rates almost equaled the value of the goods, that shipments out from concentration point did not always go to points from which the rate was $1\frac{1}{2}$ cts. lower than the rate from original shipping point, that in the case of the shipments complained of the average rate from Clintonville to destination was less than $\frac{1}{2}$ ct. per

cwt. lower than the rate from Galloway to the same destinations, and that the concentration rate from Galloway to Clintonville was the same as to Green Bay, while rates out from Green Bay were lower than rates out from Clintonville. A letter was introduced in evidence relating to rates out of Green Bay and other points to Dayton, Ohio, on which some other rates were entered in pencil, which read as follows:

“Milwaukee, Wis., May 28th, 1912.

“Torrey Cedar Co.,
“Clintonville, Wis.

“Gentlemen:—

“Referring to your favor of the 25th inst. requesting rate on cedar poles, from Green Bay, Manitowoc and Milwaukee, Wis., to Dayton, Ohio.

“I beg to advise you that the rate from Green Bay is 16 cts. and the rate from Manitowoc and Milwaukee is 13½ cts.

“In my estimation Green Bay would be a good place to make the concentrating yard, as you have advantage of shipping via two different roads, either via Menominee, Manitowoc or Milwaukee gate-ways and the mills in that vicinity have a great many favorable rates and can place their lumber in eastern territory much cheaper than mills at interior points.

“If you have any business to eastern territory, I wish you would kindly remember our road in the future, as we are in a position to offer elegant service and keep you advised as to movement of each car and delivery to our eastern connections.

“Yours very truly,

(Signed) “Fred E. Barkow,

“Com'l Agt. Ann Arbor R. R. Co.”

Local:

Green Bay to Dayton, 16½ cts.	Elderon, Galloway & Rosholt to Clintonville to Dayton, 17½ cts.	Green Bay, 8 cts.; Manitowoc, 8½ cts.; Milwaukee, 10 cts.
Eland to Dayton, 19 cts.		Galloway to Clintonville, 8 cts.
Wausau to Dayton, 20 cts.		Rosholt to Clintonville, 8½ cts.

Concentrating:

Elderon, Galloway & Rosholt to Green Bay 5½ cts.

It appears that shipments of posts and poles from concentrating point, Clintonville, are mostly to points in southern Wisconsin, Illinois outside of Chicago, Indiana, Missouri, Oklahoma, Texas, Arkansas, southern Minnesota, South Dakota, and Iowa, and that shipments out of Green Bay are destined to the same points, and also to points in Michigan, Ohio, Pennsylvania, New York, and eastern Canada.

The basis on which the rate complained of, and on which concentration rates on posts and poles via the Chicago & North Western Railway in general were made for main line points, is 3 cts. per cwt. flat for concentration, plus the difference, if any, between the rates to Chicago, Ill., direct from original shipping point and concentration point, and for branch line points 1 ct. per cwt. over main line rates.

An examination of the tariff in which concentration rates are named, C. & N. W. G. F. D. No. 11590-B, shows that the basis mentioned has been quite generally followed. There are, however, some exceptions. For instance, the rate from Elderon to Clintonville is $4\frac{1}{2}$ cts. Elderon is on a branch line and has a 10 ct. rate to Chicago while the rate from Clintonville to Chicago is $8\frac{1}{2}$ cts. According to the established basis the rate from Elderon to Clintonville should be 3 cts. for concentration, plus the difference in rates to Chicago from Elderon and Clintonville, $1\frac{1}{2}$ cts., plus 1 ct. for branch line, making $5\frac{1}{2}$ cts. The concentration rate from Polar to Clintonville is another exception. Although Polar is on a branch line, it has the same rate as Elderon, $4\frac{1}{2}$ cts., while the rate from Polar to Chicago is the same as from Elderon to Chicago, namely 10 cts. There is nothing in the tariff or in connection with the case under consideration that shows why these exceptions to the general basis were established.

It appears that as to the concentration rate complained of, and practically all other concentration rates on posts and poles from and to points on the respondent's line, which are higher than 3 cts. per cwt., the excess over 3 cts. is based on the direct rates on posts and poles to Chicago, Ill., with an additional 1 ct. when shipped from points on branch lines. From the evidence at hand there seems to be no reason why Chicago rates only should be taken into consideration. Neither is there any good reason advanced for the addition of 1 ct. to branch line rates. The Commission made up a table of rates applying on posts and poles from the various concentrating points, and from Galloway to eighty-one stations on respondent's line in this state. The average differences between the Galloway rate and the Clintonville rate to such stations is 0.65 ct. The difference between the rates from the two points named to Chicago is $1\frac{1}{2}$ cts. There is, therefore, an advantage of nearly 1 ct. per cwt. to the respondent in taking Chicago as the basing

point for shipments destined to points in Wisconsin. Like conditions prevail in connection with many other concentration rates on posts and poles between points on the respondent's line. Under date of July 16, 1912, the Commission addressed a letter to respondent's assistant general freight agent, calling attention to the irregularities in connection with these rates and suggesting that the matter be investigated and proposed changes submitted to the Commission. Up to the present time no reply to this letter has been received and no action in the premises has been taken by the respondent insofar as the Commission is informed. Inasmuch as the petition in this case involves the Galloway-Clintonville rate only, the order is confined to that rate.

The rate on posts and poles for concentration, established by respondent, where such rates are in force, is 3 cts. per cwt. in all cases where the original shipping point and the concentration point are on the main line and have the same rate on lumber to Chicago, Ill. This, in fact, establishes a flat 3 ct. rate for concentration. In order to retain this 3 ct. rate it is necessary to take into account differences between the rate from original shipping point and concentrating point to the final destination or destinations of shipment. For instance, if the flat 3 ct. rate applied from Galloway to Clintonville and final destination of shipments was Chicago, the through rate, Galloway to Chicago, would be $11\frac{1}{2}$ cts. or but $11\frac{1}{2}$ cts. over the direct rate, Galloway to Chicago, thus reducing the charge for concentration to $11\frac{1}{2}$ cts. per cwt. And as the final destination of shipments of posts and poles for concentration is not known at the time concentration shipment is made, it is necessary to either keep a transit account at concentration points and in the general office or fix an arbitrary amount to be added in order to offset these differences. It seems that up to within a few years ago the transit account method was followed by the respondent, but owing to some difficulty in keeping this record the present method was adopted. No good reason appears, however, why Chicago rates were taken as a basis. It would seem that insofar as Wisconsin traffic is concerned, an arbitrary rate of 1 ct. would fully provide for all differences which should be properly added to the flat concentration rate.

The fixing of the branch line point rates at 1 ct. over main line rates has not been satisfactorily accounted for by the re-

spondent. In fact, it was practically admitted by it that this was rather an unusual practice and that it could not very well be sustained. No such method appears to have been followed in connection with other traffic. It is quite probable that there is some additional expense in connection with branch line traffic, but no more so in handling posts and poles than in handling other carload traffic generally, nor is this expense apt to vary greatly from the expense of main line traffic that passes a division or terminal point where it is switched and rearranged in another train.

From the foregoing it appears that the rate asked for in the petition, 4 cts. per cwt., would be a reasonable rate on posts and poles for concentration and reshipment from Galloway to Clintonville, and consequently that the excessive charges complained of, \$16.93, per the statement given above, should be refunded to the petitioner. It is our judgment and we therefore recommend that a revisal of concentration rates on posts and poles in line with rates ordered be made to avoid further controversies.

For the reasons stated, we find and determine that the rate of $5\frac{1}{2}$ cts. per cwt. charged the petitioner by the respondent for the four carloads of posts and poles shipped from Galloway to Clintonville is unusual and exorbitant, and that a reasonable rate for such shipments is 4 cts. per cwt.

NOW, THEREFORE, IT IS ORDERED, That the Chicago & North Western Railway Company be and the same is hereby ordered and directed to refund to the petitioner the sum of \$16.93.

IT IS FURTHER ORDERED, That the Chicago & North Western Railway Company be and the same is hereby ordered to discontinue its charge of $5\frac{1}{2}$ cts. per cwt. upon shipments of posts and poles between the points mentioned in the petition herein, and charge in lieu of such rate the rate of 4 cts. per cwt.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF
THE RULES AND REGULATIONS OF THE BERLIN PUBLIC
SERVICE COMPANY RELATING TO THE USE OF THERMO-
STATS.

Submitted April 17, 1912. Decided Sep. 12, 1912.

Complaint was made that the rule of the Berlin Public Service Co. relating to the installation of thermostats is unreasonable. Under the rule in question the company reserves the right to furnish and install all thermostats connected to its heating system at or as near cost to the consumer as they can be installed, and to adjust and maintain the same at all times, other than breakage by consumers or worn out parts, for which supplies and repairs are made by the company at cost to the consumer. The rule was made effective during a heating season and its enforcement was resisted by a number of users whose contracts had been made previous to the establishment of the rule. An injunctive order was obtained in the circuit court of Green Lake county restraining the company from discontinuing services to a consumer because of refusal to comply with the rule. The effect of the rule upon any contract existing at the time of its establishment will be determined in that action. No opinion of the Commission upon this question is necessary in determining the reasonableness of the rule. It was contended that the thermostat was a measuring device and hence must be furnished by the utility unless exempted therefrom by the Commission. From the function of the thermostat it is very evident that it is not a meter, but merely a regulating device, as it gives no indication of the quantity of the flow which it controls. The rule requiring thermostats to be placed upon all installations is general among heating companies in this state and elsewhere, and as the company furnishes the thermostats and places them without profit, there can be no just criticism of this feature of the rule. Some of the company's consumers have residences on an elevation and a greater pressure is required to furnish such consumers. The consumers situated on lower levels not having thermostats to regulate the heating of their buildings would open windows when the temperature became too high, and as a result it was impossible to supply those on the higher elevations. To make the service adequate to all patrons, the rule in question was established.

Held: While it is the duty of the utility to furnish service to the public desiring the same, it cannot be compelled to serve those who are unwilling to provide proper installations and appliances on their premises. No one can insist upon service if his installation is such as to impair the service to others if it were granted to him. The obligation of the utility in the premises is not absolute but relative.

Thermostats are essential to efficient and economic heating service. It is ordered that the rule of the Berlin Public Service Company relating to the installation of thermostats be and the same hereby is sustained as a reasonable regulation and as lawfully in effect.

The investigation in the above entitled matter was based upon a complaint filed by James McNelly against the Berlin Public Service Company, in which he set forth that on or about Sep. 1, 1911, he entered into a contract with the company to heat his residence in the city of Berlin by hot water pumped from the company's plant and to continue such heating service until May 15, 1912. The consideration for such service was \$90 per year, payable in installments on the first days of October, November, December, January, February, March, April and May. At the time of making the contract there was no thermostat installed on complainant's heating appliances in his residence. Some time in January, 1912, the company made a new rule applying to the consumers and users of heat served by it, which required that the users procure of respondent and have installed by respondent a thermostat upon the heating system in their buildings. The complainant, believing such rule to be unreasonable, refused to procure and have installed any thermostat, and in consequence, on Feb. 5, 1912, and after he had paid \$63 of the installments due for heat, the company discontinued the service.

The matter came on for hearing on April 17, 1912. The complainant, Mr. McNelly, was represented by *Perry Niskern*, his attorney, and the Berlin Public Service Company by *McCabe & Dallman* and *John J. Wood, Jr.*, its attorneys.

It appears that a large portion of the heat furnished by the Berlin Public Service Company is from exhaust steam of the engines driving electrical generators. During the heating season exhaust steam from these engines is passed through heaters which transmit the heat of the steam to the water which is circulated in the heating system. This is not entirely a by-product, as the engines are run at a lower efficiency by exhausting into the heater instead of into a condenser. The circulation in the system is effected by means of two steam driven pumps which also exhaust into the heater. However, live steam may be turned into the heater when the heat of the exhaust steam is not sufficient. The heating water also circulates through a boiler which can be fired during extremely cold weather when additional heat is required. The temperature of the outgoing

water is varied to meet the out door temperature requirements, flowing approximately from 160 degrees F. when the air is at 30 degrees F. above zero, to 200 degrees F. when the air is 30 degrees F. below zero. The pressure of the water leaving the heater is varied by changing the feed pump. It is desirable that but one of the pumps be used so that the second may be held in reserve.

The distribution system consists of two mains properly installed; one for supplying and the other for returning the water to the station after the water has given up a portion of its heat into the consumer's radiators. The general plan of a consumer's installation is as follows: A pipe, usually $1\frac{1}{4}$ inch, runs from the supply main into the basement of the building where it makes a loop and discharges into the return main in the street. A radiator is connected to the basement loop by removing a piece from the loop and connecting the radiator in its place by means of a vertical pipe and fittings. This radiator may thus be in the basement or near the floor above. With the arrangement just described the entire flow of the loop passes through the radiator when its valve is open. It will be noted that if the radiator valve is closed the circulation in the loop and through any other radiator connected in the same manner as the one described will be prevented. To avoid this defect a section of small pipe replaces the piece of pipe taken out of the loop between the vertical pipes leading to and returning from the radiator, making a by-pass around the radiator. Thus when the radiator valve is closed, that particular radiator has no circulation, but the circulation in the loop and through another radiator having open valves is permitted through the small by-pass pipes. All radiator valves may be closed and yet there will be a restricted circulation in the loop through the by-pass pipes. The rate of circulation of water in the installation and thus the temperature of the apartments is controlled by a valve in the return side of the loop beyond the last radiator. When an automatic regulation of the temperature is desired, this valve is actuated by a mechanism controlled by the power of a device known as the thermostat, which responds to changes of the temperature of the place in which it is located by variations in the relative position of some of its elements. In private residences only one thermostat is usually used, which should be placed in a location of average temperature. In public buildings it is cus-

tomary to have a thermostat in each room, which controls the radiators in that room only.

The city of Berlin is so situated that some of the company's consumers have their residences on an elevation from 65 to 70 feet above the plant. In order to serve such consumers adequately it is necessary to furnish them with a pressure of 65 lbs. It was discovered that in cold weather such consumers were not properly supplied with heat. Those consumers situated on lower levels having no thermostats to regulate the heating of their buildings would open windows when the temperature became too high, and as a result it was impossible to supply those on the higher elevations with sufficient heat. To obviate this waste of heat, and to render the service adequate to all patrons, the company established a rule requiring all installations to be provided with proper thermostats. During the last winter about twenty-nine thermostats had been installed. As a result the efficiency of the system was greatly enhanced, and should all the installations be provided with thermostats, it would result in a saving to the company as well as to the consumers. The rule which the company filed with the Commission and published pursuant to statute is as follows: "THERMOSTATS.—The company reserves the right to furnish and install all thermostats connected to its heating system at or as near cost to the consumer as they can be installed, and to adjust and maintain same at all times, other than breakage by consumers or worn out parts, which supplies and repairs shall be made by the company at cost to the consumer." This rule was made effective during a heating season and the company attempted to enforce it in the case of Mr. McNelly. The latter resisted the enforcement of the rule, but to no effect, and one, John S. Wallbridge, a consumer of the respondent company, obtained an injunctive order in the circuit court of Green Lake county, restraining the company from discontinuing service to him because of his refusal to comply with the rule. Whatever rights the users who have not as yet complied with the rule had by virtue of the contracts entered into by them with the Berlin Public Service Company will be determined in such action. No opinion of the Commission upon such question is necessary to a solution of the question before us. Here we are concerned with the reasonableness of the rule established and not with its effect upon any contract existing at the time of its establishment.

It was contended on the part of the complainant that the company could not impose upon consumers the duty of providing thermostats, as such devices were measuring instruments, and under the statute must be furnished by the utility unless exempted therefrom by the Commission. Sec. 1797m—90 exempts the public utility from furnishing any part of the appliances which are situated in and upon the premises of any consumer or user except telephone station equipment upon the subscriber's premises and, unless otherwise ordered by the Commission, meters and appliances for the measurement of any product or service.

From the function of the thermostat it is very evident that it is not a meter, as it gives no indication of the quantity of the flow which it controls, being merely a regulating device. It is frequently attached to private installations of various kinds, as for example: in residences with heating plants of steam, water, or air heat, green-house heaters, incubators, etc., the function of the thermostat in each case being that of regulation and not measurement. In many cases where an even temperature is required a thermostat is an absolute necessity and many persons regard it as indispensable on private residence heating plants. In fact, no system of heating from a central plant should be without thermostats on the various installations. This is absolutely essential in order to obtain the most efficient service at the lowest cost.

Other close parallels with thermostats are found in automatic boiler temperature regulations and in spring closing faucets, which are required on certain outlets on unmetered services by water works companies. The function of the spring closing faucet is to prevent unnecessary waste of water, which is one of the functions of the thermostat in the case under consideration. With metered service, as in the usual case of steam heat, the consumer pays for unnecessary waste of heat due, for example, to open windows which could be avoided by reducing or cutting off the supply. No satisfactory method for metering hot water for heating service has as yet been devised, and such installations are therefore on a flat rate, with the consequent possibility of waste due to carelessness of the consumers.

The rule requiring thermostats to be placed upon all installations is general among heating companies in this state and elsewhere. As has been shown thermostats are essential to efficient

and economic service. While it is the duty of the utility to furnish service to the public desiring the same, it cannot be compelled to serve those who are unwilling to provide proper installations and appliances on their premises. No one can insist upon service if his installation is such as to impair the service to others if it were granted to him. In other words, the obligation of the utility in the premises is not absolute but relative. (1 Wyman Public Service Corp., sec. 418.)

No objection is raised to the rule in respect to the dictation by the company of the type of thermostat that must be installed or to the requirement that the company alone may install and maintain the same at the cost of the patron. As the company furnishes the thermostats and places them without profit, there can be no just criticism of this feature of the rule.

For the reasons given it is our judgment that the rule in controversy is a reasonable one and must be upheld.

Now, THEREFORE, IT IS ORDERED, That rule No. 14 of the Berlin Public Service Company's rules and regulations on file with the Commission, which is hereinbefore set out in full, be and the same is hereby sustained as a reasonable regulation and as lawfully in effect.

CITY OF BEAVER DAM

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted April 1, 1912. Decided Sep. 13, 1912.

Complaint was made by the city of Beaver Dam, Wis., that the highway crossings of the C. M. & St. P. Ry. with Maple ave., Third st., Mackie st., and High st. in this city are dangerous to human life.

Held: The crossings require protection and the respondent is ordered to install and maintain at each of these crossings an automatic alarm equipped with a time element, so arranged as not to ring while switching is being done. Sixty days is deemed a reasonable time within which to comply with this order.

The petitioner, through its mayor and common council, alleges that the highway crossing maintained by the respondent in the city of Beaver Dam at the intersection of the railroad with Maple avenue, Third street, Mackie street and High street are dangerous to human life because of the constant train movement on the respondent's lines, the location of the crossings in a thickly populated district which necessitates heavy traffic over the highways, and the obstruction to the view of approaching trains by buildings close to the respondent's tracks. It further alleges that the respondent has been requested by the city council to provide proper protection at these crossings, and that an ordinance has been passed directing the installation of gates and watchmen at the points of danger; but that the respondent refuses to accede to the request or obey the ordinance. It is set forth that the lack of proper protection to travelers has resulted in several accidents injurious to persons and property. The petitioner therefore asks the Commission to require the respondent to provide the crossings in question with suitable protection to the traveling public.

The answer of the respondent expresses its willingness to stand upon the evidence in the case, and to be bound by the decision of the Commission in the matter.

A hearing was held on April 1, 1912, at the city hall of Beaver Dam, Wis. *J. C. Healy*, city attorney, appeared for the petitioner and *F. M. Melin*, division superintendent of the Chicago, Milwaukee & St. Paul Railway Company, for the respondent.

In addition to the testimony taken, two investigations of the crossings in question were made by the engineering staff of the Commission. The facts developed from both sources are presented separately for each crossing:

Maple Avenue.—Maple avenue is an east and west street which crosses the main track and a side track at an angle of about 75 degrees. The tracks for a distance of about 200 feet on each side of the street are on a 4 degree curve. The view of approaching trains is obstructed by lumber and coal sheds on both sides of the street west of the tracks, and by dwellings, a barn, a pile of posts, and shade trees east of the tracks. The view is also frequently obstructed by freight cars standing on the sidetrack. The street is paved with brick and the noise made by teams makes it difficult to hear the bell or whistle of a locomotive.

Besides the traffic over the main track, switching is done every day at this crossing. The street is an important one and is used by many teams and pedestrians. A count made on March 30, 1912, shows that from 7 a. m. to 5 p. m. 215 vehicles and 1,135 pedestrians crossed the tracks at this point. This count was taken, however, on Saturday, when the traffic is somewhat greater than on other week days. A number of narrow escapes from accidents are reported.

Third Street.—Third street is about 300 feet north of and parallel to Maple avenue, and the angle of the crossing is about 75 degrees. The street crosses the main track and one sidetrack and the end of another sidetrack abuts the south side of the street. The view of approaching trains is obstructed by a power house, a dwelling house, sheds, and shade trees. In only the northeast angle of the crossing is the vision clear. Cars, which are frequently left standing on the two sidetracks, also obscure the view. Moreover, an adjoining power house and planing mill, by their noise, smoke and steam render it more difficult to see or hear approaching trains. Numerous accidents have occurred at this crossing and others have been narrowly averted.

Mackie Street.—Mackie street is north of and parallel to Third street, and is crossed by the main track at an angle of 65 degrees and by a spur track to a lumber yard at an angle of about 90 degrees. Another sidetrack is stubbed about 60 feet south of the street. Approaching from the west the view of the track is obstructed by a large warehouse, lumber piles, and piles of cordwood, and also at times by cars standing on the two sidetracks. The east approach is clear, but for a 12 foot billboard which parallels the street for 36 feet and the railroad for 40 feet. The traffic over the railroad at this point has increased considerably within the past few years, and a large amount of switching is done.

High Street.—High street runs east and west and crosses the main track and one sidetrack in what is known as the loop southwest of the depot. The main track runs about 500 feet on high street and crosses it on a curve of 11 degrees. First street, running north and south, intersects High street at the point of crossing, thus making really two crossings. Approaching from the south on First street the view of the track is obstructed by a dwelling house on the east and a high board fence on the west. Approaching from the west on High street the track is obscured by a small office and piles of wood, and at times by box cars on the sidetrack, near the crossing. Approaching from the east on High street the view of trains from the west is obstructed by dwellings, until within 50 or 75 feet of the crossing. The trains have no fixed direction of movement around the loop, taking the route which is set up for them at the junction switch. This switch is so arranged that an outbound train trails through it reversing its position, with the result that the next train takes the opposite direction around the loop. This irregularity of movement is confusing to persons using the crossing. The difficulty could be removed by instructing the train crews, or the switchman now stationed at the crossing where the switch is located, to operate this junction switch so that trains would move in the same direction. A large amount of freight is handled near this crossing in connection with the operation of several factories. For this reason switching is done frequently and many engines pass over the crossing besides the regular trains. On both First and High streets, the teaming is heavy. Moreover, it is estimated that from fifty to seventy school children use this crossing four times daily on their way to and from school.

Four passenger trains and two freight trains regularly pass over the loop every day. Thus the regular movement of all trains is six at High street and twelve at the other three crossings in question. Switching is usually completed by 5 p. m., and the schedule is such that all trains pass over the crossing by daylight except during short winter days, and occasionally when late. Since Beaver Dam is not on the main line, no extra through freights pass over these crossings.

The engineer of the Commission recommends that the crossings at Maple avenue, Third street, Mackie street, and High street be protected by automatic alarm bells equipped with a time element so arranged as to prevent unnecessary ringing while switching is being done; that the billboard located in the southeast angle of the crossing at Mackie street be removed; that no cars be placed in the vicinity of the crossing at High street except at such times and at such places as they are actually required for loading or unloading; and that all trains be operated to the right in passing around the loop.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Chicago, Milwaukee & St. Paul Railway Company, install and maintain at Maple avenue, Third street, Mackie street, and High street in the city of Beaver Dam an automatic alarm equipped with a time element, so arranged as to prevent unnecessary ringing while switching is being done.

Sixty days is deemed a reasonable time within which to comply with this order.

CITY OF MENOMONIE

vs.

CHICAGO, ST. PAUL, MINNEAPOLIS AND OMAHA RAILWAY COMPANY.

Submitted March 22, 1912. Decided Sep. 13, 1912.

Complaint was made by the city of Menomonie, Wis., that the passenger facilities provided at North Menomonie are inadequate. This point is about midway between Menomonie Jct. and Menomonie, and all trains on respondent's line stop on signal. No shelter is provided and in the winter months it is frequently necessary for persons living in the vicinity to shelter passengers. Respondent alleged that the service furnished is substantially street car service which does not require a station and the regular stopping of trains. Only about half of the trains are actually stopped on signal.

Held: The amount of traffic does not seem to warrant the regular stopping of trains. The respondent is ordered to erect and maintain a suitable shelter shed at North Menomonie for the accommodation and protection of passengers. It is further ordered that the respondent stop its trains on signal at North Menomonie and that it provide suitable apparatus for signaling trains at such station. Sixty days is deemed a reasonable time within which to comply with this order.

The city of Menomonie, by a resolution of its common council dated Jan. 3, 1912, alleges in substance that the respondent refuses to provide adequate passenger facilities at North Menomonie as requested in a previous resolution by that body on June 5, 1907. Both resolutions set forth that passenger trains stop at North Menomonie on signal, and that no place of shelter for passengers is provided there. The earlier resolution also requests the railway company to construct a sidetrack at North Menomonie for the loading and unloading of carload and other freight. The petitioner asks the Commission, after due investigation, to determine whether it is entitled to better railroad accommodations.

The respondent, in answering the complaint, admits that it is a railroad corporation owning and operating a railroad between Menomonie Junction and Menomonie, a distance of approximately three miles. It alleges that at Menomonie Junction it

maintains a passenger and freight depot with good and substantial station facilities; that at Menomonie city it maintains a modern, commodious, and convenient passenger depot, and convenient and suitable freight facilities; that it now operates, and for some time past has maintained, eleven passenger trains per day in each direction between Menomonie Junction and Menomonie city, on which a one-way fare of 6 cts. is charged; that North Menomonie is about midway between these two stations; that its trains stop on signal at North Menomonie to receive and discharge passengers; that the average earnings from such passenger service is not more than \$60 per month, which is not a reasonable revenue for such accommodations; that additional facilities are not warranted at this time; that the service furnished is substantially street car service which does not require a station and stopping of trains without signal; that since the timetables are a matter of public information long waits for trains are unnecessary; that there are substantial sidewalk facilities along its route between Menomonie Junction and Menomonie city; and that there are adequate trackage and loading facilities for handling freight at those stations and at a point four-fifths of a mile south of North Menomonie.

A hearing was held on March 22, 1912, at the city hall in the city of Menomonie. *C. R. Freeman* appeared for the petitioner and *R. L. Kennedy* for the respondent.

Some testimony was offered with regard to freight facilities, but the petitioner stated that that matter would not be pressed at this time.

Testimony introduced by the petitioner shows that the respondent's trains have stopped on signal at North Menomonie for twenty or twenty-five years. No shelter, shed, or other building is maintained at the stopping place, and the only accommodation afforded passengers is a cinder platform about level with the rails. As trains are often late, passengers are much discomforted in cold and stormy weather. No facilities for signaling trains are provided, with the result that after dusk prospective passengers are obliged to use a lantern or build a fire in order to stop an approaching train. The platform is unlighted, and so low that passengers must step eighteen inches to board trains. No stools are provided to aid persons in entering the cars. The company formerly kept the platform clear of snow, but has discontinued that service during the past winter.

North Menomonie was originally platted as a separate village, but is now included in the first ward of Menomonie city. It has a population of about one thousand and a small business district consisting of three general merchandise stores, a shoe store, a confectionery store, a saloon, a harness shop, and a blacksmith and wagon shop. Between North Menomonie and Menomonie city is a strip of unplatted ground about one mile in width, but a sidewalk is maintained for the greater part of the distance between the two places. By road the distance is about two miles. In the other direction no sidewalk to Menomonie Junction is maintained and the distance there by road is one and one-fourth miles. The railroad fare between the city and the junction is 6 cts., while between North Menomonie and either point 5 cts. is charged. All three places are within the corporate limits of the municipality of Menomonie.

Data as to station facilities provided at Menomonie Junction and Menomonie city are presented by the respondent as follows:

	Menomonie Junction.	Menomonie city.
Cost of passenger station.....	\$1,894 05	\$12,882 00
Yearly cost of maintenance.....	142 00	74 00
Monthly expense of operation.....	245 00	280 00

It is shown that the respondent maintains shelter sheds at small stations on its lines which cost from \$25 to \$70, depending upon the kind of shed used. The cost of maintenance in such cases merely covers depreciation.

Train conductors' records, introduced by the respondent, show that from March 12 to 19, 1912, inclusive, the passenger traffic between North Menomonie and Menomonie city was as follows:

	Passengers from North Menomonie to Menomonie city.	Passengers from Menomonie city to North Menomonie.	Daily average both directions.
Day trains.....	4	26	3.7
Night trains.....	31	108	17.4
Total.....	35	134	21.1

After the hearing records were kept by conductors on day trains for the twelve days, March 23 to April 3, 1912, inclusive, as follows:

	Number of day trains stopped at No. Menomonie.	Number of passengers.				Total.
		No. Menomonie to Menomonie city.	Menomonie city to No. Menomonie.	No. Menomonie to Menomonie Jct.	Menomonie Jct. to No. Menomonie.	
Total number	43	13	48	16	36	113
Daily average.....	3.6	1.1	4.0	1.3	3.0	9.4

The Commission's engineer, after investigation, reports the traffic at North Menomonie during three complete days in July, 1912, as follows:

Date.	Total number of trains observ'd.	Number of trains stopped at No. Menomonie.	Number of passengers.				Total.
			No. Menomonie to Menomonie city.	Menomonie city to No. Menomonie.	No. Menomonie to Menomonie Jct.	Menomonie Jct. to No. Menomonie.	
July 17.....	19	11	5	17	8	4	34
July 18.....	22	11	6	12	16	19	53
July 19.....	20	12	7	7	6	14	34
Total.....	61	34	18	36	30	37	121
Daily av....	20.3	11.3	6	12	10	12.3	40.3

The traffic data presented above show that the number of passengers alighting at North Menomonie is considerably greater than the number boarding trains there. This condition is explained in part by the fact that on account of a hill between the station at Menomonie city and a portion of the business section there, shoppers from North Menomonie often walk over and return by train. Parties also frequently walk over for entertainments in the evening and return on a late train. Persons working at Menomonie city but living in North Menomonie often walk to their work and ride home. It is claimed by the respondent that persons boarding and alighting at North Menomonie do not need a shelter there, because the platform is within three blocks of their homes and as there are telephone connections with the station at Menomonie Junction and Menomonie city, the ar-

rival of trains at North Menomonie can be closely estimated by those using telephones.

According to the conductors' records from March 23 to April 3, 35.8 per cent of the day trains stopped at North Menomonie, and an average of 2.6 passengers per train were handled by those that stopped. During the three complete days observed by the Commission's engineer 55.5 per cent of the trains stopped at North Menomonie and an average of 3.3 passengers per train were handled. A daily average of 40.3 passengers per day are reported during these three days. It is observed that the usual number of passengers using trains at the same time is three or four, but this number varies from one to fifteen. The respondent, by its division superintendent, shows that during the months of September, October and November in 1911, the revenue at North Menomonie was \$52.55 for outgoing passengers and \$130.80 for incoming passengers, the total revenue averaging for those three months \$61.11 per month.

The Commission's engineer reports that from information gathered on the ground it appears that in the winter months it is frequently necessary for persons living in the vicinity of the stopping point to shelter passengers, this being especially true when there are children with the persons taking trains. This fact and the amount of traffic handled are regarded a sufficient justification for the erection of a shelter. As only about half of the trains are actually stopped on signal at North Menomonie, we see no reason in requiring all trains to stop regularly. As it is difficult to flag the trains, particularly at night, a convenient method of signaling should be installed. It is possible to provide apparatus for flagging, such as a signal located on the platform equipped with a light at night and so arranged as to stand normally at clear, with means provided for passengers to hold it in a stop position when it is desired to signal an approaching train.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Chicago, St. Paul, Minneapolis and Omaha Railway Company, erect and maintain a suitable shelter shed at North Menomonie for the accommodation and protection of passengers.

IT IS FURTHER ORDERED, That the respondent stop its trains on signal at North Menomonie and that it provide suitable apparatus for signaling trains at such station.

Sixty days is deemed a reasonable time within which to comply with this order.

TOWN OF ALBANY

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted June 13, 1912. Decided Sep. 13, 1912.

Complaint was made by the town of Albany that the first highway crossing north of the depot at Albany, Wis., is dangerous to public travel. The highway crosses at an acute angle. The view of the track is obstructed and the sound of the whistle of trains from the north is muffled by a hill.

Held: The crossing requires protection and the respondent is ordered to install and maintain an audible crossing alarm with an illuminated sign for night indication. Sixty days is regarded as a reasonable period within which to comply with this order.

The town of Albany, by its town board, alleges that the first highway crossing with the respondent's tracks north of the depot at Albany is dangerous to travelers on the highway because of the surrounding physical conditions. It therefore asks the Commission to require the respondent to provide adequate protection at the crossing.

The respondent, in its answer, denies that the surrounding physical conditions render the crossing in question more dangerous than the average railroad crossing. It therefore asks the dismissal of the petition.

A hearing was held on June 13, 1912, at the town hall in Albany, Wis. *William Smiley*, chairman of the town board, appeared for the petitioner, and *J. N. Davis* for the respondent.

The testimony shows that at the crossing in question the railroad runs southeast and northwest and the highway southwest and northeast. The angle of crossing is about 20 degrees. The chief point of danger is to teams approaching on the highway from the southwest, as the track to the north is obscured by rising ground in the northwest angle of the crossing. Along the right of way and the highway is a board fence which further hinders the vision. Moreover, during the winter piles of snow against the bank add to the obstruction of the view of the track to the north. Testimony introduced by the petitioner shows

that from the west approach on the highway southbound trains cannot be seen until within 30 or 40 feet of the crossing. The roadmaster of the respondent states that at from 45 or 50 feet west of the track a view of southbound trains is afforded for a distance of a half or three-quarters of a mile.

The Commission's engineer reports that from a point on the highway 365 feet west of the tracks, southbound trains can be seen at a distance of 165 feet from the crossing, and that within 50 feet of the track a view of southbound trains is afforded for a distance of 1,500 feet from the crossing. The testimony shows that the location of the hill makes it difficult to hear the whistle of trains from the north. Because of the acute angle at the crossing, the distance across it is unusually great, and it is difficult to judge accurately one's ability to cross ahead of an approaching train. It is estimated that about thirty or thirty-five teams a day pass over the highway except on Mondays, which is stock day, when the traffic is increased. On that day from seventy-five to one hundred teams cross the tracks. A count made by the respondent's station agent at Albany between 7 a. m. and 7 p. m. on two days is as follows:

	Number of vehicles.	Number of persons riding in vehicles.	Number of pedestrians.
March 26.....	82	142	2
March 27.....	72	109	4

It is stated that about ten automobiles cross the tracks at this point during the day, and that occasionally between twenty and thirty have passed. Four regular trains are scheduled on the railroad daily except Sunday, only one of which passes after dusk. The two from the northwest arrive at Albany at 12:20 p. m. and 8:10 p. m. Extra trains are occasionally run over this line. No fatal accidents have occurred at the crossing, but several less serious ones and narrow escapes are reported. The respondent's roadmaster suggested that adequate protection would be afforded by replacing the board fence with a wire one, by erecting special whistle posts, and by requiring all trains to slow down to five miles per hour or to stop at the crossing. We are of the opinion that the crossing should be protected by an alarm bell with an illuminated sign for night indication.

While there is not a great deal of demand for the night indication, the cost of this extra protection is slight and its installation would be an additional safeguard after dusk.

IT IS THEREFORE ORDERED, That the respondent, the Chicago, Milwaukee and St. Paul Railway Company, install and maintain an audible crossing alarm with an illuminated sign for night indication at the first crossing north of its depot at Albany.

Sixty days is regarded as a reasonable period within which to comply with this order.

C. J. ROLLIS

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted May 17, 1912. Decided Sep. 17, 1912.

Complaint was made that the station facilities maintained by the C. M. & St. P. Ry. Co. at Stoughton, Wis., are inadequate. It appears impracticable to remodel the present structure. It is suggested that the new depot be built immediately across the street west of the present site where both city water and sewer connection are available. The present structure could then be used as a freight house without the additional expense of re-arrangement of tracks.

Held: The passenger traffic requires larger and more modern accommodations than the present structure. The respondent is ordered to provide a station building which shall be reasonably adequate for the passenger traffic. Plans are to be submitted to the Commission for approval. One year is deemed a reasonable time within which the station is to be opened to public traffic.

The petitioner, a resident of Stoughton, Wis., alleges that the depot maintained by the respondent at Stoughton is inadequate because of insufficient waiting room facilities, the absence of toilets and drinking fountains, and the lack of proper ventilation. It is set forth that the respondent has for years acknowledged the inadequacy of this depot, but has made no effort to replace it. The Commission is therefore asked to require the respondent to construct a new depot at Stoughton.

In its answer the respondent alleges that there is no immediate necessity for the alterations in the station building and its equipment, as complained of by the petitioner; that it intends to make all necessary and advisable improvements at the station in question in the regular course of its business; that other stations on its line which require replacement to meet the demands of growth and modern conditions are entitled to share equitably with Stoughton the attention of the management and building department; that such attention must be bestowed in the order of the needs of the various places; that this general work is now receiving the attention of the management; and

that to advance Stoughton out of its regular order would result in temporary repairs which would be less satisfactory than permanent improvements. It therefore asks the dismissal of the petition.

A hearing was held on May 17, 1912, at the city hall of Stoughton. The petitioner, *C. J. Rollis*, appeared in his own behalf, and *J. N. Davis* for the respondent.

The testimony shows that the present depot was built in 1885 and is approximately 80 ft. long and 30 ft. wide. One end is used as a freight house, the office and baggage room are in the center, and in the other end are located two waiting rooms. The men's room is about 13'x19' and the women's room about 14'x19'. Each waiting room is heated with a coal-burning stove. No provision is made for ventilation. No drinking fountain or other water facilities are installed. Two closets are maintained beyond the tracks, but they are in an unsanitary condition and are kept locked; the keys are given to persons who request them from the agent. It is a common occurrence for the waiting rooms to be so overcrowded that passengers are obliged to wait on the open platform in inclement weather. One witness states that this overcrowding is due in part to the presence in the waiting room of persons who are not travelers, but other witnesses assert that very few persons other than passengers frequent the depot.

It appears from the testimony that Stoughton has a population of about 4,900. Two wagon factories are located there, which employ about 800 persons, and in 1911 shipped out or received approximately 3,800 cars of freight in addition to a considerable tonnage of less than carload consignments. The testimony is silent as to other industries, although it is a well known fact that Stoughton is an important tobacco center and ships many carloads of tobacco annually. Passenger traffic to and from Stoughton is also large. A statement prepared by the railroad agent at that point and submitted to the Commission after the hearing shows that from July 12 to July 18, 1912, inclusive, a daily average of 128 passengers used the trains at Stoughton. The data for the seven days are as follows:

Date.	Number of passengers arriving or leaving Stoughton.	Number of trains carrying passengers.	Average number of passengers per train.
July 12, 1912.....	169	11	15.4
July 13, 1912.....	159	11	14.5
July 14, 1912.....	121	4	30.2
July 15, 1912.....	134	10	13.4
July 16, 1912.....	90	11	8.2
July 17, 1912.....	109	11	9.9
July 18, 1912.....	113	11	10.3

In addition to the regular traffic, a large number of people visit Stoughton to attend "ski tournaments" which are held there during the winter. The respondent reports that on Jan. 2, 1912, a special train carried 643 passengers to Stoughton from Madison, and 523 back to Madison. On the same day 150 persons used regular trains at Stoughton. On Jan. 24, 1912, a special train carried 950 passengers to Stoughton from Madison and McFarland.

Witnesses testified that in interviews with the general manager of the railway company it was admitted by him that the station facilities were inadequate, and that a new passenger station would, in the near future, be erected at Stoughton, one witness stating that he had been informed by him, that provision had been made in the budget of 1913 for a new depot at Stoughton. These witnesses expressed the opinion that the citizens prefer to use the present facilities temporarily, if by so doing they can secure a station that will be a credit to the community.

Counsel for respondent stated that it has been the intention of the company to construct a new passenger station such as would be satisfactory to the citizens of Stoughton, as soon as it practically could do so.

From the testimony and an investigation made by the engineers of the Commission, it is clearly shown that the present structure is obsolete and inadequate to reasonably accommodate the passenger traffic at this point. To accommodate the present normal traffic, waiting rooms should be provided of from three to four times the capacity of those now in use. Our engineer regards it as impracticable to remodel the present structure so as to make it satisfactory for depot purposes. Considering the importance of Stoughton as a large business center, and the amount of passenger business transacted at this station, the re-

spondent should construct, without further delay, a new passenger depot and use the present building as a freight house. From the report of our engineer it appears that there are two possible locations for a new depot. One is the present site, but to build there would necessitate moving the present structure east for use as a freight station, and a consequent rearrangement of tracks, entailing a considerable additional expense. The other possible location is immediately across the street, west of the present site, where both city water and sewer connections are available.

In view of all the facts as presented above, we find that the present station facilities at Stoughton are inadequate and insufficient, and that the passenger traffic at such station requires accommodations of much larger capacity and more modern than the present station structure.

IT IS THEREFORE ORDERED, That the respondent, the Chicago, Milwaukee & St. Paul Railway Company, provide a station building at Stoughton, Wis., which shall be reasonably adequate for the passenger traffic obtaining at that station, according to plans to be submitted to this Commission for approval.

One year is deemed a reasonable time within which such station shall be opened to public traffic.

CARL J. SANDQUIST

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

Submitted May 14, 1912. Decided Sep. 17, 1912.

Petitioner alleges that the passenger service at Brantwood, Wis., is inadequate and prays for an order requiring the M. St. P. & S. S. M. Ry. Co. to stop trains Nos. 7 and 8 on signal. Respondent stated that the trains in question connect with Canadian Pacific trains through to Boston and New York and if this service were granted to Brantwood and similar stations along the line the general public and interstate passengers would be deprived of fast service. The stopping of these trains would undoubtedly be a great convenience to the residents of the village but would be detrimental to the traveling public.

Held: The present train service at Brantwood does not seem to be unreasonably inadequate within the terms of the law. The petition is dismissed.

The petitioner, a farmer residing at Brantwood, Price county, Wis., alleges that the passenger service furnished by the respondent at Brantwood is inadequate, and requests the Commission to require the respondent to stop its trains Nos. 7 and 8 there on signal for one or more persons.

The respondent, in its answer, alleges that business and conditions at Brantwood do not justify the order sought by the petitioner. Wherefore, it asks that the petition be dismissed.

A hearing was held on May 14, 1912, at the office of the Commission in Madison. The petitioner appeared in his own behalf and *A. H. Bright* for the respondent.

The testimony of the petitioner shows that Brantwood is a station located about nine miles east of Prentice and about thirty-five miles west of Rhinelander on the respondent's main line from Sault Ste Marie, Mich., to Minneapolis, Minn. The population within a radius of a mile is over two hundred, while the total number of persons tributary to the railroad at Brantwood is over two thousand. This district extends about eight miles south, six miles north, four miles east and five miles west. About two-thirds of the surrounding country is settled and about one-third under cultivation, but the freight traffic origin-

ating there consists largely of forest products. Two passenger trains stop at Brantwood daily, No. 84 eastbound, due at 3:59 p. m., and No. 85 westbound, due at 10:33 a. m. Two way freights which carry passengers also stop at Brantwood, but since they move in the same direction and at about the same time as the passenger trains, they are little used. With the present service it takes about 29½ hours for a round trip to Phillips, the county seat of Price county; whereas if trains Nos. 7 and 8 were stopped on signal at Brantwood it would take only about 14 hours for the trip. The petitioner claims that these trains stop at Hawkins, a place of no greater importance than Brantwood. A petition signed by 242 residents of the vicinity of Brantwood requests the Commission to grant the relief asked for by petitioner.

Counsel for the respondent stated that trains Nos. 7 and 8 are heavy trains, known as the Peninsular Division Limited, and connect with the Canadian Pacific through to Boston and New York, and that other stations along the line of equal importance with Brantwood would have to be granted the same service should these trains be stopped there on signal. The action would, therefore, deprive the general public and interstate passengers of fast service between the Twin Cities, Minn., and Sault Ste. Marie, Mich., over this line. Counsel pointed out that in 1910 a petition on behalf of the town of Almena to the same effect as the present petition was dismissed by the Commission. *Sparlin v. M. St. P. & S. S. M. R. Co.* 1910, 4 W. R. C. R. 467.

The following statement of the passenger earnings at Brantwood, presented by the respondent, includes local ticket sales, the "Soo" line proportion of home coupon ticket sales, and conductors' cash fares:

Month.	Number of passengers.	Soo revenue.
January, 1911.....	182	\$83 22
February	201	141 77
March	441	174 24
April	348	149 30
May	289	160 37
June	221	116 41
July	224	302 86
August	302	136 24
September	240	143 38
October	193	115 24
November	176	89 93
December	199	107 46
Total.....	3,016	\$1,620 42
Average per month.....	251	135 04

The freight traffic at Brantwood for the year ending May 31, 1912, is reported by the respondent as follows:

	Local re-ceived.	Local for-warded.	Joint re-ceived.	Joint for-warded.	Total.
Carload.....	\$1,250 76	\$23,166 72	30 00	\$1,689 12	\$26,136 60
Less than carload.....	1,773 19	230 25	74 91	16 60	2,094 95
Total.....	\$3,023 95	\$23,396 97	\$104 91	\$1,705 72	\$28,231 55

An examination of the statement of passenger earnings shows that less than ten passengers per day leave Brantwood, with a revenue of about \$2.50 per train, or an average of 50 cts. per passenger. It therefore appears that the traffic is mostly local and that there is not a very great demand for the increased facilities prayed for.

From an investigation made by the Commission of the conditions at both Brantwood and Hawkins, it is found that the village of Hawkins has a population of about six hundred and that a total of about one thousand persons use the depot, while Brantwood has a population of only about sixty with between two and three hundred using the depot. It therefore appears that Brantwood is not entitled to the same service as is Hawkins. The reason for stopping trains Nos. 7 and 8 at Hawkins seems to be due to the fact that it is located approximately half-way between two regular stops, namely, Ladysmith and Prentice, a distance of forty miles, whereas Brantwood is located about ten miles from Prentice. Between the state lines of Minnesota and Michigan there are not less than eight stations on respondent's road, having a population equal to or greater than Brantwood, at which trains Nos. 7 and 8 do not stop; and should these trains be required to stop at Brantwood, it would also be reasonable to have them stop at the other eight points, and this number of stops would mean a very great delay to through trains and cause considerable inconvenience to through passengers. The stopping of these trains at Brantwood would undoubtedly be a great convenience to the residents of that village, but would be detrimental to the interests of the larger traveling public. Taking into consideration all the facts in the case, we cannot find that the present train service at Brantwood is unreasonably inadequate within the terms of the law. Therefore the petition is dismissed.

TOWN OF WAYNE

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

Submitted Aug. 5, 1912. Decided Sep. 17, 1912.

Complaint was made by the town of Wayne that a crossing, located about four miles south of Theresa in the town of Wayne, Washington county, Wis., is dangerous to travelers on the highway. The highway is on a curve and passes through an excavation on both sides of the crossing. A separation of grades would be desirable, but would necessitate a greater expense than now appears to be justified.

Held: The crossing is dangerous and the respondent is ordered to install and maintain an automatic alarm bell with an illuminated sign for night indication and to widen the highway on its right of way to such an extent as to permit teams to pass or turn safely. Sixty days is considered sufficient time in which to comply with this order.

The petitioner, a regularly organized town in Washington county, Wis., alleges that on account of surrounding physical conditions a highway crossing with the respondent's line, located about four miles south of Theresa, is dangerous to travelers on the highway. It therefore requests the Commission to require the respondent to provide reasonable protection at the crossing.

The respondent filed no answer to the complaint.

A hearing was held on Aug. 5, 1912, in the village hall of Theresa. *P. Schellinger*, town chairman, appeared for the petitioner, and *A. H. Bright* for the respondent.

The testimony and the report of the Commission's engineer show that the angle of the crossing in question is about 30 degrees. The track for about 600 feet north and 400 feet south of the highway is on a curve and passes through an excavation on both sides of the crossing. The cut to the north extends about 300 feet from the highway, and reaches a depth of 20 feet on the east side of the track and averages about 10 feet on the west side. To the south the cut extends about 210 feet, is 20 feet deep on the west side at the crossing, and about 6 feet at the deepest point on the east side of the tracks. The west approach of the highway is narrow and ascends from the track on a 4 per cent grade for a distance of 200 feet. For this distance it is below the level of the surrounding ground, so that

the view of trains in each direction is completely obscured until one is near enough to the track to look through the roadbed excavation. The east approach of the highway descends from the track on a 2 per cent grade for a distance of 150 feet and then descends more rapidly to a bridge across a small stream about 600 feet from the crossing. The view from this approach is also limited by the high ground. From a high wagon the track to the south is visible, but an approaching train from the north cannot be seen until one is near enough to the crossing to look down the cut.

The testimony further shows that due to the narrowness of the highway at the crossing, no room is afforded for turning a vehicle, or controlling an unruly team. Moreover, the descending grade from the west makes it difficult to stop a team quickly or to back up. While no serious accidents have occurred at this crossing, a number have been narrowly averted. Witnesses expressed the opinion that the roadway on the railroad right of way should be widened. The highway is used chiefly for local traffic, but frequently automobiles from Milwaukee and other centers pass over it. It is estimated that about fifty vehicles cross the tracks at this point daily.

The Commission's engineer reports that the use of this crossing is surrounded by unusual hazard, and that a separation of the grades would be desirable. However, owing to unfavorable topographical conditions and to the necessity of making a material re-location of the highway, this action would entail a larger expense than now appears to be justified. He therefore recommends that a crossing alarm bell, with a light for night indication, be installed, and that the highway approaches be widened sufficiently to afford ample space for frightened teams to be safely turned, and loaded wagons and farm implements to freely pass.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, install and maintain an automatic alarm bell with an illuminated sign for night indication at the crossing located about four miles south of Theresa station.

IT IS FURTHER ORDERED, That the respondent widen the highway on its right of way to such an extent as to permit teams to freely pass or safely turn.

Sixty days is considered sufficient time in which to comply with this order.

OSCAR GILBERTSON ET AL.

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted June 11, 1912. Decided Sep. 18, 1912.

The petitioners, residents of the towns of Gillette, Green Valley, Morgan and Oconto Falls, ask that a flag station be installed on the respondent's line between Gillette and Green Valley at its intersection with the county line between Oconto and Shawano counties, Wis. The revenue resulting from such service may not be sufficient to justify a permanent order requiring the stopping of trains.

Held: The record of passenger business for three months will be considered by the Commission before a permanent order is made. It is ordered that for a period of three months from the date of taking effect of this order, respondent stop on signal, daily except Sunday, northbound train No. 503, leaving Green Bay at 7:00 a. m. and southbound train No. 504, arriving at Green Bay at 7:15 p. m. for the purpose of taking on and letting off passengers at the highway in question. It is further ordered that the respondent keep a complete and accurate record of the passenger business at such stopping place for a period of three months. At the expiration of that period such further order will be made as the facts may warrant.

The petition, signed by fifty-four residents of the towns of Gillette, Green Valley, Morgan and Oconto Falls, asks that a flag station be installed on the respondent's line between Gillette and Green Valley at its intersection with the county line between Oconto and Shawano counties.

The respondent, in its answer, alleges that a flag station at the point indicated is unnecessary because no town exists there and the population within a radius of three miles does not exceed one hundred people, and because it is within 3.08 miles of Gillette on the north, and 4.25 miles of Green Valley on the south. It therefore asks the dismissal of the petition.

A hearing was held June 11, 1912, at the office of the Commission in Madison. *P. A. Heaney* appeared for the petitioners and *C. A. Vilas* for the respondent.

The testimony shows that at the point where it is desired to have a flag station the railroad crosses a highway which follows

the boundary between Oconto and Shawano counties. The nearest stations on the respondent's line are Gillette, a distance of 3.08 miles north, and Green Valley, 4.25 miles south. The distance to these stations by road is much greater, however, being estimated at from five and one-half to six miles to Gillette and seven or eight miles to Green Valley. Railroad connections may also be had at Oconto Falls, about seven miles east, and Mosling about seven miles west. The roads are hilly and in poor condition, and during the winter months are badly drifted with snow.

At the crossing there are no houses, but the surrounding country is generally improved and fairly well settled. It is estimated by a witness for the petitioner that within a one-mile radius there are about thirty-two families comprising a population of about two hundred and that about five hundred persons live within a radius of three miles. The division superintendent of the respondent stated that his roadmaster reported that within a radius of about one mile of the crossing there are only about seventy-five residents. The Commission's engineer reports upon investigation, that within an area of two and one-half miles east and west, one mile north, and one and three-fourths miles south of the crossing there are forty-two families, comprising a total of one hundred and eighty-two persons. In addition, a Polish settlement of from twenty-five to thirty families, located about two miles east and one and one-half or two miles north of the crossing, who now drive ten miles to Gillette, would take the train at this point if a station should be established there.

The testimony shows that the residents of the vicinity trade chiefly at Gillette, and usually go there to take a train. It is estimated that from four to six persons per week would board the train at the crossing. The petitioners desire a platform, and the stopping on signal of the northbound train No. 503, due at about 8:00 a. m., and the southbound train No. 504, due at about 6:00 p. m.

The respondent's division superintendent testified that one passenger train and one accommodation train each way serve this branch daily, and that the accommodation trains would not be able to carry their usual tonnage if they were required to stop at the crossing, because of the sharp grade. He asserted that to require the passenger trains to stop there would delay them and

thus interfere with connections at Gillette with another branch of the respondent's line, and at Stiles Junction with the Chicago, Milwaukee & St. Paul Railway.

From an examination of respondent's time-table, it seems that trains on this division stop regularly at a few stations that appear to be of no greater importance than the place under consideration. The distance between such stations is in some cases less than that from the proposed location in this case to the stations on either side. We can see no reason for withholding from the petitioners a service that is rendered to other communities of a similar size and character. The revenue resulting from such service may not be sufficient to justify a permanent order requiring the respondent to stop its trains. The testimony shows that most of the passenger traffic will be to and from Gillette with occasional passengers for Green Bay and longer haul points. The expense of stopping a train is estimated by the superintendent of the company to be 25 or 27 cts.

In view of the foregoing facts, we deem it necessary that the respondent shall stop one train daily on signal, except Sunday, in each direction, at the crossing mentioned herein, for a period of three months. During this time the company will be required to keep a complete and accurate account of the number of passengers carried to and from the stopping place, and the revenue derived therefrom. The ultimate destination of outgoing passengers may not be known to the conductor, as passengers may pay cash fares only to the junction or terminal points of the division, but the company will be expected to furnish as much information as possible relative to the actual destination of each passenger. The record of the passenger business for three months will be considered by the Commission in determining what further order shall be made at the expiration of that period.

IT IS THEREFORE ORDERED, That the respondent, the Chicago & North Western Railway Company, stop on signal, daily except Sunday, northbound train No. 503, leaving Green Bay at 7:00 a. m. and southbound train No. 504, arriving at Green Bay at 7:15 p. m., at the highway known as the county line road, forming the boundary of Oconto and Shawano counties, between Green Valley and Gillette, for taking on and letting off passengers, for a period of three months from the date of taking effect of this order.

IT IS FURTHER ORDERED, That the respondent keep a complete and accurate record of the passenger business at such stopping place for a period of three months, and that at the expiration of such period such further order will be made as the facts may warrant.

OTTO MILLER

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Decided Sep. 18, 1912.

Petitioner alleges that two highway crossings of the C. M. & St. P. Ry. in the village of Lyons, Wis., are dangerous to the public. View of approaching trains is obstructed by buildings and high banks.

Held: The crossings require protection and the respondent is ordered to install and maintain an automatic electric alarm bell with an illuminated sign for night indication at each crossing. Sixty days is deemed a reasonable time within which to comply with this order.

The petitioner, a supervisor of the town of Lyons, alleges that the tracks of the respondent company cross two highways in the village of Lyons and that the view of approaching trains is so obstructed by buildings and high banks of earth as to make travel over such highways exceedingly dangerous to the public. Wherefore, petitioner requests that respondent be required to place electric signal bells at each crossing.

The respondent, answering the petition, says that it is willing to install automatic electric signal bells with illuminated night indication at the points in question if such provision meets with the approval of the Commission and it sees fit to enter an order to this effect.

Now, THEREFORE, IT IS ORDERED, That the respondent, the Chicago, Milwaukee & St. Paul Railway Company, install and maintain an automatic electric alarm bell with an illuminated sign for night indication at the intersection of its line with the two highways in the village of Lyons, Wis.

Sixty days is deemed a reasonable time within which to comply with this order.

BENJAMIN WEBSTER

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted June 18, 1912. Decided Sep. 18, 1912.

Petitioner alleges that the passenger and freight service on the C. & N. W. Ry. from Montfort Jct. south through Livingston, Rewey, Platteville, Cuba City, and Benton is inadequate. As regards the adequacy of the freight service, it appears that the majority of the complaints have to do with delays during winter months, and it was conceded that this line, built on a ridge and with many bad curves from Livingston south, is a very hard one to operate in winter. It is alleged that the passenger service has not been increased to meet the rapid development of the mining section. An early morning train south and a late afternoon train north would be a great convenience to a large number of mining men and others having business to the south. It is stated that the mixed passenger and freight service recently installed by the Commission between Madison and Lancaster is of little value to towns west of Montfort. Petitioner asks that this service be changed so as to run south from Montfort Jct. through Platteville instead of on to Lancaster. Towns now receiving this service to Lancaster were notified and did not oppose the proposed change. Respondent alleges that to change such trains, Nos. 612 and 613, will bring the southbound train through Platteville about 1:45 a. m. and thus be of little value at that point. Some arrangement will be necessary to avoid this difficulty. No great modification can be made at the Madison end, however, as this service was ordered to give Dodgeville, Mt. Horeb and Verona people a good margin to transact business in Madison and return the same day. The details of operation are left to the railroad management.

Held: The change petitioned for should be made. The respondent is released from compliance with the order of the Commission in *Donald v. C. & N. W. R. Co.* 1911, 8 W. R. C. R. 320, insofar as that order requires it to furnish service there ordered beyond Montfort Jct., and the respondent is ordered to continue mixed trains, Nos. 612 and 613, from Montfort Jct. south daily, except Sunday, so as to pass through Platteville on its trip south not earlier than 7:00 a. m., and on its return north the same day not later than 10:00 p. m., and that the service now given by these trains between Montfort Jct. and Madison be continued as heretofore.

The petition in this proceeding sets forth that the present passenger and freight service of the Chicago & North Western Railway Company from Montfort Junction south through Liv-

ington, Rewey, Platteville, Cuba City, and Benton is inadequate, and that the passenger schedule is so arranged that it is practically impossible for persons living on this line to transact business at points south without remaining over night. The following table is given by petitioner to illustrate this point:

PASSENGER SERVICE BETWEEN MONTFORT JUNCTION AND BENTON.

Southbound train.			Northbound train.		
No. of train.	Leaves Montfort Jct.	Arrives at Benton.	No. of train.	Arrives at Montfort Jct.	Leaves Benton.
622	10:25 a. m.	11:58 a. m.	623	10:00 a. m.	8:15 a. m.
624	4:40 p. m.	6:14 p. m.	625	3:25 p. m.	1:43 p. m.

The petition further sets forth that Platteville is the largest town in southwestern Wisconsin; that it is the center of the mining district in that part of the state; that, while the population and railroad business in that territory, both freight and passenger, have greatly increased so as to render additional service necessary, the present week-day passenger service, inaugurated fifteen years ago, has not been changed since; that the growth of the Platteville normal school is retarded on account of students from the north not being able to reach Platteville in time for the morning sessions; and that the continued growth of that section requires a change in the service.

Petitioner further prays for one of two remedies: (1) The petitioner has been informed that the mixed freight and passenger service recently installed by the Commission between Madison and Lancaster is of little value to towns west of Montfort. Petitioner asks that respondent company be directed to change this service so as to run south from Montfort Junction through Platteville instead of on to Lancaster; and that the running time of this train be so regulated as to go south through Platteville not earlier than 7:00 a. m., and pass through on its return north the same day not later than 10:00 p. m. (2) In the event of the impossibility of the foregoing, petitioner asks that new freight and passenger service be established, the passenger train to leave Montfort, going south, not earlier than 6:00 a. m. and to return the same day, leaving Benton not earlier than 5:00 p. m.

The answer of the respondent denies that the present service is inadequate and states that in addition to the regular passenger service set forth in petition, there is a way freight carrying passengers and running as follows:

Northbound.			Southbound.		
No. of train.	Leave Galena.	Arrive Montfort Jct.	No. of train.	Leave Montfort Jct.	Arrive Galena.
629	6:00 a. m.	11:15 a. m.	628	10:40 a. m.	4:45 p. m.

The answer further alleges that to change trains 612 and 613 so as to run from Montfort Junction south through Platteville instead of on to Lancaster would be of little value at Platteville, as it would pass through that point about 1:45 a. m.; that the present service is adequate; and prays that petition be dismissed.

The hearing was held at the city hall, Platteville, June 18, 1912. The petitioner was represented by *L. A. Brunckhorst* of *Kopp & Brunckhorst* of Platteville; *C. A. Vilas* appeared for the respondent.

From the testimony submitted it appears that the respondent's line from Montfort Junction to Galena, Ill., passes through a section of country whose interests are predominantly mining, that this part of the state has had a very substantial growth in the last ten or fifteen years, and that the output of the mines is increasing at the present time.

The center of this mining territory is Platteville, a town of some 4,400 inhabitants, and the largest in Wisconsin south of Madison and west of Janesville. The next largest station in Wisconsin on this line is Cuba City, which has about nine hundred people and lies twelve miles to the south. On the edge of this mining district is Galena, Ill., the southern terminus of this branch, with about the same population as Platteville, and some twenty-two miles distant.

As regards the adequacy of the freight service, it appears that the majority of the complaints have to do with delays during the winter months, and it was conceded that this line, built on a ridge and with many bad curves from Livingston south, is a very hard one to operate in winter. During the last year and a half, according to the testimony of the respondent's assistant

general superintendent, engines of the S-2 type were put on the freight service. These engines are equipped with ten wheels and are 50 per cent heavier than the type usually used. The physical condition of the line will not permit a heavier engine to be used, but with the use of these there is a sufficient margin to take care of a substantial increase in the traffic.

As to this point, while the testimony would hardly seem to justify charging the freight service with being seriously inadequate, it would appear that the equipment there is operated at nearly full capacity, and that improvement in facilities for handling traffic has hardly kept pace with the growth of the district. It also appears that ore shipments alone leave a rather small margin for other traffic.

Increase in tonnage on this line is shown by the following statistics, submitted by respondent:

GROSS TONNAGE FOR FIVE YEARS BETWEEN MONTFORT JUNCTION AND GALENA.

Station.	1907	1908	1909	1910	Per cent.	1911	Per cent.
Livingston.....	22,728,693	25,211,430	28,936,992	43,583,044	92+	37,504,674	65+
Rewey	12,249,469	14,264,663	18,014,270	18,347,539	50+	16,649,849	36+
Leslie	1,509,483	1,374,117	853,528	992,349	35+	736,194	51-
Ipswich	1,739,015	1,954,325	2,347,280	1,791,140	3-	2,008,255	15+
Platteville	68,382,131	82,149,729	84,401,809	103,498,372	51+	87,558,754	28+
Cuba City	57,633,426	53,871,786	69,374,015	73,984,422	28+	61,348,833	6+
Benton.....	58,395,315	71,355,252	67,139,244	73,849,902	26+	80,944,959	38+
Hazel Green.....	46,837,325	46,308,480	49,201,728	52,040,762	11+	61,979,061	32+
Galena.....	93,223,136	95,516,723	95,834,642	125,675,279	35+	109,600,662	17+
Total.....	362,697,996	392,106,505	416,103,508	493,761,809	36+	458,341,121	26+

The percentage columns represent the increase or decrease of their respective years over 1907. In general, there was a steady increase up to 1910, and 1911 shows a gain over every year except 1910, and a gain of 26 per cent over 1907. The figures were asked by petitioner for a ten year period, but could not be furnished, and it is therefore impossible to say what the increase might have been over such a period.

It was stated by petitioner that the burning of the Platteville and Galena separating plants, the latter since rebuilt, had much to do with the falling off of 1911 tonnage from that of 1910. Of course, this statement is not sufficient upon which the Commission could base a definite conclusion as to the effect upon the output of the district by the burning of these plants. However, it is only fair to note that 1911 was not as good a year the

country over as 1910. An inspection of the following statistics, taken from the reports to the Commission of three representative railroad systems in the middle West, illustrates this fact:

NUMBER OF TONS CARRIED OF FREIGHT-EARNING REVENUES.

Fiscal year.	Wisconsin.	Entire system.		
	C. & N. W.	C. & N. W.	C. B. & Q.	C. M. & St. P.
6/30/08-6/30/09.....	17,567,138	32,793,418	25,055,767	27,497,704
6/30/09-6/30/10.....	22,005,129	39,339,739	27,867,618	30,698,915
6/30/10-6/30-11.....	20,394,637	36,733,526	28,328,338	26,793,647
Approximate per cent decrease or increase, 1911, over 1910....	7% D.	7% D.	2% I.	13% D.

The falling off in gross tonnage on the Montfort Junction-Galena line in 1911 was about 7 per cent—about the same relative decrease that the respondent experienced in its revenue-earning tonnage in its Wisconsin business and over its entire system. The Chicago, Milwaukee & St. Paul suffered an even heavier loss—almost 13 per cent. The Burlington alone of the three systems shows a gain, not quite 2 per cent, as compared with over 11 per cent in the preceding year. It will be noted that all the roads enjoyed a substantial increase in traffic from 1909 to 1910.

In view of the fact that no testimony to the contrary was offered, the Commission believes it only fair to assume that the falling off in 1911 tonnage on the branch in question of respondent's system was at least partly in line with a general decrease in business the country over, and only temporary.

Some weight was given at the hearing to the increase in shipments of live stock on this line that would follow if additional freight service north in the afternoon were given. The difficulty here appears to be, according to respondent's testimony, that it is impossible to get afternoon stock shipments on this branch into Chicago in time for the morning market, which is admitted to be absolutely essential. Otherwise there is a claim for shrinkage.

The more serious complaint, then, appears to concern the short time now allowed between the morning southbound and returning northbound passenger trains. The present service makes it practically impossible for a man to transact business at

points south and return the same day. The schedule of the way freight, which carries passengers, does not help this difficulty. An inspection of the table below brings out this point.

PASSENGER SERVICE BETWEEN MONTFORT JUNCTION AND BENTON.

Southbound trains.

No. of train.	Leave Montfort Junction.	Arrive Benton.
622.....	10:25 a. m.	11:58 a. m.
623 way freight.....	10:40 a. m.	3:20 p. m.
624.....	4:40 p. m.	6:14 p. m.

Northbound trains.

No. of train.	Arrive Montfort Junction.	Leave Benton.
629 way freight.....	11:15 a. m.	7:00 a. m.
623.....	10:00 a. m.	8:15 a. m.
625.....	3:25 p. m.	1:43 p. m.

The present passenger trains connect at Montfort Junction with Madison-Lancaster service, and connections at Madison determine the schedule for trains on both branches. Accordingly, a change in schedule of the present passenger service from Montfort Junction south would probably not be feasible, and no such change was suggested.

That an early morning train south and a late afternoon train north would be a great convenience to quite a large number of mining men operating from Platteville, as well as to a good many others having business to the south, seems reasonably clear. It appears from the testimony that an additional number of mining men would transfer their headquarters to Platteville, from where they could operate more efficiently than elsewhere if the proposed change in service were granted. A petition asking such service was signed by a large proportion of Platteville business men, as well as quite generally by residents of other towns on this line.

In the mining business the following classes appear to be affected: (1) Men with families living in Platteville or other small towns on this line, and in general those having fairly well paying positions. These men are obliged to live at or near the

mines, spending usually only week ends at home. With the desired service they would go back and forth every day. (2) Men obliged to live in Galena, as this town has an early morning train north. With the service prayed for these men would live in Platteville or Wisconsin towns on the line in question, and be in much better touch with their work. (3) People living in Wisconsin towns on this branch whose business continually takes them along this line or to Galena, where they are obliged to spend four or five nights out of every week because there is no late afternoon or evening train north to take them back.

According to the testimony, the lack of such a train on respondent's line makes it necessary for persons in Wisconsin towns on the Chicago, Burlington & Quincy Railroad, desiring to come to Platteville, to pass the night in Galena. This, it is claimed, deters the growth of the Platteville normal school. Prospective students from Prairie du Chien south, who would otherwise come to Platteville, prefer to go a greater distance to La Crosse, as this trip is much more easily made at present. It is also urged that the late hour of the morning train south seriously inconveniences the students living to the north, as it causes them to miss morning sessions when returning from their homes. The Platteville normal school has 320 students, and both contentions appear to have some justification.

What little testimony was offered relative to the value of trains 612 and 613, which give the service ordered by the Commission between Madison and Lancaster, would tend to bear out petitioner's statement that this service is of no great value to Montfort and towns west of Montfort. This conclusion is strengthened by the following figures submitted by respondent.

Business handled by trains 612 and 613 during the month of May 1912:

TOTAL PASSENGERS HANDLED.

	Train 612.	Train 613.
Total passengers.....	824	1,341
Daily average.....	31	50
Total earnings.....	374.72	\$566.06
Daily average.....	13.85	20.77

PASSENGERS WEST OF DODGEVILLE.

	Train 612.	Train 613.
Total passengers.....	100	261
Daily average.....	4	10
Total earnings.....	84.92	\$184.22
Daily average.....	3.15	6.82

TONNAGE HANDLED.

	<i>Eastbound.</i>		
	Out of Lancaster.	Out of Montfort.	Into Madison.
Total loads.....	0	10	50
Average loads per day.....	0	72	2
Total empties.....	0	12	112
Average empties per day.....	0	14	4
Total tons.....	0	4.66	4,616
Average tons per day.....	0	11	171
	<i>Westbound.</i>		
	Out of Madison.	Out of Montfort.	Into Lancaster.
Total loads.....	123	31	16
Average loads per day.....	5	1	$\frac{1}{2}$
Total empties.....	83	15	5
Average empties per day.....	3	$\frac{1}{2}$	$\frac{1}{2}$
Total tons.....	6,819	1,497	769
Average tons per day.....	252	55	28

The towns of Preston, Montfort, and Lancaster, which were notified nearly two weeks before the hearing at Platteville, did not oppose running these trains south from Montfort Junction. The additional cost of running these trains through Platteville instead of on to Lancaster is given by respondent as approximately \$35, without any stop at Montfort Junction.

Figures submitted by respondent as to passenger earnings for the month of July, 1912, show an earning of 83 cts. per train-mile. The Commission does not believe that in a question of service on a branch line the mere fact that passenger earnings for one month or an even longer period may be light or heavy

is in itself necessarily a deciding factor. Other questions must also be considered. Sufficient statistics were not submitted to show definitely the profits accruing from the operation of this branch. The fact, however, that those given showed a substantial increase in traffic in five years and that the testimony showed little or no change in freight or passenger service for ten years would not indicate that the operation of this branch had been unprofitable for the railroad. If, as the Commission has held in speaking of branch service (*Nelson et al. v. N. P. R. Co.* 1912, 8 W. R. C. R. 685): "Every part of a railroad system cannot be expected to be profitable" and "a railway company is generally in duty bound to furnish reasonably adequate service regardless of cost", it, of course, follows strongly that under certain circumstances, on a branch whose business has increased, the adequate service to the public may make it necessary for a railroad to operate a train which is not particularly profitable or even entails some loss.

The additional cost of changing trains 612 and 613 so as to run south from Montfort Junction instead of on to Lancaster was fixed by respondent at \$35 a day. This is not a very large amount. In view of the demand for the new service, on the basis of these figures, it is by no means clear that this service would entail much, if any, loss to the company.

Since it appears that the needs of the community require the additional service prayed for, and since there appears to be no objection by the towns of Montfort, Preston, Lancaster, or the farming community adjacent thereto, to changing trains known as 612 and 613 so as to run from Montfort Junction south through Platteville instead of on through Montfort and Preston to Lancaster, an order requiring this change must be entered.

Respondent, in its answer, alleges that to change trains 612 and 613 so as to run from Montfort Junction through Platteville instead of on to Lancaster will bring the southbound train through Platteville about 1:45 a. m. and thus be of little value at that point. Obviously a lay-over at Montfort Junction, or some other arrangement, will be necessary to avoid this difficulty. It would also seem clear that in order to continue the service now given by these trains to Dodgeville, Mt. Horeb, and Verona, and to give petitioner the service prayed for, an additional engine, tender and passenger coach will be necessary. The Commission is always reluctant to interfere in details of operation of this

kind unless absolutely necessary, and they are here left to the railroad management.

At the hearing respondent desired to know if, in case the proposed change in trains 612 and 613 was granted, a change in time of leaving Madison would be considered. The difficulty in any great modification of this service is that it was ordered to give Dodgeville, Mt. Horeb, and Verona people a good margin in which to transact business in Madison and return the same day. Obviously, under these circumstances, there can be no very radical change in the schedule. If, however, some small modification would render the execution of this order less burdensome to the company, the Commission will be glad to consider an application to that effect.

Now, THEREFORE, IT IS ORDERED:

1. That the Chicago & North Western Railway Company be and the same is hereby released from compliance with the order of the Commission in *Donald v. C. & N. W. R. Co.* 1911, 8 W. R. C. R. 320, insofar as that order requires it to furnish service there ordered beyond Montfort Junction;

2. That the Chicago & North Western Railway Company continue mixed trains, designated 612 and 613 in its time-table No. 275 of the Madison division, as of June 23, 1912, from Montfort Junction south daily, except Sunday, so as to pass through Platteville on its trip south not earlier than 7:00 a. m. and on its return north the same day not later than 10:00 p. m., and that the service now given by these trains between Montfort Junction and Madison be continued as heretofore.

TOWN OF SALEM

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted March 12, 1912. Decided Sep. 19, 1912.

Complaint was made by the town of Salem, Kenosha county, Wis., that a grade crossing of a highway with the C. & N. W. Ry., one mile east of Salem, is dangerous to human life. The view of the track is obstructed by the banks of a cut and by the curve in the tracks.

Held: The crossing requires protection and the respondent is ordered to install and maintain an automatic electric alarm bell, with illuminated sign for night indication. Sixty days is considered sufficient time in which to comply with this order.

The petitioner, a regularly organized town in the county of Kenosha, by its town chairman, alleges that a grade crossing of a highway with the tracks of the Chicago & North Western Railway Company, one mile east of Salem, is dangerous to human life. It is set forth that the angle of crossing is acute; that both the highway and railroad are on a curve at this point; and that the traffic on the highway, which is the main thoroughfare between Salem and Bristol, is extensive. The Commission is therefore asked to require the respondent to provide suitable protection for travelers on the highway.

The respondent, in its answer, denies that the crossing in question is dangerous or that alterations or improvements there are necessary. It therefore asks the dismissal of the petition.

A hearing was held on March 12, 1912, at the office of the Commission in Madison. *A. G. Pacey*, town chairman, appeared for the petitioner, and *C. A. Vilas* for the respondent.

The testimony and the report of the Commission's engineer show that at the crossing the railroad runs approximately east and west. To the west of the highway the tracks pass through an excavation from six to twelve feet deep, and enter a one degree curve about two hundred feet from the crossing. The highway parallels the track on both sides of the crossing until within about one hundred feet, where it curves sharply and intersects the track at an angle of 43 degrees, 30 minutes. Because of the

parallel position of the track and the highway, trains moving in the same direction as a traveler cannot be seen without looking back until the track is almost reached. Moreover, the view of approaching trains is obstructed by the banks of the cut to the east, and by the curve in the tracks. Estimates based upon casual observation of witnesses place the traffic over the highway at from forty to fifty teams per day. An actual count made by an employe of the respondent shows that from March 8 to March 11, inclusive, an average of six teams used the crossing between 7 a. m. and 7 p. m. each day. There is some night travel. About twice as many teams pass in the summer as in the winter. Witnesses for petitioner claimed that the highway is the shortest route between Salem and Bristol but that it is not much used at present, traffic being diverted by the danger of the crossing. There are four regular train movements in each direction over the railroad, in addition to which a switch engine passes each way daily. No serious accidents at this crossing are reported in the testimony, but a number were said to have been narrowly averted. Suggestion was made that the situation could be met by constructing a bridge over the tracks about five hundred feet west of the present crossing and re-locating the highway accordingly. Officers of the town of Salem stated that the town is willing to bear its share of the cost of such alterations. An exhibit of the respondent shows that at the point suggested the ground is from fourteen to sixteen feet above the rail north of the track and from seven to nine feet above it on the south side. The Commission's engineer reports that the separation of grade is feasible, but that the expense entailed is not warranted by the traffic. He states, however, that satisfactory protection may be had by the installation of an automatic, audible alarm, with a light for night indication. Counsel for the respondent, both at the hearing and in a brief submitted later, conceded the necessity of some protection and stated that his company was willing to install a bell at the crossing.

IT IS THEREFORE ORDERED, That the respondent, the Chicago & North Western Railway Company, install and maintain an automatic electric alarm bell, with illuminated sign for night indication, at the crossing one mile east of Salem station.

Sixty days is considered sufficient time in which to comply with this order.

JAMES E. HARRIS ET AL.
vs.
ILLINOIS CENTRAL RAILROAD COMPANY.

Submitted April 9, 1912. Decided Sep. 20, 1912.

The petitioners alleged that the service rendered by the I. C. R. R. Co. at Jonesdale, Wis., is inadequate, in that the station is closed and no agent is on duty when the night train, due at 10 p. m., arrives. Mail, express and baggage are carried through to Dodgeville and returned on the morning train. The night train is almost always late and there is no suitable waiting room available after the closing of the station. Taking into consideration the freight and passenger earnings, it appears that a small additional expense is warranted.

Held: The station service is inadequate for the needs of the public and respondent is ordered to open the station at Jonesdale for the convenience of the public not less than twenty minutes prior to the scheduled arrival of its northbound night train.

The petition, signed by forty-six residents of Jonesdale and vicinity, alleges that the service rendered by the Illinois Central Railroad Company at Jonesdale is inadequate, in that the station is closed and no agent of the company is on duty when the night train, due at 10 p. m., arrives. It sets forth that mail, express, and baggage are carried past Jonesdale by this train and returned on the morning train; that persons using the night train and living at a distance from Jonesdale are obliged to return on the following morning to secure their baggage; that no means are provided for ascertaining the time of arrival of the night train; and that no suitable waiting room is available for passengers after the closing of the station. The Commission is therefore requested to order the respondent to keep its depot open until the arrival and departure of the night train.

The respondent, in its answer, alleges that its service at Jonesdale is adequate, and that to keep its agent at the station until the arrival of the night train is unnecessary and would occasion unusual expense not justified by the traffic, in that two agents would have to be maintained. It therefore asks the dismissal of the petition.

A hearing was held on April 9, 1912, at the office of the Commission, in Madison. *James E. Harris* appeared for the petitioners, and *Jones & Schubring*, by *E. J. B. Schubring*, for the respondent.

The testimony shows that the station at Jonesdale is open between the hours of 6 a. m., and 6 p. m., and that an agent is on duty during this period. Two trains, an accommodation freight and a passenger, operate in each direction daily, except Sunday. Trains bound for Freeport stop at Jonesdale at 7:17 a. m. and 2:20 p. m., and those bound for Dodgeville at 11 a. m. and 10 p. m. Mail for Jonesdale, carried on the 10 p. m. train, is delivered to a hotel man in the pay of the respondent, who locks it in a box on the platform, except on Saturday night, when he delivers it to the postoffice which remains open on that night to receive and distribute mail. This arrangement was discontinued for a time and mail was carried on to Dodgeville by the night train and returned on the morning train, but recently the former practice has been resumed. With regard to express service, the testimony shows that consignments for Jonesdale which arrive on the night train are carried on to Dodgeville and returned on the morning train. Such consignments are not delivered to the consignees, even though they appear in person at the train, unless they are accompanied by the respondent's agent, then off duty. This has caused inconvenience to persons receiving live stock by express. Moreover, express from Jonesdale to Dodgeville is delayed an entire day in some cases, because it cannot be delivered to the night train in the absence of the agent. It is shown by the testimony that baggage belonging to passengers on the 10 p. m. train is carried through to Dodgeville and returned on the morning train unless called for at the baggage car by the owners on the arrival of the train at Jonesdale. A witness for the petitioners states that strangers have no means of knowing that they cannot secure their baggage at the station from an agent when they arrive, since tickets are sold and baggage is checked to Jonesdale. It is stated that persons desiring to secure their baggage on arrival have been obliged to wait until the following morning. The respondent's conductor testified that it is customary to ask passengers for Jonesdale what disposal they wish to make of their baggage at the time their fare is collected. The baggageman on the 10 p. m. train stated at the hearing that from Jan. 1, 1912, to April 9,

1912, baggage belonging to but five passengers had been carried through to Dodgeville, in each case with the approbation of the owner. Witnesses for both the petitioners and the respondent agreed that the night train is almost invariably late, varying from fifteen minutes to two hours behind its schedule. It is impossible for prospective passengers to ascertain the time of arrival of this train, because the telephone service at Jonesdale closes at 9 p. m. and no facilities for this purpose are provided by the respondent. It is further developed in the testimony that since the station is closed at the time this train is due, prospective passengers are obliged to wait on the open platform or seek shelter from private parties. A hotel and a store, near enough to the station so that persons can walk from them after the train whistles and catch it, afford shelter occasionally when the train is on time. But more frequently the hotel and other business houses are closed when the train arrives. At such times private houses have been resorted to for shelter. A witness states that he sheltered two passengers at his home, three hundred yards from the station, when the hotel and business houses were closed, after 10 o'clock on March 8, 1912. A count of passengers boarding the night train for seven days, March 29 to April 6, shows an average of two each day, and about the same number are said to alight from it or board it at Jonesdale. The respondents' conductor estimated the traffic on this train to average about one on and one off daily. The testimony shows that the immediate population of Jonesdale is about fifty. It has a cheese factory, two stores, a school, and a postoffice. It is surrounded by a well-settled farming community, and persons come from a distance of eight to ten miles to trade and to take the train there.

From a statement of freight and passenger revenue at Jonesdale, submitted by the respondent after the hearing, it appears that the freight business there is much more productive of revenue than the passenger business. For the year ending March 31, 1912, the freight revenue amounted to \$7,707, or an average of \$642.25 per month. For the same period passenger revenue totaled \$528.59, or an average of \$44.05 per month. The total freight and passenger revenue was \$8,235.59, or an average of \$686.30 per month. A statement of revenue by months follows:

Month.	Passenger revenue	Freight revenue	Total revenue frt. and pass'r
April, 1911.....	\$43 63	\$622 83	\$666 46
May 1911.....	49 68	351 09	400 77
June, 1911.....	48 02	343 14	391 16
July, 1911.....	33 01	450 39	483 40
August, 1911.....	100 87	871 91	972 78
September, 1911.....	44 76	451 45	496 21
October, 1911.....	42 49	1,202 22	1,244 71
November, 1911.....	36 70	1,757 15	1,793 85
December, 1911.....	36 35	767 80	804 15
January, 1912.....	30 51	314 19	344 70
February, 1912.....	31 42	323 84	355 26
March, 1912.....	31 15	250 99	282 14
Total.....	\$528 59	\$7,707 00	\$8,235 59

The petitioners desire to have the station open and an agent there when the night train arrives. They suggested at the hearing that the matter could be adjusted by requiring the present agent to meet the train. They pointed out that the station at Hollandale, about five miles south of Jonesdale, is kept open for this train with a single agent, although its arrival is only about ten minutes earlier. Respondent's counsel stated that to require an agent to meet the night train and to operate the telegraph to ascertain the time of its arrival would necessitate the employment of two agents in order to comply with the Sixteen Hour Railroad Labor Law. If he were not required to act as operator, the additional cost of his presence at the station at this time would be \$13 per month when the train is on time, and more when it is late. A witness for the petitioner stated that \$5 per month is paid by the respondent to the man who receives the mail from the night train. It was pointed out that this expense would be eliminated should the agent be on duty on its arrival. Deducting this expense, it appears that the cost of opening the station to shelter passengers and to receive express, mail, and baggage from the night train would be \$8 per month, provided the schedule is maintained.

The inconvenience occasioned by the late delivery of the mail is a matter which, while it may be remedied by improved station facilities, comes solely within the jurisdiction of the post office department. As to the other matters covered by the complaint, it seems that relief is possible at a slight expense on the part of the respondent. The regular hours of labor of the station agent might possibly be so arranged as to cover the period of an hour's service at night without additional expense to the company, and,

at the same time, accommodate the passengers who use the night train. If the company does not desire to employ its agent for this purpose, it can doubtless make arrangements with the person who handles the night mail to do this work. When people are obliged to travel long distances to reach the station they should not be deprived of its facilities and compelled to seek shelter in private residences in inclement weather when waiting for trains. While the passenger earnings are comparatively small, respondent's statement shows that the community ships and receives considerable freight and thus materially adds to the revenue of the station, so that any small expense which may be incurred by the railway company in complying with this order is fully warranted.

Considering all the facts in the case, we find that the station service at Jonesdale is inadequate for the needs of the public and that, to afford reasonably adequate service for the accommodation of passengers, the station should be open a reasonable length of time before the arrival of the night train.

THEREFORE, IT IS ORDERED, That the respondent, the Illinois Central Railroad Company, open its station at Jonesdale for the convenience of the public not less than twenty minutes prior to the scheduled arrival of its northbound night train.

CHARLES G. KING ET AL.

vs.

WISCONSIN TELEPHONE COMPANY.

Decided Sep. 24, 1912.

Petitioners pray for a higher class of telephone service at Altoona, Wis. Most of the subscribers are, at present, on rural lines with about ten parties on a line, and service is furnished through the Eau Claire exchange. It is thought that most of the subscribers will take four-party service if provided by the company. The cost of providing the higher class of service and the revenue to be derived was investigated. Subscribers within the $1\frac{1}{2}$ mile radius of Eau Claire have the right to substitute a higher grade of service at the higher rate for such service without regard to the cost of the construction work made necessary by the change. Consequently, it appears that the only portion of the equipment involved which can have an effect in fixing rates for Altoona patrons above the Eau Claire exchange rates is the portion of the line between the $1\frac{1}{2}$ mile limit from Eau Claire and the city of Altoona. The loss from discontinuing all use of certain portions of the present equipment with the change of service is such a loss as is provided for in the depreciation reserve. Petitioners ask for a four-party residence rate of \$15 per year. This rate is a customary rate for such service and would seem to be just for service within the $1\frac{1}{2}$ mile radius. Considering the additional investment required for the line beyond this limit, it does not appear that a rate as low as \$15 can be recommended for Altoona. A schedule of rates is recommended in which four-party service is offered at \$18 per year.

Held: Until subscribers indicate their desire for the new service at the higher rate it should not be ordered. It is ordered that the Wis. Tel. Co. be and the same hereby is required to install the new class of service when a majority of the subscribers of Altoona express their willingness to use such service, the rates for such service to be established as provided by the Commission.

This matter was brought before the Commission by a petition filed on Dec. 21, 1911, signed by thirty-nine residents of the city of Altoona. Hearing was held on April 15, 1912, at Madison. Appearances were: For petitioners, *Charles G. King*; for respondent, *J. F. Krizek*.

Supplementary testimony was taken on April 23, 1912, at which time *J. F. Krizek* appeared for the Wisconsin Telephone Company.

From the testimony it appears that there were at the time of hearing ninety-eight subscribers in Altoona, of whom two had two-party business service, four had four-party business service and the remaining ninety-two were receiving rural service with about ten parties on a line. There is no exchange in Altoona but service is furnished through the Eau Claire exchange, and subscribers receive unlimited service in Eau Claire, Chippewa Falls, and Altoona.

The original petition contemplated the establishment of an exchange at Altoona, and not more than two parties on a line.

At the time of the hearing a supplementary petition was introduced as one of the petitioner's exhibits, which asked for two-party service, but in which subscribers stated that they were willing to pay the same rates for such service as are paid in the cities of Eau Claire and Chippewa Falls. At the hearing it was stated, on behalf of the petitioners, that they would be willing to accept four-party service instead of the two-party service asked for, provided the cost of such service did not exceed \$1.25 per month. It appears to have been agreed, also, that petitioners will not insist on an exchange being established at Altoona if they can be furnished service through the Eau Claire exchange at the rate mentioned above.

The supplementary hearing dealt principally with the cost of the property which would have to be added in order to enable the Wisconsin Telephone Company to furnish two and four-party service to patrons in Altoona. It was estimated by the Wisconsin Telephone Company that within ten years there would be an increase of about fifty-five, so that the total number of subscribers at the end of the ten year period would be one hundred fifty-three, and that most of these subscribers would use four-party service in preference to two-party service at a higher rate.

Estimates were submitted of the cost of making the changes in construction which would be necessitated by the change in the class of service rendered. It was testified that a one hundred pair cable of nineteen gauge was considered advisable, although estimates were also submitted of the cost of installing a fifty pair cable. For a one hundred pair cable it was estimated that the additional cost would be \$5,000, and \$4,000 for a fifty pair cable. The value of other parts of the equipment involved in furnishing service in Altoona was estimated at \$2,266.

On July 18 and 19 an inspection was made of the Wiscon-

sin Telephone Company's lines running from Eau Claire to Altoona, under the direction of the Commission, with the object of determining the cost of installing a cable between the cities, and the value of existing lines.

The lead to Altoona consists of two fifty pair cables from the central office in Eau Claire to Grove street, two twenty-five pair cables from Grove street to the cable terminals between McGraw and Summer streets, a lead of 78 wires, including ten toll wires, on six twelve-pin cross-arms from the cable terminals to the "Branch-off south" at Margaret street, and a lead of forty-eight wires, diminishing to thirty-eight wires, from this point to Altoona. The ten toll wires continue through to Altoona, leaving twenty-eight wires or fourteen lines for the service of the ninety-eight telephones in Altoona. Estimates of the cost of installing one hundred pair and fifty pair cables were made by the engineering staff of the Commission, which estimates were somewhat above those submitted by the Wisconsin Telephone Company. According to the estimate of representatives of the Wisconsin Telephone Company most of the subscribers and prospective subscribers at Altoona will use four-party service. This appears to be a reasonable conclusion, and according to this a fifty pair cable will be large enough to handle the service.

From the cable terminals to the "Branch-off south" there is a lead of seventy-eight wires, thirty-two of which turn south at Margaret street, furnishing service to rural subscribers. There is room for no more cross-arms on these poles and six of the wires are now placed under the cross-arms on porcelain knobs. An estimate has therefore been made of the cost to install a seventy-five pair cable from the central office in Eau Claire to the "Branch-off-south", and a fifty pair cable from that point to Altoona. Part of the cost of the seventy-five pair cable has been apportioned to Altoona business and part to the other service supplied. Part of the cost of the pole line has been apportioned to the toll business and part to Altoona service. The total estimated cost of the construction which will be necessary in order to furnish the higher grade of service is \$4,496. The estimated value of the distribution system properly chargeable to the Altoona service, between the Eau Claire central office and the city of Altoona, is \$2,018 new, or \$1,230 present value.

For its exchanges at Eau Claire and Chippewa Falls the Wisconsin Telephone Company provides that all parties within

a radius of one and one-half miles of the central office shall receive service at regular exchange rates, but that a charge of \$6 per year per quarter mile will be made for each line extended beyond the one and one-half mile radius, this additional charge to be divided equally among all parties on the line. If the city of Altoona, therefore, were located at any point within the one and one-half mile radius from the Eau Claire, central office, subscribers in that city would be entitled to regular exchange service and rates, even though the expense of putting in cable to reach these subscribers were the same, up to the one and one-half mile limit, as it would be in the present case up to that limit.

If a subscriber within the one and one-half mile radius desires to change from one class of service to another, as from four-party residence to one-party residence, he has the right to do so, subject, of course, to his obligation to pay the higher rate for the higher grade of service. If Altoona were within the one and one-half mile limit, it appears that subscribers would have the right to discontinue the ten-party service and to substitute two or four-party service without regard to the cost of construction work made necessary by that change. It does not seem unreasonable, therefore, to expect that, in case the patrons at Altoona desire to receive a higher grade of service, the Wisconsin Telephone Company shall do such construction work as may be necessary to reach the one and one-half mile limit, without such work resulting in an increase in the rates to Altoona subscribers beyond the regular exchange rates.

The substation equipment, service, wire, etc., at Altoona are practically the same as would be required in case Altoona were within the one and one-half mile radius. They are not portions of the equipment which are peculiar to the situation which exists at Altoona, but are essential to telephone service, no matter what the location. Consequently, it appears that the only portion of the equipment involved which can have an effect in fixing the rates to Altoona patrons above the regular Eau Claire exchange rates is the portion of the line between the one and one-half mile limit and the city of Altoona. From the staff's report upon the situation it appears that approximately 7,400 feet of fifty pair cable will be required to reach from the one and one-half mile limit to the city of Altoona. The cost in place, including the terminal, will be about \$2,185. The existing pole line will be used, but the open wiring now used

in connection with local service at Altoona, and a portion of the cross-arms will be put out of service. The cost new of such open wiring is estimated at \$512. Adding to this the cost of cross-arms discontinued, we find a total cost new of all property discontinued, between the one and one-half mile limit and city of Altoona, of about \$650. The present value is about \$470.

It may seem at first that the value of the property discontinued should be added to the cost of the new construction in determining the total cost of service, but this loss should rather be handled in the same way as decreases in property value due to wear and tear. The depreciation reserve should ordinarily be sufficient to provide for wear and tear, obsolescence, and inadequacy. It has been a very common experience of telephone utilities that portions of their systems have had to be discontinued and replaced by more modern types of equipment before such portions were actually worn out. The present instance seems to constitute such a case. From the testimony it appears that the city of Altoona first received telephone service in 1900. There has been a considerable development of business there since that time but the class of service furnished is not what would ordinarily be considered adequate for urban service. In view of all the circumstances it seems that the loss from discontinuing all use of certain portions of the property, with the introduction of a higher grade of service, is such a loss as should be provided for in the setting aside of a depreciation reserve. This inadequacy is one of the elements which tends to make the composite life of a telephone utility of short duration.

To the estimated cost of cable from the one and one-half mile limit to the city of Altoona, amounting to \$2,185, should be added the value of other line equipment between the same limits, which would be used for the Altoona service. The cost new of such property is about \$190 and the present value about \$135, so that the total investment occasioned by the Altoona service, in addition to what would be required by a similar community situated just within the one and one-half mile limit, is approximately \$2,375. Taxes, interest, and depreciation on property of this class would amount to very nearly \$400. Not all of the cable capacity would be used at first, but good business policy seems to require the installation of not less than a fifty pair cable, as being most economical in the end, and inter-

est and depreciation have been computed upon the full value, although a somewhat lower interest rate for a few years may be reasonable.

The Wisconsin Telephone Company states that because of the distance from the central office in Eau Claire, the cost of maintaining this line will be higher than the maintenance cost of similar urban lines. The total amount of this added maintenance cost cannot be stated with any degree of accuracy, but apparently it would be so small as to be relatively unimportant.

The average daily calling rate from Altoona stations was stated to be ten per day, which is practically the same as the rate for the entire Eau Claire exchange.

For the present it is believed that revenue amounting to somewhat less than \$400 per year will be sufficient for interest, depreciation, and taxes on the added investment. If rates are fixed on this basis, the addition of new subscribers will increase the rate of return to be earned in the future. Since the testimony shows that the calling rate is practically the same as for Eau Claire subscribers, Altoona patrons are not entitled to a lower rate per phone because of the nature and extent of the use made of the service.

According to the schedule on file the rates of the Eau Claire exchange are as follows, for the classes of service involved in this case:

One-party business	\$48.00	per year	
Two " "	36.00	"	
Four " "	27.00	"	(discontinued)
One " residence	24.00	"	
Two " "	18.00	"	

Applicants ask for a four-party residence rate of \$15 per year. Although there is no four-party residence rate on file for the exchanges in Eau Claire and Chippewa Falls, it is the general practice of the Wisconsin Telephone Company to charge a four-party rate of \$15 per year in connection with rates for one and two-party residence service as listed above, when provision is made for four-party service. There are a few exceptions to this, but only a few.

The question of the reasonableness of the general rate schedules of the Eau Claire and Chippewa Falls exchanges is not involved in this case. A rate of \$15 per year for four-party residence service does not, however, appear to be an unreasonable part of a rate schedule as now in effect in those cities within the one and one-half mile radius.

The Wisconsin Telephone Company has suggested the following schedule of rates for the new service to Altoona:

One-party business	.....	\$60.00	per year
Two " "	.....	48.00	"
Four " "	.....	30.00	"
One " residence	.....	36.00	"
Two " "	.....	24.00	"
Four " "	.....	18.00	"

Most of the subscribers at Altoona will apparently take the four-party residence rate. In view of the fact that, as pointed out above, a considerable amount of investment must be incurred in order to give this service, it does not appear that a four-party rate as low as \$15 per year can be recommended. The rate of \$18 per year for this class of service seems to be reasonable. Other rates need hardly be as high as suggested by the respondent. A schedule as outlined below is believed to be just and reasonable:

One-party business	.....	\$54.00	per year
Two " "	.....	42.00	"
Four " "	.....	30.00	"
One " residence	.....	36.00	"
Two " "	.....	21.00	"
Four " "	.....	18.00	"

As the schedule will result in a higher class of service than at present furnished to Altoona, at a rate higher than the present rate of \$15 per year for ten-party service, it is not thought advisable to order the change to be made. In case subscribers desire the new service at the rates recommended above, the Wisconsin Telephone Company should make the changes necessary to furnish such service, but until subscribers indicate their desire for the new service at the higher rate, it should not be ordered into effect. No further order will therefore be made at this time, than that the Wisconsin Telephone Company shall install the new class of service when a majority of the subscribers at Altoona express their willingness to use such service at the rates indicated.

NOW, THEREFORE, IT IS ORDERED, That the Wisconsin Telephone Company be and the same is hereby required to install the new class service hereinbefore mentioned when a majority of the subscribers of Altoona express their willingness to use such service, and that the rates for such service shall be established as indicated.

IN RE DETERMINING AND FIXING JUST COMPENSATION TO BE PAID TO THE WHITEWATER WATER WORKS COMPANY BY THE CITY OF WHITEWATER FOR THE PROPERTY OF SAID COMPANY, IN ACCORDANCE WITH THE PROVISIONS OF CHAPTER 499 OF THE LAWS OF 1907, AS AMENDED.

Submitted Sep. 25, 1912. Decided Sep. 27, 1912.

Application was made by the city of Whitewater, Wis., for a determination of the just compensation to be paid to the Whitewater Water Works Co. for its water plant. The matter was submitted upon an agreement or contract entered into by the city and the company. A valuation of the property used and useful for the convenience of the public was made by the Commission.

Held: The terms and conditions of sale provided in the contract fairly and fully subserve all requirements of the public interest and of the city of Whitewater. It is ordered that the just compensation to be paid by the city for the taking of the property be fixed pursuant to the contract at the sum of \$75,000, and that the terms and conditions of the contract be approved.

On Aug. 26, 1912, the city of Whitewater filed its petition with this Commission, setting forth, among other things, that the city of Whitewater is a municipal corporation, existing and doing business as such under and by virtue of ch. 227 of the Laws of 1885, as amended by ch. 121 of the Laws of 1887, ch. 221 of the Laws of 1889, and ch. 405 of the Laws of 1891; and that the Whitewater Water Works Company is a Wisconsin corporation, having and operating a waterworks plant and equipment under an indeterminate permit in the city of Whitewater, Wis., as a public utility under ch. 499 of the Laws of 1907, as amended, and that its principal place of business is in the city of Whitewater; that the Whitewater Water Works Company owns all of the property, plant, equipment, rights, and franchises of the waterworks utility in this city, subject, however, to the lien of a bond mortgage or trust deed for approximately \$73,500 of bonds and the accrued interest thereon.

The petition further states that an agreement had been reached by the city, acting through its authorized officers, subject to the approval of a majority of the electors of the city voting thereon and of this Commission, with such company and

the holders of such bonds, through their duly authorized agents, for the sale to and the purchase by the city of all of the land, buildings, fixtures, plant, equipment, mains, hydrants, appliances, appurtenances and equipment, and all of the rights, privileges, and property of every nature and description of the utility located in the city of Whitewater, except current supplies and stored materials on hand and not a part of the waterworks plant and system, free and discharged of each and every mortgage, lien, claim, charge or liability whatever, for and in consideration of the sum of \$75,000 in cash.

The petition further states that the city proposes and desires to effect such purchase and acquisition of the plant and property under and pursuant to the terms and provisions of ch. 665 of the Laws of 1907, and for that purpose to issue and sell its municipal bonds to the sum of \$35,000 and plant mortgage certificates to the sum of \$40,000, and that the proposed purchase had been favorably acted upon by the common council and submitted to the electors of the city at a special election duly noticed and held on July 30, 1912, and approved by a majority of the electors voting thereon, and that the city had duly adopted, as amendatory of its special charter, secs. 925-133 and 925-142a of the Statutes, by virtue of which it is authorized to issue bonds for such purpose and to levy and collect taxes to pay the principal and interest on such bonds.

The prayer of the petition is as follows:

“Wherefore, The city of Whitewater, pursuant to secs. 1797m-79, 1797m-81, and 1797m-82 of the Public Utilities Law, petitions the Commission that it give such notice, hold such hearing and make such investigation as the law requires and that it make and issue its order authorizing and approving the sale and purchase, as hereinbefore set forth, and such further order as the Commission may deem necessary and just in the premises.”

The matter was set for hearing at 2 p. m. on Sep. 25, 1912, at the Commission's office in the capitol at Madison, and notice thereof was duly served upon and service acknowledged by the attorneys for the city and for the company Aug. 26, 1912.

The petition of the city of Whitewater came on to be heard, pursuant to notice, on Sep. 25, 1912, at the office of the Commission at Madison, Wis. The city of Whitewater was represented by *H. O. Hamilton*, its city attorney, and *Walter Drew*,

and the Whitewater Water Works Company appeared by *Ray M. Stroud of Olin, Butler & Curkeet*, its attorneys.

Proof of the due publication by the city of Whitewater of the notice of hearing in this matter, as required by sec. 1797m-82 of the Statutes, as amended, was produced and filed with the Commission. The following contract, duly executed by the city and the company, was produced and filed:

“THIS AGREEMENT, made this 25th day of September, 1912, by and between the Whitewater Water Works Company and the City of Whitewater, Wisconsin,

“WITNESSETH, THAT,

“1. The Company agrees to sell and the City agrees to buy that certain waterworks plant and system heretofore owned and operated by the Company in the City of Whitewater.

“2. The City agrees to pay, as consideration for the said plant and system, the sum of Seventy-five Thousand Dollars (\$75,000) cash,

“3. The Company agrees to deliver to the City all abstracts and title papers, in its possession May 10, 1912, touching title to real property owned or claimed to be owned by the Company. (Compliance with this paragraph is acknowledged by the City.)

“4. The Company agrees to convey the said plant and system by warranty deed free and clear of each and every mortgage, lien, claim, charge or liability whatsoever, save only taxes levied after the year 1911.

“5. The words “plant and system” as used here, shall not be taken to include cash, accounts, corporate books and records, or current supplies and stored materials on hand and owned by the Company and not physically incorporated in the said plant and system.

“6. This agreement shall be and become wholly null and void and of no effect unless consummated on or before the first day of November 1912.

“7. Neither this agreement nor anything in the negotiations preceding the same shall be taken or be contended to be an acknowledgment, admission or declaration of value of the said waterworks plant and system and the City agrees that neither it nor any representative of it shall assert or contend the making of this agreement or anything in any of the negotiations preceding the same to be an admission or acknowledgment as to the proper value of the said waterworks plant and system. Nothing herein or in the negotiations had anticipatory of the sale herein contemplated shall prejudice the right of the Company, before the Wisconsin Railroad Commission or elsewhere, to assert and maintain the proper value of said plant and system to be in excess of the sum agreed to be paid and accepted therefor.

“Executed in triplicate.

“IN WITNESS WHEREOF the Whitewater Water Works Company has caused this agreement to be signed, in its behalf, by its President, and attested by its Secretary, under its corporate seal, and the City of Whitewater has caused this agreement to be signed, on its behalf, by its Mayor and attested by its City Clerk, under its corporate seal, all the day and year first hereinabove mentioned.

(SEAL) “WHITEWATER WATER WORKS COMPANY,
 “WHITEWATER WATER WORKS COMPANY.
 “By Chester Corey,

“Attest: Robert O. Lord,
 “Secretary.

(SEAL) “CITY OF WHITEWATER,
 “By D. F. Zuill,
 “CITY OF WHITEWATER. Mayor.

“Attest: F. G. Holmes,
 “City Clerk.”

After careful consideration of the record herein and of the report of the engineers of the Commission of a tentative inventory and appraisalment of the physical property of the Whitewater Water Works Company, we find and determine that the value of the property covered by the contract is not less than the sum of \$75,000, and that such property is actually used and useful for the convenience of the public by the city of Whitewater, and that the terms and conditions of purchase and sale, as provided in the contract, fairly and fully subserve all requirements of the public interest and of the city of Whitewater in the premises.

NOW, THEREFORE, IT IS ORDERED, That the just compensation to be paid by the city of Whitewater for the taking of the property of the company by the city of Whitewater described in such contract be and the same is hereby fixed and determined, pursuant to the contract, at the sum of \$75,000.

IT IS FURTHER ORDERED, That the terms and conditions of sale provided in the contract be and the same are hereby approved.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, AS TO THE ADVISABILITY OF SEPARATING THE GRADES OF A HIGHWAY CROSSING OVER THE TRACKS OF THE CHICAGO, ST. PAUL, MINNEAPOLIS AND OMAHA RAILWAY COMPANY, AT YOLO, WISCONSIN.

Submitted July 18, 1912. Decided Oct. 4, 1912.

Upon complaint the Commission, on its own motion, investigated the crossing of the C. St. P. M. & O. Ry. Co. at Yolo, Wis., where a fatal accident had occurred. The track runs through a cut and the view from the highway is otherwise obstructed.

Held: The crossing is dangerous and requires some method of protection. The respondent is ordered to install and maintain an automatic alarm bell, with an illuminated sign for night indication. Sixty days is deemed a sufficient time within which to comply with this order.

This proceeding was instituted on motion of the Commission, upon complaint that an accident, resulting in the death of a boy, the injury of a man and the loss of a horse, occurred on a highway crossing over the tracks of the Chicago, St. Paul, Minneapolis & Omaha Railway Company, at Yolo, Wis., on Sep. 1, 1911.

Hearings were held at the office of the Commission in Madison, Wis., on Oct. 17, 1911, and at the crossing in question on July 18, 1912. At the first hearing *George L. Peterson* appeared for the Chicago, St. Paul, Minneapolis & Omaha Railway Company. At the second hearing *P. Hotchkiss* represented the town of Fremont, and *R. L. Kennedy* the Chicago, St. Paul, Minneapolis & Omaha Railway Company.

The testimony and the reports submitted by the engineering department of the Commission show that the crossing at Yolo is unusually dangerous, because of unfavorable physical surroundings. The highway runs approximately north and south, and the railroad east and west. The railroad passes through a cut which is seven or eight feet deep at the crossing, and this cut extends seven hundred feet to the west and four hundred and fifty feet to the east of the highway. The angle of crossing is 48 degrees. From points about one hundred feet north

and one hundred feet south of the track, the highway descends five feet to the grade crossing.

Approaching from the south on the highway, the view of trains from either direction is obstructed from a point one hundred and fifty or two hundred feet from the track to where the highway enters the railroad excavation. Approaching from the north on the highway the view of westbound trains is obstructed from a point one hundred feet from the crossing to the edge of the railroad excavation. Eastbound trains cannot be seen from the north approach after passing a point one hundred and fifty or two hundred feet from the crossing until the track is reached. The obstructions to vision are the cut, the uneven topography, a house and barn, trees, shrubbery, and growing corn. The railroad is on a descending grade from east to west, and it is usual for westbound trains to drift down to the crossing with steam shut off, making less noise than under ordinary conditions. Moreover, the cut through which the trains pass interferes to some extent with the effectiveness of the whistle on approaching the crossing. The highway is an important one, connecting with Lynn, Chili, Neillsville, and other points. A witness estimated that about ten or twelve vehicles including a number of automobiles pass the crossing daily. An estimate made by an engineer of the Commission places the traffic at an average of from twenty to thirty teams and twenty pedestrians during a twenty-four hour period. The testimony shows that in addition to the accident which occasioned this proceeding, a fatal accident occurred about 1898, and that several persons have had narrow escapes at this crossing. Evidence was introduced to show that at an earlier date the railway company had offered to construct a highway bridge at the crossing, but the town authorities opposed that action. Members of the town board of Fremont testified that they are now opposed to the separation of grades because of the expense to the town, the increased grade on the highway, and the interference with winter traffic occasioned by a wind-swept bridge. They stated that a warning bell which could be relied upon would afford satisfactory protection, and the representative of the railway company signified its willingness to install such protection.

From the testimony offered in this matter it is evident that the crossing in question is dangerous, and that some method of

protection is necessary. Inasmuch as the traffic on the highway is not very heavy, we believe that an alarm bell with an illuminated sign for night indication will afford satisfactory protection at this crossing.

IT IS THEREFORE ORDERED, That the Chicago, St. Paul, Minneapolis & Omaha Railway Company install and maintain at the intersection of its line with the highway at Yolo, Wis., an automatic alarm bell, with an illuminated sign for night indication.

Sixty days is regarded as a sufficient time within which to comply with this order.

O. D. STREETER ET AL.

vs.

CHICAGO, ST. PAUL, MINNEAPOLIS AND OMAHA RAILWAY COMPANY.

TOWN OF LINCOLN

vs.

CHICAGO, ST. PAUL, MINNEAPOLIS AND OMAHA RAILWAY COMPANY.

Submitted July 17, 1912. Decided Oct. 4, 1912.

Petitioners alleged that the Johnson crossing situated $2\frac{1}{2}$ miles west of the village of Warrens, in the town of Lincoln, Monroe county, Wis., was closed during reconstruction work on the tracks of the C. St. P. M. & O. Ry. Co. and that it has not been reopened. It is stated that in the meantime a private crossing has been used with the permission of the property owner. Respondent in its answer alleged that the highway formerly crossed at grade, but that in reconstructing the roadbed of the railroad the tracks were lowered, and to reopen the crossing would necessitate the construction of an overhead bridge at an expense greater than that justified by the traffic. It appears that it can be made at grade on the former site in a satisfactory manner. Since the railroad and highway will pass through excavations, some method of protection will be required.

Held: The crossing should be restored. Respondent is ordered to reopen the crossing and place it in proper condition for public use. It is further ordered that the respondent install and maintain an automatic alarm bell with an illuminated sign for night indication. Sixty days is deemed a reasonable time within which to comply with this order.

These proceedings relate to the closure of a highway crossing known as the Johnson crossing, situated two and one-half miles west of the village of Warrens, in the town of Lincoln, Monroe county, Wis. Two petitions, one signed by the chairman of the town of Lincoln and the other by thirty-seven citizens and taxpayers of the town of Lincoln, allege in substance that the Johnson crossing was closed during reconstruction work on the tracks of the Chicago, St. Paul, Minneapolis & Omaha Railway Company, in August 1911, and that it has not been reopened. It is alleged that in the meantime a private crossing has been used by teams passing over the highway subject to the permis-

sion of the owner. The Commission is therefore asked to require the respondent to reopen this crossing.

The respondent, in its answer, alleges that the highway formerly crossed the railroad at grade, but that since the reconstruction of the railroad the road is higher than the tracks at the point of crossing and that to reopen the crossing would necessitate the construction of an overhead bridge at an expense greater than justified by the traffic. It sets forth that an improvised road for public travel has been provided with a crossing at grade, lying entirely within the company's right of way; and that the crossing facilities can be made adequate by the use of this improvised crossing and the construction of highway connection to it. The respondent acknowledges the authority of the Commission in the matter of alterations and states that it will voluntarily submit to a reasonable apportionment of the costs involved.

A hearing was held on July 17, 1912, in Woodman Hall, Warrens, Wis. *O. D. Streeter* appeared for the petitioners, and *R. L. Kennedy* for the respondent.

The testimony shows that the highway in question was formally laid out by the town authorities in 1886, but that it was used as a wagon trail before that time. It crossed the railway company's tracks at grade. In the summer of 1911 the respondent reconstructed its roadbed in this district, lowering the tracks at this highway crossing. During the work of reconstruction the highway was closed. Later a crossing was constructed about three hundred feet west of the former crossing. This crossing was connected with the highway by approaches in part on the respondent's right of way, and in part on private property. It was used by the public with the permission of the property owner. The original crossing has never been officially vacated by the town authorities, nor has the respondent requested that such action be taken. It was shown at the hearing that the private crossing now used by the public is in poor condition for teaming. Moreover, from the south approach on the road trains cannot be seen in either direction until one is close to the track because of the obstruction to vision offered by the embankment of the former roadbed, which has not been removed. It was stated that trains frequently pass the crossing without whistling. Witnesses testified that the site of the former crossing is more available than the improvised

one now in use, in that the railroad excavation at the former site is only about five feet deep on one side and ten feet deep on the other, and the view of approaching trains would not be seriously obstructed, except for a comparatively short distance on both sides of the tracks by grading the highway to the level of the railroad. Traffic over the highway at this point is light, but the road is important, since it serves as the outlet to a relatively large, though sparsely settled district. It connects with a highway that leads to Warrens, Millston, and Rudds. A witness estimated that about ten or twelve teams a day passed the crossing before it was closed. Some of this traffic has been diverted by the unfavorable conditions at the crossing, but the road is still used to a considerable extent. During the summer months loads of berries and fruit are frequently hauled over the crossing, and wood is hauled at all seasons. An employe of the respondent counted the traffic at the crossing from 7 a. m. to 11 a. m., and from 2 p. m. to 5 p. m., for seven days, about Nov. 1, 1911, and testified at the hearing that only two teams passed while he was at the crossing. A witness for the petitioners stated, however, that at the time this observation was made the crossing was practically impassable, and that the private crossing had not then been constructed.

From the evidence submitted, it is clear that the highway in question was used by the public before the crossing was closed by the respondent, and it therefore seems reasonable that it should be reopened for public use. We are of the opinion that it can be reopened at grade on the former site in a satisfactory manner. The fact that both the railroad and the highway will pass through excavations at the crossing, however, will make the installation of some warning device necessary for the safety of travelers. An electrically operated bell should be installed so that persons using the crossing can be advised of the approach of trains in each direction.

IT IS THEREFORE ORDERED, That the respondent, the Chicago, St. Paul, Minneapolis & Omaha Railway Company, reopen the crossing two and one-half miles west of Warrens and place it in a proper condition for public use.

IT IS FURTHER ORDERED, That the respondent install and maintain at such crossing an automatic alarm bell with an illuminated sign for night indication.

Sixty days is deemed a reasonable time within which to comply with this order.

IN RE APPLICATION OF THE PLATTEVILLE, REWEY AND ELLENBORO TELEPHONE COMPANY FOR MODIFICATION OF PREVIOUS ORDER, FOR ADJUSTMENT OF RATES, AND FOR OTHER RELIEF.

Submitted March 28, 1912. Decided Oct. 4, 1912.

Application was made by the Platteville, Rewey & Ellenboro Tel. Co. for a modification of the Commission's former order, (7 W. R. C. R. 608) so that the new rates, which were to be put in effect only upon completion of a metallic system over the entire plant, may be made effective as to any subscriber as soon as that subscriber's service is made metallic. Owing to the large number of rural lines, it will require several years before the entire system can be reconstructed and the applicant alleges that during this time it will not receive an adequate return on the investment if some subscribers are provided with metallic service at the rates for grounded service.

Held: It does not seem to be unreasonable to charge a higher rate for metallic than for grounded service, even though part of the business consists of messages passing over both grounded and metallic lines. However, the best interests not only of rural patrons, but of all local users who have occasion to talk over rural lines require that they be made metallic and the utility is required to install metallic service as soon as possible. The Commission's former order is amended so as to permit the utility to place in effect the rates authorized in that decision for city patrons at such times as all city lines have been made metallic, provided that the increase in rates is not to take effect until the applicant has brought its accounting practice into conformity with the rules of the Commission.

In order to secure subscribers, the company in the present case offered both a business and a residence phone to a number of business men upon a single share of stock. Under this arrangement the amount which these people paid for their phones was represented by the assessment on the one share of stock and was, therefore, equal to the amount paid for a single phone by other subscribers. The applicant has passed beyond the purely mutual stage and has entered business as a public utility furnishing service to other than its own stockholders, consequently it cannot be permitted to furnish free or reduced rate service and it is obliged to charge all patrons, whether stockholders or not, the same rate. This rate must be fixed and certain, and cannot be in the form of a stock assessment which may vary from year to year. Any departure from this constitutes a discrimination within the meaning of the Public Utilities Law and is prohibited. The utility in the present case is ordered to bill all telephones in accordance with its schedule of rates on file.

Rules providing penalties for failure to pay bills promptly should be formulated so as to protect the company without being an unreasonable burden upon such users as may find themselves temporarily unable to meet their bills promptly. Ordinarily

a penalty of 15 cts. per month for failure to pay promptly has been found sufficient in the case of telephone subscribers, and a rule providing for this penalty in case bills are not paid within fifteen days after due is authorized in the present case.

Where a patron allows his bills to run until it becomes necessary to disconnect him from the lines of the utility, it is only reasonable that he and not the utility should bear the expense of reconnection in case he again desired to have service. The proposed regulations for discontinuing service in case payment is not made within one month of the time when it is due and to exact a charge of \$1.50 in addition to rentals due for reconnection of such subscribers does not seem to be unreasonable in the present case.

The application in this matter was filed with the Commission on March 6, 1912. Exclusive of the usual formal allegations, the petition states:

1. That on Aug. 15, 1911, the Commission issued an order in the case *In re Platteville, Rewey & Ellenboro Tel. Co.* 1911, 7 W. R. C. R. 608, authorizing an increase of rates, such rates to become effective upon completion of a metallic system over the entire plant; that it is the intention of the applicant to install a metallic system over its entire plant as soon as possible, but that owing to the large number of rural lines it will necessarily require several years before the entire system can be reconstructed and before the applicant will be in a position to put in effect the increased rates prescribed in the decision mentioned above; that during such reconstruction period the applicant is necessarily obliged to discriminate between its subscribers, in that some have grounded lines and others have metallic lines, although rates for both classes of service are the same; that the applicant will not receive an adequate return for the reason that it will be compelled to furnish some subscribers with metallic service at the rates intended for grounded service.

2. That the applicant is put to unnecessary trouble because its schedule of rates does not provide a discount for prompt payment; that its rules do not provide for cutting off the service of a subscriber who does not pay promptly; that numbers of subscribers are delinquent; and that legal procedure sometimes has to be used to secure payment.

3. That when the applicant established its exchange in Platteville another telephone system was furnishing service in that city; that in order to get the business men and citizens of the city to subscribe, the applicant agreed to furnish anyone

stock with service for two telephones on the same line, one in the residence and one in the place of business; that this offer was open to all subscribers to stock and that about twenty-three of the new stockholders took advantage of the offer and have since been receiving service for two telephones at the rate fixed for one.

Applicant asks that the order in this case provide:

1. That the rates prescribed in the order of Aug. 15, 1911, shall become effective in the case of any subscriber as soon as such subscriber is furnished with the metallic service.

2. That all rates shall be increased 25 cents per month when payments are not made within fifteen days from the first of the month, and that the applicant be allowed to discontinue service in case payment is not made within one month of the time when it is due, and that a charge of \$1.50 in addition to rentals due shall be provided for reconnection of such subscribers.

3. That the Commission make such order relating to subscribers as have two telephones at the price of one, as may seem just and reasonable.

Hearings were held at Madison March 28, 1912, and at Platteville June 17, 1912. Appearances were as follows, at both hearings: For the applicant, *Gardner & Gardner*; for certain persons who claim the right to two phones at the price of one, *R. A. Goodell*.

Testimony was taken upon all points in the application, but principally upon the question of the use of two phones at the rate for one. Testimony upon each of the matters under consideration has been carefully considered in connection with the conclusions reached in this decision, and it is not necessary to present any review of the testimony at this time. Matters touched upon in the application will be considered here in the order in which they are mentioned above.

The order of the Commission mentioned in the application, dated Aug. 15, 1911, provided for a new schedule of rates, which were to be put in effect only when the entire system had been put upon a metallic basis. Applicant asks for a modification of this order so that the new rates may be made effective as to any subscriber as soon as that subscriber's service is made metallic. It was contended that a number of years would be required before a complete change to a metallic service would be

instituted, and that during these years such portions of the system as were first to be placed upon the metallic basis would be supplied with equipment upon which the rates now in effect would not provide for a return.

In opposition to this section of the application the testimony offered related to the quality of the service furnished upon systems where part of the phones are upon the metallic lines and part on the grounded lines. It was contended that when a connection is made between a grounded and a metallic line, the service rendered is not as satisfactory as if both lines were metallic. It was argued, too, that certain business men of Platteville, whose dealings were almost entirely with farmers, would not be substantially benefited by the metallic service until rural lines were also made metallic.

This argument undoubtedly is based on facts and if all, or a relatively large part of the communication over the telephone system were between rural lines and city lines, it might be questionable whether the use of metallic lines within the city would so improve service to city patrons, as compared with the service furnished rural subscribers, as of itself to warrant the introduction of a higher rate for metallic than for grounded service. What is true of those city subscribers whose business is almost entirely with rural patrons, however, is hardly true of the greater part of city subscribers. Peg counts taken under conditions comparable to those at Platteville, notably at Mineral Point and Richland Center, show that the amount of communication over telephone lines between rural and urban patrons is not the most important of the total business of the utility. The largest part is the business done wholly within the city, although there is also a portion of the business handled by the central office which passes over rural lines entirely.

If an individual subscriber on a city line were furnished metallic service, while all or the greater part of those with whom he could receive telephonic connection were on grounded lines, there might be some question as to the justice of charging that subscriber a higher rate for his service than was charged for grounded service, although even in that case his service would be somewhat improved because of the metallic return. When a large part of the business of the exchange is done entirely over metallic city lines it does not seem to be unreasonable to charge a

higher rate for metallic than for grounded service, even though part of the business consists of messages passing over both grounded and metallic lines.

The testimony shows that the applicant has over 200 miles of rural pole line which would require a considerable time for changing to the metallic basis. The total number of subscribers is about 1,100, but the report filed by the utility is so incomplete that the exact number of subscribers is not known. It appears that somewhat over half of the subscribers are on rural lines.

The testimony also shows that the applicant is now installing a 250 pair cable, which will enable metallic service to be furnished to approximately half of the city subscribers. It appears, also, that there are two cables now in use of 100 pair each which can be used for metallic service at a relatively small additional cost. Assuming that these cables could be used immediately to their full capacity, at least 450 city phones would thereby be provided with metallic service.

It is a rather common practice for telephone utilities situated similarly to the applicant to have city lines with metallic return, while rural lines are grounded, and in such cases the rates for rural service are usually different from the rates for city service. The retention of grounded service on rural lines is not in accordance with good practice in telephony, but in a situation such as exists in this case, it is not unreasonable to allow the utility to adopt the new schedule of rates for city service before rural lines are made metallic.

This does not mean that rural lines need not be put on a metallic basis. The best interests, not only of rural patrons, but of all local users who have occasion to talk over rural lines, require that they be made metallic and the utility should install metallic service as soon as possible.

A second portion of the application relates to a penalty to be levied against patrons who do not pay their bills by the middle of the month and to a rule providing that the utility may disconnect patrons who do not pay within the month and make a charge of \$1.50 for reconnecting.

The purpose of these rules and regulations is evident; the only question is as to the reasonableness of the penalties themselves. The utility asks that where bills are not paid by the 15th of the month the charge be increased 25 cts. The net rate

for telephone service, provided payment is made promptly, is not increased in any measure by this regulation. Some form of penalty for failure to pay bills promptly undoubtedly constitutes a reasonable regulation for a telephone utility, but it has been the opinion of the Commission that where application was made for authority to put into effect such a penalty that somewhat less than 25 cts. per month would be sufficient. The penalty must protect the company without being an unreasonable burden upon such users as may find themselves temporarily unable to meet their bills promptly. Ordinarily a penalty of 15 cts. per month for failure to pay promptly has been found sufficient, and we believe it will prove so in this case.

The proposed regulation providing for discontinuing service if payment is not made within a month, is a means of protecting a utility against patrons who are careless in making payments or who deliberately refuse to make payments, and such a regulation as this does not seem to be unreasonable. Where a patron allows his bills to run until it becomes necessary to disconnect him from the lines of the utility, it is only reasonable that he and not the utility should bear the expense of reconnection in case he again desires to have service, and \$1.50 does not seem to be unreasonable for this charge.

The third portion of the application was the one which resulted in the taking of the largest amount of testimony and concerning which the facts are not altogether clear. As nearly as can be determined, however, from the testimony and from the statements of the utility, the situation is this:

The applicant originally consisted of a number of independent rural lines. When the owners of these lines decided that they wanted to come into the city of Platteville it was decided to form all of these independent concerns into one company, for convenience in handling the business involved in the change from purely rural service to that of a general telephone system. The Platteville, Rewey & Ellenboro Telephone Company was formed as the result. At that time there was a telephone system furnishing service in the city of Platteville, and it appears to have been difficult for the applicant to secure subscriptions within the city. Phones were installed only for those people who bought stock in the company. Ordinarily one share of stock entitled the subscriber to have one phone installed, and instead of paying a

regular rate for telephone service, as is the approved practice to-day, payment for service was made in the form of the payment of an assessment against the share of stock owned by the subscriber.

In order to secure subscribers in the city of Platteville, the applicant offered both a business and a residence phone to a number of business men upon a single share of stock. Under this arrangement the amount which these people paid for their two phones was represented by the assessment on the one share of stock and was, therefore, equal to the amount paid for a single phone by other subscribers. There is some question as to whether this offer of two phones with one share of stock was made generally and publicly, but quite a number of business men took stock in the company with the understanding that they were to receive double service.

The argument is made by these subscribers that their verbal agreement with the representatives of the applicant before they subscribed for stock constitutes a contract allowing them the use of two phones for the price of one, and that the utility has no right to charge them for both phones. As stated before, the facts with regard to these agreements have not been made entirely clear, but the effect of them is indisputable. Every subscriber who has two phones upon a single share of stock is receiving, in practice, free service for one of these phones. It is illegal for a utility to make any distinction in its rates between stockholders and non-stockholders. At the present time the applicant has passed beyond the purely mutual stage and has entered business as a public utility furnishing service to other than its own stockholders, consequently it is now obliged to charge all patrons, whether stockholders or not, the same rate for service, which rate must be fixed and certain and cannot be in the form of a stock assessment, which may vary from year to year. In other words, the basis of charge at the present time is not the share of stock, but the individual phone. Whether a patron owns one or more shares of stock, or whether he owns none at all, makes no difference. If he has more than one phone installed, he should pay the regular rates for each. Any departure from this constitutes a discrimination within the meaning of the Public Utilities Law and cannot be permitted. The giving of free service is expressly prohibited by the law and in its opinion

In re Free and Reduced Rate Telephone Service, 1908, 2 W. R. C. R. 521 to 546, the Commission explained in detail its stand with regard to this service, and expressly ordered that all free service and all service at lower rates than the regular rates should be discontinued.

It does not seem that the fact that a certain number of subscribers had a verbal agreement that they were to receive service for two phones in return for the payment assessed against a single share of stock, can constitute a form of free service which is permitted by the Public Utilities Law. The assessment against the stock was merely a means of collecting from each consumer, when the company was on the purely mutual basis, an amount which might have been charged against that consumer in the form of rates. If the company had had a regularly published rate schedule and had offered to its patrons two phones at the price of one, there can hardly be any question that this would have constituted free service within the degree prohibited by law. The mere fact that payments were made for phones in the form of a payment of assessment on stock instead of a regular rate for service does not alter the facts with regard to free service, and the utility cannot be permitted to continue to furnish such service. The fact that there was a verbal agreement that two phones should be served at the price of one would not seem to alter the case. Wherever free or reduced rate service has been rendered in the telephone business, there has probably been an agreement providing for a departure from regular rate schedules, but this has been eliminated by the Public Utilities Law and by the decision cited above. If such purported agreements were to stand in the way of enforcement of the provisions of the law, it would be impossible to wipe out discrimination and free service. This is the very condition at which the law aims and it does not seem that the fact that the applicant was a mutual concern instead of a company furnishing telephone service to the general public can make any difference. The applicant is merely a public utility coming within the terms of the law and there seems to be no question that the free service rendered at Platteville is prohibited by the law.

In its decision of Aug. 15, 1911, 7 W. R. C. R. 608-620, the Commission states "No reason has been shown why the applicant should not, from this time forth, keep its accounts as re-

quired by law, and as accounts are kept by telephone companies throughout the state in cities the size of Platteville. The utility, however, has not yet brought its accounts into conformity with the uniform classifications despite the fact that more than a year has elapsed since that order, consequently the reports on file with the Commission are still very incomplete and little or no attempt seems to have been made to furnish the information asked for. Under the circumstances it seems that no action by the utility should be authorized which will result in an increase in rates until the accounting regulations of the Commission have been complied with. The Commission will extend any assistance desired in connection with the installation of a proper accounting system.

IT IS THEREFORE ORDERED: First, the Commission's order of Aug. 15, 1911, relating to the rates of the Platteville, Rewey & Ellenboro Telephone Company is hereby amended so as to permit the utility to place in effect the rates authorized in that decision for city patrons at such times as all city lines have been made metallic.

Second, the utility is authorized to charge 15 cts. per month per phone in addition to regular rates where payment is not made within fifteen days following the first of the month in which such payment is due.

Third, all free and reduced rate service is prohibited and the utility shall bill all phones in accordance with its schedule of rates on file.

The portion of this order authorizing the utility to increase its rates by putting into effect those mentioned in the order of Aug. 15, 1911, shall not take effect until the applicant has brought its accounting practice into conformity with the rules of the Commission.

IN RE THE PROPOSED PURCHASE OF THE PLANT OF THE RACINE WATER COMPANY BY THE CITY OF RACINE.

Decided Oct. 4, 1912.

Objection to the jurisdiction of the Commission was made by the Racine W. Co. in the proceeding instigated by the city of Racine, Wis., for the purpose of acquiring the water plant. The objection of the company, by consent of the parties, is to be determined at this time before further expense is incurred in taking steps preliminary to the purchase of the plant.

It was contended by the company that the question of municipal acquisition submitted to a vote of the people is defective in that it fails to designate intelligibly the specific property intended to be acquired by the city. Pursuant to a resolution adopted by the common council the question "Shall the city of Racine purchase its water works?" was voted upon at the spring election. The contention that many of the voters may have been deceived because of the phraseology of the proposition referred to the electorate does not seem tenable.

It was further claimed that the question of municipal acquisition was not submitted as required by law, in that the property was not definitely described or indicated. Sec. 1797m—81, under which the common council undertook to act, provides that the determination to acquire the existing plant of a public utility operating under an indeterminate permit, obtained by a voluntary surrender of its franchise, shall be "by a vote of a majority of the electors voting thereon at any general, municipal or special election, at which the purchase of such plant shall have been submitted." The manner of the election is the same as that provided in sec. 1797m—80, which relates exclusively to the acquisition of public utility plants by municipalities by condemnation proceedings. This statute does not indicate the form of question to be submitted. It merely provides for the submission of "the question of the purchase of such plant." The plant includes "the property of such public utility actually used and useful for the convenience of the public." All other property of the utility is excluded by implication. Questions often arise in respect to certain property which has ceased to be active or is only semi-active, as to whether the same is actually used and useful for the convenience of the public within the meaning of the statute, and until these questions are determined it is not possible to give anything more than a general description of the plant, and even then a definite description would contain so much detail as to be of no practical value to the voters. The term "water works" is as comprehensive a term as could be employed.

It was also contended that the election for municipal acquisition was not held as required by law. It was urged that ch. 665 of the Laws of 1907, commonly known as the "Mortgage Certificate

Law", is supplemental to ch. 499, Laws of 1907 (the Public Utilities Law), and must be construed in connection therewith in determining the validity of the election in controversy. Just what effect these statutes have upon previous legislation on the subject or upon each other is not entirely clear. From a reading of the ch. 449 and ch. 655 of the Laws of 1907 it would appear that the legislative intent was to provide two distinct methods of acquiring public utility plants by municipalities, and that the two measures are not so related that they may be considered parts of each other. The question was submitted fairly to the voters, and the election was held in compliance with the statute.

Certain objections of the company to the legality of the initial proceedings for the purchase of the plant raise the question whether the municipality has provided any fund out of which the required compensation may be made by the company. The law is well settled that when private property is appropriated by a municipality for public purposes such compensation must be actually made or the means provided whereby it can be certainly obtained. In the instant case the act authorizing the taking of the company's plant and providing the procedure by which the value of the property is to be ascertained, does not make provision for obtaining the required compensation which must be paid to the owner therefor, but the omission of any means for securing such compensation is not an infirmity of the act if such means otherwise exist and are sufficient for the purpose. At the time the statute in question was adopted there were in effect provisions of law authorizing cities, towns and villages to construct or purchase water works and prescribing methods of procedure by which the funds necessary for the purpose could be obtained. Thus, sec. 926—11 of ch. 40b contains such provisions available to cities organized under special charters. Likewise ch. 41 includes ample provision for the acquisition of water works by cities, whether incorporated under special acts or the general law. These statutes have not been modified by the Public Utilities Law in respect to the means provided for the securing of funds for the construction or purchase of property therein mentioned. (Sec. 1797m—108, and sec. 2 of ch. 499, Laws of 1907.) The objection that there is no provision for compensation cannot be sustained.

It was finally objected that the city is incapacitated from acquiring the water works for the reason that it will be impossible for it to incur the indebtedness which it proposes to incur, because of the inhibition contained in sec. 3 of art. XI of the Constitution of the state, which provides that, "no county, city, town, village, school district, or other municipal corporation shall be allowed to become indebted in any manner or for any purpose to any amount, including existing indebtedness, in the aggregate exceeding 5 per centum on the value of the taxable property therein, to be ascertained by the last assessment for state and county taxes previous to the incurring of such indebtedness." The argument on behalf of the company relative to the financial inability of the city to make the purchase is predicated on certain assumptions that are more or less speculative, and hence not sufficient grounds for objection at this stage of the proceeding. Until the just compensation is ascertained it is impossible to determine even approximately the ability of the city to pay the same. Such compensation may be more or less than the tentative valuation of the engineers, which merely forms the basis of the investigation. Further-

more, when the decision is made, it may be that the total assessed value of the property of the city for the year 1912 and the then outstanding indebtedness of the city will materially change the situation. What would be the effect of a want of capacity on the part of the city to acquire the property when the just compensation is definitely established, is a question to be resolved when it is reached.

The objection to the jurisdiction of the Commission is overruled, and the investigation of the matter will be taken up when the case is reached on the present calendar.

This proceeding was instituted by the city of Racine under the provisions of the Public Utilities Law, for the purpose of acquiring the water works of the Racine Water Company, a public service corporation. Objection to the jurisdiction of the Commission was filed by the water company, which objection, by consent of parties, is to be considered and determined at this time, so that if the same be sustained, the expense of the hearing upon the matters of the just compensation to be paid to the company for the plant and the terms and conditions of the sale may be avoided.

Thomas M. Kearney and *W. D. Thompson* represented the Racine Water Company, and *E. R. Burgess* and *Burr W. Jones* represented the city of Racine.

Before directing attention to the specific grounds of the objection, it is advisable to note in chronological order the steps taken by the city precedent to action before the Commission. From the records of the common council, it appears that on Feb. 7, 1911, the common council adopted the following resolution: "Resolved, that the question of the city's purchasing the Racine Water Company's plant be submitted to a vote of the people at the coming spring election."

Pursuant to such resolution, the question was submitted to the electorate at the regular municipal election held on April 4, 1911. The form of the question thus submitted was as follows: "Shall the city of Racine purchase its water works?" At the election there were 2,526 votes cast for, and 466 against the proposition. On May 2, 1911, the common council passed a resolution directing the institution of this proceeding.

The objection interposed to the jurisdiction of the Commission is as follows:

1. The matter of the purchase of the property of the Racine Water Company by the city of Racine has never been submitted to a vote of the electors of the city, as required by law.

2. The matter of payment by the city of the just compensation to which the Racine Water Company would be entitled for the property proposed to be taken has never been considered, voted upon or determined by the electors, or by the common council of the city, as required by law.

3. No fund has been provided by law, or by a vote of the electors or of the common council of the city, out of which just compensation may be made to, or secured by, the Racine Water Company for the property proposed to be taken, as required by law.

4. The city of Racine has not, at any time, either before or since the giving of notice of its option to purchase and acquire the property of the Racine Water Company, made provision for the payment of just compensation therefor, required to be made by sec. 13 of art I, and by sec. 3 of art. XI of the Constitution of the state of Wisconsin.

5. The city of Racine, at the time the election referred to in the exhibit hereunto attached was held, and at the time of the adoption by its common council of the resolution set forth in such exhibit, was without power, under sec. 3 of art. XI of the Constitution of the state of Wisconsin, and now is without power to incur the indebtedness it proposes to incur in this proceeding.

(A) Relative to the first ground of objection, it is contended by the company that the question submitted to the electorate for determination is fatally defective in that it fails to designate intelligibly the specific property intended to be acquired by the municipality. It is claimed that, as the city of Racine has a large foreign-born population, many of whom can neither read nor write the English language and were therefore obliged to rely upon others for their information as to the import of the proposition submitted, many electors may have voted contrary to their intention because of the obscurity of the language employed in the inquiry. Doubtless, simplicity of expression was the controlling thought in framing the inquiry, and consequently some sacrifice of perspicuity may have resulted from the phraseology used, yet we do not believe that any voter could have been misled under the circumstances, for the reason that the principal issue involved in the municipal campaign the preceding spring was the matter of the acquisition of the water

works by the city. Upon this issue a mayor was elected, and the vote here in question was but the sequel of such election. There was probably not a resident of the city who was not fully cognizant of the purpose of the common council in submitting to vote of the people for decision, the matter of purchasing the plant and property of the Racine Water Company. The contention that many of the voters may have been deceived because of the phraseology of the proposition referred to the electorate for approval or disapproval, does not seem tenable.

It is further claimed that the statute required that the property shall be definitely described or indicated in the question. Sec. 1797m-81, under which the common council undertook to act, provides that the determination to acquire the existing plant of a public utility operating under an indeterminate permit, obtained by voluntary surrender of its franchise, shall be "by a vote of a majority of the electors voting thereon at any general, municipal or special election, at which the purchase of such plant shall have been submitted." The manner of the election is the same as that provided in sec. 1797m-80, which relates exclusively to the acquisition of public utility plants by municipalities by condemnation proceedings. This statute does not indicate the form of question to be submitted. It merely provides for the submission of "the question of the purchase of such plant." The plant includes "the property of such public utility actually used and useful for the convenience of the public." All other property of the utility is excluded by implication.

Nice questions often arise in respect to certain property, which has ceased to be active or is only semi-active, as to whether the same is actually used and useful for the convenience of the public within the meaning of the statute, and until these questions are determined it is not possible to give anything more than a general description of the plant, and even then a definite description of the plant would contain so much detail as to be of no practical value to the voters in reaching a conclusion upon the question of the advisability of the municipality acquiring the same. In the case of the taking of real estate a description by lot numbers or metes and bounds afford information by which the location of the property and its probable value may be ascertained without much difficulty, but in the case of a water works plant, consisting of real estate including pumping station

and other buildings and a distribution system extending through the streets and thoroughfares of a city like a network, an accurate description of the same would be of no avail to the average citizen in determining the condition or the probable value thereof. Such considerations have but little bearing upon the proposition in the mind of the average citizen when called upon for a decision. It is the nature and functions of the utility that in his estimation are of paramount importance and guide his judgment in the matter.

The term "water works" is as comprehensive a term as could be employed and convey an unmistakable meaning to the mind. In the ordinary use of the term it is synonymous with "plant" when the latter term is employed in referring to the property of a water utility. It is our judgment that the question submitted the proposition fairly to the voters, and was therefore in substantial compliance with this statute.

In further support of the first point of objection, it is urged that ch. 665 of the Laws of 1907, commonly known as the "Mortgage Certificate Law," is supplemental to ch. 499, Laws of 1907 (the Public Utilities Law), and must be construed in connection therewith in determining the validity of the election in controversy. Both chapters were enacted by the same legislature. The latter became effective July 17, 1907, and the former July 13, 1907. Ch. 665 provides for the submission of the question of the acquisition or construction of a heat, light, water or power plant to the electors at a special election to be called for that purpose, and prescribes the exact form of the question to be submitted as follows:

"The question shall be printed upon any ballot issued at such election in substantially the following form: 'Shall (designate plant, equipment, or part thereof) be acquired or constructed and mortgage certificates (and) (or) (bonds) be issued therefor?'

YES

NO

At the time of the enactment of the Public Utilities Law it did not provide for authorization of municipal authorities to acquire the plant of a public utility to be made by a vote of the electors. Such provision was made by the succeeding legislature by way of amendment to sec. 1797m-80 and 1797m-81. But in providing for the submission of the matter to the electors

for decision the amendment did not conform to the terms of ch. 665 respecting the election. Under the amendment the question may be submitted at any general, municipal or special election, while under ch. 665 the question can only be submitted at a special election called for that purpose. Obviously, the two provisions cannot be harmonized and evince a clear intention on the part of the legislature to treat the two measures as independent of each other.

Unfortunately, the law on the subject of the purchase of public utility property by municipalities is in a somewhat chaotic state. Notwithstanding the comment of the court in *Conner v. Marshfield*, 1906, 128 Wis. 280, upon the confusion resulting from overlapping provisions of various statutes then in existence relating to the construction or purchase of water works and lighting plants by cities, the legislature, in 1907, instead of clearing up the situation by proper legislation, further aggravated the entanglement by the enactment of the two statutes here in question. Just what effect these statutes have upon previous legislation on the subject or upon each other is not entirely clear.

In speaking of the history of the Public Utilities Law and the Mortgage Certificate Law, counsel for the company says:

“When ch. 499 of the Laws of 1907 (the Public Utilities Law) was before the legislature of Wisconsin, objection was made to it from many quarters because it did not contain effective provisions covering the acquisition by municipalities of public utilities operating therein. Amendments were offered, but they all contemplated the authorization of mortgage certificates against property to be acquired, and they were rejected because of the doubtful constitutional character of such provisions. As a result of all the discussion, ch. 665 of the laws of the same year was introduced and referred. The two bills became companion bills in large measure and they were passed in near relation. Ch. 665 supplied the deficiency in ch. 499.”

From a reading of the two chapters mentioned it would appear that the legislative intent was to provide two distinct methods of acquiring public utility plants by municipalities. If the Mortgage Certificate Act was merely intended to supply a means of raising money to buy such plants in addition to the means already in existence, it would have been unnecessary to have provided a different process for authorizing municipal authorities to purchase than that contained in the Public Utility Act. It

cannot be denied that nothing would simplify the situation better than a holding that the Public Utilities Law repealed by implication all previous legislation on the subject of the acquisition of existing plants by towns, villages and cities, and that the Mortgage Certificate Act merely supplied an additional means of raising funds, but such holding would clearly necessitate a reading out of the latter act all those provisions which relate to the authorization of the municipal authorities to make the purchase. Furthermore, the Mortgage Certificate Act provides not only for the purchase of existing plants, but for the construction of new plants. It also assumes that the amount of the purchase price is known at the time the matter is submitted to the electors. Sec. 927-17. These provisions also show a design different from that intended in the Public Utilities Law, and indicate that the two measures are not so related that they may be considered parts of each other.

For the reasons given, we are of the opinion that the contention of the company upon the first point of objection is not well founded.

(B) The second, third and fourth grounds of objection raise the question whether any fund has been provided out of which the required compensation may be made by the company. The law is well settled that when private property is appropriated by a municipality for public purposes such compensation must be actually made or the means provided whereby it can be certainly obtained. *Brock et al. v. Hishen et al.* 1876, 40 Wis. 674; *Smeaton et al. v. Martin et al.* 1883, 57 Wis. 364; *State v. Hogue*, 1888, 71 Wis. 384; *State ex rel. Burbank v. Superior*, 1892, 81 Wis. 649; *State ex rel. Andrews v. Oshkosh*, 1893, 84 Wis. 548.

In *Brock v. Hishen*, *supra*, the court said:

“Although the proposition may not have been definitely held by this court, yet doubtless a statute which authorizes a municipal corporation to take private property for public use, is valid if it provides an adequate process for ascertaining and paying the value of such property; and private property may be so taken under a statute without violating the constitutional restrictions on that subject (Const., art. I, sec. 13), although payment has not been actually made therefor. The conditions precedent to such taking are, that the value be ascertained and an adequate and safe fund provided from which payment is to be made, which in the case of a taking by municipal corporations is considered equivalent to actual compensation. A statute

under which the plaintiff's land was condemned to the public use provided a method for ascertaining their damages, and such damages were ascertained pursuant thereto. It also provided that the town board should audit the amount of such damages and that a tax should be levied on all taxable property in the town to pay the same. Any officer failing in his duty in the premises shall on proper application be compelled to it by the courts. There is no possibility for the plaintiffs to lose their damages, if they resort to the plain and speedy process which the law places at their command to compel the town to pay such damages."

In *Smeaton v. Martin*, *supra*, the court says:

"Where the property is taken for public use by a town or municipal corporation which is made liable to the owner for any damages sustained by reason thereof, the taxable property of such town or municipality constitutes a pledge or fund to which such owner may resort for payment in the manner prescribed by the statute, with absolute safety, and hence we must hold, that the providing of such a method of enforcing payment in such a case and out of such a pledge or fund, is the making of just compensation for the property taken, within the meaning of the constitution."

In *State v. Hogue*, *supra*, COLE, C. J., says:

"But where the land is taken by a town or municipality for public use, the fact that the entire taxable property of the town or municipality is liable for its payment, and to which the owner may resort to enforce such payment, relieves the town or municipality from the necessity of making actual prepayment before appropriating the land to the use of the public. The highway law, and perhaps other laws found in the Revision of Session Laws, go upon that theory as to compensation, and they have been deemed valid in that regard since the early decision of *Norton v. Peck* (in 1854), 3 Wis. 714."

In *State ex rel. Burbank v. Superior*, *supra*, the court says:

"Where property is taken for a public use by a municipal or quasi-municipal corporation, the taxable property thereof constitutes a fund to which the owner may resort in the way pointed out by law, and the existence of a method by which payment may thus be compelled satisfies the constitutional requirement."

In the instant case the act authorizing the taking of the company's plant and providing the procedure by which the value of the property is to be ascertained, does not make provision for obtaining the required compensation which must be paid to the owner therefor, but the omission of any means for securing such

compensation is not an infirmity of the act if such means otherwise exist and are sufficient for the purpose. At the time the statute in question was adopted there were in effect provisions of law authorizing cities, towns, and villages to construct or purchase water works and prescribing methods of procedure by which the funds necessary for the purpose could be obtained. Thus, sec. 926-11 of ch. 40b contains such provisions available to cities organized under special charters. Likewise, ch. 41 includes ample provision for the acquisition of water works by cities, whether incorporated under special acts or the general law. These statutes have not been modified by the Public Utilities Law in respect to the means provided for the securing of funds for the construction or purchase of property therein mentioned. Sec. 1797m-108, and sec. 2 of ch. 499, Laws of 1907. Hence, it would seem from the authorities cited that under the circumstances the second, third and fourth grounds of objection cannot be sustained.

(C) It is finally objected that the city is incapacitated from acquiring the water works for the reason that it will be impossible for it to incur the indebtedness which it proposes to incur, because of the inhibition contained in sec. 3 of art. XI of the Constitution of the state, which provides that, "no county, city, town, village, school district, or other municipal corporation shall be allowed to become indebted in any manner or for any purpose to any amount, including existing indebtedness, in the aggregate exceeding 5 per centum on the value of the taxable property therein, to be ascertained by the last assessment for state and county taxes previous to the incurring of such indebtedness." This last point of objection is based upon certain reports of city officials showing that the total assessed value of all real estate and personal property in the city for the year 1911 was \$26,596,004, and the total indebtedness of the city at present is \$695,533.50, and also upon the tentative valuation of the physical property of the company made by the engineers of the Commission as of date Jan. 1, 1912, showing the reproductive value of the same to be \$843,542 and the present, or depreciated, value to be \$775,347.

The city disputes the correctness of the company's contention in this particular and points out that on an assessed valuation of \$26,000,000 the bonding capacity of the city would be

\$1,300,000, or \$604,466.50 in excess of all outstanding indebtedness, and that, as 2 per cent is the usual tax levy made and required for all other municipal purposes, which is $1\frac{1}{2}$ per cent less than the levy the city is authorized to make, the city could levy a tax up to its authorized limit and devote the excess—which would, upon the valuation named, amount to \$395,000—to the purchase of the water works. In this manner there would be available for the purpose of purchasing the water works the sum of \$994,466.50.

The argument on behalf of the company relative to the financial inability of the city to make the purchase is predicated on certain assumptions that are more or less speculative, and hence not sufficient grounds for objection at this stage of the proceeding. Until the just compensation is ascertained it is impossible to determine even approximately the ability of the city to pay the same. Such compensation may be more or less than the tentative valuation of the engineers, which merely forms the basis of the investigation. Furthermore, when the decision is made, it may be that the total assessed value of the property of the city for the year 1912 and the then outstanding indebtedness of the city will materially change the situation.

What would be the effect of a want of capacity on the part of the city to acquire the property when the just compensation is definitely established, is a question to be resolved when it is reached. As far as we have been able to ascertain, there are but two decisions bearing upon the question. In *Keene v. The Borough of Bristol*, 1856, 26 Pa. St. 46, a bill was filed to enjoin the opening of a street through the complainant's grounds. It appeared that the borough was authorized to levy a tax of but 30 cts. on \$100 taxable property of the borough, which amount was only sufficient to meet the ordinary expenses of the borough and that the damages caused to complainant by the opening of the street would be considerable. In passing upon the matter the court said:

“Ordinarily the power of taxation which is given to municipal corporations is adequate security to the citizen for his property which may be taken in opening streets for public use. No other security need be required in the acts of the General Assembly giving the corporate authorities power to open streets. Where, however, it is clearly shown that the power of taxation is inadequate within a reasonable time to pay the damages likely to be occasioned, we have no doubt that it is the right and duty of this

court to interfere, when properly called upon, and prevent the property from being taken or the damages from being done, until adequate security is given. The present is a case which required such interference. The power of taxation in the borough of Bristol is so limited that the amount of damages likely to be occasioned to the complainant's land in all probability could not be paid out of the public treasury of this borough within any reasonable time. To make the complainant perfectly safe, we will not allow the street to be opened through her lands until the bond of the borough with one sufficient surety in the penal sum of \$5,000 be given."

But *In re Appl. of Cedar Rapids*, 1892, 85 Ia. 39 (51 N. W. 1142), the city of Cedar Rapids instituted proceedings to condemn certain tracts of land for a public park, one of which belonged to Ely E. Weare. It was contended that the city had no power to acquire the land because it had already reached its limit of taxation. The court said:

"The matters set up in the other parts of the answer are in substance these: That the city is without funds to pay for the land, for the reason that it has levied to the limit allowed for the general fund; has not any special levy for this purpose; that the general levy is insufficient to defray current expense, and that the city is indebted beyond the constitutional limit; that the owner, Mr. Weare, is desirous of selling his land, and is prevented by this proceeding; that the city is not seeking the land for park purposes, but to develop and build up the unsettled portion in that direction; and that a park is not necessary to the health and comfort of the people. The right to purchase or condemn lands for uses as a park is conferred upon cities and incorporated towns without restriction as to their ability to pay therefor. The land owner is not concerned in their ability to pay, as he is not required to give credit. If he sells he may demand payment in cash; and if his land is taken by condemnation, he cannot be disturbed in his title or possession until the value as found is fully paid. Code, pp. 477; sec. 18, art. I, Const. Iowa. It is for the corporation alone to determine upon its ability to pay, and whether condemnation will be asked; and when asked in the manner provided it is for the courts to grant it upon the terms fixed in the law. It is not for the owner or the courts to inquire as to the ability or necessity of the corporation. These matters are left to the judgment of its proper officers. It is expressly provided that, 'when it shall be deemed necessary by any such corporation to enter upon or take private property,' application in writing shall be made to the court. Code, pp. 476; *Town of Cherokee v. S. C. & I. F. Town Lot & Land Co.* 1879, 52 Iowa, 279; 3 N. W. 42. As payment

in full must be made, either upon purchase or condemnation, it cannot be said that the city thereby insures an indebtedness; therefore the plea of the constitutional limitation of indebtedness is no defense. The pendency of a proceeding to condemn does not necessarily prevent the owner from selling and conveying his land, but if it did, that would be no defense to the right to condemn. If it were, condemnation never could be had, as the proceeding must be as much a hindrance in one case as another. We are of the opinion that the demurrer should have been sustained to the entire answer. The judgment of the district court is affirmed on the appeal of Mr. Weare, and reversed on the appeal of the city of Cedar Rapids."

For the reasons stated the objection is overruled. The investigation will be taken up when the case is reached on the present calendar.

C. E. McMILLAN

vs.

CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted Sep. 30, 1912. Decided Oct. 5, 1912.

The petitioner alleges that a storm shed over the platform opposite the depot of the C. M. & St. P. Ry. Co. at Sparta, Wis., is necessary for the protection of passengers using eastbound trains on the main lines and trains on the Viroqua branch.

Held: The present facilities are inadequate and the respondent is ordered to erect and maintain a suitable storm shed over the platform in question. Dec. 31, 1912, is a reasonable date at which the shed shall be opened for public use.

The petitioner alleges that a storm shed over the Chicago, Milwaukee & St. Paul Railway Company's platform opposite its depot in the city of Sparta is necessary for the protection of passengers who alight from or depart on eastbound trains and trains on the Viroqua branch; and that the respondent railway company has failed to provide such a storm shed. The Commission is therefore asked to take such action as it may deem necessary and just in the premises.

The respondent, in its answer, alleges that it is now making plans for changing the position of the Viroqua line main track so as to provide a proper location for a platform and shelter for passengers using eastbound trains on the main line, and that it will provide these improvements as soon as the plans are perfected.

A hearing was held on Sep. 30, 1912, in the city hall, Sparta, Wis. *Z. S. Rice* appeared for the petitioner, and *F. M. Melin*, division superintendent, for the respondent.

At the hearing the respondent's representative stated that the company's management had authorized the erection of a storm shed on the eastbound platform at Sparta. The counsel for the petitioner stated that the proposal of the respondent was satisfactory, but requested the Commission to issue an order to that

effect. It was agreed by both parties that the storm shed should be open for use by Dec. 31, 1912.

NOW, THEREFORE, IT IS ORDERED, That the respondent, the Chicago, Milwaukee & St. Paul Railway Company, erect and maintain a suitable storm shed for the protection of passengers using eastbound trains or trains on the Viroqua branch at Sparta, Wis.

Dec. 31, 1912, is considered a reasonable date at which the storm shed shall be completed and opened for public use.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF
THE SERVICE, RULES AND REGULATIONS OF THE PULASKI
MERCHANTS' AND FARMERS' TELEPHONE COMPANY.

Submitted July 27, 1912. Decided Oct. 10, 1912.

Upon complaint against the Pulaski Merchants' & Farmers' Tel. Co. the Commission, on its own motion, investigated the matter of re-installation of telephone service to the complainant in the town of Chase, Oconto county, Wis. Under claim that complainant had violated the rules of the company by interfering with the service of patrons the telephone was removed by action of replevin. The action was defended in the circuit court of Oconto county and it was decided that the company had waived its right of removal of telephone by accepting a month's rent in advance, and the company was ordered to re-install the instrument. The complainant has agreed to comply with all the rules and regulations of the company if his service is restored, but the company has refused and neglected to furnish such telephone service.

The rule of the telephone company, which it was claimed the subscriber had violated, forbids listening on the line when others are talking and provides that subscribers violating this rule will, upon proof being made, have their telephones removed by the company. The rule in question is a reasonable one. It is designed to render the system more efficient and beneficial to the subscribers, and infractions of the rule by any patron or those entitled to the use of his instrument is a sufficient cause for discontinuing the service to him.

Held: Past misconduct of a subscriber will not justify the refusal of future service to him unless it has been habitual or so frequent and under such circumstances that his assurance of reformation cannot be reasonably relied upon as sincere. There is nothing shown in this case which would warrant a denial of service to the complainant. Granting the charges made against him to be true, he would, nevertheless, have a valid claim for an opportunity to demonstrate his good intentions in the matter, independent of the adjudication of the court in his favor upon the question of the waiver of the company's right to declare his contract forfeited. The respondent telephone company is ordered to restore to the complainant the telephone connections, station equipment and services of which he was deprived. Ten days is deemed a reasonable time within which to comply with this order.

On July 12, 1912, C. S. Blondheim, of the town of Chase, Oconto county, Wis., filed a petition with the Commission alleging that the Pulaski Merchants' & Farmers' Telephone Company is a corporation organized and existing for the purpose of

operating rural telephone lines in the state of Wisconsin, and is operating such lines in the town of Chase; that at the time of the organization of the telephone company the petitioner became a subscriber for one share of stock of the value of \$50; that when the telephone service was inaugurated the petitioner became a subscriber for telephone service and had a telephone instrument installed in his home, and from that time until Feb. 8, 1912, continuously had telephone service from the Pulaski Merchants' & Farmers' Telephone Company; that on such date the company commenced an action of replevin to recover possession of the telephone instrument of petitioner, under a claim that petitioner had violated the rules of the company by interfering with other patrons of the telephone line, and because of such interference and conduct had violated his contract with the telephone company; that the petitioner defended the action of replevin and in the April 1912 term of the circuit court of Oconto county it was decided that he was entitled to the return of the telephone instrument; that in such action a judgment was entered and notice of entry of same served upon the company, with a request that the company replace the telephone instrument in the home of petitioner and give him telephone service, he being ready, willing and able to pay the contract price for such telephone service, and being ready and willing to comply with all rules and regulations of the telephone company; that ever since the entry of such judgment the company has unreasonably and unlawfully failed, neglected, refused and declined to furnish the petitioner with such telephone service.

Upon receipt of the foregoing petition an examination was made into the merits of same and from such examination it appeared advisable that a formal investigation and hearing be had in the matter upon motion of the Commission. A hearing was held on July 27, 1912, *B. G. Classon* representing the petitioner and *Lehner & Lehner* representing the Pulaski Merchants' & Farmers' Telephone Company.

It appears that the petitioner was a subscriber of the Pulaski Merchants' & Farmers' Telephone Company from the time of its organization and received service from the time of its organization until Feb. 8, 1912, when the service was discontinued and the instrument removed under process in an action of replevin. The contention of the company was that the petitioner or mem-

bers of his family had violated the rules of the company and thereby forfeited the right to a continuance of service. The particular rule which it was contended that the complainant or members of his family had violated is as follows:

“Listening on the line when others are talking is strictly forbidden. Subscribers violating this rule will, upon proof being made, have their instruments taken out by the company.”

It was also contended that members of petitioner's family used improper language in addressing the operator at the central office.

Considerable testimony was offered in support of the position of the company as well as against it. It is unnecessary from the view we have taken of the case to review the testimony here. JUDGE HASTINGS in the action in the circuit court states the facts briefly as follows:

“Defendants were lessees of plaintiff's instrument in question; the rent for its use was payable monthly in advance; the plaintiff could forfeit the defendant's right to retain and use the instrument for violation of the rules governing its use; complaints were made of such violation by conduct, all prior to January 1912; these charges were investigated and found true on Jan. 2, 1912; the defendants denying the truth of the charges tendered to the plaintiff the rent for the month of January, which was due and payable at that time. The plaintiff retained and receipted for the same. About the middle of January the plaintiff notified the defendants it had rescinded their contract for violation by them of rules and regulations in regard to the use of the phone. The defendants tendered the rent for February, which plaintiff refused to accept, and this action was brought to recover possession of the instrument. There is no claim of any violation of the rules of the company by the defendants after December 1911.”

Upon this statement of facts, which are not disputed, the court held that the plaintiff had waived its right to a forfeiture of the defendant's contract because of accepting payment of the telephone rental after the breach of the contract on which it relied for a forfeiture and with full knowledge of such breach. The soundness of the conclusion reached by the trial judge can not be questioned.

The rule in question is a reasonable one. It is designed to render the system more efficient and beneficial to the subscribers. Unfortunately, upon party lines breaches of the rule are

possible, and if they are permitted to be made by patrons with impunity, the value of the service would be greatly decreased, if not entirely destroyed, in many instances. Infractions of the published rule by any patron or those entitled to the use of his instrument is a sufficient cause for discontinuing the service to him. In the instant case, if the company had not waived the forfeiture of the contract of service claimed to have resulted from violations of the rule, its right to have terminated the service would doubtless have been sustained by the court, assuming the facts to have been found in the company's favor. *Berend v. Wis. Tel. Co.* 1909, 4 W. R. C. R. 150.

This case is almost parallel with that of *Huffman v. Marcy Mut. Tel. Co.* 1909, 143 Ia. 590; 121 N. W. 1033, in which the plaintiff used improper language when conversing over the line, and his daughter was proven to have taken down the receiver and listened while others were conversing over the line. The court said:

"No one can well defend the language employed by plaintiff. As a witness he admitted its impropriety. And though not chargeable with all the disturbance on the line, we entertain no doubt but that both he, and one of his children at least, had abused the privileges accorded them, and so far ignored the golden rule as to have made use of the line as a vehicle of petty spite toward two of his neighbors. But it does not appear that they persisted upon being warned that such conduct would not be tolerated, nor that they were guilty of any impropriety thereafter during the two months intervening between such warning and the removal of the telephone. * * * Such a line, when used in common, enters many family circles, and the proprietor is warranted in assuming, at least until the contrary appears, that its patrons will have regard for the ordinary amenities of life, and observe the courtesies common to civilized society. Upon discovery that in this it has been mistaken as to any subscriber, and that, notwithstanding being duly warned, he persists in the use of improper language over the line, or purposely interferes in conversations between other patrons of the system in order to annoy or interrupt their conversations, or force them to yield the line for his own convenience, and this is persisted in after being duly warned to desist therefrom, there would seem to be but one adequate remedy, and that is to withdraw the service from such person. Jones on Teleg. and Telep. sec. 250. Otherwise the efficiency of the enterprise would be impaired or destroyed, and the proprietor fail in furnishing the character of service impliedly promised. The very nature of the service un-

dertaken exacts control to this extent, for without the power to withdraw it under the circumstances mentioned, there could be no assurance of its character or efficiency. A single patron by meddling and discourtesy might deprive his neighbors of the benefits of a convenient invention, and destroy the value of the property devoted to the public service. This power to regulate is essential in order to enable the defendant to perform such service, and is clearly to be implied from the nature of the enterprise. But it ought never to be arbitrarily exercised. Reasonable caution must be taken lest injustice be done. Some allowance is to be made for the infirmities of human nature. Local customs are not to be ignored. Habit sometimes excuses, if it does not justify, the use of objectionable language. Early environment, more often than an evil spirit, is responsible for bad manners. Undisclosed emergencies may extenuate lapses from propriety, so that, when rules to guide patrons have not been promulgated in advance, it is not unreasonable that any patron misusing his privileges be duly warned thereof by the telephone company, and given an opportunity to mend his ways, before being fully deprived of this most convenient means of business and social communication. Such was the course pursued by defendant, with the result that, in so far as appears, the objectionable conduct ceased, and apparently the telephone was removed two months later owing to the threat of another patron, rather than because of any persistent interference with the service by plaintiff. The decree directing the restoration of the telephone and connections has our approval."

The complainant agrees to comply with all the rules and regulations of the company if his service is restored. Under the circumstances, even if there had been no waiver of the right to rescind the contract on the part of the company and the service had been rightfully withdrawn, he would still be entitled to service as a new subscriber. Past misconduct of a subscriber will not justify the refusal of future service to him unless it has been habitual or so frequent and under such circumstances that his assurance of reformation cannot be reasonably relied upon as sincere. To exclude a member of a community from a privilege which he is generally, by legal right, entitled to enjoy in common with others, is an important prerogative, which cannot be exercised except in the interest of the public.

There is nothing shown in this case which would warrant a denial of service to the complainant. Granting the charges made against him to be true, he would, nevertheless, have a valid claim for an opportunity to demonstrate his good intentions in the matter, independent of the adjudication of the court

in his favor upon the question of the waiver of the company's right to declare his contract forfeited.

NOW, THEREFORE, IT IS ORDERED, That the Pulaski Merchants' & Farmers' Telephone Company restore to C. S. Blondheim the telephone connections, station equipment and service of which he was deprived by the telephone company, or at its instance, on Feb. 8, 1912.

Ten days is deemed a reasonable time within which to comply with this order.

HAMMOND-CHANDLER LUMBER COMPANY

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.*Submitted Jan. 24, 1912. Decided Oct. 12, 1912.*

Petitioner alleged that excessive and unjust charges were exacted on shipments of logs from Wisconsin points on the M. St. P. & S. S. M. Ry. Co. to Rice Lake, Wis. The shipments in question moved from Campia, Mikana and Spur No. 129. Petitioner further alleged that it was not permitted to load the cars up to the minimum loading capacity of 60,000 lbs. There were no track scales to determine actual weights and the rates were based on the marked capacity of the cars. The petitioner estimated the weight to be much lower but the reliability of the estimate could not be proven. It appears that the charges paid by the petitioner were based on rates which had been greatly increased after part of the shipments moved. Subsequent to the shipments the rates were lowered and left somewhat higher than the rates under which the earlier shipments moved. As the rates now in force involve rates for similar distances between all points on respondent's line, no reduction is made at the present time.

Held: The charge exacted on the shipments from Campia subsequent to the increase in rates was exorbitant and refund is ordered on the basis of the earlier rate. The part of the complaint relating to overcharge on basis of weight is dismissed.

The petitioner is a corporation engaged in the business of cutting logs and transporting same to the mill in the city of Rice Lake, Wis. It alleges that between April 1 and July 15, 1911, it shipped a large number of carloads of logs over the lines of the respondent from points in Wisconsin to its mill in Rice Lake; that respondent by its authorized agents, pursuant to its published schedule of minimum weights and charges, charged petitioner freight upon each car above mentioned, the sum of \$9; that petitioner was not permitted to load 60,000 lbs. upon each car; that the cars moved were as follows:

Cars.	Capacity of car.	Total capacity of cars.
42 (logs) from Campia.....	60,000 lbs.	2,520,000 lbs.
7 " Spur No. 129.....	60,000 "	420,000 "
7 " Mikana.....	60,000 "	420,000 "
6 " Campia.....	60,000 "	360,000 "

That when the cars were being loaded the servants of respondent forbade petitioner's servants to load the cars to their full capacity; that the actual weight of forty-two cars of logs shipped from Campia was only 1,457,177 lbs; of seven cars from Spur No. 129, 139,792 lbs.; of seven cars from Mikana, 221,070 lbs.; and six cars from Campia, 117,877 lbs.; that the respondent, when assessing the freight charges on the above shipment, charged the petitioner to the full capacity of the cars; that the petitioner has been charged in excess freight the sum of \$292.21; that prior to June 1, 1911, the schedule of rates on carload shipments of logs from Campia was \$5.00, \$5.50 and \$6.00 for 40,000, 50,000 and 60,000 capacity cars, respectively; that on June 1, 1911, the respondent unlawfully raised the rates to \$8.00, \$8.50, and \$9.00 per car, respectively; that such rates are exorbitant and prohibitive. Wherefore, petitioner prays that the respondent be required to remit to petitioner the excess freight charge by it, to-wit: \$292.21, and be ordered to permit shippers to load their logs to the full capacity of the cars.

The respondent, answering the petition, admits all the formal allegations thereof, but states that petition is so confused with the intermingling fact and argument and a tone quite extraordinary in such a proceeding, that it is difficult to make a categorical answer, but believes that no just complaint can be made against the tariff involved.

The hearing was held Jan. 24, 1912, at the city hall, Rice Lake, Wis., *C. A. Stark* appearing for the petitioner and *Kenneth Taylor* for the respondent.

The principle part of the testimony offered related to the matter of the weights charged by the respondent on the shipments complained of, and the weights of these shipments as claimed by the petitioner. There was no track scale at point of shipment or at destination, and none at any point through which the shipments passed in transit. The weights on which charges were based were, therefore, estimated, but in no case was the weight of any shipment estimated above the minimum weight provided by tariff. Petitioners claim, however, that they were not permitted to load the cars up to the minimum weight provided by tariff.

The tariff in force prior to June 1, 1911, M. St. P. & S. S. M. G. F. D. No. 11605, effective May 9, 1910, canceled June 1, 1911,

under which twenty shipments included in the complaint moved, named rates per car according to the capacity of the car used. The rates named in this tariff from and to points involved in the petition are as follows:

To Rice Lake from	Rates in dollars per car of marked capacity not exceeding		
	40,000 lbs.	50,000 lbs.	60,000 lbs.
Campia	\$5.00	\$5.50	\$6.00
Mikana	5.00	5.50	6.00
Spur No. 129	5.50	6.00	6.50

Effective June 1, 1911, M. St. P. & S. S. M. G. F. D. No. 13185 provided the rates from and to these points. These rates were in cents per hundred pounds, according to distance, subject to a minimum weight of 90 per cent of the marked capacity of the cars when weighed, and the marked capacity when not weighed. Rate from Campia and Mikana was 1.5 cts. and from Spur No. 129 1.6 cts. per 100 lbs.

During the months of April and May, 1911, twenty shipments involved in the petition moved from Campia, Mikana and Spur No. 129 to Rice Lake. The balance of the shipments, forty-two, moved during the month of June, 1911, from Campia to Rice Lake. The original paid freight bills for all of these shipments were presented at the hearing. An examination of the same, and of the tariffs on file with the Commission, shows that the charges paid were based on the lawful rates in force at time of shipment. The total weight on which charges were assessed was 3,720,000 lbs. Testimony introduced at the hearing showed that the total log scale measurement of these shipments was about 300,000 feet. The weights on which charges were assessed average, therefore, about 12,000 lbs. to the thousand feet. The total weight claimed by petitioners is 1,937,916 lbs. This gives an average of about 6,500 lbs. per thousand feet. Charges were assessed on the marked capacity of cars used and testimony introduced by witnesses for the respondent tended to show that the cars were loaded to full capacity. Weights claimed by petitioner, it was testified, were arrived at by using certain estimates given in a publication, a copy of which was introduced in evidence. Such estimates are contained in a small vest pocket

book, known as a ready reckoner, for use in arriving at measurement, and in estimating measurement and weights of lumber, logs, etc., issued by the AMERICAN LUMBERMAN, a journal published in Chicago. No testimony was offered as to the reliability of the weights given in such estimates or as to how such weights were obtained, and witness for petitioner, when questioned about the matter, was unable to give any information on the subject. On page 42 of this book is given a list of estimate weights on certain kinds of lumber, dry and green. Below this list, at the bottom of the page, in small type, appears the following: "The estimated weight of logs is one-half more than the estimated weight of the green lumber of the same kind of wood." The weights claimed by petitioner, it appears, were arrived at by using this estimate in connection with the listed estimate of lumber. No evidence of any kind in regard to the correctness of these estimates or as to how they were arrived at by the publishers was submitted. The Commission, therefore, can form no opinion in the matter, and the complaint, insofar as it is based on alleged overweight, must be dismissed. It may be observed, however, that the experience of the Commission's expert in weighing thousands of cars indicates that such estimates are not reliable.

That part of the complaint which is against the rates on logs from Campia, Mikana and Spur No. 129 to Rice Lake does not cover the rates at present in force, for the reason that certain changes have been made since the filing of the petition. The rates at present in force from Mikana and Campia to Rice Lake are considerably lower than were those which took effect June 1, 1911. No change, however, has been made in the Spur No. 129 to Rice Lake rate and the rate from and to these points, complained of, is still in force. The rates from and to all points involved, in force prior to June 1, 1911, and the changes since made in the same, as shown in tariffs on file with the Commission, are as follows:

Rates on logs for manufacture, product to be shipped out via the M. St. P. & S. S. M. to Rice Lake:

From	In force prior to June 1, 1911.		
	Capacity of car.		
	40,000 lbs.	50,000 lbs.	60,000 lbs.
Campia	\$5.00 per car.....	\$5.50 per car.....	\$6.00 per car.
Mikana	5.00 " "	5.50 " "	6.00 " "
Spur No. 129	5.50 " "	6.00 " "	6.50 " "

	Distance in miles.	Effective June 1, 1911.	Effective Jan. 26, 1912, and still in force.
Campia	5	1.5 cts. per cwt...	1.1 cts. per cwt.
Mikana	10	1.5 " " "	1.2 " " "
Spur No. 129	26	1.6 " " "	1.6 " " "

The rates in force prior to June 1, 1911, were specific, that is, applied from and to points named only. The rates effective June 1, 1911, and Jan. 26, 1912, are distance rates and applicable generally between all stations on the "Soo" line in Wisconsin.

The substance of the testimony concerning the change in the rates complained of was about as follows: The changes had the effect of increasing the charges about one dollar per thousand feet on logs already contracted for and of practically prohibiting the further buying of logs for shipment to Rice Lake from points north of there on what was termed the "Blueberry line". It was understood that logs were being shipped and could be shipped from these points through Rice Lake to Ladysmith at lower rates than to Rice Lake. These rates to Ladysmith applied on bolts but it was supposed that they also applied on logs. Witness testified that there was a rate of \$4.00 per car on bolts from Campia to Ladysmith. For the respondent F. J. Buchanan, its special accountant, testified as to the manner in which separate items included in four statements offered in evidence were made up. These statements purported to show the revenue derived from and the expense of the operation of branches on the Wisconsin and Peninsula division of the respondent's line, including the branch on which points involved in this complaint are located, for the year ending July 31, 1911.

This is practically all the testimony offered relative to that part of the petition which concerns the changes in rates effective June 1, 1911.

Tariffs on file with the Commission as stated above show that the rates complained of are not now in force. The rates now in force apply generally between all points on the respondent's line. There is, therefore, considerable difference between the conditions existing at the time the petition was filed and at present. Any change in the present rates, from Campia, Mikana and Spur No. 129 to Rice Lake would probably involve rates for similar distances between all points on the respondent's line. The loss suffered by the petitioner through the change in rates complained of, effective June 1, 1911, was probably limited, insofar as the case under investigation is concerned, to the difference in the rates in force before and after this change as applied to shipments of logs bought prior to and shipped after June 1, 1911.

Some testimony was given tending to show that the rates to Ladysmith from some of the points involved in the complaint were lower than to Rice Lake, through which all shipments in question passed, and that consequently petitioner could not compete in that territory with Ladysmith buyers of logs. The rates to Ladysmith, however, it seems, according to tariff on file with the Commission, Soo Line G. F. D. No. 13628, applied only to bolts to be manufactured into cooperage stock. These rates, therefore, could not lawfully be applied to shipments of logs. This tariff was canceled Jan. 26, 1912. The rates on logs and bolts now in force to Ladysmith are on the same basis as Rice Lake rates, and are provided for in Soo Line G. F. D. No. 14824, a distance tariff. The conditions as to this matter, therefore, have also changed since petition was filed. For this reason it does not appear to be necessary to go into further details in the matter.

Freight bills, filed in this case for shipments that moved after the change in rates of June 1, 1911, show that there were forty-two such shipments, each of which was charged the distance tariff rate on the basis of the minimum weight provided for cars of 60,000 lbs. capacity, at the minimum charge of \$9 for each shipment, amounting to \$378 for the forty-two cars. Had these shipments moved prior to June 1, 1911, a charge of \$6 per car,

amounting to \$252 for the forty-two cars, would have applied. The difference, \$126, appears to have been a direct loss to the shipper, due to the change in rates complained of. There seems to be no reason why this amount should not be refunded to them. Following is a complete list of these shipments:

SHIPMENTS OF LOGS FROM CAMPIA TO RICE LAKE.

Date of shipment.	Way bill number.	Car numbers.	Charges paid.	
June 17, 1911.....	239	{ 2095 2389 3297 }	\$27 00	
June 19, 1911.....	259	{ 50577 3619 3629 }	27 00	
June 15, 1911.....	261	{ 3755 2253 }	18 00	
June 15, 1911.....	208	{ 50577 3511 }	18 00	
June 13, 1911.....	172	{ 3511 3619 50577 3485 3535 2095 3629 }	63 00	
	173	{ 3297 2253 3545 3213 }	36 00	
	174	{ 50577 2389 }	18 00	
	175	{ 3619 3545 3213 }	27 00	
	176	{ 3485 3755 }	18 00	
	177	{ 2389 2025 3511 50577 }	36 00	
	178	{ 3297 3629 3213 3545 }	36 00	
June 14, 1911.....	192	{ 2095 2253 3485 }	27 00	
June 16, 1911.....	224	{ 3545 3485 3213 }	27 00	
Total.....		42 cars		\$378 00
42 cars at \$6 per car.....				252 00
Excessive charges.....				\$126 00

The statements offered in evidence in behalf of the respondent show that the cost of the operation of the Wisconsin & Peninsula division branches was greatly in excess of the revenue derived therefrom. Owing, however, to changes in rates since the petition was filed, already discussed above, analysis or discussion of these statements is unnecessary.

The Commission will authorize a refund of \$126 on the shipments listed above. For reasons already shown, no change in rate will be ordered, and that part of the petition asking for refund of \$292.21, on account of alleged overcharge in weight, will be dismissed.

For the reasons stated, we find and determine that the charge of \$378 exacted of the petitioner for the shipments of forty-two cars of lumber from Campia to Rice Lake, Wis., is unusual and exorbitant, and that the reasonable charge for such shipments would have been the sum of \$252.

Now, THEREFORE, IT IS ORDERED, That the Minneapolis, St. Paul & Sault Ste. Marie Railway Company be and the same is hereby authorized and directed to refund to the petitioner, the Hammond-Chandler Lumber Company, the sum of \$126.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF
TRAIN SERVICE ON THE DODGEVILLE BRANCH OF THE
ILLINOIS CENTRAL RAILROAD COMPANY.

Decided Oct. 15, 1912.

Complaints having been made, the Commission, on its own motion, investigated passenger service on the Dodgeville branch of the I. C. R. R. Co. Specific complaints were made on the failure to maintain schedule time and complaints were received from all points on this branch in regard to the late schedule of the evening train. The change from an earlier schedule was ordered in *Knapp v. I. C. R. Co. et al.* 1910, 5 W. R. C. R. 176, in order to make connection at Dill, Wis., with the westbound passenger train of the C. M. & St. P. Ry. Co. The former order provided that each company should hold its trains for such connection for a period of not less than thirty minutes.

Held: The advantage of the connection at Dill warrants its continuation. The former order is modified so as to provide a maximum wait of fifteen minutes for this connection. The respondent is ordered to so arrange its schedule as to furnish morning passenger or mixed service from Martintown to Dodgeville and afternoon passenger or mixed service from Dodgeville south to Martintown to arrive at Dodgeville not later than 11:10 a. m. and leave not earlier than 3 p. m. The respondent is further ordered to operate its trains on the Dodgeville branch on schedule time, barring accidents and other unusual contingencies. In the case of the mixed train, deviations not ordinarily exceeding an hour later than its published schedule will be considered as conforming with this order.

The Commission, on its own motion, investigated the question of passenger service on the Dodgeville branch of the Illinois Central Railroad Company. Two hearings were held.

The first case was the result of an informal complaint by a citizen from Blanchardville, one of the towns on this line. This complaint, filed with the Commission in November, 1911, alleges that the morning northbound mixed train on the Dodgeville branch of the Illinois Central Railroad Company is run with so little regard to its schedule as to afford intolerably poor passenger service. The complaint asks that the general question of train service on this branch be investigated.

The second case dealt with the advisability of restoring the evening northbound passenger train on this branch to its old schedule. The change was asked by residents of Dodgeville,

Jonesdale, Hollandale, Argyle, Woodford, Dill, Martintown, Wis., and Winslow and McConnell, Ill. These are all towns situated on this line. The petitions allege that the present schedule of the train in question, No 231, is an unreasonably late one, as a result of the Commission's order in the case of *Knapp v. I. C. R. Co. et al.* 1910, 5 W. R. C. R. 176, and ask that the old schedule be restored. The order referred to required the Illinois Central Railroad Company to arrange the schedule of its evening train so as to arrive at Dill at 8:53 p. m. instead of 8:02, as formerly, in order to make connections at that point with the westbound evening passenger train on the Mineral Point division of the Chicago, Milwaukee & St. Paul Railway Company.

The hearings were held Nov. 21, 1911, and May 14, 1912. At the first hearing *M. J. Cleary* and *Frank Jenks*, of Blanchardville, and *B. Holland*, of Hollandale, appeared in their own behalf and in behalf of others similarly situated. *Jones & Schubring*, by *E. J. B. Schubring*, appeared for the Illinois Central Railroad Company. At the second hearing the following appearances were entered: *M. J. Cleary* for the village of Blanchardville; *Emery T. Bray* and *Charles Phillips* on behalf of the Commercial Club of Dodgeville; *J. B. Fuller* and *W. F. Schram* on behalf of the village of Winslow; and *Jones & Schubring* by *John Morgan* on behalf of the Illinois Central Railroad Company.

The Dodgeville branch of the Illinois Central Railroad Company runs from Dodgeville southeast to Freeport, Ill., a distance of sixty-six miles. Of this, forty-seven miles is in Wisconsin, and nineteen miles in Illinois. The approximate population of the Wisconsin towns on this line is as follows: Dodgeville, 2,000; Jonesdale, 100; Hollandale, 400; Blanchardville, 900; Argyle, 750; Woodford, 150; Dill, practically nothing but a station and junction point with the Chicago, Milwaukee & St. Paul Railway Company; and Martintown, 100. Dodgeville, the county seat of Iowa county, is also on the Madison-Lancaster division of the Chicago and North Western Railway Company, and is served by several trains a day each way on this road. From Dodgeville to Dill, however, which is only a few miles from the Illinois line, the towns on the branch in question are largely dependent on the Illinois Central Railroad Company for connections to other parts of the state. This applies

especially to Blanchardville, which is about twenty miles from either point, and from where it is about fourteen miles to New Glarus and seventeen miles to Blue Mounds and Mt. Horeb, the nearest points on other lines.

The following schedule of the passenger service on this branch is taken from the company's folder as of Sep. 3, 1912:

Northbound			Southbound	
231 Pass.	253 Mixed		232 Pass.	260 Mixed
7:55 p. m.	7:05 a. m.	Freeport, Ill.....	9:25 a. m.	5:45 p. m.
8:40 ..	8:35 ..	Martintown, Wis.....	8:35 ..	4:20 ..
8:53 ..	8:55 ..	Dill.....	8:23 ..	4:02 ..
9:05 ..	9:10 ..	Woodford.....	8:13 ..	3:45 ..
9:16 ..	9:45 ..	Argyle.....	8:02 ..	3:30 ..
9:35 ..	10:10 ..	Blanchardville.....	7:42 ..	3:05 ..
9:50 ..	10:40 ..	Hollandale.....	7:27 ..	2:40 ..
10:00 ..	11:10 ..	Jonesdale.....	7:17 ..	2:20 ..
10:20 ..	12:10 ..	Dodgeville.....	7:00 ..	2:00 ..

A few small towns in Illinois, among them McConnell and Winslow, between Freeport and Martintown, are omitted.

From the testimony submitted it appears that during the fall of 1911 the morning northbound mixed train maintained its schedule so poorly that it became of little value for passenger traffic to the Wisconsin towns on this line. It was claimed that during the month of October, 1911, this train, due at Dodgeville at 12:10 p. m., did not arrive within an hour of schedule time five times, and that it was usually three to four hours late. Its arrival at Dodgeville was said to be so uncertain during this period as to make it problematical whether passengers would reach Dodgeville in time to make connection with the east and westbound trains on the Chicago & North Western, leaving such station at 4 p. m. The North Western depot is about a mile from the town, and in order to make the connection the train in question must reach Dodgeville not long after three o'clock. Extreme irregularity in the service afforded by this train during the fall was stated to have been usual for over twenty years.

Dodgeville business men complain that on account of the very poor service of train No. 232 and the small margin allowed at Dodgeville before its return, business which would normally flow to Dodgeville from the territory tributary to this line is diverted to other points. The claim is made that it is impossible for the train to maintain its schedule and do its work. An addi-

tional morning train to carry passengers, baggage and cream, and do the car work of train No. 232 is asked, leaving the other freight work to the present mixed train. It is urged that with dependable service into Dodgeville in the middle of the forenoon, and leaving between three and four o'clock in the afternoon, there would be a substantial increase in passenger traffic.

Complaint was also made about the evening passenger train, No. 231, which is due at Dodgeville at 10:20 p. m. and is said to be rarely on time. As the agent leaves the station before the arrival of the train, and since there is no telephonic means of communication, it is impossible for people interested to know when the train may be expected. A number of instances were related when this fact led to great inconvenience and even some hardship.

A statement filed with the Commission showed that from Jan. 1 to Feb. 7, 1912, inclusive, train No. 231 arrived at Dodgeville as follows:

On time.	Late.					Total days.
	½ hr. or less	1 hr.-½ hr	2 hr.-1 hr.	3 hr.-2 hr.	Over 3 hrs.	
10:0 p. m.	10:50-10:20	11:20-10:50	12:20-11:20	1:20-12:20	1:20 a. m.	
1	1	8	15	6	2	33

The claim was made that when the former schedule was in effect train No. 231 was not late as often or as much as at present. This was not generally admitted, however. In this connection it should be noted that the period above mentioned was in the middle of an exceptionally severe winter, though it is difficult to imagine any circumstances unusual enough to justify such wide deviation from the schedule.

A variety of reasons appear to be responsible for the poor maintenance of its schedule by mixed train No. 253. The passenger service it affords has apparently long been a cause of complaint. Attention was given the matter over two years ago in the case of *Knapp v. I. C. R. Co.* 1910, 5 W. R. C. R. 176. At that time, as at present, one of the chief difficulties appeared to be that train No. 253 was late getting out of Freeport, which was attributed to delay at that point while awaiting for Chicago.

merchandise destined to points along the line. Another difficulty seems to be that during the late summer and fall the train is burdened with more work than it can do and maintain its schedule even within reasonable limits.

From the case of *Burrill v. I. C. R. Co.* 1912, 9 W. R. C. R. 319, it seems that the difficulty in giving reasonable passenger service with the mixed train has been at least partly solved. It was there stated by respondent that orders had been given the yardmaster at Freeport to start the Dodgeville train—the mixed northbound train in question here—on time regardless of the Chicago freight. As evidence of improvement in service, respondent on Dec. 18, 1911, submitted a statement showing the movements of train No. 253 from Nov. 22, 1911, to Dec. 11, 1911. Such statement shows that the train arrived on time once, and averaged an hour late for the rest of the period. The following table gives its arrival at Dodgeville from Jan. 1 to Feb. 7, 1912:

Due.	On time	Late.					Total days.
		1 hr. or less.	2 hr.-1 hr.;	3 hr.-2 hr.;	4 hr.-3 hr.;	Over 4 hrs.	
12:10 p. m.	3	11	8	7	3	1	33

Considering the need for morning passenger service north, the irregularity in the maintenance of schedule time is greater than it should be.

An additional passenger train, running north in the morning and returning in the afternoon, was asked. The Commission stated in the *Knapp* case (5 W. R. C. R. 183) that "From the facts before the Commission it appears that there may be some doubt about the propriety and justice of compelling the Illinois Central to operate an additional passenger train between Freeport and Dodgeville at the present time."

Figures submitted by the Illinois Central Railroad Company for the year ending June 30, 1910, show a deficit of nearly \$30,000 from the Madison and Dodgeville branches. Figures for the following year, as reported to the Commission, do not include earnings from mail and express and miscellaneous income. With a liberal allowance for these items, however, there would still be a very substantial deficit on these branches.

It is, of course, true that branch lines must be considered also from the standpoint of their contribution to the business of the company as a whole, and this isolation as an accounting proposition is not always justifiable in determining a question of service. In the present case, however, considering a passenger earning per mile of only \$0.44, a relatively light population, and no large industries to serve, the Commission, much as it should like to grant the additional service, believes that one passenger and one mixed train a day each way is all that can be fairly asked of the company.

It does appear, however, that the northbound trains on this line do not properly maintain their schedule. Barring circumstances absolutely beyond its control, a railroad should substantially maintain its published passenger schedule, whether on branch or main line. Some allowance may be made for a mixed train, but where it is the only train affording service in a direction and at a time at which traffic normally moves, as in the present case, the management should take such measures as may be necessary to maintain the established schedule. In the present case the Commission believes that the freight business on this branch should be so taken care of that for the mixed train to arrive an hour after its schedule time would be very unusual, and an order requiring proper service will be entered.

Dodgeville is the largest town on the line. It is the county seat and the principal business center of a large and prosperous territory. Even should the northbound mixed train be on time, only an hour and fifty minutes is allowed passengers to transact business in Dodgeville before the train returns. That is not enough, and an order will be entered requiring service which will afford a greater margin at this point.

The Commission has carefully considered the question of connections at Dill, and the advisability of rescinding its order in the *Knapp* case so as to permit the evening passenger train on the line in question to return to its old schedule, which was fifty minutes earlier than the one now in force. This would break the connection at Dill, as it was shown in the *Knapp* case that the Milwaukee train in question has important interstate connections, and that its schedule ought not to be distributed for that reason.

The following table illustrates the situation as far as petitions in the case are concerned, as well as some data bearing on the question involved:

Town.	Approx. pop.	Miles from Dodgeville.	Miles from Dill.	Connections at Dill petitioned for in 1910 by residents of.	Rescinding of order now asked by residents of.	No. of names appearing in both petitions
Dodgeville.....	2,000	.....	40	77	64	15
Jonesdale.....	100	9	31	6	22	1
Hollandale.....	400	14	26	27	31	6
Blanchardville.....	900	21	19	47	.....	.....
Argyle.....	750	30	10	24	33	8
Woodford.....	150	35	5	7	35	3
Dill.....	40	40	.....	.....	35	.....
Martintown.....	100	46	6	.....	8	.....
Winslow, Ill.....	.....	.....	.....	.....	34	.....
McConnell, Ill.....	.....	.....	.....	.....	90	.....
.....	.....	.....	.....	.....	2)	.....

The distances are based on the figures in the company's folder.

The connection at Dill was also asked in a petition signed by forty-nine commercial men.

It will be observed that a comparatively small number of those asking the connection originally now petition for its breaking and for an earlier service. No demand whatever for such change came from residents of Blanchardville. As has been stated, Blanchardville, midway between Dill and Dodgeville, is the most dependent of all these towns upon the connections at Dill in going to eastern points in the state. It is also the largest town on this branch in Wisconsin with the exception of Dodgeville. Dill, and points south of Dill, have, of course, no interest in making connections with a northbound train. All of these towns, including Winslow and McConnell, Ill., over which of course the Commission has no jurisdiction, naturally prefer the old schedule, under which they arrived fifty minutes earlier and may in some cases have been able to get their mail the evening of its arrival instead of the following morning.

In determining a question of this kind not only must the numbers of each case be considered, but the extent of the inconvenience which would be caused to some must be weighed against the benefit to be derived by others.

The claim was made, however, though not generally admitted, that under the old schedule train No. 231 ran more regularly and that it was not late as often or as much as under present conditions, but the facts do not sustain the claim.

The following statistics are based on tables submitted by the company as to the running of train No. 231 before and after the order mentioned went into effect:

	Left Freeport on time.	Arrived at Dodge- ville on time.	Late.			Cause.	Total.
			15" or less.	30-15"	2-1 hr.		
April 1910...	19	13	5	2	2	3 times due to connec- tions	26
June 1910...	26	16	6	4	.....			7 times Dill connections	26

Making allowance for the fact that the company might be expected to make a somewhat better showing in June than in April, it does not appear from the foregoing table that there was any decidedly greater irregularity before such order became effective. It will be noted, however, that connections at Dill were responsible for the train's arriving late seven times out of a total of ten.

An examination of connections at Freeport, as shown in the Illinois Central Railroad Company's public folder as of Sep. 3, 1912, does not indicate that, as far as maintaining its time is concerned, there would be any great advantage in restoring the old schedule. The following table gives trains from Chicago and from the west, which now connect or would connect with this train in the event of the proposed change:

From Chicago	6:40 p. m.
“ the west	6:50 “
“ Chicago	7:30 “
“ the west	7:25 “

The last two trains are those with which connections are made at present. The Dodgeville train now leaves at 7:55, giving a margin of twenty-five minutes over the Chicago train and half an hour over the train from the west. With the proposed change there would also be a margin of twenty-five minutes over the 6:40 train from Chicago, and fifteen minutes over the 6:50 train from the west. It would not appear from the facts before the Commission in this case that a change to the old schedule would result in a gain any more than the fifty minutes involved.

The following statistics bear on the volume of passenger business originating at Dill. It should be remembered that there is little but a station at that point and that presumably most of the traffic originating there is interstate.

TABLE I.
NUMBER OF PASSENGERS CARRIED IN DODGEVILLE DISTRICT.
Northbound.

Stations.	January, 1912.		Jan., Feb., Mch., Apr., 1912.		Average per month.	
	From stations Woodford to Jonesdale.	To Dodgeville.	Stations Woodford to Jonesdale.	To Dodgeville.	Woodford to Jonesdale.	To Dodgeville.
Beyond Dill.....	307	24	1,045	89	261½	22½
Dill.....	434	14	1,724	61	431	15½

Four hundred and forty six passengers a month at Dill going north would indicate that on an average sixteen or seventeen people a day use the evening connections at this point to board the evening Dodgeville passenger from the Milwaukee train.

The following statistics of local ticket sales, taken from a report submitted by the company for the month of September, 1911, further illustrate the use of the Dill connections by the southbound traffic in the morning, as well as the northbound in the evening.

TABLE II.

Stations.	Northbound (Dill to)	Southbound (To Dill from)
Woodford.....	145	127
Argyle.....	238	313
Blanchardville.....	191	315
Hollandale.....	29	68
Jonesdale.....	4	1
Dodgeville.....	29	16
	636	840

The southbound morning passenger train reaches Dill at 8:23 a. m., twenty minutes before the east bound Milwaukee train on the Chicago, Milwaukee & St. Paul Railway. The foregoing figures would indicate that during September, 1911, an average of about thirty-six a day used the morning connections to go

east to other points in the state, and about twenty-five a day used the evening connection to get back to points on this branch from points in the eastern part of the state.

It would seem that Dodgeville makes comparatively little use of this branch, either going south or returning. From table I it appears that for the four months, January, February, March and April, 1912, from beyond Dill, i. e., south of Dill, there was an average of $261\frac{1}{4}$ northbound passengers a month for the five stations between Dill and Dodgeville, or an average of over 50 for each station, as compared with $22\frac{1}{4}$ for Dodgeville. From Dill itself the monthly average for the same period to the same stations was 431, or over 80 to each of the five stations, as compared with $15\frac{1}{4}$ to Dodgeville.

From table II it appears that during the month of September, 1911, 16 tickets were sold to Dill from Dodgeville, as compared with 315 to the same point from Blanchardville, 313 from Argyle, and 68 from Hollandale. The following table, based on a report submitted by the company, gives the average monthly movement of southbound passenger traffic from Dodgeville to Dill for the months of January, February, March and April, 1912:

TABLE III.
SOUTHBOUND PASSENGER TRAFFIC—NUMBER OF PASSENGERS.

	Stations Jonesdale to Dill	Beyond Dill
Dodgeville.....	427½	33½
Jonesdale.....	33½	5½
Hollandale.....	253	22½
Blanchardville.....	472½	75
Argyle.....	323½	106½
Woodford.....	89½	32½
Total.....	1599½	275½

From table I it appears that the northbound passenger traffic is greater from Dill than the traffic to the same points from beyond Dill, i. e., south of Dill, and from table III, that the southbound traffic is much greater from these points to Dill than the traffic from the same points to beyond Dill. All of which would seem to emphasize the importance of connections at Dill.

It does not appear that compliance with the petitions would benefit the schedule more than the fifty minutes involved, with perhaps the occasional exception of time lost waiting for the Milwaukee train at Dill. It does appear, however, that the con-

nections at Dill, east in the morning and returning at night, are of very considerable importance to a good many people. It would also seem that the town of Blanchardville has a greater interest in the passenger service on this line, whether on the basis of dependence or patronage, than the town of Dodgeville, and a very much larger interest in the connections at Dill. As has been stated, of all these towns Blanchardville is the most dependent on these connections. In view of these facts the petitions requesting the Commission to rescind its order in the case of *Knapp v. I. C. R. Co.*, *supra*, must be dismissed without prejudice.

Nevertheless, while the use of this connection warrants its continuance, the maximum wait of thirty minutes for either road prescribed by the Commission at Dill for this connection is perhaps somewhat longer than is required in fairness to traffic not interested in having the two trains connect. Accordingly, an order will be entered reducing this wait to fifteen minutes.

The poor maintenance of its published passenger schedule, especially northbound, by the company has long been a source of complaint. To say that a reasonable maintenance of its published schedule by a railroad company is part of adequate service, is axiomatic, and the company will be required to take such measures as it may deem necessary to maintain within reason its passenger schedules on this branch; of course, occasional and unusual circumstances beyond its control are excepted. As stated by the Commission in *Loyal Business Men's Assn. v. W. C. R. Co.* 1907, 1 W. R. C. R. 720, 723, "Patrons have a right to know when they may expect to go and come, barring unusual contingencies. 'Unusual contingencies' are not daily occurrences."

Of course, with regard to the mixed train's maintaining its schedule, some allowance must be made for the character of the train. In the present case, considering the need of morning passenger service and the shortness of the run, the Commission believes that the management should take such measures as may be necessary to run this train ordinarily within an hour of its schedule time.

It was stated in the testimony that an offer had been made by a representative of the company to install a telephone in the station in order that some knowledge of the movements of the

evening train might be obtained, thus avoiding the necessity for long waiting at the station. As far as the Commission is concerned, any such offer was voluntary. The Commission, however, thinks it proper to suggest that, if such a step should be feasible, it be taken, since for a town the size of Dodgeville the company should make it possible for the inhabitants to ascertain when the one evening train on its line may be expected.

NOW, THEREFORE, IT IS ORDERED:

1. That the petitions requesting that train No. 231 on the Dodgeville branch of the Illinois Central Railroad Company be restored to its old schedule prior to the order of the Commission in *Knapp v. I. C. R. Co. et al.* 1910, 5 W. R. C. R. 176, be and the same hereby are dismissed;

2. That the order of the Commission in the case of *Knapp v. I. C. R. Co., supra*, be and is hereby modified to read as follows: That the Illinois Central Railroad Company operate its train No. 231 in such a manner as to arrive at Dill station at 8:53 p. m., and that the Chicago, Milwaukee & St. Paul Railway Company operate its train No. 7 in such a manner as to arrive at Dill station at 8:53 p. m., and that whenever either of these trains arrives at Dill before the other, on account of some unavoidable delay on the part of the latter, each company shall hold its train for such connection for a period of not less than fifteen minutes;

3. That the Illinois Central Railroad Company so arrange its schedule as to furnish morning passenger, or mixed, service from Martintown north to Dodgeville, and afternoon passenger, or mixed, service from Dodgeville south to Martintown, this service to arrive at Dodgeville not later than 11:10 a. m. and leave not earlier than 3 p. m.;

4. That the Illinois Central Railroad Company operate its trains on the Dodgeville branch with regularity, on schedule time, barring accidents and other unusual contingencies.

In the case of the schedules of the mixed trains on this branch a deviation not ordinarily exceeding an hour later than its published schedule will be considered as conforming with this order.

OCONTO CITY WATER SUPPLY COMPANY
vs.
CITY OF OCONTO.

Submitted July 24, 1912. Decided Oct. 17, 1912.

Petitioner alleges that the only practicable way to install meters for certain services in Oconto, Wis., is to place them in the street, and prays that the order of the city council for the removal of such meters as have been placed outside of the curb line, be set aside as unreasonable. Some of the buildings are without basements or suitable places for meters. Wherever there is space between the sidewalk and the street meters set outside of the buildings are placed in such space. Where there is no parking, meters must be set either under the sidewalk or in the street proper.

Held: The meter boxes already set in the street gutters should be removed, as ordered by the city council, and placed under the sidewalk, and future installations of the kind should be made under the sidewalk, except perhaps in special cases in which the city authorizes the installation in the street. Petition is dismissed. Six months is deemed a reasonable time within which to install the meters.

The material part of the petition herein sets forth that pursuant to the order of the Commission made on Aug. 7, 1911, (7 W. R. C. R. 497), the petitioner was required to meter certain services within six months from the date of the order, which time was subsequently extended to May, 1912; that in many parts of the city the only practical way to install meters is to place them in the street; that in many instances it is impossible to install meters within the buildings of the consumers, and on some streets, especially in the down-town district, there is no parking or space between the sidewalk and the curb line, and in such instances particularly the only practical way to install a meter is to set it in the street outside of the curb line; that the first meter installed in the street was so placed on Dec. 9, 1911, and no objection thereto was made by the respondent or anyone else; that on account of the severe winter the work of installing meters in the streets was suspended until March 19, 1912, from which time, and down to and including March 23, 1912, eight meters were installed in the street outside of the curb line; that thereupon for the first time the city objected to such installation and

threatened to take some action to compel the petitioner to change its plan of installation; that the petitioner was then intending to put on a larger force of men to press the work of installation, but, in view of the objections made by the city, the work was stopped, and that on April 12, 1912, the petitioner was served with notice in writing by the common council, advising it of an order that was made by the common council requiring such meters as had been installed in the streets outside of the curb line to be removed and placed within the curb line.

The petition also alleges that it is the intention of the petitioner, wherever there is a parking or other space between the sidewalk and the curb line, to install the meters in such parking; that, at the present time, the petitioner has installed in the city eleven meters in the street outside of the curb line, and that in each instance it was necessary, by reason of local conditions, to install the meter at the place where installed, and in each such instance there was and is no parking or other space between the curbing and the sidewalk where the meter could be placed; that in the down-town district the buildings are built up to the lot line, and cement sidewalks extend out to the curb line; that it is entirely impracticable to install any meter in the cement sidewalk; that the meters so installed in the street are properly set, and constitute no obstruction to travel nor to the flow of water in the gutters; that the meters are set in boxes cemented together, and are covered with heavy cast iron coverings that are cemented to the top of the pipes; that the method of constructing and installing the meter boxes is the method generally adopted by water companies, as petitioner is informed and believes, and is safe and sanitary and conforms to the most perfect and modern method. Wherefore, the petitioner prays that the order of the common council of the city, of April 9, 1912, be set aside as unreasonable.

In answer to the foregoing allegations of the petition, the city of Oconto denies that the only practical way to install meters is to place them in the street, and denies that in any instance it is impossible to install meters within the buildings of the consumers. It also avers that immediately upon the city officials discovering that petitioner was installing meters in the streets outside of the curb line, it notified the petitioner to cease such installation; that the installation of the eleven meters in the

street outside of the curb line was unnecessary by reason of local conditions, and that such installation is impracticable for the reason that thereby travel on the street and the flow of water in the gutters are obstructed; that the entire surface of the city of Oconto is very level, and the fall necessary for the flow of water is very small, and that a slight obstruction interferes with such flow and causes the water to remain upon the streets; that the method of constructing the meter boxes of meters is unsafe for the reason that upon the street where meters have been installed, and where it is the intention of petitioner to install other meters, improvement of the street is contemplated, and in some instances authorized, which improvement is to consist of what is known as macadam; that to properly lay macadam upon the street it is necessary to roll the same by a steam roller; that the steam roller owned by the city weighs eighteen tons, and it is feared by the respondent that, when the roller in the course of its operation necessary to the proper laying of the macadam passes over the meter boxes and meters, the same will be pressed and broken, and will cause additional expense to the petitioner, all of which will be a detriment not only to the petitioner but to the city of Oconto. The respondent prays that the petition be dismissed.

A hearing was held on July 24, 1912. The petitioner was represented by *J. E. North of Green, Fairchild, North, Parker & McGillan*, and the respondent by *V. J. O'Kelliher*, its city attorney.

At the hearing it appeared that a controversy existed between the city and the water company over the practicability of setting the meters in the sidewalks. Neither side had investigated the matter from an engineering standpoint sufficiently to furnish any information from which an intelligent conclusion could be reached. For this reason the Commission directed its engineer to go to Oconto and make a careful investigation of the matter. From his report and the testimony offered at the hearing, it appears that many of the stores, houses or other buildings in the city of Oconto where water is now supplied and where meters are to be installed, are without basements, and that many of the basements which do exist under such places are entirely unsuitable as places in which to set meters, for the reason that they are very wet and are such that meters could not be protected

therein from freezing during the winter season. It is, therefore, essential that meters installed for measuring the water used in such places shall be placed in frost-proof meter boxes or vaults outside of the buildings, either under the sidewalks or in the space between the sidewalks and street curbing, where such spaces exist, or in the streets between the curb lines. It is apparently agreed that wherever there is a space between the sidewalk and the street curbing the meters set outside of the buildings shall be set in such spaces. But on Main street, within certain limits, there is no such space, and consequently meters must be set either under the sidewalk or in the street proper.

Serious objection was made by some of the city officials, as well as by the other residents of the city, to the existence of the stop boxes in the Main street sidewalks, which walks extend from the buildings to the curb line. Threats of requiring the water company to remove such boxes from the sidewalks were made, which threats resulted in the adoption by the company of the street as the location for meter boxes to be set in that section of the city. It seemed that, with the manifest objection to the stop boxes, there would be a probability of much greater objection to the larger meter boxes being also placed in the sidewalks.

The investigation discloses that but four meter boxes have so far been set between curb lines, which are set on Main street, in the business section of the city. These have been located as closely as practicable to the curbing. The city has ordered the company to remove the same from outside of the curb line to within the curb line.

In considering the existence of these boxes in their present locations from the standpoint of the city, it appears that the principal objection to them results from the fear of the possible danger of breaking the vitrified clay sewer pipe forming the top of the boxes, when the city has pavement reconstruction work done around them, by the use of the scarifier and heavy steam roller. The same kind of sewer pipe which is used for these meter boxes and set vertically is also used for sewers and laid horizontally. Traffic engines and steam rollers pass over such sewers without crushing them, and it is quite doubtful that similar pipe, set vertically, as meter boxes, would be crushed sideways by a roller working around them. In doing such work on the street as the city is understood to be contemplating, it is

necessary to work around and protect valve boxes over mains, sewer manholes and lamp holes, telephone conduit manholes, and all similar obstructions which must be in the streets. Such obstructions, if numerous, may add to the cost of the street work, and hence must not be unnecessarily multiplied or increased in number. It is not essential that the meter boxes be in the streets. Furthermore, the tops of the boxes in question are not well adapted to the conditions under which they are serving. The gutters are cobble stone paved and unless the tops of the sewer pipe bells are set below the gutter surface and protected in some manner, they will, as happened in one case, be chipped and worn away by wagon wheels and horses' feet.

On the other hand, in considering the matter from the standpoint of the company, there appear to be but two good reasons in favor of having placed the existing meter boxes in the street: one is that the company's officers had been led to believe that the city would not permit them to be in the sidewalk; the other, that it appeared to be somewhat more economical or less expensive to place them in the street than in the cement sidewalk. Placing them in the latter position required breaking up and rebuilding one or two sections of cement walk in each case and involved about one foot more depth of digging in order to get down to the service pipe and insert meter connections therein. Another reason, which, however, is regarded as of little real importance, is that if placed just outside of the curb line in the street instead of inside of the curb line, the meters would, at least theoretically and perhaps actually, detect and register a little more leakage over surface pipes. The actuality of that would, of course, depend upon the existence or nonexistence of leaks between the two positions, which might be only three or four feet apart.

Under the circumstances of the case, it is apparent that if the probable larger cost of a meter box adapted to street conditions were considered, the saving in cost of installation of meter boxes in the street over the cost of installation under cement sidewalks, would be at most very small.

The company's officers believe that frost goes deeper under the sidewalk than under the street, and that there is more danger of meters freezing in the former position than in the latter. This is probably true, but meters can be protected from frost

even under the walk. It would seem that if the consumer, who laid and owns the entire service pipe from the building to the curb line, did not lay his service deep enough under the walk to prevent freezing, he might be required to lay it deeper or be responsible for the damage to meters by freezing, when set in its service under a meter box in the walk.

The location of meters under the walk instead of under the street gutter, would be very advantageous to the company from the standpoint of quick and easy access to meter readers. When snow and ice are on the street it requires more or less work to remove the same from over the cover of the meter box in order to reach the meter.

The foregoing considerations seem, on the whole, to indicate that the meter boxes already set in the street gutters along Main street should be removed, as ordered by the city council, and placed in the sidewalk, and that future installations of the kind should be made in a similar manner, i. e., in the sidewalks, except perhaps in special cases in which the city authorizes the installation in the street. For the foregoing reasons the petition will be dismissed.

NOW, THEREFORE, IT IS ORDERED, That the petition herein be and the same is hereby dismissed.

Six months from date hereof is given as a reasonable time within which to install the meters.

EDWARD F. MAERTZ

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

COMMERCIAL CLUB OF BRILLION

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF THE FREIGHT AND PASSENGER SERVICE ON THE LAKE SHORE DIVISION OF THE CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Decided Oct. 18, 1912.

Petitioners alleged that the passenger service maintained by respondent between Manitowoc and Kaukauna, Wis., is inadequate by reason of the withdrawal of two passenger trains from that line. One of these was the limited train operating between Milwaukee and Ashland, which is routed by way of Green Bay instead of Kaukauna as formerly. The other was a mixed train which made morning connections with the respondent's trains for Green Bay, Antigo, Ashland and other northern points at Appleton Junction and with the C. M. & St. P. trains at Forest Junction. The removal of these trains cannot be justified by any decrease in revenue from this district. The schedule now in force provides for three passenger trains south and two north. Under this schedule little time is afforded residents of the district in question for trading in nearby towns, and poor connection is made with trains for points north of Rhineland. Petitioners alleged that the freight service is inadequate, but it was agreed that the present freight schedule is satisfactory if properly maintained. Minor complaints relative to station facilities at Brillion and Reedsville were adjusted by agreement at the hearing.

Held: The existing passenger service is inadequate. The respondent is ordered to restore the northbound morning train service making connection at Appleton Junction as formerly. It is further ordered that respondent maintain the freight schedule now in force on its Lake Shore division between Manitowoc and Kaukauna.

The petitioners in these proceedings are Edward F. Maertz, representing the village of Reedsville; and the Commercial Club of Brillion, composed of business men of that village. They allege, in substance, that the withdrawal of two passenger trains from the branch of the Lake Shore division between Manitowoc and Kaukauna, about October 1911, has rendered the passenger service on that line inadequate; that residents of Reedsville and

Brillion cannot reach Appleton, Chilton, Oshkosh, and other centers in time to transact business and return the same day; that no direct day service is afforded north of Antigo; and that there is no Sunday passenger service. It is further alleged that the freight service is inadequate because of unreasonable delays in delivery; that the stations at Reedsville and Brillion are not properly lighted; and that the platform at Brillion is not suitable for the use of passengers or properly equipped for handling heavy freight.

The respondent, in its answer, alleges that the changes in schedule complained of were made necessary because of changes in its train service in the northern part of the state; and that the freight and passenger service now afforded is adequate. It denies that the stations at Reedsville and Brillion are insufficiently lighted and that the platform at Brillion is unsuited to the use of passengers. Further, it alleges that a raised platform suitable for handling heavy freight will be installed at Brillion.

Hearings were held on Feb. 23, 1912, at the village hall in Reedsville, *Healy & Joyce*, by *J. J. Healy*, representing the petitioner; and on Feb. 24, 1912, in the village hall of Brillion, *A. L. Hougén* representing the Commercial Club of Brillion. At the latter hearing the mayors of Kaukauna and Appleton, and business men from these cities, appeared and desired to be heard in support of the complaints before the Commission. For this reason the Commission, upon its own motion, held two additional hearings in order to give these cities an opportunity to present testimony. The hearings were held in the city hall of Kaukauna, on April 18, 1912, *F. H. Wilcox* appearing for the city of Kaukauna; and in Appleton on April 19, 1912, *H. D. Ryan* appearing for the city of Appleton and *A. L. Hougén* for the Commercial Club of Brillion. *C. A. Vilas* represented the Chicago & North Western Railway Company at all of the hearings.

The matters involved in these proceedings relate principally to the freight and passenger service on the Lake Shore division of the Chicago & North Western Railway between Manitowoc and Appleton. Some minor complaints as to inadequate depot facilities at Reedsville and Brillion are included in the petitions, but as the respondent's representatives at the hearings agreed to make the desired improvements, we deem it unnecessary to review the testimony relative thereto or to issue any remedial order.

The testimony shows that during the summer of 1911 the Chicago & North Western Railway Company discontinued two of its passenger trains on its Lake Shore division between Manitowoc and Appleton. Train No. 111, known as the "Ashland Limited" which formerly left Milwaukee at 7:30 p. m. and passed through Reedsville, Brillion, Kaukauna, and Appleton, now runs from Manitowoc to Eland Junction via Green Bay. The other train discontinued on this line was No. 117, which formerly originated at Sheboygan, leaving there at 4:40 a. m., and Manitowoc at 6:00 a. m., and arriving at Appleton Junction at 8:25 a. m. This was a mixed passenger and freight train, carrying some through freight for Kaukauna and Appleton. No other passenger trains were substituted for the ones discontinued on this branch of the road. A new train, however, was put on between Milwaukee and Manitowoc, leaving Milwaukee at 5.00 a. m., and connecting at Manitowoc with a train which was already in existence from Manitowoc through to Eland Junction via Green Bay, connecting there with the morning train for Ashland. At the time these changes were made, train No. 131, which had formerly operated as far as Appleton Junction only, was extended to Antigo and run about 30 minutes later than its former schedule in order to make close connections at Eland Junction for Wausau and St. Paul. Thus the changes made in the service deprived residents of the district between Manitowoc and Appleton of morning connection with a through train to Ashland, while continuing such service on other parts of the system which had been served by the mixed train which was discontinued. The testimony shows that this mixed train, No. 117, formerly made such connections at Forest Junction with the Chicago, Milwaukee & St. Paul Railway, and at Appleton Junction with the respondent's lines, that persons living at Reedsville, Brillion, or other points between Manitowoc and Appleton Junction were enabled to reach Appleton, Chilton, Green Bay, Oshkosh, Fond du Lac, and other centers in time to transact business and return the same day. It was also possible to reach Milwaukee from Brillion and Reedsville in the forenoon and return on train No. 111, leaving Milwaukee at 7:30 p. m., that train stopping on signal at those points. Furthermore, through service was afforded to Ashland and other points north of Antigo during daylight hours. The train with which the mixed train

No. 117 connected at Appleton Junction was a through train to Ashland arriving there at 5:55 p. m. This service was very convenient for the use of passengers, especially women and children, since the trip could be made by day with but one change of cars. It was developed at the hearings that since this morning train, No. 117, was taken off, the earliest northbound train between Manitowoc and Appleton has been No. 131, which leaves Manitowoc at 9:30 a. m., and arrives in Appleton at 11:04 a. m., and Antigo at 2:35 p. m. This train does not connect with the Chicago, Milwaukee & St. Paul line at Forest Junction in such a way as to enable persons to make business trips to Chilton and other points on that line and return the same day. The last train south from Appleton leaves at 3:50 p. m. Thus, even if the trains are on time, a passenger from Reedsville or Brillion can have only a very limited time in which to transact business in Appleton or Kaukauna, if he returns on the same day. For centers farther removed, such as Oshkosh, Fond du Lac, or Green Bay, a one day business trip is impossible from points between Manitowoc and Kaukauna. Moreover, under the present schedule it is impossible for passengers from Brillion or Reedsville to travel to points north of Antigo during daylight hours, as they were formerly able to do. Business men of Brillion and Appleton testified that their business had been injured by the withdrawal of train No. 117, because the inconvenience occasioned thereby to their patrons living on the line served by this train had diverted customers to other places. It was also shown that loss of time and additional expense to traveling men has resulted from the discontinuance of this train.

Testimony introduced by the respondent shows that the route of the night train, No. 111, was changed so as to make it go to Eland Junction via Green Bay for two important reasons. In the first place, the traffic handled by it had become too heavy to be carried safely over the roadway and bridges of the Appleton route, which is somewhat lighter in construction than the newly built line via Green Bay. In the second place, the time of this limited train could be shortened by using the Green Bay route because of more favorable grades and shorter mileage. The day train, No. 117, was discontinued because of a change in the method of handling freight over the Lake Shore division. Formerly consignments for this district shipped from the south were

routed by the way of Fond du Lac and Appleton Junction. Train No. 117 operated as a passenger train on its northbound trip, but usually carried a number of cars of freight, although no switching was done on this run. It returned from Appleton Junction as a way freight. To improve the freight service the respondent decided to route freight from Milwaukee to Brillion, etc., via Manitowoc instead of via Fond du Lac. Under the arrangement then installed, freight for this district goes to Manitowoc on a through freight train, and is there transferred to a local freight train, No. 47, which distributes it between Manitowoc and Appleton. This arrangement rendered train No. 117 unnecessary as a freight carrier, and the passenger traffic accommodated by it was regarded as insufficient to warrant its continuance as an exclusively passenger train.

With regard to the present freight service, the testimony shows that in numerous instances the delivery of freight from Milwaukee and points south has been delayed three or four days or longer, and some inconvenience caused thereby. It was shown, however, that some of these delays were due to weather conditions and to delays on parts of the respondent's system other than that under consideration. The freight schedule now in force is as follows: goods delivered at the station in Milwaukee by 5 p. m., leave Milwaukee on a through freight at 4 a. m. the following day, reaching the Calumet yards at Manitowoc at 11:35 a. m. There they are transferred to a local freight (train No. 47) which leaves at 2:30 p. m., arriving at Reedsville at 4:50 p. m., at Brillion at 5:54 p. m., and at Kaukauna at 7 p. m. This schedule the petitioners regard as satisfactory if it is enforced, and they request the Commission to order its maintenance.

The most important complaint in these cases appears to be the lack of a morning passenger train which will afford day service to points north of Antigo, and will enable persons living between Manitowoc and Appleton to reach the surrounding towns in time to transact business and return on the same day. It is clearly shown in the testimony that the present schedule is extremely inconvenient to residents of Reedsville or Brillion who desire to travel north of Antigo. Whereas, they formerly could connect at Appleton Junction so as to reach Antigo at 12:01 p. m., and Ashland at 5.55 p. m., they are now obliged to wait at Antigo

from 2:35 p. m. to 2:35 a. m., if they take the morning train, or at Rhinelander from 1:58 p. m. to 4:12 a. m., if they take the afternoon train, in order to reach Ashland. Thus, if a person leaves Brillion on the earliest train possible, he is obliged to wait at Antigo twelve hours and take a train at an unusual hour of the night in order to reach points north of Rhinelander. Or if he starts from Brillion on the only other train he is compelled to wait at Rhinelander for more than four hours after midnight in order to proceed north of that point. In fact, there is no satisfactory connection provided for residents of this district with either of the two through trains operated as far north as Ashland. On other parts of the system which were formerly served by train No. 117, the connection with the morning train north is still afforded. The train which leaves Milwaukee at 5:00 a. m. and connects with the Ashland train at Eland Junction serves the territory between Sheboygan and Manitowoc. It also serves the district between Manitowoc and Green Bay, a distance of about the same length as that between Manitowoc and Appleton, but it has fewer and less populous towns. In fact, according to the 1910 census, the branch between Manitowoc and Green Bay serves less than one-third as great a population as that served by the branch between Manitowoc and Appleton. Yet, under the present arrangement the former branch is afforded connections with two through trains for Ashland, No. 317, which leaves Milwaukee at 5:00 a. m. and makes connections for Ashland at Eland Junction, and the 111, which leaves Milwaukee at 8:10 p. m., whereas the more populous branch has no satisfactory connections with any trains north of Rhinelander.

Consideration should be given to the fact developed in the testimony that until the change of schedule which caused this complaint the residents of this district had been accustomed to an early train north since about 1888, when the mixed train, No. 117, was put on. This train gave them satisfactory connection with through trains and was convenient for local business. The testimony shows that when this train was in operation it was patronized by a considerable number of passengers. A traveling man testified that from thirty to fifty persons ordinarily boarded it at Manitowoc for points north. Numerous witnesses stated that when it reached Brillion the coaches of the train were from one-fourth to one-half loaded, and that on the average from

eight to twelve passengers boarded or left it at Brillion. In addition to the passenger coaches on this train it carried from four to ten cars of freight.

The respondent has been unable to furnish data from which it can be determined whether this train was formerly operated at a profit, and no other source of information has been available. The testimony and the exhibits offered at the hearings make it clear that the traffic over this branch of the North Western system has not decreased, but has rather increased within the last few years. It was shown that the freight receipts of the company at Brillion in 1911 were \$2,763.18 greater than in 1910, and that the increase in the revenue from tickets sold during the same period was \$401.78. For fourteen months ending March 1, 1912, an average of 1,212 tickets and cash fares per month were sold at Brillion, and an average of 914 per month at Reedsville, yielding an average monthly revenue of \$570.59 and \$403.13, respectively. During 1911, 48 per cent of the passengers representing 42 per cent of the revenue from ticket sales at Reedsville and Brillion used northbound trains. This shows that the traffic northward is approximately as great as the southbound traffic, although there is one more southbound train in operation than northbound trains.

After a careful consideration of the evidence in this matter, and a study of the schedules now in force, we believe that the residents of the villages between Manitowoc and Kaukauna are justly entitled to morning service north which will enable them to connect with train No. 117 (Ashland division) at Appleton Junction at 8:35 a. m. This service can be given either by restoring the former mixed train, affording the desired connection and leaving the present schedule of train No. 131 undisturbed, or by changing the time of train No. 131, so as to leave Manitowoc early enough to reach Appleton Junction by 8:35 a. m. The latter arrangement would make No. 131 a local train between Milwaukee and Manitowoc, the through traffic being handled by the earlier train, No. 317, which goes via Green Bay to Eland Junction.

We find that the passenger service rendered by the respondent on its line between Manitowoc and Appleton Junction is inadequate, and that the schedules should be so readjusted as to afford the people of this district proper connection with at least one through train north daily, and to enable them to

make business trips to neighboring towns and return the same day.

IT IS THEREFORE ORDERED, That the respondent, the Chicago & North Western Railway Company, restore the northbound morning train service formerly maintained on its Lake Shore division between Manitowoc and Appleton Junction, connecting with its train No. 117 (Ashland division) which is scheduled to leave Appleton Junction at 8:35 a. m. and provides through service to points north of Rhinelander.

IT IS FURTHER ORDERED, That the Chicago & North-Western Railway Company maintain the freight schedule now in force on its Lake Shore division between Manitowoc and Kaukauna.

IN RE APPLICATION OF A. E. MONROE ET AL. FOR PHYSICAL
CONNECTION BETWEEN THE CLINTON TELEPHONE COM-
PANY AND THE BERGEN TELEPHONE COMPANY.

Submitted July 12, 1912. Decided Oct. 19, 1912.

Application was made for physical connection between the Clinton Tel. Co. and Bergen Tel. Co. at Clinton and Bergen, Rock county, Wis. These lines were formerly connected and patrons of both companies desire that the free exchange be resumed. The Clinton Tel. Co. has about six times as many subscribers as the other company and the objection was made that with free exchange of service the larger company would be giving much more than it receives in return. The service has a value to the parties called as well as to those calling and it does not appear that the service would be more valuable to one company than to the other. The basis of adjustment between the utilities would be the portion of the cost of service borne by each company. To make a charge to the connecting company places the added cost upon that company instead of upon the patrons of both companies who are responsible for the calls. If a toll rate is charged the patrons who are benefited by the service will bear the expense, and the division of the toll earnings between the two utilities may be so made as to reimburse each utility for the expenses incurred by it in furnishing the exchange service.

Held: The physical connection between the companies is desirable. When operating data are available the matter of toll rate and division of revenue will be readjusted if experience shows revision is necessary. The companies are ordered to establish physical connection and to charge 2 cts. per completed call from one system to the other. The company on whose line the call originates is to collect the revenue from such toll charge and the toll revenue is to be divided equally between the two utilities. Thirty days is deemed a reasonable time within which to make such connection.

Application in this matter was filed with the Commission on April 15, 1912. Applicants are users of telephone service at Clinton, Wis. The application shows that for two years preceding the filing of the application in this case, the Clinton Telephone Company and the Bergen Telephone Company, whose exchanges are located in Rock county, Wis., about four miles apart, were connected so that the patrons of the Bergen Telephone Company were connected with those of the Clinton Telephone Company, that the contract between the companies expired on April 12, 1912, and that, because of the inability of the compa-

nies to make a further agreement for exchange of service, the lines have been disconnected, greatly to the inconvenience of the patrons of both companies. The Commission is asked to investigate the situation and establish rules and regulations so that good and effective service may be maintained between the two companies.

Hearing was held at Clinton, July 12, 1912. Appearances were: For the Bergen Telephone Company, *W. O. Mouat*. For the Clinton Telephone Company, *Earl B. Hawks*. For the citizens of Clinton, *A. A. Cleveland*.

The facts in this case appear to be as follows: The Clinton Telephone Company furnishes telephone service to residents of Clinton and to rural patrons, particularly north of Clinton. The total number of phones in use at the time of the application was about 440.

The Bergen Telephone Company consists of a number of rural lines to the south of Clinton, with approximately 75 subscribers in all. These lines meet at a switchboard at Bergen, a rural trading point about four miles from Clinton. All of the phones of this company appear to be on multi-party lines, and the only class of service furnished is what is known as rural service.

According to the testimony the Bergen Telephone Company's line formerly constituted a part of the system of the Clinton Telephone Company, but a few years ago the Clinton Telephone Company adjusted its rural rates in such a way that some of its rural subscribers had their charges increased. A number of these subscribers withdrew and formed the Bergen Telephone Company. Shortly after this an agreement was entered into by the two companies whereby free exchange of service was granted. This agreement continued in effect until April 12, 1912. The Clinton Telephone Company then refused to renew the agreement for free service and submitted a number of alternative plans for the consideration of the Bergen Telephone Company. The latter company, in turn, submitted a plan which it considered acceptable, but none of these met with the approval of both parties, and on April 12, 1912, the lines connecting the two systems were cut and the exchange of service discontinued.

A number of references were made at the time of the hearing to the motives which prompted the parties to make the agreement for free exchange of service and to refuse to enter into a

further agreement to this end, but except insofar as this testimony relates to operating conditions, we are not concerned with the motives involved. The Bergen Telephone Company appears to be willing that the free exchange of service should be resumed. The Clinton Telephone Company objects to such resumption, but a number of the subscribers of the latter company, mostly business men, including the petitioners in this case, are desirous of having free exchange of service. In one or two instances business men of Clinton have gone so far as to install phones and build lines at their own expense to connect with the lines of the Bergen Telephone Company.

The objection offered by the Clinton Telephone Company, which is important in this case, is that free exchange of service would be unfair to that company, because it has about six times as many telephones in service as are installed upon lines of the Bergen Telephone Company. Consequently, the Clinton Telephone Company concludes that, with free exchange of service, it would be giving much more than it receives in return. The soundness of this conclusion, judging from the testimony, is open to question.

The testimony indicates that only a small number of patrons of the Clinton Telephone Company made any considerable use of the Bergen lines, either to send or receive messages. These were mostly business and professional men, who frequently had occasion to talk with patrons of the Bergen system.

The only record of calls passing between the two systems covered the ten day period from April 1, 1912, at noon, to noon of April 11, 1912. The total number of calls from Clinton to Bergen was 299, and from Bergen to Clinton, 293. The greatest number in one day from Clinton was 40, and from Bergen, 39. Apparently the number of calls from Clinton to Bergen includes only completed calls, but from Bergen to Clinton all calls were included. If calls which were not completed had been excluded, the total number from Bergen to Clinton would be less than 293. As far as originating calls are concerned, then, it seems that Clinton made slightly more use of the free exchange than did Bergen. Both parties to a telephone conversation, however, are presumed to have an interest in the service and it is hardly fair to say that, because a few more calls were originated at Clinton than at Bergen, the service is therefore of more value to Clinton

than to Bergen, to the extent by which the number of calls from Clinton exceeds the number from Bergen. In this case the number of calls each way is so nearly the same that, as far as the amount of business is concerned, it cannot be said that the exchange of service is of more value to one company than to the other.

It is true that the Bergen subscribers were able to call a larger list of subscribers at Clinton than was available for Clinton patrons over the Bergen lines. It does not follow, however, that the Bergen company received more than it gave in return because of this. Only a limited number of subscribers of the Clinton company appear to have been frequent users of the Bergen lines, and the testimony indicates that a rather large part of the calls from Clinton to the Bergen lines were made by farmers calling home from Clinton. If the Bergen subscribers made general use of the Clinton exchange the value of free exchange to them might be greater than its value to Clinton patrons, although when it is considered that the service has a value to the parties called as well as to those calling it does not appear that the service would be much more valuable to one company than to the other.

Although it seems clear that, so far as the benefits of free exchange of service are concerned, neither company, considered as an entity distinct from its individual patrons, would have much advantage over the other under the conditions which prevailed prior to the discontinuation of free exchange. It may be that the cost of handling the business was not the same for the two utilities. If it cost one company more than the other to furnish the free exchange of service it would hardly seem reasonable to require the companies to exchange service on equal terms. The principle that rates should be based largely upon the cost of service may be applied to such cases as the present one. If it costs one of the companies more to furnish exchange of service than it costs the other, it seems to be only reasonable that the company which is put to the greater expense should be reimbursed in some way for the added expense.

This revenue may be derived from a charge made to the connecting company, or it may be obtained from a toll charge for calls passing between the two exchanges. The first of these plans is defective because it places the burden of the added cost upon the connecting company instead of upon the patrons of

both companies who are responsible for the calls and for the work involved in handling those calls. If a toll rate is imposed for this service the patrons who are responsible for the business will be the ones to bear the expense, and the division of the toll earnings between the utilities may be so made as to reimburse each utility for the expenses incurred by it in furnishing the service.

In this case there are no facts available which indicate that the cost of the service is greater to one utility than to the other, nor is there any method of determining what the cost to each utility amounts to. If the systems were actually connected at the present time it would be possible to make an analysis of operating conditions to determine the cost of the service involved in this case, but until such an analysis can be made it seems reasonable, in view of the facts presented, to provide that the revenue from the service under consideration should be divided equally between the two utilities.

Neither is it feasible, at present, to fix a toll rate strictly in accordance with the cost of service. The reports of the utilities are not sufficiently detailed for this purpose and in order to state definitely the cost of the service a study will have to be made of actual operating conditions as they will be with the toll rates in force. From such information as is available, however, it appears that a physical connection may reasonably be ordered made, with a toll charge of 2 cts. per completed call, with total toll revenues to be divided equally between the two utilities. If experience shall show that the toll rate as fixed here, or the division of the revenue, needs revision, the matter may be reopened.

IT IS THEREFORE ORDERED: 1. That the Clinton Telephone Company and the Bergen Telephone Company shall establish a physical connection between their systems.

2. That a toll charge of 2 cts. per call shall be made on all completed calls from one system to the other. The company on whose lines the call originates shall collect the revenue from such toll charges.

3. That all such toll revenue shall be divided equally between the two utilities.

Thirty days from the date of this order is deemed a reasonable time for the making of such connection.

IN RE APPLICATION OF THE INTERSTATE LIGHT & POWER COMPANY AND THE TOWN OF MIFFLIN, IOWA COUNTY, FOR A CERTIFICATE OF CONVENIENCE AND NECESSITY.

Submitted Mar. 14, 1912. Decided Oct. 21, 1912.

Application was made for a certificate of public convenience and necessity authorizing the Interstate Lt. & P. Co. to extend its electric power and lighting service to certain mines in the town of Mifflin, Iowa county, Wis. The Mineral Point El. Lt. Co. was granted an indeterminate permit by the town of Mifflin and has made preparation for the extension of its service into the territory in question. Applicant alleges, however, that this company has delayed its work and is not in as good a position to furnish the service as the Interstate Co. The Mineral Pt. El. Co. has been placed upon a secure financial basis and possesses ample equipment for supplying present demands and anticipated future demands of the locality.

Held: Every company acting in good faith is entitled to a reasonable time within which to promote and complete the project for which an indeterminate permit is granted. There is no necessity for a second electric utility in the territory in question, nor would public convenience be subserved by permitting a second utility to operate therein. Application is dismissed.

On Feb. 3, 1912, the petitioners herein, the Interstate Light & Power Company and the town of Mifflin, Iowa county, filed an application for a certificate of convenience and necessity for the construction and maintenance of power and light lines within the town of Mifflin, alleging that the Vinegar Hill Zinc Company, a corporation operating the Ellsworth mine near Rewey, in the town of Mifflin, and the B. M. & B. Mining Company in the town of Mifflin, desire to contract with the Interstate Light & Power Company for a supply of electric current and energy which they require immediately; that there is no available source of supply for their requirements in the town of Mifflin; that the petitioning company is able to furnish the service required but that the Mineral Point Electric Light Company claims the prime and exclusive right to operate throughout the entire corporate limits of the town of Mifflin, under and by virtue of a permit granted to it by the board of supervisors of the town on July 21, 1911, but although a period of six months has elapsed since the granting of such permit the Mineral Point Electric

Light Company has never extended its lines into the town of Mifflin, nor commenced the construction of such lines; that the board of supervisors of the town of Mifflin believes that public convenience and necessity require a second public electric utility in the town of Mifflin and is willing to grant to the petitioning company a permit to construct and maintain its power and light lines within the town upon the issuance of a declaration of convenience and necessity. Wherefore, petitioners pray that after due hearing and investigation, the Railroad Commission issue a declaration that public convenience and necessity require a second public utility within the town of Mifflin for the supply of electric current and energy for light, heat and power.

On Feb. 10, 1912, the respondent, the Mineral Point Public Service Company, filed its answer and objections to the application of the petitioners, alleging that the respondent is successor to the Mineral Point Electric Light Company; that the above application materially affects respondent; that as successor to the Mineral Point Electric Light Company it claims a prime and exclusive right to conduct an electric light and power business within the entire corporate limits of the town of Mifflin, under and by virtue of a permit heretofore granted to it by the town through its board of supervisors on July 21, 1911; that such predecessor, when the permit was granted to it, without delay employed engineers to make an examination and survey of territory and prepare maps, plans and surveys for the extension of its light and power lines in and through the town of Mifflin and other villages; that this required considerable time and that this has only recently been perfected by respondent; that it has been and is negotiating for the purchase of poles, wires, and other materials necessary for the building and extension of its lines through such towns and villages; that it already has some poles in the town of Mifflin; that it maintains an electric light and power plant in the city of Mineral Point, Wis., of sufficient capacity to supply all of the inhabitants of the town of Mifflin with electric light and power who desire it; that neither convenience nor necessity require a second electric utility in the town of Mifflin; that the town of Mifflin consists very largely of a farming district and that the inhabitants thereof are mostly engaged in farming, which does not require electric light or electric power; that there is no city within the limits

of the town of Mifflin and that the village of Rewey, a very small village, is the only incorporated village within the town; that there is no manufacturing plant of any kind within the town of Mifflin; that the mining business in the town is uncertain and unsteady; that in case the mining companies desire power, respondent expects and intends to have its light and power lines extend into the town of Mifflin so as to supply power within three months; that should the petitioners be granted permission to construct an electric light and power plant in the town of Mifflin, the result would be a needless paralleling of light and power lines and a destructive competition, injurious to the public interests and to respondent, without any conceivable benefit to the inhabitants of Mifflin. Wherefore, respondent prays that petition be dismissed.

The hearing was held March 14, 1912. *Cummins, Stearns & Milkewitch* appeared for the petitioner and *Fiedler & Fiedler* for the respondent.

It appears from the testimony that the plant of the Interstate Light and Power Company, hereinafter referred to as the Interstate Company, is situated within the city limits of Galena, Ill. It was constructed about two years ago, has a capacity of approximately 6,500 h. p., and surplus power available of about 2,500 h. p. Its power is transmitted to Platteville, Wis., where it is distributed and supplies the villages of Hazel Green, Benton, Cuba City, and the city of Platteville.

Respondent's plant is located at Mineral Point and has a capacity of 300 kws. A line extends from Mineral Point to Linden, consisting of a circuit from the power plant switchboard at 1,100 volts to the outskirts of the town of Mineral Point, at which point are two transformers where the voltage is raised to approximately 6,600 volts. At the present time this plant is either furnishing or proposing to furnish current to the following municipalities: Mineral Point, Linden, Edmond, Cobb, Highland, Livingstone and Rewey. It has also secured a permit to serve the town of Mifflin, but at the time of the hearing had not extended its services to that town, although surveys and maps had been made and negotiations were being carried on for the purchase of material to extend its line into this territory. It seems that on July 27, 1911, the Vinegar Hill Zinc Company, which operates the Ellsworth Mine near Rewey, and the B. M. and B. Mining Company,

which operates a mine near the village of Mifflin, applied to the Interstate Company for current, amounting to about 400 kws. The former company also asked respondent for an estimate of cost of power for mine concentrating purposes. The desired information was given the applicant with assurances that respondent's lines would be extended and service available in the spring of 1912, but applicant dropped the matter without further correspondence.

There is apparently considerable antagonism between the Interstate Company and respondent. The latter claims that the former has repeatedly attempted to interfere in its territory and that when it was about to enter into a contract with the Mineral Point Zinc Company for current, the Interstate Company stopped negotiations by submitting a contract at a lower rate; and also set poles near the Coker mine, which is near the town of Mifflin, and ten or twelve miles from Platteville, where the plant of the Interstate Company is located, although there is no line between this mine and Platteville. As a part of the general hostility on the part of the Interstate Company towards respondent, it was said that the former had applied to the Railroad Commission for a certificate to permit it to carry its lines into Mifflin without having made or submitted plans, surveys, maps or papers to show its proposed course, or location of lines and poles.

On the other hand, the Interstate Company claims that respondent did not have a bona fide intention to extend its service as claimed, but only secured such permits to prevent the former from extending its operations, and, in the end, to force it to buy respondent's plant which is being held at an exorbitant price, to wit, \$180,000, which was demanded, although the inventory shows assets amounting to only about \$70,000.

Relative to the character and prospects of the disputed territory it was shown that the population of Mifflin at the present time is 1,282, as compared with the population of 1,564 ten years ago. The only village in the township of Mifflin is Rewey with a population of about 329. The surrounding country is mostly farming district. A number of mines, about ten or twelve in all, are located near the town of Mifflin, the largest of which is the Slack mine. Most of these mines are in operation but at the time of the hearing the Slack mine was about to shut down as

its ore bed was about exhausted. A number of mines are already idle which were once most promising but have proven to be complete failures, which tends to show the speculative character of the business of the district. Owing to the uncertainties of the ore bed few mines heretofore have adopted the use of electric current, although respondent's lines pass a number of the mines.

The contention on the part of the Interstate Company that respondent did not have a bona fide intention to extend its lines, seems to be without foundation, as it was shown that in the spring of 1911 respondent caused to be made plans and specifications for a rehabilitation of its plant. The contemplated extensions were as follows: Beginning at Mineral Point, it was proposed to extend north to Edmond, west to Cobb, thence in a northwesterly direction to Highland, and returning southwest-erly through Montfort and Livingstone, and southeasterly to Mifflin with a branch line to Rewey. A complete loop system of transmission lines would then be formed. Since the hearing this work has been completed and reports show that no unnecessary delay seems to have occurred, as it appears that after the engineers were engaged, which was in April, 1911, it was found necessary to make a physical valuation of the plant, before a report on the feasibility of carrying out the plans for a rehabilitation of the plant could be given. Correspondence with various manufacturers of apparatus necessary to carry out the plans, extends over the entire period to date and shows continuous action on the part of the respondent's engineers. Many visits to the territory were necessary. Application for issuance of stocks and bonds was made immediately but was not acted upon by the Commission until Dec. 23 or 24. And as soon as the engineers' report was compiled, application was made to the town of Mifflin for a franchise, which was granted July 21, 1911. At the request of the Railroad Commission the public utility part of the business was separated from the non-utility part and amended articles of incorporation had to be proposed, as the secretary of state rejected the new name of the company.

At the time the Interstate Company filed its application herein, respondent had already expended between \$3,000 and \$4,000 on the extension. Lines had been completed up to, and poles and other material already hauled into the town of Mifflin, but on account of the cold weather work had been abandoned.

Respondent's engineers, after making the above survey, stated that respondent's plant at present has ample capacity to serve all present business with a surplus available capacity; that, if at any time it could secure more business than the available surplus energy could supply, its plans of ultimate rehabilitation could be completed within three months and thus provide all current required for a number of years to come.

The Interstate Company claims the capacity of its plant is 6,500 kws. with surplus power available of 2,500 kws. It called attention to the fact that it was in position to serve the mining industries within six weeks from date of their application for service, while it contends that respondent could not serve them in less than three months, also that it would cost respondent the sum of \$30,000 to make its plant adequate to give the service. It also calls attention to the fact that it has already expended the sum of \$150,000 since February, 1910, in extending its lines north of Platteville for the purpose of securing the business of the mines, and that refusal to grant the requested permission so to do will render these expenditures useless. It further contends that it is already equipped to take care of the Mifflin mining business. It will be necessary for respondent to duplicate the expenditures already made by the Interstate Company if respondent is permitted a monopoly of the field, which is the very thing the Public Utilities Law was designed to prevent.

The Interstate Company proposes to serve the cities of Platteville, Cuba City, Benton, Hazel Green, Shullsburg, Darlington, and possibly Calamine and Dodgeville, leaving respondent's lines to serve Linden, Cobb, Highland, Mineral Point, Rewey and Livingstone. The Interstate Company declares that its purpose is not to enter any incorporated city or village which respondent already supplies, but to serve only the industries outside the incorporated cities and villages which the respondent is not now able to supply; that the only distance the two lines would parallel, if at all, would be for no more than a mile or two in the town of Mifflin, which would not result in a situation of ruinous competition, as claimed by respondent.

After the hearing the Commission deemed it advisable to send its engineers to the district in dispute to investigate the present condition of affairs and inspect the improvements and extensions

of respondent's plant which are in progress. From the report it appears that there is not sufficient lighting business in that territory to justify the respondent in making the expenditure required to supply the demand for current for lighting only. In view of this fact the inspection was carried on to ascertain the load available for power business and all zinc mine purposes, and whether or not the Mineral Point Public Service Company will be able to furnish electric service within a reasonable time.

The Coker mine, which is the largest mine in Mifflin, is at present operated by steam. The total connected load, should electric power be used, would be about 250 or 300 h. p.; at the Ellsworth mine the total connected load would be about 150 or 175 h. p. A contract has already been closed by the respondent with the Lucky Six mine for electricity for approximately 35 h. p. The respondent company is now under contract and supplying power to other mines in that vicinity.

The respondent has been actively at work on the new extension as shown by the large number of poles which have recently been set, extending past the Lucky Six and other mines between Linden and the Coker mine. No work appears to have been done towards installing new equipment in the power plant as there is not sufficient space for large extensions in the present engine room, but it is the apparent intention of the company to build an entirely new plant and move the new equipment at a later date. A new unit will be installed at the old plant for immediate use. Contracts were produced showing that a 350 kw. a. c. generator and necessary exciter, three 150 kw. transformers, engines to drive generators, a 244 h. p. boiler, No. 4 wire sufficient for fifteen miles of transmission line and No. 6 wire sufficient for five miles of line, and an automatic voltage regulator, had been ordered as part of the new equipment. The contract for the condenser had not yet been placed. However, all poles and necessary hardware had been ordered.

The plant in use at the present time has three boilers, one of which is a watertube and in good condition, the remaining two are old fire tube boilers, and only in fair condition. There are two engines, one belted to a 100 k. v. a. 1,100 volt a. c. generator, and the other, to a 200 k. v. a. 1,100 volt a. c. generator. The smaller engine is not in good condition, while the larger is quite new and would possibly carry a generator rated at 300 k.

v. a., whereas the present generator is but 200 k. v. a. At the time of the inspection the load was carried by the larger engine and 200 k. v. a. generator, with steam furnished by the two old fire tube boilers. At 3:00 p. m. the load carried was only approximately half the capacity of the 200 k. v. a. generator. From this it would appear that the respondent company at present has equipment ample to care for the present demand and sufficient equipment ordered for supplying all demands anticipated. The management fully expects to have transmission lines ready by Nov. 1, 1912.

It may be here stated that the engineers have called attention especially to the fact that there are several abandoned properties in the disputed territory and others which are reported to be in such condition that it would not be feasible for them to change from steam power to electricity, notwithstanding the fact that electric power is about the same in cost and much more convenient than steam power. It is the opinion of the engineers that the respondent company is in position to complete its line equally as promptly as the former company.

The foregoing review of the facts pertinent to the inquiry shows that both companies are capable of supplying the town of Mifflin with all the electric current immediately and prospectively required for power and lighting purposes. That no injustice might be done to the respondent company a decision of the matter was delayed, as the financial condition of the company at the time of the hearing was such as to render it very doubtful whether it could carry out its plans for reconstructing and extending its plant to meet the existing demand for current in the town of Mifflin. Since then the company has been placed upon a secure financial basis and is now able to fulfill all its franchise obligations. Under the circumstances there is no necessity for a second electric utility in the territory in question nor would public convenience be subserved by permitting a second such utility to operate therein.

The theory of the law has been fully discussed in previous decisions of the Commission and further comment here upon the subject would be only supererogatory. *In re Appl. La Crosse Gas & El. Co.* 1907, 2 W. R. C. R. 3; *In re Appl. Village of Cashton*, 1908, 2 W. R. C. R. 677; *In re Invest. Milw. Ltg. Rates*, 1912, 9 W. R. C. R. 544.

The contention that at the time of the filing of the application of the Interstate Company for a declaration of convenience and necessity the respondent was not in actual operation in the disputed territory and hence not within the protection of the statute, is not maintainable. A more liberal construction of the statute is essential to effect its purpose; otherwise the statute would defeat itself. No company can lawfully construct a plant until it has obtained authority from the municipality, and if its exclusive right were not protected between the time of obtaining such authority and the time of commencing operation it would not undertake the enterprise. It is true that no company should or would be permitted to pursue a "dog in the manger" policy by securing indeterminate permits from municipalities for the purpose of excluding others from the field and with no intention of carrying out the obligations therein imposed, but every company acting in good faith is entitled to a reasonable time within which to promote and complete the project for which an indeterminate permit is granted. This is in harmony with the spirit of the law as expressed by the supreme court in *Calumet Service Co. v. Chilton*, 1912, 135 N. W. 131, 144. In that case an operating company discontinued service for a period of several months because of insufficient revenue to maintain the plant, which was occasioned by the city council refusing to continue the contract for the lighting of the streets and public buildings of the city. The city attempted to construct a plant for municipal purposes and rested its right to do so upon several grounds, one of which was that the company had temporarily ceased to operate its plant. The court, speaking through JUSTICE MARSHALL, says:

"The words 'operating under an existing permit' do not suggest necessarily, in continuous operation, absence of momentary or reasonable cessation. Excusable, temporary suspensions, involving no purpose to abandon, the owner being willing and seasonably, under the circumstances, able to resume and doing so, as in this case, satisfies the calls for a 'public utility operating under,' etc. The law must be given a reasonable,—sensible,—construction, at all points, to the end that the legislative intent shall not fail, instead of looking with favor upon technical assaults upon it."

From the consideration given to the case and the conclusions reached it follows that the application of the Interstate Light

and Power Company for a declaration that public convenience and necessity require a second electric public utility to engage in furnishing current for power purposes in the town of Mifflin, Iowa county, must be denied.

Now, THEREFORE, IT IS ORDERED, That the application herein of the Interstate Light & Power Company be and the same is hereby dismissed.

IN RE INVESTIGATION BY THE COMMISSION, ON ITS OWN MOTION, OF THE RATES, RULES AND REGULATIONS OF THE FOLLOWING COMPANIES FOR FURNISHING SERVICE FOR LIGHTING AND POWER PURPOSES IN THE CITY OF MILWAUKEE:

THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY,
PLANKINTON ELECTRIC LIGHT AND POWER COMPANY,
COMMONWEALTH POWER COMPANY,
WELLS POWER COMPANY,
RAILWAY EXCHANGE BUILDING COMPANY,
COLBY & ABBOT BUILDING COMPANY,
MOLITOR & HUMMELL REALTY COMPANY.

Decided Oct. 24, 1912.

SUPPLEMENTARY TO U-164 OPINION AND ORDER.

In the decision *In re Invest. Mil. Ltg. Rates*, 1912, 9 W. R. C. R. 544, no change was made in the demand rates for commercial service. Further investigation discloses inequalities in the relative proportion of demand and output charges.

Held: A reduction in the maximum demand rates is reasonable and equitable. The T. M. E. R. & L. Co., Commonwealth Power Co., Plankinton El. Lt. & P. Co. and the Wells P. Co. are ordered to make the change as specified by the Commission, in the "Standard rate" for commercial lighting and power effective under the former order. The rates so changed are to apply to service billed after Dec. 1, 1912.

On Aug. 20, this Commission issued a decision in the above entitled matter, 9 W. R. C. R. 544, establishing uniform rates of charge for commercial lighting and power service in the city of Milwaukee. Changes were made at that time in the rules and regulations governing such service and reductions were made in the prevailing minimum bills for power, in the energy rate for service and in the maximum or limiting rates of charge for both electric light and power service. No changes were made in the prevailing demand rates for commercial service. Further investigation discloses inequalities in the relative proportion of demand and output charges, and from such analysis as has been made of demand cost it appears that a corresponding reduction in the maximum demand rates is reasonable and equitable.

IT IS THEREFORE ORDERED, That the Milwaukee Electric Railway and Light Co., the Commonwealth Power Co., the Plankinton Electric Light & Power Co., and the Wells Power Co. abandon that portion of the so-called "Standard rate" for commercial lighting and power service effective under our order dated Aug. 20, 1912, reading as follows:

* * * "To customers signing the company's standard form of contract, providing for service for one year or more, the charge for electric service shall be computed upon the following basis:

Demand Charge

\$42 per year for each kw. of demand of the first 10 kws.
 \$30 " " " " " 50 "
 \$24 " " " " " in excess of 60 "

Payable in equal monthly installments—" * * * and substitute the following:

* * * "To customers signing the company's standard form of contract, providing for service for one year or more, the charge for electric service shall be computed upon the following basis:

Demand Charge

\$36 per year for each kw. of demand of the first 10 kws.
 \$30 " " " " " of the next 50 "
 \$24 " " " " " " " 140 "
 \$18 " " " " " in excess of 200 "

Payable in equal monthly installments"— * * *

The above rates shall apply to service billed after December 1, 1912.

JACOB WOLF

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY.

Submitted Aug. 5, 1912. Decided Oct. 25, 1912.

Petitioner alleges that the crossing of the M. St. P. & S. S. M. Ry. Co. located about 165 feet north of respondent's depot at Allenton, Wis., requires protection.

Held: The crossing is unsafe and respondent is ordered to install and maintain an electric alarm bell with an illuminated sign for night indication, so constructed that when switching is being done on either side of the house track or passing siding, the alarm will operate the same as when the main track is occupied, and when northbound trains stop, the alarm will stop operating until such time as trains start north from the station. Complete wiring plans and specifications for the bell are to be submitted to the Commission for approval. Sixty days is deemed a reasonable time within which to comply with this order.

The petition in this matter is signed by the chairman of the town of Addison, acting in behalf of the citizens of Allenton, Wis. It alleges that a petition signed by forty-nine residents of Allenton asking for the installation of proper protective devices at the grade crossing of a highway in that village with the tracks of the Minneapolis, St. Paul & Sault Ste. Marie Railway Company was presented to the respondent under date of Sep. 19, 1911, but that the respondent has neglected to make the crossing reasonably safe. The Commission is therefore asked to require the respondent to furnish adequate protection for the public at this crossing.

The respondent filed no answer to the petition.

A hearing was held on Aug. 5, 1912, at the Central Hotel, Allenton, Wis. *Jacob Wolf* appeared in his own behalf. The respondent was unrepresented at the hearing.

The testimony shows that at the crossing in question the highway runs approximately east and west and the railroad north and south. The highway crosses the main track and two sidetracks at a point about 165 feet north of the Allenton station

building. From the west approach on the highway the view of the tracks is obstructed by an elevator on the north and by two small sheds, a pile of lumber, and the station building on the south. Moreover, the view in both directions from this approach is frequently obstructed to such an extent by freight cars which are allowed to stand on the house track, that a clear view of the main track is not obtainable until a person is within thirty feet of it. The view from the east approach is comparatively unobstructed for a distance of seventy-five or one hundred feet from the main track. The highway is an important one, connecting West Bend and Horicon. The usual daily traffic over the crossing is approximately two hundred vehicles including about twenty-five automobiles, and about one hundred pedestrians. On stock-shipping days and during fairs as many as five hundred or six hundred teams were said to use the crossing during the day. A count made by a witness from 7 a. m. to noon, on July 29, 1912, shows that 152 teams crossed during those five hours. It was stated at the hearing that more than twenty children cross the tracks to attend school on the west side. Our engineer's report shows that a public school with an average attendance of forty pupils is located west of the tracks and a private school with an average attendance of seventy-five pupils east of the tracks; and that about fifty-five of these school children cross the tracks four times daily.

Twenty-five trains ordinarily pass through Allenton every twenty-four hours, of which twelve are passengers, nine regular freights, and four extra freights. Only four of the passenger trains and two of the freight trains stop at Allenton, and the average speed of those which do not stop is between forty and fifty miles per hour. It was stated at the hearing that trains frequently fail to whistle for the crossing. It was also shown that a freight train will occasionally move over the crossing on the passing track while a passenger train is approaching the station, thus diverting attention from the passenger train and preventing prospective passengers from crossing the passing track to the station. Two fatal accidents have occurred at this crossing and a number of serious ones have been narrowly averted.

After a careful examination of the testimony and our engineer's report we find that this crossing is dangerous to human

life, and that some means of protection should be provided to make it reasonably safe.

IT IS THEREFORE ORDERED, That the respondent, the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, install and maintain at the crossing located 165 feet north of its Allenton station an electric alarm bell with an illuminated sign for night indication, embodying the following features:

1. That when switching is being done on either side of the house track or passing siding, the alarm will operate the same as when the main track is occupied.

2. That when northbound trains stop, the alarm will stop operating until such time as trains start north from the station.

IT IS FURTHER ORDERED, That complete wiring plans and specifications for the bell be submitted to the Commission for its approval before installation.

Sixty days is deemed a reasonable time within which to comply with this order.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF THE ADVISABILITY OF SEPARATING THE GRADES OF A CROSSING FOUR AND ONE-HALF MILES NORTH OF RACINE ON THE LINE OF THE CHICAGO & NORTH WESTERN RAILWAY COMPANY.

Submitted Dec. 22, 1911. Decided Oct. 25, 1912.

The Commission, on its own motion, investigated a highway crossing on the C. & N. W. Ry., located four and one-half miles north of Racine in the town of Caledonia, Racine Co., Wis. The grade crossing is extremely dangerous and a subway 800 ft. north of the crossing, for the line of the M. L. H. & T. Co. and dedicated as a public road, is too narrow to be safe for the travel on the highway.

Held: Grade separation is necessary to meet the requirements of the case. The C. & N. W. Ry. Co. is ordered to construct and maintain a new subway in accordance with plans and specifications to be approved by the Commission. Upon the completion of the subway the company is to close the present grade crossing. The railway company is to furnish all material and labor. 80 per cent of the cost of alteration is apportioned to the railway company and 20 per cent to the town of Caledonia. One year is deemed a reasonable time within which the subway is to be opened for public use.

Complaint having been made to the Commission, following a serious automobile accident, that a certain highway crossing, located four and one-half miles north of Racine, in the town of Caledonia, is unsafe and dangerous to human life, the Commission, on its own motion, ordered a hearing to determine whether public safety requires an alteration in such crossing or the substitution of another therefor not at grade.

Hearings were held on Dec. 22 and 27, 1911, in the city hall of Milwaukee. *E. R. Burgess* appeared for the town of Caledonia; *Van Dyke, Rosencrantz, Shaw & Van Dyke* for the Milwaukee Light, Heat & Traction Company, and *C. A. Vilas* for the Chicago & North Western Railway Company.

The testimony shows that at the crossing in question the respondent's line runs north and south, and the highway a little west of north and east of south. The highway and railroad approach each other at an angle of about 20 degrees, but actually intersect at an angle of about 60 degrees. The approaches are

on an upgrade of about 4 per cent. Approaching the tracks from either direction the view of northbound trains is unobstructed. The highway west of the crossing is almost parallel to the railroad for about three hundred feet, so that drivers of vehicles approaching the crossing from that direction cannot see southbound trains without looking backwards, which is very difficult in closed vehicles. Approaching from the southeast, the view of southbound trains is obstructed by the ascending grade of the tracks from north to south, until they reach the crest of the grade, about 1,500 feet from the crossing. Many accidents have occurred at the crossing, resulting in the loss of life and property, and in the majority of instances they have been due to collisions with southbound trains.

Count was kept by a witness for the town of Caledonia of the traffic over the crossing for three days with the following result:

Vehicles: Dec. 15, 1911, 55;
 " 23, 1911, 64;
 " 26, 1911, 19.

Exhibits of respondent and the report of the Commission's engineer present data on this point as follows:

Character of traffic.	Presented by respondent, total 24 hours.				Engineer's report 6:15 a. m. to 7:15 p. m. May 22, 1912.
	Dec. 14	Dec. 15	Dec. 16	Dec. 17	
Automobiles.....	11	12	14	6	18
Other vehicles.....	50	54	52	16	73
Pedestrians.....	24	29	26	24	18

About thirty passenger trains daily cross the highway, most of them being fast trains, some of which are scheduled to pass each other at or near the crossing.

About three hundred feet north of this crossing is a subway used to a limited extent by the public. It was built in 1896 or 1897 by the Milwaukee, Racine & Kenosha Electric Railway, which is now a part of the system of the Milwaukee Light, Heat and Traction Company. Previous to its construction it was stipulated with the town authorities that a vacation of the highway where it crosses the Chicago & North Western Railway at grade should be procured and a new highway laid out through

the subway and on the eastern side of the Chicago & North Western Railway. The vacation of the grade crossing, however, was so violently opposed at a public meeting, that no action was taken by the town board. The Chicago & North Western Railway Company later acquired three hundred feet of land adjacent to the east side of its right of way and constructed a highway thereon, leading from the highway as it then existed to the subway, and dedicated it as a public road. The extent of traffic through the subway is shown by the following table:

Character of traffic.	Presented by respondent, total 24 hours.				Engineer' report 6:15 a. m. to 7:15 p. m. May 22, 1912.
	Dec 14,	Dec. 15	Dec. 16	Dec. 17	
Automobiles	6	6	7	2	.....
Other vehicles	8	9	6	4	4
Pedestrians	10	8	11	23	6
Electric cars	42	37	37	38	34

The testimony of witnesses and the above statement show that the subway is little used by the public. This may be due to the fact that the highway leading to the subway is not clearly indicated and a stranger might not notice the existence of the subway as a public thoroughfare, or the subway may be regarded by travelers as more dangerous than the grade crossing. The approaches to the subway are on a down grade of about 4 per cent. Moreover, the angle of the subway and the connecting highway is such that it is impossible to see vehicles or cars approaching while in the subway. The subway is 27' 7" wide, and 15' high, but while a car is passing only 12½ feet of space is left for the use of vehicles. The superintendent of construction of the interurban company testified that the possibility of automobiles or vehicles of any character meeting in the subway and an electric car passing at the same time, he regarded the subway of insufficient width to serve the purposes of a subway for electric cars and for general traffic. The testimony shows that two automobiles cannot pass each other in the subway as the road is not paved between the tracks, and even with a paved road it might be dangerous for a vehicle to pass a rapidly moving electric car.

From an examination of all the testimony adduced and of our engineer's report, we find the grade crossing in question to

be extremely dangerous to public travel, and that methods of protection other than that of grade separation would not meet the requirements of the case. The protection afforded by a crossing alarm is insufficient. The location of the crossing in a rural district remote from the city makes the use of a watchman with or without gates open to objection as a means of protection. Furthermore, the accident which occasioned this investigation occurred after dark at an hour when the customary daylight supervision would have been of no avail.

Under such circumstances, in a case obviously demanding radical measures to secure protection to users of the highway, the separation of grades is the most desirable and natural remedy when reasonably practicable. The action heretofore taken in providing an opening through the embankment near at hand was in recognition of this need, but the subway then constructed was insufficient for so important a highway as the one under consideration.

To close the present crossing and force the public to face the hazards of the present narrow subway would merely substitute one danger for another and would not adequately meet the demands of the case. The remedy is, however, obvious under the circumstances, namely: to carry forward to a satisfactory conclusion the work of constructing an adequate subway, free from the hazard of direct contact through the subway proper with the track of the electric line. This may best be done by providing a separate opening of ample width beyond or back of the abutment of the present subway, with suitable treatment of approaches, etc.

The cost of constructing the additional subway suggested above is estimated by the Commission's engineer to be \$13,700. With regard to the apportionment of expense, the railway company suggests in its brief that it would be equitable to require it to bear two-thirds of the expense and the town of Caledonia one-third. The town authorities urge that the railway company should bear the entire cost of the work within its right of way, and the town assume the cost of grading and draining the highway. In view of the fact that the vacation of the grade crossing was opposed by the town at the time the present subway was built, and when it could have been enlarged without much additional expense so as to serve as an adequate highway for the public, we regard as equitable an apportionment of 20 per

cent of the expense of construction to the town of Caledonia and 80 per cent to the railroad company.

NOW, THEREFORE, IT IS ORDERED:

1. That the Chicago & North Western Railway Company construct and maintain a new subway south of the existing subway where its line of railroad crosses the highway about four and one-half miles north of Racine, using the south abutment of the present structure as a pier, which new subway shall have a vertical clearance of not less than fourteen feet and a horizontal clearance of not less than twenty-four feet; the approaches not to exceed a 5 per cent grade, in accordance with plans and specifications to be approved by the Commission.

2. That the Chicago & North Western Railway Company shall, upon the completion and opening of the new subway, close the present grade crossing to public travel.

3. That the Chicago & North Western Railway Company shall furnish all material and labor and perform all of the necessary work in making the alteration ordered above.

4. That the actual cost of such material and labor be and the same hereby is apportioned as follows: The town of Caledonia to pay 20 per cent thereof and the Chicago & North Western Railway Company to pay 80 per cent thereof.

One year is deemed a reasonable time within which the alteration hereby ordered shall be made and the subway opened to the use of the public.

VILLAGE OF MOUNT HOREB

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted March 28, 1912. Decided Oct. 25, 1912.

Petitioner alleges that four grade crossings in Mount Horeb, Wis., located at the intersections of the tracks of the C. & N. W. Ry. with First, Second, Fourth, and Eighth streets, are dangerous to public travel. The view of the tracks is obstructed at each crossing and the traffic is heavy over both the highways and the railway.

Held: The crossings in question are dangerous to public travel. Respondent is ordered to install at each crossing an automatic crossing alarm, with an illuminated sign for night indication, equipped with a time element, and arranged to operate for the main track only. It is further ordered to flag all cars over First, Second and Fourth streets during switching operations. Sixty days is deemed a sufficient time within which to comply with this order.

The petitioner, a village in Dane county, Wis., alleges that four grade crossings in Mount Horeb at the intersection of the tracks of the Chicago & North Western Railway Company with First, Second, Fourth, and Eighth streets are dangerous to public travel; and that no provision has been made by the railway company for safeguarding them. The Commission is therefore asked to require the respondent to provide adequate protection at these crossings.

The respondent in its answer states its willingness to carry out any reasonable order of the Commission in the matter.

A hearing was held on March 28, 1912, in the village hall of Mount Horeb, Wis. *O. A. Stolen* appeared for the petitioner, and *C. A. Vilas* for the respondent.

The testimony shows that at the crossings in question the railroad runs east and west and the streets approximately north and south. The population of Mount Horeb is about 1,200 persons, of whom the majority live north of the tracks. The village is, however, growing toward the south and east, and a considerable portion of the people live south of the tracks.

Moreover, a high school accommodating about one hundred pupils is located across the tracks to the south, while the two grade schools are located north of the tracks. The facts developed at the hearing with regard to the crossing under consideration may best be stated separately for each crossing.

First street crosses the tracks just east of the Mount Horeb depot. At the hearing the question was raised as to whether this street had been legally established over the respondent's right of way. Since the hearing petitioner submitted a copy of a deed of the land dedicated to the village by the respondent for street purposes which was recorded on July 12, 1910. The view of eastbound trains from the north approach on First street is obstructed by a lumber yard and a mill. The view in both directions from the north approach is frequently obstructed by cars standing on the sidetrack close to the crossing. Since this street crosses the tracks close to the depot, there are no fast trains passing there except an occasional through freight. The traffic over this crossing was estimated by witness to be about ten teams and one hundred pedestrians per day. The engineer of the Commission estimates that at least thirty teams a day use this crossing and that this number is likely to increase with the establishment of a new cheese warehouse and a coal yard south of the tracks.

At Second street the view of the track from the north approach of the highway is obstructed to the west by an electric light plant and to the east by a lumberyard, both of which abut the sidewalk. As at First street, cars standing on the sidetrack add to the difficulty of seeing approaching trains. This crossing is used by about twenty teams per day and by a large number of high school children and other pedestrians. A serious accident was said to have occurred at this crossing.

Fourth street is the continuation of a country road. The chief danger point at this crossing is from westbound trains, since the view to the east is obstructed by the railroad cut to such an extent that trains cannot be seen until the traveler is almost on the tracks. Another source of danger at this point is the movement of freight engines which carry part of their load up the grade and back up for a second trip. It was estimated that about twenty teams and a number of pedestrians use this crossing daily, some of the latter being school children who are obliged to cross the tracks several times a day.

The crossing at Eighth street is rendered dangerous to travelers by the obstruction to view offered by the railroad cut to the west and by the curvature of the track to the east. As at Fourth street, the danger is increased by the backing up of freight engines for a second trip over the heavy grade. Moreover, the trains move faster at this crossing than at the others under consideration. Eighth street is used largely by farmers on their way to and from town. It was estimated that about one hundred teams pass over the crossing daily. Moreover, a number of children attending the grade schools north of the tracks are obliged to cross at this point on their way to and from school.

There are eight regular train movements daily over the crossings in question between the hours of 7:00 a. m. and 5:10 p. m. In addition there is a considerable amount of switching done on the sidetracks. The westbound way freight is usually engaged in switching in the morning at about the time that children are on their way to school. Most of the trains stop at Mount Horeb, and for that reason do not operate over these crossings at a very great speed, but occasionally freight trains go through without stopping.

After a thorough consideration of the testimony and the reports of our engineer, we find that the crossings named in the complaint are dangerous to public travel and require some form of protection. For the regular train movements on the main track, crossing bells with lights will probably give adequate protection, but some additional safeguard is necessary when freights are switching on the sidetracks.

IT IS THEREFORE ORDERED, That the respondent, the Chicago & North Western Railway Company, install and maintain at each of the crossings of its line with First, Second, Fourth, and Eighth streets, in Mount Horeb, Wis., an automatic electric bell with an illuminated sign for night indication, equipped with a time element, and arranged to operate for the main track only, plans to be submitted to the Commission for approval.

IT IS FURTHER ORDERED, That the Chicago & North Western Railway Company flag the cars over the crossings at First, Second, and Fourth streets whenever switching is being done.

Sixty days is regarded as a sufficient time within which to comply with this order.

MATH. HEMMIS, ET AL.

vs.

GREEN BAY AND WESTERN RAILROAD COMPANY.

Submitted Aug. 30, 1912. Decided Oct. 25, 1912.

Petitioner alleges that the station facilities furnished by the respondent at Meehan, Wis., are inadequate. At present no shelter is provided for either passengers or freight. Trains stop at Meehan on signal.

Held: The traffic is insufficient to warrant the maintenance of a regular station with an agent. There is, however, a certain minimum of service to which every community served by a common carrier is entitled, quite independent of the financial results. This minimum service is not being rendered at Meehan. Respondent is ordered to provide a suitable structure with a proper and sufficient waiting room for passengers and an adequate storeroom for freight. Thirty days is deemed a sufficient time within which to comply with this order.

The petition is signed by seventy-eight residents of the vicinity of Meehan, a flag station on the line of the Green Bay & Western Railroad, in Portage county. It alleges that no shelter for passengers is provided at Meehan; that the respondent formerly maintained a box car there for this purpose, but removed it about three years ago; that no platform is provided at Meehan; that the nearest station is Plover, a distance of five miles; and that considerable freight and passenger traffic is tributary to the railroad at Meehan. It sets forth that a petition asking for the erection of a shelter, signed by more than fifty residents of the vicinity of Meehan, was filed with the respondent's officials, but that no reply has been received. The Commission is therefore asked to require the respondent to provide adequate depot facilities at Meehan.

The respondent filed no answer to the petition.

A hearing was held at Meehan on Aug. 30, 1912. *Math. Hemmis* appeared for the petitioners, and *F. B. Seymour* for the respondent.

The testimony shows that the respondent formerly maintained a station building at Meehan, and on its removal a box

car shelter. The box car was taken away three years ago. Since that time no shelter or platform has been provided there. All trains stop at Meehan on signal, but the place of stopping is not fixed, passengers being discharged at the convenience of the train crew at almost any point within one-fourth of a mile of the supposed stop. Trains are frequently from one-half hour to two hours late, and prospective passengers are obliged to seek shelter at a general store or at a potato warehouse. The time of arrival of trains can be ascertained only by the use of private telephones at the expense of prospective passengers.

With regard to freight service the testimony shows that the business of securing cars and billing goods out of Meehan must be transacted through train conductors or by telephone connection with the station agents at Plover or Grand Rapids. In the latter case shippers are obliged to go to Plover or Grand Rapids in order to secure a receipt for the goods shipped. Less than carload consignments for Meehan are forwarded there if prepaid, but otherwise are held in Grand Rapids or Plover until the charges are remitted. This occasions delay, and in some cases losses have resulted from the failure to forward perishable goods on which the freight was not prepaid. Moreover, persons receiving freight at Meehan are obliged to meet the trains or allow their goods to lie exposed to the elements where deposited by the train crew. Since the schedule is not regularly maintained, this causes considerable inconvenience to patrons of the road. Some milk and cream is expressed from Meehan, the shippers meeting the trains in person and signaling them.

An exhibit presented in behalf of the petitioners and prepared from personal observation by the local tax collector shows that the population in the vicinity of Meehan is as follows:

Area 1	mile square	.....	122
Area 2	miles "	.....	296
Area 2½	" "	.....	329
Area 3	" "	.....	384

A count of the passengers arriving and leaving Meehan was made by a witness for the petitioner from July 8 to Aug. 7, inclusive. This record does not include passengers on the night train when that train was unusually late. It shows that during the thirty-one days in question, 255 passengers used trains at Meehan, or an average of about eight per day. A report

submitted by the respondent shows that the number of passengers in and out of Meehan during the month of September, 1912, and the revenue therefrom to be as follows:

	Number of passengers.	Revenue.
Regular trains	118	\$37.60
Special trains.....	17	6.15
Total.....	135	\$43.75
Average per day.....	4.5	1.46

The revenue at Meehan for the year 1911 was stated by the respondent's general manager to be \$26.46 for freight and \$156.21 for passengers. It was developed at the hearing that on several occasions persons paying cash fares on the trains have not been given the usual slips by the conductor. Such cash fares might not be reported in the above statement submitted by the railroad company, and the difference between the number reported by the petitioner for July and that reported by the respondent for September may be accounted for in part by this fact.

The testimony shows that the country surrounding Meehan is a prosperous farming community which produces a considerable amount of potatoes, grain, and dairy products for shipment. A witness for the petitioner stated at the hearing that during the previous year about 118 carloads of produce were handled at Meehan. The less than carload traffic was also said to be important.

At the hearing the general manager of the respondent company expressed the company's willingness to install a box car shelter equipped with a stove, and to furnish coal for the use of passengers desiring to build a fire. He stated that a change of schedule was contemplated which would start the evening train thirty minutes earlier, thus avoiding delays occasioned by waiting for connections at Grand Rapids, and enabling this train to maintain its schedule. The petitioners regard the shelter proposed by the respondent as insufficient and desire a depot with two waiting rooms and a baggage room.

The testimony clearly indicates that the traffic at Meehan is insufficient to warrant the maintenance of a regular station with an agent. There is, however, a certain minimum service

to which every community served by a common carrier is entitled, quite independent of the financial results. This minimum service, we believe, is not being rendered by the respondent at Meehan. We regard as necessary for adequate service the erection of a suitable shelter for passengers, with a room for the temporary storage of freight.

IT IS THEREFORE ORDERED, That the respondent, the Green Bay & Western Railroad Company, provide a suitable structure at Meehan which shall afford a proper and sufficient waiting room for passengers and an adequate storeroom for freight.

Thirty days is regarded as a sufficient time within which to comply with this order

IN RE FAILURE OF THE BRODHEAD ELECTRIC COMPANY TO
COMPLY WITH CERTAIN RULES OF THE COMMISSION.

Submitted Aug. 15, 1912. Decided Oct. 28, 1912.

The Commission, on its own motion, investigated the electric service furnished by the Brodhead El. Co. at Brodhead, Wis. The respondent has meters in service which have not been tested as required in the standards of service prescribed by the Commission. The voltage regulation is very irregular and unsatisfactory. It seems necessary for the company to either install an automatic voltage regulator, or employ station operators who can give their time undividedly to the operation of the electric light plant.

Held: The standards of service in force and applicable to the respondent are not unreasonable. Respondent is ordered to comply strictly with the various rules of electric service as set forth in the two decisions covering these matters. *In re Standards for Gas and Electric Service*, 1908, 2 W. R. C. R. 632, and *In re Merrill Ry. and Lt. Co.* 1911, 8 W. R. C. R. 270. Thirty days is deemed a sufficient time within which to comply with this order.

Routine electric service inspections made by the Commission's inspectors during the past four years indicate that the lighting furnished by the Brodhead Electric Company has not conformed to the standard established by the Commission, *In re Standards for Gas and Electric Service*, 1908, 2 W. R. C. R. 632, and that such service was of so poor a quality that the Commission was led to believe that sufficient cause existed to warrant an investigation upon its own motion, in accordance with the provisions of the Public Utilities Law. Accordingly, due notice was given to the Brodhead Electric Company and other citizens of Brodhead interested in the matter that a public hearing would be held on Aug. 15, 1912. At the hearing the Brodhead Electric Company was represented by *George M. Pierce*, its manager.

From the service inspection reports of the engineers of the Commission and the testimony taken upon the hearing, it appears that such company has meters in service in Brodhead which have not been tested within the past year as required by the rules and regulations prescribed by the Commission, and that the voltage regulation is very irregular and unsatisfactory.

The revolving type meters in service should have been tested as required, but the testing of same was neglected. The electrolytic type of meters in service have never been tested. The excuse rendered by the company was that the manager did not understand how the latter meters should be checked up for accuracy. However, reference to the files of the Commission shows that when this type of meter was under consideration in the *Merrill* case, 1911, 8 W. R. C. R. 270, a copy of the preliminary report of the engineers of the Commission was sent to the manager of the Brodhead Electric Company on April 6, 1911, and a copy of the decision in that case was sent to him on Dec. 5, 1911. As the entire practice in regard to this type of meter was covered in such decision, there appears to be no reason why the Brodhead Electric Co. should not be familiar with the practice therein prescribed.

The irregular voltage is due largely to careless station operation. It appears to be the practice of this company to let the electric light plant run practically without attention. During the day the men are occupied with the milling business and the same men take turns staying at the plant during the night. These men get their sleep while in charge of the plant, and since there is no automatic regulator the variation is greatly in excess of that prescribed by the established rules.

There is nothing in the testimony showing that the requirements in force as applicable to the Brodhead Electric Company plant are unreasonable, nor is there any good reason shown why such company should not comply with the requirements relative to voltage.

IT IS THEREFORE ORDERED, That the Brodhead Electric Company comply strictly with the various rules of electric service as set forth in the two decisions covering these matters, *In re Standards for Gas and Electric Service*, 2 W. R. C. R. 1908, 632, and *In re Merrill Railway and Light Co.* 1911, 8 W. R. C. R. 270, copies of which are hereto attached.

It is believed that in order to comply with the above order it will be necessary for the company to either install an automatic voltage regulator, or employ station operators who can give their time undividedly to the operation of the electric light plant.

Thirty days is deemed a sufficient time within which to comply with this order.

RHINELANDER PAPER COMPANY

vs.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY
COMPANY,
CHICAGO, MILWAUKEE AND ST. PAUL RAILWAY COMPANY.

Submitted Sept. 17, 1912. Decided Nov. 6, 1912.

Petitioner prays that the Commission determine the actual amount of refund to which it is entitled under the order *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 9 W. R. C. R. 127

Respondent questions the authority of the Commission to fix the exact amount of refund, asserting that it has exhausted its power in the premises when it has determined a reasonable rate to be applied on the shipments in question.

Held: It is clearly implied in the statutes (sec. 1797—37m) that the Commission has authority to make a specific finding of the amount of refund authorized. Both the past practice of this Commission and the implied authorization of the statute favor the granting of the petitioner's request. The specific overcharge is determined and refund is ordered.

The petitioner, in a supplementary petition in this case, complains that the respondent railway companies have refused to refund to it the amount to which it is entitled under the order of the Commission already entered in this case (9 W. R. C. R. 127), and prays that the Commission make a further order finding and determining the amount of refund due to the petitioner.

The respondent Minneapolis, St. Paul & Sault Ste. Marie Railway Company, answering the supplementary petition, denies the jurisdiction of the Commission to make the order requested.

At the hearing, which was held in the office of the Commission Sep. 17, 1912, *Walter Drew* appeared for the petitioner, *Kenneth Taylor* for the respondent Minneapolis, St. Paul & Sault Ste. Marie Railway Company, and *J. N. Davis* for the respondent Chicago, Milwaukee & St. Paul Railway Company. The only testimony presented was a compilation purporting to show the amount of refund due to the petitioner, as shown by the paid expense bills filed in the case.

The respondent companies object to the jurisdiction of the Commission in fixing the exact amount of the refund, on the ground that this is a matter to be determined in court when the petitioner sues to collect the refund, and the Commission has exhausted its power in the premises when it has found what would have been a reasonable rate to have been applied on the shipments in question.

This objection appears to us to be without merit. It has been the practice of this Commission in a large number of cases to determine and state in its order the exact amount of the refund authorized. In the present case this computation was left to the parties because the large number of shipments affected and the fact that two railway companies were involved, made this method of determination seem the most convenient under the circumstances. It may be that the petitioner is as well equipped to go into court and collect its refund under the order of the Commission already entered as it would be if the Commission were to fix the exact amount of the refund, but as the petitioner has seen fit to ask the Commission for a precise determination, there is no reason why the Commission should refuse to make this determination which it usually makes as a matter of course in refund cases.

The Wisconsin statute on this subject, so far as it bears upon the nature of the Commission's findings and order, is as follows:

"If upon such hearing the commission shall decide that the rate or charge exacted is erroneous, illegal, unusual, or exorbitant, it shall find, what in its judgment, would have been a reasonable rate or charge for the service complained of. If the rate or charge so found shall be less than the charge exacted, the carrier shall have the right to refund to the person paying such charge, the amount so found to be excessive. In case of the refusal of the carrier to make such refund, the party aggrieved thereby may maintain an action in the courts of this state to recover the amount of such excessive charge as found by said commission, and in the trial thereof the findings of the commission shall be prima facie evidence of the truth of the facts found by it. * * *"

While the thing this statute specifically requires the Commission to find is, "what in its judgment would have been a reasonable rate or charge for the service complained of," the law further empowers the complainant to sue for recovery of "the amount of such excessive charge as found by said com-

mission." In the language last quoted there would seem to be a clear implication that the Commission has authority to make a specific finding of the amount of refund authorized. Both the past practice of this Commission and the implied authorization of the statute, therefore, favor the granting of the petitioner's present request.

In view of the desire of the petitioner for a complete and definite determination of the amount of refund to which it is entitled, we present in the following tabulation a list of the shipments subject to refund, showing the amount actually charged, the amount which would have been charged under the rate found reasonable by the Commission, and the amount of refund to which the petitioner is entitled, on each shipment. This list is made up from the paid expense bills filed with the Commission upon the original hearing in the present case. These bills have been carefully examined and found to represent only shipments entitled to refund under the Commission's first order in this case, and they show that the charges as assessed by the carriers have in each instance been paid.

RHINELANDER PAPER CO. V. M. ST. P. & S. S. M. R. CO. ET AL. 635

Date, 1911.	Way-bill number.	Car number.	Weight.	Total charges at 5.64 cents.	Total charges at 4.60 cents.	Amount of refund.
1-26	18	857977	64,100	\$36.16	\$29.49	\$6.67
1-26	19	66401	60,900	34.34	28.01	6.33
1-26	20	66443	60,200	33.96	27.69	6.27
1-26	21	6279	65,500	36.94	30.13	6.81
1-23	23	9115	57,200	32.26	26.31	5.95
1-29	24	9285	51,200	28.88	23.55	5.33
1-29	25	9283	40,000	22.56	18.40	4.16
1-29	26	5479	40,000	22.56	18.40	4.16
1-29	27	5367	40,000	22.56	18.40	4.16
1-29	28	65173	65,900	37.16	30.31	6.85
1-29	29	6145	63,000	35.54	28.98	6.56
1-29	30	65391	58,900	33.22	27.09	6.13
1-29	31	19469	40,000	22.56	18.40	4.16
1-29	32	9193	40,000	22.56	18.40	4.16
1-29	33	14823	40,000	22.56	18.40	4.16
1-29	34	21133	40,000	22.56	18.40	4.16
1-29	35	26041	42,900	24.22	19.73	4.49
1-29	36	9087	40,000	22.56	18.40	4.16
1-29	37	9177	40,000	22.56	18.40	4.16
1-29	38	9295	40,000	22.56	18.40	4.16
1-29	39	11143	56,300	31.76	25.90	5.86
1-29	40	5441	40,000	22.56	18.40	4.16
1-29	41	6453	62,300	35.14	28.66	6.48
1-29	42	6109	40,000	22.56	18.40	4.16
1-29	43	65107	57,300	32.32	26.36	5.96
1-29	44	9141	40,000	22.56	18.40	4.16
1-29	45	6437	64,400	36.32	29.62	6.70
1-29	46	9263	40,200	22.68	18.49	4.19
1-29	47	60089	40,000	22.56	18.40	4.16
1-29	48	9019	40,000	22.56	18.40	4.16
1-29	49	31627	58,400	32.94	26.86	6.08
1-29	50	65193	60,300	34.00	27.74	6.26
1-29	51	65383	64,200	36.20	29.53	6.67
1-29	52	9217	41,700	32.52	19.18	4.34
1-29	53	5787	69,700	39.32	32.06	7.26
1-29	54	9207	40,000	22.56	18.40	4.16
1-29	55	9117	40,000	22.56	18.40	4.16
1-29	56	6263	66,500	37.50	30.59	6.91
1-29	57	2395	40,000	22.56	18.40	4.16
1-29	58	9073	49,400	27.86	22.72	5.14
1-29	59	9163	42,100	23.74	19.37	4.37
1-29	60	9221	40,000	22.56	18.40	4.16
1-29	61	19419	40,000	22.56	18.40	4.16
1-29	62	66015	71,300	40.22	32.90	7.42
1-29	63	9023	40,000	22.56	18.40	4.16
1-29	64	2061	65,600	37.00	30.18	6.82
1-29	65	9105	40,000	22.56	18.40	4.16
1-29	66	6307	66,900	37.74	30.77	6.97
1-29	67	66157	72,100	40.66	33.17	7.49
1-29	68	5999	60,100	33.90	27.65	6.25
1-29	69	2877	40,000	22.56	18.40	4.16
1-29	70	1905	40,000	22.56	18.40	4.16
1-29	71	5735	69,900	39.42	32.15	7.27
1-29	72	5817	63,400	35.76	29.16	6.60
1-29	73	66105	58,500	33.00	26.91	6.09
1-29	74	65055	53,900	30.40	24.79	5.61
1-29	75	66043	66,400	37.44	30.54	6.90
1-29	76	5963	53,900	30.40	24.79	5.61
1-29	77	5889	65,100	36.72	29.95	6.77
1-29	78	65201	67,000	37.78	30.82	6.96
1-30	79	6513	65,900	37.16	30.31	6.85
1-30	80	5349	40,000	22.56	18.40	4.16
1-30	81	2461	41,500	23.40	19.09	4.31
1-30	82	5651	65,000	36.66	29.90	6.76
1-31	90	66437	54,800	30.90	25.21	5.69
2-1	1	858429	61,900	34.92	28.47	6.45
2-1	2	5671	66,600	37.56	30.64	6.92
2-1	3	6301	61,200	34.52	28.15	6.37
2-1	4	6303	59,900	33.78	27.55	6.23
2-1	5	6275	49,400	27.86	22.72	5.14

Date, 1911.	Way-bill number.	Car number.	Weight.	Total charges at 5.64 cents.	Total charges at 4.60 cents.	Amount of refund.
2-1	6	6523	57,000	32.14	26.22	5.92
2-1	7	6427	62,800	35.42	28.89	6.53
2-1	8	6567	63,400	35.76	29.16	6.60
2-1	9	66181	62,300	35.14	28.66	6.48
2-1	10	65337	65,700	37.06	30.22	6.84
2-1	11	3733	42,700	24.08	19.64	4.44
2-1	12	50167	40,000	22.56	18.40	4.16
2-1	13	2035	40,000	22.56	18.40	4.16
2-1	14	9149	40,000	22.56	18.40	4.16
2-1	15	9135	40,000	22.56	18.40	4.16
2-1	16	6201	59,700	33.68	27.46	6.22
2-1	18	5719	69,900	39.42	32.15	7.27
2-1	19	65173	71,500	34.68	28.29	6.39
2-1	20	284651	64,500	36.38	29.67	6.71
2-1	21	6307	65,900	37.16	30.31	6.85
2-1	22	29746	57,000	32.14	26.22	5.92
2-1	23	25885	60,300	34.00	27.74	6.26
2-1	24	9063	40,000	22.56	18.40	4.16
2-1	25	6063	58,800	33.16	27.05	6.11
2-1	26	5441	40,000	22.56	18.40	4.16
2-3	27	6435	63,000	35.54	28.98	6.56
2-3	28	9157	40,000	22.56	18.40	4.16
2-3	29	5645	60,300	34.00	27.74	6.26
2-3	30	3273	40,000	22.56	18.40	4.16
2-3	31	1069	71,100	34.46	28.11	6.35
2-3	32	66199	74,200	41.84	34.13	7.71
2-3	33	60001	40,000	22.56	18.40	4.16
2-4	35	5367	40,000	22.56	18.40	4.16
2-4	36	6151	57,300	32.32	26.36	5.96
2-4	37	66119	60,700	34.24	27.92	6.32
2-4	38	4875	67,400	38.02	31.00	7.02
2-4	39	6233	62,900	35.48	28.98	6.55
2-4	40	9207	40,000	22.56	18.40	4.16
2-4	41	42244	40,000	22.56	18.40	4.16
2-4	42	5337	40,000	22.56	18.40	4.16
2-4	43	9023	40,000	22.56	18.40	4.16
2-4	44	6201	66,600	37.56	30.64	6.92
2-6	45	9217	40,000	22.56	18.40	4.16
2-6	46	5479	40,000	22.56	18.40	4.16
2-7	49	9235	40,000	22.56	18.40	4.16
2-7	50	9233	40,000	22.56	18.40	4.16
2-7	51	9115	40,000	22.56	18.40	4.16
2-7	52	13251	69,600	39.26	32.02	7.24
2-7	53	5735	69,800	39.36	32.11	7.25
2-8	54	66157	71,400	40.26	32.84	7.42
2-8	55	6339	69,200	39.02	31.83	7.19
2-9	56	66149	72,600	40.94	33.40	7.54
2-9	57	65431	65,700	37.06	30.22	6.84
2-9	59	6483	70,300	39.64	32.34	7.30
2-9	60	6303	65,600	37.00	30.18	6.82
2-9	61	5963	71,000	40.04	32.66	7.38
2-9	62	5441	40,000	22.56	18.40	4.16
2-11	66	5671	64,600	36.44	29.72	6.72
2-11	67	9273	40,000	22.56	18.40	4.16
2-11	68	5349	40,000	22.56	18.40	4.16
2-11	69	49977	61,000	34.40	28.06	6.34
2-11	70	6275	68,000	38.36	31.28	7.08
2-11	71	9135	40,000	22.56	18.40	4.16
2-14	72	3733	45,600	25.72	20.08	4.74
2-14	73	9149	40,000	22.56	18.40	4.16
2-14	74	6291	62,400	35.20	28.70	6.50
2-14	75	5651	72,700	41.00	33.44	7.56
2-14	76	9141	40,000	22.56	18.40	4.16
2-14	77	6037	69,200	39.02	31.83	7.19
2-14	78	2461	40,000	22.56	18.40	4.16
2-15	80	66443	61,600	34.74	28.34	6.40
2-15	81	6513	78,700	38.74	31.60	7.14
2-18	83	60089	40,000	22.56	18.40	4.16
2-18	84	5665	78,800	44.44	36.25	8.19
2-18	85	9211	40,000	22.56	18.40	4.16
2-18	86	6201	78,800	44.44	36.25	8.19

Date, 1911.	Way-bill number.	Car number.	Weight.	Total charges at 5.64 cents.	Total charges at 4.60 cents.	Amount of refund.
2-18	87	5337	40,000	22.56	18.40	4.16
2-18	88	9283	40,000	22.56	18.40	4.16
2-18	89	6595	63,100	35.58	29.03	6.55
2-20	92	5479	49,500	27.92	22.77	5.15
2-20	93	9217	40,000	22.56	18.40	4.16
2-20	94	9285	40,000	22.56	18.40	4.16
2-20	95	9177	40,000	22.56	18.40	4.16
2-21	99	9117	40,000	22.56	18.40	4.16
2-21	100	6453	78,500	44.28	36.11	8.17
2-22	102	5875	74,000	41.74	34.04	7.70
2-22	103	66119	69,200	39.02	31.83	7.19
2-22	104	5367	40,000	22.56	18.40	4.16
2-22	105	65173	70,600	39.82	32.48	7.34
2-22	106	5719	70,200	39.60	32.29	7.31
2-22	107	9273	40,000	22.56	18.40	4.16
2-22	108	9135	45,200	25.50	20.79	4.71
2-22	109	6275	71,500	40.32	32.89	7.43
2-22	110	5671	74,600	42.08	34.36	7.76
2-22	111	6339	78,600	44.34	36.16	8.20
2-22	112	9109	40,400	22.78	18.58	4.20
2-23	113	2309	40,000	22.56	18.40	4.16
2-23	114	2623	40,000	22.56	18.40	4.16
2-23	115	5441	40,000	22.56	18.40	4.16
2-23	116	5735	79,300	44.72	36.48	8.24
2-24	126	2419	40,000	22.56	18.40	4.16
2-24	127	65019	71,000	40.04	32.66	7.38
2-24	128	65145	66,500	37.50	30.59	6.91
2-24	129	9277	40,000	22.56	18.40	4.16
2-24	131	9295	40,000	22.56	18.40	4.16
2-27	134	5651	72,700	41.00	33.44	7.56
2-27	135	2461	40,000	22.56	18.40	4.16
2-27	136	6077	78,100	44.04	35.93	8.11
2-27	137	344735	40,000	22.56	18.40	4.16
2-27	138	6087	71,000	40.32	32.89	7.43
2-27	139	6145	72,600	40.94	33.40	7.54
2-27	140	5645	69,000	39.20	31.97	7.23
2-27	141	5737	84,700	47.78	38.96	8.82
2-27	142	9157	40,000	22.56	18.40	4.16
2-25	132	9019	40,000	22.56	18.40	4.16
2-28	146	6523	66,300	37.40	30.50	6.90
3-2	10	5665	68,200	38.46	31.37	7.09
3-2	11	5337	69,100	38.98	31.79	7.19
3-2	12	6321	77,200	43.54	35.51	8.03
3-3	15	6291	70,600	39.82	32.48	7.34
3-3	16	6377	81,900	46.20	37.67	8.53
3-3	17	6447	68,000	38.36	31.28	7.08
3-3	18	65201	65,800	37.12	30.27	6.85
3-4	20	50195	40,000	22.56	18.40	4.16
3-4	21	9149	40,600	22.90	18.68	4.22
3-4	22	5191	77,600	43.76	35.70	8.06
3-4	23	5479	40,100	22.62	18.45	4.17
3-4	24	9217	40,000	22.56	18.40	4.16
3-4	27	9285	40,000	22.56	18.40	4.16
3-4	23	6595	77,200	43.54	35.51	8.03
3-4	29	66149	82,100	46.30	37.77	8.53
3-4	31	6337	66,000	37.22	30.36	6.86
3-4	30	6427	64,900	36.60	29.85	6.75
3-6	37	6453	73,100	41.22	33.63	7.59
3-6	38	5719	70,500	39.76	32.43	7.33
3-6	39	65055	65,700	37.06	30.22	6.84
3-6	40	66165	82,800	46.70	38.09	8.61
3-7	42	6301	76,700	43.26	35.28	7.98
3-7	43	6339	75,400	42.52	34.68	7.84
3-7	44	5671	74,600	42.08	34.32	7.76
3-7	45	66157	75,500	42.58	34.73	7.85
3-7	46	6207	63,300	35.70	29.12	6.58
3-7	47	66119	67,900	38.30	31.23	7.07
3-8	48	9277	40,000	22.56	18.40	4.16
3-8	49	6435	72,600	40.96	33.40	7.56
3-9	51	5737	68,600	38.70	31.56	7.14
3-9	52	65019	83,400	47.04	38.36	8.68

Date. 1911.	Way-bill number.	Car number.	Weight.	Total charges at 5.64 cents.	Total charges at 4.00 cents.	Amount of refund.
3-9	53	9157	40,000	22.56	18.40	4.16
3-10	54	9089	40,000	22.56	18.40	4.16
3-10	55	6561	74,500	42.02	34.27	7.75
3-10	56	5999	58,300	32.88	26.82	6.06
3-10	57	9207	40,000	22.56	18.40	4.16
3-10	58	6145	82,800	46.70	38.09	8.61
3-10	59	9087	75,600	42.64	34.78	7.86
3-10	60	1069	40,000	22.56	18.40	4.16
3-10	61	6303	76,600	43.20	35.24	7.96
3-10	62	9177	40,000	22.56	18.40	4.16
3-10	63	66443	77,000	43.42	35.42	8.00
3-13	66	65383	74,500	42.02	34.27	7.75
3-13	67	6279	66,200	37.38	30.45	6.93
3-15	75	9211	40,000	22.56	18.40	4.16
3-15	76	3783	40,000	22.56	18.40	4.16
3-15	77	6079	71,400	40.26	32.84	7.42
3-17	79	5651	71,000	40.38	32.94	7.44
3-17	80	6513	71,500	40.32	32.89	7.43
3-18	80	6275	64,700	36.50	29.76	6.74
3-21	83	6291	76,600	43.20	35.24	7.96
3-22	85	6447	62,600	35.30	28.80	6.50
3-23	86	66537	59,400	33.50	27.32	6.18
Total			13,224,800	\$7,453.80	\$6,083.41	\$1,375.39

We therefore find and determine that the amount of the refund to which the petitioner is entitled upon the shipments above listed, under the order of this Commission in the instant case, dated April 30, 1912, is \$1,375.39.

IT IS THEREFORE ORDERED, That the respondents, the Minneapolis, St. Paul & Sault Ste. Marie Railway Company and the Chicago, Milwaukee & St. Paul Railway Company, be and the same are hereby authorized and directed to refund to the petitioner, the Rhinelander Paper Company, the sum of \$1,375.39, being the amount collected of the petitioner on the above listed shipments of pulp wood from Bagdad to Rothschild, Wis., in excess of the amount heretofore found by this Commission to have been a reasonable charge for such shipments.

HALE-MYLREA COMPANY

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Decided Nov. 6, 1912.

Petitioner alleges overcharges on two shipments of piling from Long Lake to Green Bay, Wis. The piling was so long as to necessitate loading it on two cars in each case. Petitioner contends that the weight should have been arrived at by an estimate based upon 35 lbs. per lineal foot of piling, deducting 500 lbs. for stakes and wires. This method of estimating weight is to be used only when it is impossible to obtain the actual weight of the piling. The shipments in question were weighed on track scales, and a deduction of 500 lbs. was made for stakes and wires.

Held: The rule for estimating weight does not apply in this case. The petition is dismissed.

The petitioner alleges that on June 25, 1912, it shipped two cars of piling from Long Lake, Wis., to C. Reiss Coal Company at Green Bay, Wis., and that on June 26, 1912, it shipped two more cars of piling from Long Lake to same consignee at Green Bay; that the piling was so long that according to the rules of the respondent company the same was loaded upon two cars, one-half of the load being on each car; that according to the published tariff circular No. 1—H of the western trunk lines, when the weight is placed on two cars the same shall be estimated at 35 lbs. per lineal foot and 500 lbs. deducted for stakes and wires; that the amount of freight charged upon one car was figured at the rate of 7½ cts. per cwt. on 66,400 lbs., amounting to \$49.80, when the weight should have been 58,300 lbs., making an overcharge of \$6.08; that on the second carload freight at a rate of 9 cts. per cwt. was charged on 79,700 lbs. which amounted to \$70.83, and the weight should have been figured on 60,075 lbs. at 9 cts. per cwt., which would have amounted to \$57.66, making an overcharge of \$13.17, and a total overcharge of \$19.25. Wherefore, petitioner prays that the respondent be required to refund to it the amount of \$19.25.

The respondent's answer to the petition contains no denial of the allegations, but demands that petitioner present the paid freight bill and make proof of his claim; whereupon the petitioner presented the receipted bills showing amounts paid as alleged. The actual weights which are complained of and the references given in support of an estimated weight of 35 lbs. per lineal foot, raises the question which weight should control in determining the legal charges for the transportation services rendered.

Western trunk lines circular No. 1—H, in effect at the time of the shipment, provides in rule No. 840 thereof that piling in carload lots shall take lumber minimum weights, subject to the following conditions: When it is impossible to obtain actual weight of piling loaded on two or more cars, an estimated weight of 35 lbs. per lineal foot will apply on shipments via the C. & N. W. Ry. and C. M. & St. P. Ry., subject to minimum weights shown in rule 1930.

Rule 1930 reads in part as follows:

“Lumber and articles taking same rates * * * in cars under 36 ft. in length, inside measurement,—minimum weight 30,000 lbs. In cars 36 ft. and over in length, inside measurement,—minimum weight 34,000 lbs.”

As the cars in question were weighed on track scales and the actual weight arrived at, the rule as to an estimated weight has no bearing.

The freight bills attached show that the prescribed allowance of 500 lbs. per car for stakes and supports was allowed in each case.

The conditions as to obtaining weights on shipments in question have been in effect generally in this state for years and are applicable on all lines.

Under the circumstances, the charges exacted were neither unusual nor exorbitant, and hence no reparation can be awarded.

Now, THEREFORE, IT IS ORDERED, That the petition be and the same is hereby dismissed.

SHEBOYGAN PAD COMPANY

vs.

CHICAGO AND NORTH WESTERN RAILWAY COMPANY.

Submitted Sep. 16, 1912. Decided Nov. 7, 1912.

Petitioner complains that the respondent's rate of 10.5 cts. per cwt. on excelsior from Marshfield to Sheboygan, Wis., is excessive. The rate complained of is a part of a system of group rates on this commodity covering a large part of the respondent's line in this state and the nearer stations in adjacent states. As compared with other points having the 10.5 ct. rate the points in question are not unfavorably affected. The distances included in this group, however, are the same as a group given a 10 ct. group rate, and there seems to be no reason for the higher rate in this case. The group rate situation as a whole is not before the Commission in this case. The distance in question is equal to the average distance in the group and the reduction of the petitioner's rate to 10 cts. per cwt. is justified by the group rate conditions. Cost of service data before the Commission indicate that some reduction of the rate complained of is warranted; but that the rate should not be reduced below 10 cts. per cwt.

Held: The rate charged is excessive. Respondent is ordered to substitute for its present rate a rate of 10 cts. per cwt., subject to a minimum weight of 20,000 lbs. as now in effect.

The petitioner, an unincorporated manufacturer of excelsior packing mats, located at Sheboygan, Wis., complains that the respondent company's rate of 10.5 cts. per cwt. on excelsior from Marshfield to Sheboygan, Wis., is excessive, and prays that such rate be reduced. In substantiation of the allegation of excessiveness, the complaint states that 80 per cent of the raw material shipped in is reshipped in the form of finished product, and this fact is alleged to entitle the petitioner to a concentration rate on excelsior. Further, the 10.5 ct. rate complained of is alleged to be excessive by comparison with the 7.5 ct. rate applying on paper between the same points, the value of paper per 100 lbs. being much greater than that of excelsior.

The respondent railway company, in its answer, denies the allegations of the complaint as to the excessiveness of the rate complained of.

The matter was heard at the office of the Commission, Sep. 16, 1912, *H. J. Blocki* appeared for the petitioner, and *C. A. Vilas* for the respondent railway company.

The testimony shows that the excelsior shipped by the petitioner from Marshfield to Sheboygan is used by it at the latter point for the manufacture of packing mats, and constitutes about four-fifths of the weight of the finished mat. About one-half of the excelsior shipped in originates outgoing freight for the respondent's line, the other half being accounted for by a 20 per cent waste in manufacture and a very considerable local trade in mats in Sheboygan. The petitioner's movement from Marshfield is entirely a carload movement, averaging about one car a week. The excelsior is packed in bales and is loaded to an average weight of about 21,000 lbs. per car. The minimum carload weight is 20,000 lbs. As to the value of the commodity, the testimony indicates a range in price, at the point of origin, from \$11.00 to about \$14.50 per ton. This makes the value per 100 lbs. about 55 to 70 cts.

Marshfield is the only source of the petitioner's shipments of excelsior, the contract price at Marshfield being apparently somewhat lower than at any other point at which the commodity is available. This difference in price is, in fact, more than enough to offset the higher present freight charge from Marshfield than from such other excelsior manufacturing points as Green Bay and Oshkosh. There is, however, a manufacturer of excelsior at Sheboygan who ships in wood bolts on a comparatively low concentration rate, manufactures them into excelsior and then into packing mats, and competes with the petitioner in the sale of the mats. This competitor would seem to have an advantage over the petitioner, in that he completes two manufacturing processes at Sheboygan instead of one, and his inbound raw material takes much lower freight rates than that of the petitioner.

As to the claim of the petitioner that it is entitled to concentration rates on excelsior because a very large proportion of the manufactured product moves out over the respondent's line, this contention was practically abandoned by the petitioner at the hearing. The respondent company pointed out that excelsior was not entirely a raw material but was a manufactured product shipped in for use in a further manufacturing process,

and was therefore not entitled to be classed with low grade raw materials which were accorded concentration rates. In view of these facts and the attitude of the petitioner at the hearing on this subject, the concentration rate question will not require discussion at this time.

The 10.5 ct. rate on excelsior from Marshfield to Sheboygan, of which the petitioner complains, is a part of a system of group rates on this commodity covering a large part of the respondent's line in this state and the nearer stations in adjacent states. These group rates are contained in two of the carrier's miscellaneous commodity tariffs. In order to determine whether the 10.5 ct. rate from Marshfield to Sheboygan is properly adjusted among the other rates on excelsior in the state, a rather extensive study of this group rate system is necessary. If the distance from Marshfield to Sheboygan is much shorter than the usual distance covered by the 10.5 ct. rate, or if the 10.5 ct. group rate itself covers no greater distances than some lower group rate, it may be that fairness in the adjustment of the excelsior rates among themselves would demand some reduction in the rate now under consideration.

The distance from Marshfield to Sheboygan over the respondent company's line is 166 miles. In the respondent's miscellaneous commodity tariff naming group rates on excelsior, Marshfield is placed in group 13 and Sheboygan in group 8, and the rate provided between these two groups is the rate between Milwaukee and group 13, namely 10.5 cts. Several other groups are also named as taking the Milwaukee rate to group 13, namely groups 2, 5, 6, 7, 9, 10, and 11. A compilation showing the distance from every station in each of the eight groups last named, to every station in group 13, would give some idea of the distances covered by the 10.5 ct. rate. A more feasible tabulation, however, and at the same time a fairer one, would be a showing of the distances from the more important stations in the eight groups to the more important stations in group 13. This statement would tend to be more representative than the larger statement, because it would eliminate small way stations and junction points which would originate and receive practically no freight movement of their own but which would weigh as heavily as the more important points if the distances from all were considered equally. The various groups

have therefore been considered to be fairly represented, both geographically and from a traffic standpoint, by their larger stations, and on this basis table 1 has been constructed, showing the representative distances to which the 10.5 ct. group rate on excelsior is applied. Inasmuch as the table is intended to show only distances covered by the 10.5 ct. rate, all distances below the point at which the Wisconsin distance tariff makes a rate lower than 10.5, cts. are excluded. This point is fixed at 136 miles, since excelsior is classified in class C, carloads, and the class C rate under the Wisconsin distance tariff for 135 miles is 10 cts., and for 140 miles 10.5 cts. It will be noted that over half of the distances which would otherwise be included in table 1 are excluded by this use of 136 miles as a minimum distance.

TABLE 1.
 REPRESENTATIVE DISTANCES COVERED BY 10.5 CENT GROUP RATE.
 REPRESENTATIVE STATIONS IN GROUP 13.

Group No.	Representative group stations.	An-tigo.	Bir-nam-wood	Clin-ton-ville.	Grand R'pids.	Green Lake.	Marsh-field.	Nece-dah.	Ne-koosa.	Port Ed-wards	Prince-ton.	Sha-wano.	Stevens Pt. (G. B. & W.)	Wau-pacca. (W.G.B.)	Wau-sau.	Wau-toma.
2	Milwaukee	178	162	x	159	x	184	139	166	163	x	142	159	142	180	x
2	So. Milwaukee.....	188	172	137	169	x	195	149	177	174	x	153	169	153	190	x
2	West Alis.....	186	170	x	167	x	193	147	175	172	x	151	167	151	189	x
2	Cudahy.....	185	169	x	166	x	192	146	174	171	x	150	166	149	187	x
5	Jefferson.....	176	160	x	157	x	182	x	164	161	x	139	156	140	178	x
5	Waukesha.....	193	182	146	179	x	205	136	186	185	x	162	178	162	199	137
6	Madison.....	206	190	155	187	x	176	x	194	191	x	170	187	172	208	145
6	Lake Mills.....	180	164	x	161	x	186	x	168	165	x	144	161	144	182	x
7	Watertown.....	162	146	x	143	x	169	x	151	148	x	x	143	x	164	x
8	Port Washington....	179	163	x	168	x	193	164	175	172	x	x	163	146	182	x
8	Sheboygan.....	153	137	x	141	x	166	169	148	145	x	x	136	x	155	x
9	Manitowoc.....	x	x	x	165	x	171	194	174	171	x	x	x	x	x	x
9	Two Rivers.....	x	x	x	174	x	178	201	181	178	x	x	x	x	138	x
10	Fond du Lac.....	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
10	Juneau.....	147	x	x	x	x	154	x	136	x	x	x	x	x	149	x
10	West Bend.....	145	x	x	x	x	151	154	x	x	x	x	x	x	147	x
11	Appleton.....	x	x	x	x	x	x	161	141	138	x	x	x	x	x	x
11	De Pere.....	x	x	x	156	x	140	184	163	160	x	x	x	x	x	x
11	Green Bay.....	x	x	x	159	x	x	190	167	164	x	x	x	x	x	x
11	Kaukauna.....	x	x	x	140	x	138	168	148	145	x	x	x	x	x	x
11	New London.....	x	x	x	133	x	x	172	144	141	x	x	x	x	x	x
11	Oshkosh.....	x	x	x	x	x	140	142	x	x	x	x	x	x	x	x
11	Plymouth.....	146	x	x	x	x	152	155	x	x	x	x	x	x	148	x
11	Ripon.....	137	x	x	x	x	x	145	x	x	x	x	x	x	139	x
11	Neenah-Menasha....	x	x	x	x	x	x	154	x	x	x	x	x	x	x	v

NOTE: x indicates a distance less than 136 miles. For all such distances the 10.5 cent group rate is superseded by a lower Wisconsin distance tariff rate.

The results of table 1 may be summarized as follows:

Total number of distances.....	167	
Aggregate of distances.....	27,328	miles
Mathematical average of distances.....	164	"
Median of distances.....	163	"
Modes of distances.....	164	"
Longest distance	146	"
Shortest distance	208	"
	136	"

It cannot be said with entire accuracy what is a representative distance for the 10.5 ct. groups, but by examining the various figures given above, it is seen that a haul in the neighborhood of 163 or 164 miles is quite typical of the groups. Without further discussion, it may be stated that the Marshfield-Sheboygan distance of 166 miles is by no means too short a distance for the 10.5 ct. rate, if it be assumed that the 10.5 ct. rate is itself a proper one for the series of groups shown in table 1. In other words, as compared with the other points having the 10.5 ct. rate, the points involved in this case are not unfavorably affected by the application of such rate between them.

But there is still a question as to whether the entire series of distances covered by the 10.5 ct. group rate are so related to the distances covered by higher and lower rates as to make the 10.5 ct. rate complained of, comparatively speaking, a fair rate. The other rates on excelsior applying under the group system on the respondent's line in this state are 7.5 cts., 10 cts., 11 cts., 11.5 cts., 12 cts., 12.5 cts., and, for long distances, higher rates. The groups between which these various rates apply, as shown by the two commodity tariffs containing the group rates, are as follows:

C. & N. W. G. F. D. 8115—E.

Rate, cts.	Applies between groups.	And groups.
7.5	2, 5, 7, 8, 9, 10, 11.....	8, 9, 10, 11.
10	1, 3, 4, 6, 12.....	8, 9, 10, 11.
10	2, 5, 7.....	12.
11	7 stations in group 13.....	20 (W. bound only).
11.5	2, 5, 6, 7, 8, 9, 10, 11.....	14, 15.
12	6 stations in group 13.....	15 (N. bound only).
12	3 stations in group 14.....	20 (W. bound only).
12.5	1, 3, 4.....	12, 13.

C. & N. W. G. F. D. 10567—D.

11	6, 9.....	2.
12	6, 9.....	3.

The same sort of tabulation that was made for the 10.5 ct. group rate and is shown in table 1, may be made for each of the other rates shown above, and in this way some light may be thrown upon the question as to the relation which representative distances covered by one rate bear to the representative distances covered by another. This compilation has been made but need not be presented here in full. The distances between stations taken as representative in all the groups above named, were listed in the manner shown in table 1, excluding in each case all distances short of the point where the group rate is superseded by the distance tariff rate. This minimum point was found to be 56 miles for the 7.5 ct. rate, 121 miles for the 10 ct. rate, 151 miles for the 11 ct. rate, 161 miles for the 11.5 ct. rate, 166 miles for the 12 ct. rate, and 171 miles for the 12.5 ct. rate. In order that the basis of this compilation may be understood, we present below a list showing the number of stations included in each group, and the number and names of the stations taken as representative of such group.

C. & N. W. G. F. D. 8115-E.

Group No.	No. stations in group.	Stations taken as representative.	
		Number.	Names.
1	145	15	Aurora, Beloit, Belvidere, Chicago, DeKalb, Elgin, Evanston, Harvard, Janesville, Joliet (E. J. & E. Ry.), Kenosha, Lake Geneva, Racine, Sycamore, Waukegan.
2	9	4	Milwaukee, S. Milwaukee, W. Allis, Cudahy.
3	28	3	Evansville, Freeport, Rockford.
4	3	1	Ft. Atkinson.
5	8	2	Jefferson, Waukesha.
6	5	2	Madison, Lake Mills.
7	2	1	Watertown.
8	7	2	Port Washington, Sheboygan.
9	4	2	Manitowoc, Two Rivers.
10	18	3	Fond du Lac, Juneau, West Bend.
11	45	9	Appleton, De Pere, Green Bay, Kaukauna, New London, Oshkosh, Plymouth, Ripon, Neenah-Menasha.
12	12	4	Marinette, Menomonie, Oconto, Peshtigo.
13	79	15	Antigo, Birnamwood, Clintonville, Grand Rapids, Green Lake, Marshfield, Necedah, Nekeosa, Port Edwards, Princeton, Shawano, Stevens Point (G. B. & W. R.), Waupaca (W. G. B. R.), Wausau, Wautoma, Crandon, Rhinelander, Tomahawk (M. T. & W. R.), Arbor Vitae (H. & S. E. Ry.), Bessemer, Eagle River, Hurley, Watersmeet.
14	30	3	Black River Falls, Chippewa Falls, Eau Claire, Fairchild, Menomonie, Merrillan, Neillsville.
15	27	5	
20	27	7	

C. & N. W. G. F. D. 10567-D.

2	54	8	Ellsworth, Hudson, Minneapolis, New Richmond, River Falls, St. Paul, Spring Valley, Stillwater.
3	79	14	Ashland, Bayfield, Bloomer, Cameron, Cumberland, Drummond, Duluth, Hayward, Rice Lake, Shell Lake, Spooner, Superior, Turtle Lake, Washburn.
6	32	8	Grand Rapids, Green Lake, Marshfield, Neekoo-a, Pt. Edwards, Princeton, Wausau, Wautoma,
9	13 ¹	1	Stevens Point.
	627	109	

¹All on G. B. & W. R. R.

The condensed result of the various tabulations made on the basis just stated is shown in table 2:

TABLE 2.
REPRESENTATIVE DISTANCES COVERED BY GROUP RATES ON
EXELSIOR.

Group rate, cents	Number of representative distances	Distances typical of each rate				
		Average	Median	Mode	Longest	Shortest
7.5	158	89	88	91	141	57
10.	299	164	162	154	252	121
10.5	167	164	163	164	208	136
11	80	205	201	146	272	159
11.5	168	234	231	222	333	162
12	146	238	233	234	337	166
12.5	306	221	222	215	314	171

The distances shown in table 2 are stated as the mathematical average, the median, the mode, the highest, and the lowest of the representative distances applying between the typical stations in the various groups. Since the thing that is desired in this connection is a general birdseye view of the group situation, no one of the figures stated can perhaps be said to be typical of the group. The mode, if capable of exact determination, would perhaps be the most satisfactory indication, since it represents the point of greatest density, or the point about which the distances cluster with greatest frequency. It cannot always, however, be found with certainty, and sometimes the tendency of the numbers is to cluster about more than one point, thus creating two or more modes. A general consideration of the five distance figures given under each rate in table 2, however, is sufficient to lead to a very definite conclusion with regard to the relative amounts of territory covered by the 10 ct. and the 10.5 ct. rates. The figures show that the 10.5 ct. rate represents no greater distances than the 10 ct. rate. The average distance covered by both is 164 miles, while the median, or the point having the same number of distances on either side of it, is greater by only one mile in the case of the 10.5 ct. than the 10 ct. rate. The mode in the case of the 10 ct. rate appears to lie in the neighborhood of 154 miles, while the 10.5 ct. rate distances seem to cluster about two points, one at about 146 and the other at about 164 miles. The maximum of

the representative distances to which the 10.5 ct. rate applies is actually 44 miles shorter than the maximum in the case of the 10 ct. rate, while the location of the shortest distance covered by each rate is determined arbitrarily by the point at which the Wisconsin distance tariff becomes lower than the group rate. It may be added, by way of showing that the maximum distance of 252 miles in the case of the 10 ct. rate is not abnormal, that 39 of the distances representing the 10 ct. rate, or 13 per cent of the total number representing such rate, are over 200 miles, while only 4 of the 10.5 ct. distances, representing but 2 per cent of their total number, are above the same point.

It is clear from what has just been stated that the 10.5 ct. group rate on excelsior represents in typical cases no more service to the shipper in the way of length of haul than the 10 ct. group rate. It is interesting to note, also, that the distance involved in the instant case, namely 166 miles, is almost exactly equal to the average distance covered by both the 10.5 and the 10 ct. rates. Just why the 10.5 ct. group should exist at all is not clear, inasmuch as the hauls involved in it resemble so closely those covered by the 10 ct. rate. The group rate situation as a whole is not before the Commission in this case, but certainly the reduction of the petitioner's rate from 10.5 cts. to 10 cts. is well justified by the group rate conditions just shown to exist. The establishment of a 10 ct. rate from Marshfield to Sheboygan would result in a break in the grouping system as at present in effect, but would be a step in the direction of greater uniformity of rates for like services.

As to the inherent reasonableness of the 10.5 ct. rate complained of, dissociated from the grouping system of which it is a part, it would seem that here, too, the facts are sufficient to warrant some reduction. The petitioner referred to the 7.5 ct. rate on paper from Marshfield to Sheboygan, and claimed that considering the much greater value of paper, this rate would justify a very material reduction in the rate on excelsior. It was pointed out by the respondent, however, that the loading of paper was over twice as heavy as that of excelsior, and therefore the rate on paper is not a fair indication of what the rate on excelsior should be. But even with its comparatively light loading, excelsior is a commodity that should be entitled to a

rate little, if any, above the average rate on the carrier's carload traffic. Though this commodity greatly exceeds in value the lowest grades of articles that are moved, such as gravel, coal, brick, and iron ore, it appears to be of less value than such commodities as cement, hay, various kinds of grain, and lumber. So relatively low is its value, in fact, that it would perhaps be entitled to a rate considerably lower than that on the average commodity, were it not for the very light loading which materially increases the cost of handling this traffic. The figures in the possession of the Commission bearing upon the cost to the respondent company of performing the service involved in the haul from Marshfield to Sheboygan indicate that, considering all of the facts above detailed as to the nature of the commodity and its movement, there is room for some reduction in the rate complained of; but the facts do not at this time warrant the Commission in placing the rate below 10 cts. per cwt. As this figure is fully justified by the cost figures, and as it is at the same time in line with the rates of the respondent company between many of its groups involving hauls of similar length, it seems under all the circumstances to represent a just and reasonable rate on the traffic in question.

We therefore find and determine that the respondent company's rate of 10.5 cts. per cwt. on carload shipments of excelsior from Marshfield to Sheboygan, Wis., is unreasonable, and that a reasonable rate for such shipments would not exceed 10 cts. per cwt.

IT IS THEREFORE ORDERED, That the respondent, the Chicago & North Western Railway Company, discontinue its present rate of 10.5 cts. per cwt. on excelsior in carloads from Marshfield, Wis., to Sheboygan, Wis., and that it substitute in lieu thereof a rate not exceeding 10 cts. per cwt., subject to the same minimum weight as is now in effect.

IN RE APPLICATION OF THE PEOPLE'S WATER, LIGHT AND
POWER COMPANY TO CHANGE RATES.

Submitted Sep. 18, 1912. Decided Nov. 7, 1912.

Application was made by the People's W. Lt. & P. Co. of Mellen, Wis., for authority to discontinue the present flat rate of \$1.00 per month and the present minimum monthly water charge of 50 cts. and to substitute therefor a flat rate of 75 cts. and the minimum meter rate of 75 cts. per month. It appears to be the intention of the company to put in meters as rapidly as practicable. In a very short time the present inequalities between minimum flat rate and metered consumers will disappear because there will be no flat rate consumers. The point to be settled, then, is the reasonableness of the minimum meter charge of 75 cts. per month. From the investigation made a charge of 75 cts. per month, based on the estimated cost per consumer, and a charge for the water used, seems reasonable. If the flat rate is reduced to 75 cts. there will be a decrease in revenue. In view of the fact that the flat rate consumers will practically disappear by the end of another year, the estimated drop in revenue by lowering the flat rate will be offset by the substitution of meter rates.

Held: It appears that a minimum meter charge of 75 cts. per month and a minimum flat rate of 75 cts. are both reasonable and just and the change is hereby authorized.

Application for authority to discontinue the present flat rate of \$1.00 per month and the present minimum monthly water charge of 50 cts. and to substitute therefor a flat rate of 75 cts. and a minimum meter rate of 75 cts. per month.

The petitioner is a Wisconsin corporation furnishing water service to the people of the city of Mellen. In its application for change of rates the company states that prior to Dec. 1, 1911, the water works system in that city was owned by the Mellen Water and Light Company, and that on or about Dec. 1, 1911, the People's Water, Light and Power Company purchased the water works system of Mellen. At the present time, therefore, the People's Water, Light & Power Company is the sole company furnishing water service to the city of Mellen, while the Mellen Water and Light Company limits its service to lighting only.

At the beginning of its operation the applicant company continued in force as a water rate, where meters could not be in-

stalled, the flat rate that was in effect by the Mellen Water and Light Company before the purchase by the applicants. This flat rate adopted was \$1.00 per month and the minimum meter charge was placed at 50 cts. The Company's rates filed with the Commission and as effective Dec. 1, 1911, are given in table 1:

TABLE 1.

PRESENT RATES.

<i>Flat rate</i>			
4-8 room dwelling		\$1.00	per month
3 " " .....		.75	" "
Bath room .....		.50	" "
Hose for sprinkling.....		1.00	" "
<i>Meter rates</i>			
First 5,000 gal. per month	30	cts. per M	gals.
Next 5,000 " "	25	" "	" "
" 10,000 " "	20	" "	" "
" 20,000 " "	15	" "	" "
" 60,000 " "	10	" "	" "
" 100,000 " "	8	" "	" "
" 100,000 " "	7	" "	" "
" 200,000 " "	6	" "	" "
" 500,000 " "	5	" "	" "
Minimum rate, 50 cts. per month.			

The petitioner applies to the Commission for authority to change its rates so that the minimum rate where meters are installed shall be 75 cts. per month instead of 50 cts., and also to change the minimum water rate where it is impossible to install meters from \$1.00 to 75 cts. per month, so that the minimum meter rate and the minimum flat rate per building shall be the same. The applicant presents in its petition, as a reason for this change, that there is at present among its patrons a great deal of dissatisfaction because of the difference of these two rates, inasmuch as those patrons who have no meter and are on a flat rate feel that there is an unjust discrimination in the rate as against them.

In concluding its petition the applicant asks that, with these two changes, the rates as published and filed with this Commission be fixed as the rates to be charged by the People's Water, Light and Power Company for water used and consumed by its patrons in the city of Mellen.

Resulting from this petition, a hearing was held (before Commissioner Erickson) Sep. 18, 1912. The applicant was represented by its attorney, *T. A. Humphrey*, and its secretary, *L. A. Maier*.

In the testimony company's secretary stated that the minimum meter rate was 50 cts. per month and that the company in beginning its business had adopted the rates of the old company which it had succeeded; that the old company had no meters and charged flat rates only, the minimum flat rate being \$1.00. Further testimony was given by Mr. Maier to the effect that the adoption of these two rates, after they had been in effect several months, caused dissatisfaction on the part of the flat rate users. The objection in such instances was that flat rate users had to pay \$1.00, whereas the minimum meter users paid only 50 cts. Those users who paid the minimum rate, according to Mr. Maier, constituted about 50 per cent of the total consumers.

It appears further from Mr. Maier's testimony that the intention of the company is to put in meters as rapidly as practicable. Mr. Maier stated in his testimony that at that time the company had about 175 consumers, of which about 40 per cent were metered.

Meters are owned by the company and are furnished free to patrons.

The company offers no objection to its schedule of rates other than to the flat rate and minimum rate features.

The application is not presented with a view to increasing revenues, as the secretary estimates that there will be little effect, if any, upon their revenues. The sole purpose, apparently, is to remove a cause of dissatisfaction among the customers.

CLASSIFICATION OF CONSUMERS.

The consumers of the People's Water, Light and Power Company, as classified in its report for the period ending June 30, 1912, appears in table 2:

TABLE 2.
CONSUMERS.

	Metered.	Unmetered.	Total.
<i>Commercial Consumers</i>			
Residences	34	75	109
Stores		2	2
Stores and residences (flats).....	5	3	8
Saloons.....	5	9	14
Office buildings.....	1	2	3
Hotels.....	2	1	3
Boarding houses.....		2	2
"Soo" line railway.....	1		1
Total private	48	94	142
<i>Public Consumers</i>			
Schools.....		1	1
Public fountains and troughs.....		1	1
Hydrants.....			21
Total, private and public.....			165

The metered commercial consumers constitute 33.8 per cent of the total and unmetered are 66.2 per cent.

CLASSIFICATION OF SERVICES.

The same report for June, 1912, gives a grouping of services as follows:

TABLE 3.
METERS AND SERVICES.

	1"	2"	3"	End of year.
<i>Services.</i>				
To commercial consumers.....	16	78		94
To public buildings.....			1	1
To public fountains and troughs.....		1		1
To public hydrants.....				21
Total.....				117
<i>Meters.</i>				
Commercial use.....	47			47
Industrial use.....			1	1
Total services and meters.....				165

It should be noted that the number of metered consumers is identical with the number of meters and that the total services and meters correspond with total private and public consumers. In other words, up to June 30, 1912, at least, there has been installed but one meter to a consumer and there has been but

one consumer to a service. This point is of importance in the determination of unit costs per metered consumer.

INCOME ACCOUNT.

The People's Water, Light and Power Company has only been in operation since the beginning of December, 1911. Its report as of June 30, 1912, therefore, covers but 7 months' operation. It is given here as it appears in the company's report.

TABLE 4.

INCOME ACCOUNT.

<i>Revenues.</i>		
Earnings from commercial sales.....	\$1,801.98	
Earnings from municipal hydrant rentals....	861.68	
		<u>\$2,663.66</u>
<i>Operating Expenses.</i>		
Distribution	\$34.55	
General	156.23	190.78
		<u>190.78</u>
Carried to surplus account.....	\$2,472.88	

The earnings from commercial sales may be further analyzed as between flat and metered business. The revenues coming from metered consumers constituted \$784.38 or 43.6 per cent, while that from flat rate customers made up the larger share, \$1,017.87 or 56.4 per cent.

The absence of pumping expenses calls for special comment. To explain this feature, we quote from p. 24 of the company's 1912 report:

“Source of water supply is a group of springs in the bottom of impounding reservoirs, and also a spring-fed brook which flows into reservoir, at opposite end from which water is taken to city. Reservoir is situated about two miles from city at an elevation of about 180 feet above lowest point in the city. An artificial or concrete dam was built across a ravine or neck of this natural basin. Ours is a gravity system--no pumping required.

“The capacity of the reservoir is one and one-half million gallons. There is one stand pipe about two miles from the reservoir, and its capacity is 65,000 gallons.”

Inasmuch as this water company is still a developing concern and has only been operating seven months, its income report is not very complete. Consequently, it will not be practicable to

base a consumer charge on analysis of the company's expenses, but a study will have to be made of the expenses of other companies of a similar character.

MINIMUM METER CHARGE.

As has already been stated, the company has asked to reduce its minimum flat rate to 75 cts. and to bring its minimum meter charge up to that level from 50 cts. Inasmuch as it is the company's intention to put in meters throughout its entire system, it will not be long before the flat rate will be practically, if not entirely, eliminated. When the present company took over the water plant there were no metered consumers whatever. In seven months' operation the new company has installed forty-eight meters. At that rate it is fair to assume that by the expiration of another year all consumers will be metered.

The significance of this situation is that in a very short time the present inequalities between minimum flat rate and metered consumers will disappear because there will be no flat rate consumers. The point to be settled, then, is the reasonableness of a minimum meter charge of 75 cts. per month.

Consumer Costs.

To test this minimum charge, a schedule of consumer costs per metered consumer must be prepared. The principal elements that will enter into these consumer costs are interest, depreciation, and taxes on the investments in services and meters, maintenance of meters, maintenance of services, collection expenses, and a certain proportion of general expenses.

Investment in Meters.

The total investment in meters up to June 30, 1912, as shown by the annual report, was \$1,392.36. For the forty-eight meters installed up to that time, then, the average cost per meter was about \$29.00. This, on the face of it, is a very high investment and requires further explanation. The meters themselves, being with but one exception $\frac{3}{4}$ " size, probably cost the company not more than \$12.00 a piece, net. Then, in addition to the meters, the company must in many instances set the meters in boxes. This is necessary for two reasons,—first, because fre-

quently customers have no cellars, and second, because of the extreme cold weather. It was stated by the company's secretary, A. Maier, at the hearing, "Conditions are unfavorable on account of the extreme climate up there."

Necessarily the use of meter boxes involves additional expense to the company. From an examination of costs of installing meters in boxes in various water plants in the country, we have concluded that an additional cost of about \$12.00 per meter may properly be allowed for meter boxes. There will also be some expense for the labor of installation. These estimates may not be entirely correct, but there can be no doubt that the company does have to meet abnormal expenses in installing meters.

This is an element to be taken into consideration. The fact that the use of meter boxes adds materially to the cost of meter installation is recognized in *Kerwin et al. v. City of Darlington*, 1910, 6 W. R. C. R. 26, 40:

"Again, those consumers whose residences have no cellars or basements will require frost boxes or vaults to protect the meter, which increases the investment to a point where any reduction or saving due to the use of the meter may be more than offset by the fixed charges on the investment necessary to accomplish a saving in the use of water."

12 per cent has been assumed as a proper allowance for interest, depreciation, and taxes on the investment in meters.

Investment in Services.

Up to June 30, 1912, there had been invested \$1,163.63 in services. Since there is but one consumer to a meter, and since 33.8 per cent of the consumers are metered, only 33.8 per cent, or \$393.31, of this investment in services is chargeable to metered consumers. 12 per cent has been computed on the \$393.31 as an allowance for interest, taxes and depreciation on services.

Maintenance of Meters.

In this connection an examination was made of expenses of maintaining meters in class A water utilities in the year 1910. Although the Mellen plant is in class B, the class A amounts have been used here, since the separation of expenses by class B companies is not so reliable. In order to get a fair indication

of expenses, those companies with less than one hundred meters have been eliminated. Taking a weighted average of the remaining ten companies, gives an average maintenance cost per meter per year of 43.6 cts. The arithmetical average for all fifteen companies in this year was \$1.04. We have taken 50 cts. per meter per year to be a proper allowance for maintenance of meters at Mellen. As no maintenance of meters was reported by the Mellen company, it is presumed that meters having been newly installed had not yet required attention. Allowance must be made, however, for expense of succeeding years.

Maintenance of Services.

The company's report as of June 30, 1912, shows under this head \$27.80 for seven months' operation. Of this amount \$9.40 (33.8 per cent) is chargeable to metered consumers, since there is but one consumer to a service in this case. This amount, reduced to expenses per month and then multiplied by twelve, gives an approximate expense per year of \$16.20, chargeable to metered consumers.

Collection Expenses.

So far the company has reported no collection expenses. Nevertheless, this is an element that must be considered in figuring consumer costs. The collection expenses of the sixteen class B water companies reporting in 1910 averaged in mathematical average 24 cts. per year per commercial consumer. A weighted average gives 20 cts. per year. We have used in our schedule 25 cts. per year.

General Expenses.

It is not practicable to apportion general expenses between consumer and output costs on the basis of direct expenses on account of the incompleteness of the income account. Consequently, an analysis was made of general expenses per consumer for class A and class B water companies in 1910. The arithmetical average of nineteen class A companies (omitting Milwaukee and La Crosse, both of which were abnormally low)

gave \$1.89 per year per commercial consumer.¹ The weighted average for all but Milwaukee was \$1.63 per year. In a similar manner, forty-one class B companies' reports were examined and showed a weighted average of \$1.70 per year per consumer. It seems fair to accept \$1.70 per year for general expenses. Of course, not all of this amount would be a consumer expense. In the absence of complete data, it is assumed that 20 per cent of general expenses, or 34 cts. per year, would be a consumer expense.

TABLE 5.

CONSUMER COSTS.

	Per year.
Interest, depreciation and taxes on investment in meters 12% on \$1,392.36 = \$167.08 divided by 48.....	\$3.48
Interest, depreciation and taxes on investment in services 12% on \$393.31 = \$47.20 divided by 48.....	.98
Maintenance of meters—per meter.....	.50
Maintenance of services—\$16.20 divided by 48.....	.34
Collection expenses .....	.25
General expenses .....	.34
	\$5.89
Total expense per metered consumer per year.....	

If the total expenses per year, \$5.89, be divided by 12, we arrive at a monthly cost per metered consumer of 49 cts. As sufficient allowance may not have been made in each instance, it is only fair to consider the monthly expenses to be at least 50 cts. per month per metered consumer.

So far nothing has been said about the water actually used. With 50 cts. taken up by fixed charges, there remains 25 cts. to cover the water which may be used by a minimum metered consumer. With a minimum charge of 75 cts. per month, a minimum consumer may use as much as 2½ M gallons per month, or about 30,000 gallons a year. To allow 25 cts. per month to cover the worth of the water alone seems entirely reasonable.

PROBABLE EFFECT ON REVENUE.

Without making a detailed study of consumer records of the plant, no very definite statements can be made as to the probable effect of a change in minimum rates upon the revenues.

¹ It should be noted that the only statistics available give the number of commercial connections rather than the number of commercial consumers. However, for the purpose of an approximate estimate these figures are acceptable.

If we assume that one-third of the private metered consumers, or sixteen consumers, used only the minimum amount, then this increase in minimum bill from 50 to 75 cts. would mean an increase in monthly commercial revenues of 16×25 cts. or \$4.00, and of \$48.00 per year. Consequently, it is not likely that the increase in minimum meter charge will have much effect on the total revenues. Even though the raise may affect a considerable portion of residence users, still, in view of the high fixed charges per consumer, such increase is justifiable.

The revenues from flat rates for the seven months ending June 30, 1912, were \$1,017.87, or about \$145 per month. Barring some extra revenue which will come from hose sprinkling, baths, etc., the greater part of this revenue must necessarily have come from those customers paying the minimum flat rate of \$1.00 per month. Now, if this flat rate is reduced to 75 cts., there will be a decrease in revenue of about one-fourth, or of about \$432.00 per year. However, this would be the effect only if the flat rate consumers were left unchanged. In view of the fact that the company is rapidly installing meters, and that the flat rate consumers will practically disappear by the end of another year, the estimated drop in revenue by lowering the flat rate will be offset by the substitution of metered for flat rate service.

RATE OF RETURN.

The plant value as of June 30, 1912, per company's balance sheet, was \$43,378.22. The net income of \$2,472.88 available for depreciation and interest constituted a return of 5.7 per cent on this investment. From this it is seen that the company has not been earning an undue revenue.

ORDER OF THE COMMISSION.

In view of these considerations it appears that a minimum meter charge of 75 cts. per month and a minimum flat rate of 75 cts. are both reasonable and just, and

THE APPLICANT in this case, the People's Water, Light and Power Company of Mellen, Wis., IS AUTHORIZED to substitute a minimum meter rate of 75 cts. per month and a minimum flat rate of 75 cts. for the present prevailing minimum rates of 50 cts. and \$1.00, respectively.

CIVIC LEAGUE ET AL.

vs.

BEAVER DAM WATER COMPANY.

Submitted Nov. 24, 1911. Decided Nov. 9, 1912.

Complaint was made that the Beaver Dam W. Co., Beaver Dam, Wis., does not furnish water pressure adequate for fire protection, refuses to install meters or give meter rates, and charges rates that are excessive and discriminatory.

A valuation of the physical property of the utility was made as of date June 30, 1911. This valuation fixed the cost new of the property at \$118,060, and the value in existing condition at \$108,409. By adding to this valuation the additions for the succeeding year, the valuation as of June 30, 1912, was determined as \$118,210 cost new and \$108,559 present value. For the purpose of finally fixing a schedule of rates the valuation was increased by the addition of the estimated cost of improvements necessary for adequate service. The final valuation was, cost new \$137,892.42, and value in existing condition \$130,703.00.

A fire test was made and it is evident that extensive improvements in the plant are necessary. A serious fire of long duration occurring simultaneously with heavy domestic use would exhaust the water supply within a comparatively short time. In certain sections hydrants are not as conveniently placed as might reasonably be desired.

Held: The present service is inadequate and it is ordered that the utility make improvements in its plant and equipment as outlined by the Commission, so that it will be in a position to furnish adequate fire protection. Six months is deemed sufficient time to comply with this portion of the order.

Domestic and industrial service is now unmetered.

Held: The installation of meters is regarded as a necessary improvement. All service, public and private, with the exception of hydrants, are to be metered. One year is considered sufficient time for the installation of meters.

In determining the reasonableness of the rates the value of the physical property and the expenses of the utility were apportioned as between fire and general service.

Held: Improvements ordered in the service necessitate a readjustment in the rates and the respondent is ordered to put in effect the schedule approved by the Commission. The higher rate for fire protection is to take effect when improvements affecting the fire service are made. Service for sprinkling and construction purposes may be justly sold at a rather low rate, as its effect upon expenses is slight. Present rates for such services are reasonable. Meter rates are to take effect immediately upon the installation of meters and all bills are to be rendered quarterly. The discriminations which have been practiced are ordered discontinued and the schedule of rates as finally fixed by this decision to be strictly adhered to. The rates and regulations as ordered are tentative, and revisions of the order may be made as experience shows necessary.

Complaint in this matter was filed with the Commission on June 9, 1911. It shows that the Beaver Dam Water Company is a public utility engaged in the furnishing of water for fire protection and domestic purposes at Beaver Dam. Matters complained of are as follows:

1. Water pressure is inadequate for fire protection.
2. The company refuses to install meters or to give meter rates.
3. The rates are excessive and discriminatory.

Hearing was held at Madison on Nov. 24, 1911. Appearances were as follows: For the Civic League: *W. L. Jones*, sec'y. of Civic League; *F. J. Mirlach*, mayor of Beaver Dam; *J. C. Healy*, city attorney of Beaver Dam. For the Beaver Dam Water Co.: *E. L. Street*, general manager; *F. N. Hetrick*, manager.

Careful study has been made of the testimony presented and all portions of it have been carefully considered, insofar as they have a bearing upon the case.

VALUATION.

A valuation of the physical property of the utility was made by the Commission as of June 30, 1911. This valuation fixed the cost new of the property at \$118,060 and the value in existing condition at \$108,409. Objections to the valuation were relatively unimportant. On behalf of the utility some question was raised as to the justice of excluding from the valuation paving which had not been paid for by the utility. This matter has been passed upon in former decisions and no discussion of it is necessary at this time. Other matters in question have been reviewed by the engineering staff of the Commission, but no changes have been made in the valuation as presented at the hearing. During the year ended June 30, 1912, there was added to the physical plant of the utility, according to the report filed for that period, property costing \$149.60, so that the cost new of the property is \$118,210. Adding the property put in during the year to the value in existing condition at the beginning of the year, gives a value in present condition of \$108,559. Depreciation during the year 1911-1912 makes the actual present value slightly less than this amount, but for practical purposes this may be considered the present value of the property.

With regard to non-physical elements affecting the valuation of the property the information available is unfortunately insuf-

ficient for use as a basis for very definite conclusions. The original ordinance relating to the construction of the water works appears to have been passed on Jan. 8, 1887. On Jan. 10, 1888, another ordinance was passed, in which the date for the completion of the water works system was fixed as Sep. 1, 1888.

The testimony indicates that the plant was built as a speculative venture and that it was far from a financial success during the first year of its operation. No records of actual operating conditions during these years have been available, but from the testimony it appears that bondholders were finally obliged to take over the property. Representatives of the utility admit that they have no means of determining the extent of the developmental costs or of the other losses during the period preceding the foreclosure, but for purposes of estimating the going value of the property they have included these losses at \$10,000.

An estimate of going value has been submitted on behalf of the utility, based upon the years from 1900 to 1910, inclusive. In making up this estimate the utility assumed a value of \$110,000 for the beginning of the year 1900, and that additions amounting to \$1,000 per year had been made to the property for each year since that time. Depreciation was included in the company's calculations of going value at \$500 per year, which is a conservative amount. It is not entirely clear whether or not operating expenses have been kept separate from construction expenses during all of this period, but apparently this has been handled correctly.

An allowance has been made by the utility of from \$2,400 to \$2,500 per year for administration expenses, i. e.: expenses of general officers, exclusive of all local employes including the manager. This amount seems unnecessarily high.

With regard to the number of consumers supplied no records are available prior to the year 1900. In 1900 there were 509 consumers, or one for 10 inhabitants. In 1910 there were 1,058 consumers, or one for 6.4 inhabitants. Population during this period increased from 5,128 to 6,758. The development of the business during these years appears to have been a steady one. Whatever the reasons may have been, the business was not well developed by 1900, although at the present time a high degree of saturation has been reached. In view of the situation as here explained, the lack of records relating to the earlier years of the business, the apparently speculative nature of the investment,

and the slight degree of development reached by 1900, it is not practicable to make any reliable estimate of going value for the utility. All that can be done in this direction is to determine the extent of the losses since 1900. Using the figures presented by the utility, except that administrative expenses are reduced to \$1,000 per year, and making the same assumption with regard to physical value we obtain the following results:

Year	Gross receipts	Total operating expenses	Physical value assumed	Rate of return. Percent
1900.....	\$11,607	\$6,055	\$110,000	5.5
1901.....	11,561	6,483	111,000	4.6
1902.....	12,316	6,387	112,000	5.1
1903.....	12,768	7,199	113,000	4.9
1904.....	12,738	7,353	114,000	4.7
1905.....	13,353	7,707	115,000	4.9
1906.....	13,496	7,463	116,000	5.2
1907.....	14,478	8,632	117,000	5.0
1908.....	13,353	8,618	118,000	4.0
1909.....	16,663	11,364	119,000	4.4
1910.....	17,910	10,761	120,000	5.9

According to this table the utility has been able to earn a return of about 5 per cent on the value of its property after making adequate provision for depreciation and for administrative expenses. Earnings have not been large enough to yield a profit.

The most recent report of the utility on file shows the total bonded indebtedness to be \$132,750, of which \$57,000 is in the form of 4 per cent bonds and the remainder draws interest at 5 per cent. The total amount of interest on bonds would be \$6,067.50, or the equivalent of 5.3 per cent on a value of \$115,000, the average value assumed by the utility for the period in question. From what has been presented it seems that the earnings of the utility have been somewhat less than sufficient to meet all expenses of operation and make adequate provision for interest and depreciation. The exact extent of the non-physical element which should be included in the valuation of the property because of this condition, however, cannot be stated and the final determination of value for purposes of rate making, in this case, will necessarily be partly a matter of estimate.

There is no information available as to the price at which the original bonds of the utility were sold. It seems, however, that these bonds were never redeemed at their face value, as the mortgage was foreclosed and the property taken over by the bondholders.

Bonds outstanding at present are in excess of the physical value of the plant, and of these \$60,750 are in the form of income bonds. Statements filed by the utility show that the consolidated mortgage 4 per cent bonds amounting to \$57,000 and the \$60,750 of income bonds were given to the holders of the securities of the old company and represent, as nearly as can be estimated, the par value of their investment in the property. The \$15,000 of first mortgage bonds were issued at the time of the reorganization to obtain money for construction work.

All of the information relating to bond discounts is so indefinite and so much a matter of guess work that no conclusions can be drawn as to the amount which should be allowed for this purpose. As far as available information goes, however, it appears that substantial justice will be done to all parties interested if the utility is permitted to earn a reasonable return upon an amount equivalent to the cost of reproduction of the property.

APPORTIONMENT OF PROPERTY.

An apportionment of the physical property of the utility, as between fire service and all other service, has been made following lines established in former cases. Following is a table showing the results of this apportionment:

APPORTIONMENT OF PROPERTY BETWEEN FIRE SERVICE AND DOMESTIC AND INDUSTRIAL SERVICE.

Classification.	Domestic and industrial.		Fire service.		Total.	
	Cost new.	Present value.	Cost new.	Present value.	Cost new.	Present value.
A. Land.....	\$217	\$217	\$118	\$118	\$335	\$335
B. Transmission and distribution.....	29,103	28,575	54,037	53,024	83,140	81,599
C. Buildings and miscellaneous structures.....	13,075	10,448	3,834	2,423	16,909	12,871
D. Plant equipment.....	1,849	666	2,660	941	4,509	1,607
E. General equipment.....	135	85	135	86	270	171
F. Paving.....						
Total.....	\$44,379	\$39,991	\$60,781	\$56,592	\$105,163	\$95,583
G. Add 12% (see note below)....	5,325	4,799	7,295	6,791	12,620	11,590
Total.....	\$49,704	\$44,790	\$68,079	\$63,383	\$117,783	\$108,173
H. Material and supplies.....	154	154	68	68	222	222
Total.....	\$49,858	\$44,944	\$68,147	\$63,451	\$118,005	\$108,395
J. Non-operating.....						
Total.....	\$49,858	\$44,944	\$68,147	\$63,451	\$118,005	\$108,395

NOTE:—Addition of 12% to cover engineering, superintendence, interest during construction, contingencies, etc.

With the addition of the property added during the past year, amounting to \$150, the apportionment is as follows:

	Cost new	Present value
Fire service.....	\$68,245	\$63,549
Other	49,910	44,996

OPERATING EXPENSES AND REVENUES.

An examination of the records of the utility was made by representatives of the Commission. Part of the records are kept at Beaver Dam and part at the general offices in New York. The inspection first covered such records as are kept at Beaver Dam and later supplementary records were submitted from the New York offices. With the exception of an error in reporting the earnings from street sprinkling for one year, and an apparent discrepancy of some forty dollars in operating expenses, the reports which have been filed by the utility appear to correctly represent the condition of the business. Following is a table showing revenues and expenses for the past three years:

	1910	1911	1912
OPERATING REVENUES:			
Commercial sales.....	\$10,036 98	\$11,862 08	\$11,459 00
Hydrant rentals.....	6,353 60	6,581 33	6,939 69
Street sprinkling (revised).....	212 70	262 50	275 00
Miscellaneous.....	206 78	61 00	158 90
Industrial sales.....			734 41
Total.....	\$16,809 86	\$18,766 91	\$19,567 00
OPERATING EXPENSES:			
Pumping			
Operating labor.....	\$560 00	\$637 58	\$630 00
Steam generated.....	3,759 24	3,964 79	4,221 71
Pump sta. sup. & exp.....	255 42	388 24	238 21
Maint. pump. sta. equip.....		698 99	
Maint. source of supply.....	531 01		
Distribution			
Supplies and expenses.....	923 36		
Maint. of mains.....			304 01
General			
Salaries.....	1,786 83	2,030 00	2,343 75
Supplies & expenses.....	200 00		
Miscellaneous.....		1,225 68	2,124 26
Total of above.....	\$3,065 86	\$3,945 28	\$3,891 94
Taxes.....	1,859 11	2,017 93	2,205 84
Total.....	\$9,924 97	\$10,963 26	\$12,037 78

Although there seems to be no reason to question the accuracy of the reports of the utility, as far as the total of operating expenses is concerned, it is true that expenses have not been properly distributed among the various expense groupings in accordance with the uniform classification of accounts prescribed by the Commission. As a result it is difficult to effect a comparison of detailed expenses of operation between different years of operation. As expenses are reported, there are certain classes, such as distribution expenses, which vary so greatly from year to year that it is impossible to settle upon one year as representative of the normal condition. The same is true of the maintenance items in the cost of pumping. In order to arrive at a normal amount for operating expenses upon which to base a schedule of rates, it will probably be best to use an average of such items for the entire three year period.

General expenses have increased very much during the period under consideration. These have not been properly itemized, and as a result it is difficult to apply any test of reasonableness to the expenses of a particular year. Undistributed expenses have apparently been listed as miscellaneous general expenses. An average of the general expenses as reported for the three years may be taken as a normal amount for general and undistributed expenses. For 1910 the amount of general expenses is rather low; for 1912 it is unusually high, but it is believed that an average of the reported general expenses will be fair.

With changes and adjustments as outlined above it seems that the expenses to be taken into consideration in connection with a rate case are substantially as follows:

Pumping		
Operating labor	\$660.00	
Steam generated	4,221.71	
Pump sta. sup. and exp.	238.21	
Maint. pump. sta. equip.	233.00	
Maint. source of supply.	193.67	
	<hr/>	
Total pumping		\$5,546.59
Distribution		
Supplies and expenses.	\$307.79	
Maint. of mains	101.34	
	<hr/>	
Total distribution		409.13
Total general		3,236.84
Total taxes		2,205.84
	<hr/>	
Total operating expenses.		\$11,398.40

The apportionment of expenses as between output and capacity is rendered difficult because of the fact that they have not been properly distributed among the various accounts in the reports of the utility. An apportionment has been made, however, as a result of such analysis of operating expenses as has been possible, which is sufficient for the purposes of this case. As a result of this apportionment we find that the capacity expenses form an unusually small part, 37.4 per cent, of the total, while output expenses constitute 62.6 per cent. The total of capacity expenses amounts to \$3,434.31, and of output to \$5,758.25. This does not include taxes, interest, or depreciation.

The relatively small part which capacity expenses fill is largely accounted for by conditions surrounding the operation of the steam plant. It appears to be the custom to keep fire under only one boiler, so that there is relatively little in the way of standby expenses for fuel, labor, or maintenance. Also, there are certain classes of fixed expenses which are usually found in the case of water utilities, such as expenses incurred in connection with the use of meters, the maintenance of services, and certain commercial expenses, which are either non-existent or very small in this case. As far as an apportionment can be made from such a distribution of expenses among the various accounts as the company has made in its reports, the figures shown above are fairly representative of the results.

SERVICE.

The complaint in this case alleges that the fire protection furnished by the applicant is insufficient. Testimony to substantiate this portion of the complaint was introduced at the hearing and from this testimony it seems clear that fire protection has not been adequate. This necessitated a fire test by members of the Commission's staff, but, owing to the difficulties involved in making such a test during the winter months, it was found necessary to postpone this part of the work for several months. When weather did permit of a test being made, the pressure of engineering work to be handled by the staff was so great that no test could be made until about the middle of July. Because of the importance of the service matters investigated it is thought best to reproduce here the greater part of the engineer's report upon the fire test, and it follows here:

Engineer's Report.

"The test which was requested in the petition filed by the Civic League of Beaver Dam and ordered by the Commission was made by members of the staff in coöperation with the water company and city authorities on Friday and Saturday, July 12 and 13, 1912.

"From two to four fire streams were drawn from the system in each of five separate localities, as follows:

"1. Spring street at intersections of Main street and De Clark street, or opposite the stove works. (1, 2, 3, and 4 streams, from two hydrants.)

"2. Vita street at intersections of Park ave. and E. Maple street. (1, 2 and 3 streams from two hydrants.)

"3. Front and Center streets. (1, 2, 3 and 4 streams from three hydrants.)

"4. South Center street, 600 block, opposite Malleable Iron Works. (1 and 2 streams from one hydrant.)

"5. Madison street at intersections of Greenwich street and Wall street. (1 and 2 streams from two hydrants on same 4 inch main, which is supplied from both ends.)

"In the case of each test one or more of the Commission's pressure recording gauges were connected to the hydrants in use and another of the gauges recorded the pressure at the pumping station, where one member of the staff was stationed to observe and record the state of the water supply, steam pressure, speed of pumps, etc.

"The city is not on perfectly flat or level ground, and therefore some of the difference between the water pressure observed at the plant and that at any hydrant would be due to a difference of elevation of the gauges, but probably in no case would that part of the difference amount to more than about 15 pounds, one pound corresponding to 2.31 feet, or one foot corresponding to 0.434 pounds. The relative elevations of the various gauges were not determined.

"The following table gives the principal facts in reference to each of the tests in the five localities, the numbers of these localities appearing in the left hand column, and corresponding to the numbers given to the locations hereinbefore described:

Lo- ca- tion No.	No. of streams running one time each through 100' of hose	Approx. press. at pumping sta.	Simul- taneous press. at hydrant	Est. discharge of streams in gals. min.	Effective height of streams, approx.	Character of build- ing in this locality.
1	1	80	54	194	67	See note below (1).
	2	77	41	340	55	
	3	84	34-35	465	47	
	4	75	27-28	585	37	
2	1	80-85	48-52	190	65	See note below (2).
	2	78	42-44	348	57	
	3	71-72	33	456	45	
3 ¹	1	71	49	179	62	See note below (3).
	2	72	46-48	350	60	
	3	70	43-45	516	57	
	4	47 (standpipe)				
4	1	77	68	211	73	See note below (4).
	2	79	55	380	67	
5	1	75-81	42-47	165-175	55-60	See note below (5).
	2	64	32	286	43	

"(1) One story brick factory building covering large area and reported to be protected by automatic sprinkler system. Small medium, frame residences of moderate cost, with good spaces between. Heights $1\frac{1}{2}$ - $2\frac{1}{2}$ stories.

"(2) All good to first class residences, medium to large, not closely built. Height 2 and 3 stories.

"(3) Center of retail business district. Compactly built brick and frame buildings, generally two stories high—few have three stories.

"(4) Small frame residences fairly well separated, also some low brick buildings of large areas, being the Malleable Iron Works, located several hundred feet from hydrant used in this test.

"(5) Small frame residences and stores; brick building of two extra deep stories (equivalent in height to about three average stories) occupied by a brewery. Three or four blocks on this street are served by 4" main supplied from both ends.

"*Water Supply.* This consists of three 6" drilled wells ranging in depth from 308 to 504 feet, which flow into two circular reservoirs, one 50 and one 20 feet in diameter. It is not known that any tests have been made to determine the yield of the wells. The tendency toward an increased flow from the wells, produced by the lowering of the water level in the reservoirs or the head against which the flow takes place, will be offset and neutralized at some point by the increased resistance to flow in the well casing.

"During the first test the reservoir supply (large reservoir only) was lowered about $13\frac{3}{4}$ " in one hour and eight minutes, leaving a water depth of about 3.6 feet over the lower end of the suction pipe.

"During the second and third tests, between 2:00 and 3:35 p. m., the supply in the large reservoir was lowered about $19\frac{5}{8}$ ", leaving a water depth of about 1.7 feet over the lower end of the suction pipe.

¹ During test No. 3 the lead packing was blown from a pipe-joint in the pumping station, necessitating the stopping of the pump and the postponement of the remaining tests until the following day, after the joint was repacked.

On Saturday morning, between 8:30 and 10:15, the same supply was lowered about 23½", leaving about 2.6 feet of water within reach of the pumps.

"The small reservoir was not drawn upon during the tests herein referred to, but its capacity is not great. With ten feet depth of water in this reservoir over the bottom of the suction pipe it would furnish 1000 gallons per minute (or the rated capacity of one pump) for about 25 minutes.

"It therefore appears that a serious fire of long duration, occurring simultaneously with heavy domestic use of water, is likely to exhaust the water supply within a comparatively short time.

"Distribution System. At the time the valuation of the property (August 1911) was made, the cast iron pipe lines on which hydrants were located aggregated 81,099 lin. ft. of 4-inch and larger sizes, of which only 7,722 lin. ft., or 9.54 per cent, was 4-inch pipe.

"The system includes 1.3 miles of 12" line, which conveys the water from the pumps to near the center of the city, the greater portion of this line lying in an almost wholly unsettled district.

"The delivery of water through this 6,860 feet of 12" pipe at a rate equivalent to the rated capacity of one of the two pumps will involve a loss of pressure from friction in the line amounting to a little over 10 pounds per square inch. The pressure loss from friction in the same when both pumps are discharging through it at their combined rated capacities (one and one-half million gallons daily, each) will be 31 pounds or more per square inch, exclusive of that due to turns, and perhaps as much as 15 pounds or more due to difference of elevation. The pressure against which the pumps operate in case of fire should be considerably higher than that during the record tests, especially when the demand is relatively large, requiring more than the rated capacity of one pump, or more than 1,000 gallons per minute.

"With the exception of the fifth test,—on Madison street, served by a 4" pipe,—it is felt that the recent tests showed fairly satisfactory service so far as the carrying capacity of the mains was concerned, considering the probable requirements of the fire department in case of fires in these localities.

"The fire department carries six nozzles and about 2,700 feet of 2½" hose which is an average of 450 feet for each of six leads. Except in case of a bad fire in the retail business district or the occurrence of a general conflagration, it does not appear probable that six strong streams would be required at one time. The city has no steam fire engines and relies entirely upon the water works for pressure as well as water supply.

"The spacing of hydrants is good along the principal business street but in some other sections hydrants are not as convenient as might reasonably be desired. The staff's valuation of August 1911 shows 146 hydrants on 81,099 lin. ft. of mains 4" and larger, averaging one for each 555 feet of mains.

"Where the nearest hydrants are at long distances from a fire and the water is carried through long single lines of 2½" hose, as is the practice in Beaver Dam, there is a large loss of pressure in the hose, which can be greatly reduced by using siamesed lines. The loss in 2½" siamesed lines is only 27 to 28 per cent of that in single lines for the transmission of any quantity of water from the hydrant to the nozzle. The fire department as yet has no siamese connections.

"The city has no fire alarm system other than the telephone company's service and the bell in the city hall tower. During the night of Friday, the 12th of July, an electrical storm crippled the telephone service and prevented communication of the fire alarm to the pumping station, and resulted in a failure to get fire pressure. It is not unlikely that other circumstances may also cause serious delays to telephone transmission of a fire alarm.

"The fire department organization is what is called the 'volunteer' force, the men being engaged in other occupations when not serving at a fire. This doubtless results in more delay in reaching and killing a fire than if at least a part of the force were regularly stationed in the department headquarters, ready to leave with the hose wagon at a moment's notice.

"*Pumping Station.* Only one of the two pumps was operated during the tests and it appears that only one can be operated at a time under service conditions, owing to the lack of sufficient boiler capacity."

The following is quoted from the report from the member of the staff who was stationed at the pumping station during the tests:

"The writer was stationed at the pumping station during these tests and took observations at short intervals of the boiler pressures, speed of the pumps, water level in well and the general conditions of the equipment.

"A careful study of the station equipment and some calculations made since have convinced the writer that the boiler capacity is very much below requirements. There are 2 boilers in the plant each 56" diameter by 16 ft. long with 62 3½" flues. These are rated at about 70 to 75 h. p. each and have a heating surface of approximately 850 square feet each. At maximum economy, 3 lbs. of water can be evaporated per hour for

each square foot of heating surface, or 2,550 lbs. of water can be evaporated per hour by each boiler.

"There are 2 Worthington pumps in the station; one an 18½" x 12" x 10" simple horiz. plunger and ring type and the other one the same except that it has a 12' high pressure cylinder added. These pumps are rated at 1½ million gallons per 24 hours each.

"Assuming that the steam in the cylinder is at 70 lbs. pressure and that admission takes place during the complete stroke, it is found that it takes 5,240 lbs. of steam to run the simple pump one hour at 70 strokes per minute, which was about the average number of strokes made during the tests, steam weighing about .2 lbs. per cu. ft. at 70 lbs. pressure.

"It therefore takes the full capacity of the two boilers to furnish steam for one pump. There should be enough boiler capacity to run the two pumps at the same time in case of emergency. The pumps seem to be of ample capacity if they were in good operating condition.

"The following formula, taken from Kent's handbook, gives a water pressure of 117 lbs. per sq. in. instead of the 70 lbs. to 80 lbs. actually obtained.

$$p = \frac{EAP}{a}$$

"Where p = resistance against water cyls. E = efficiency of pump. A = area of steam cyl., a = area of water cyl. and P = pressure of steam, or

$$p = \frac{.7 \times 268.8 \times 70}{113} = \text{approx. } 117$$

"As the greatest pressure obtained during any of the tests was about 85 lbs., it shows that there were excessive losses at the pumps due to leakage and slip.

"The compound pump was only operated for a few minutes during the test. The engineer in charge stated that it was in such condition that it would not carry a fire pressure at all."

As a result of the fire test described above it became evident that extensive improvements were necessary in the plant of the utility, and the company was asked to submit any plans which were being considered for such improvements. The Commission's engineering staff has made a careful study of the situation, with reference both to the needs of the service and the improvements proposed by the water company, and has submitted a report outlining the extent and nature of improvements necessary and the

estimated cost of such improvements, from which we quote the following:

- “The improvements needed or contemplated are as follows:
- “1. Replacement of both boilers with larger ones.
 - “2. Replacement of one pumping engine with larger one.
 - “3. Replacement of steam piping.
 - “4. Replacement of 12" with 14" suction piping.
 - “5. Replacement of feed water heater and boiler feed pump.
 - “6. Replacement of some 4" mains with 8".
 - “7. General installation of meters.

“The estimated costs of the new items enumerated above, and the values of displaced equipment as taken from the staff's report on valuation of the physical property are shown below:

	Estimated cost of new installation.	Valuation of property displaced.		A—B	A—C
		New	Present value.		
	(A)	(B)	(C)	(D)	(E)
1.....	\$2,990	\$1,860	\$525	\$1,130	\$2,465
2.....	5,500	960	417	4,540	5,083
3.....	800	259	87	541	713
4.....	417	337	329	80	88
5.....	323	111	29	212	294
6.....	2,400	1,281	1,259	1,119	1,141
7.....	10,000	.....	.....	10,000	10,000
	\$22,430	\$4,808	\$2,646	\$17,622	\$19,784

“There appears to be more uncertainty about the cost of a general installation of meters than about any of the other items. This is due to the variation in prices of different makes and to the various methods of setting or installing the meters in service pipes. The total cost of meters installed will also depend upon the percentage of the total number of consumers to be supplied with meters, and upon other conditions impossible to determine in advance. It will not be surprising to see the actual cost of meters vary 25% either way from the above estimate.

“Item No. 6 in the above tables is one not yet understood to have been definitely determined upon by the company. It is, however, understood that the company realizes the existence of a deficiency in capacity of mains leading to and serving the southwestern part of the city where a fire stream test was recently made with unsatisfactory results. In view of the fact that the cross connection on Chatham street, between South Center and Madison streets is but 4" pipe it appears that the 4"

line on Madison street north of Chatham should be replaced with 8", especially if there is any indication of a material growth of the city in that direction."

A careful consideration of the condition prevailing in Beaver Dam has led us to conclude that the schedule of rates finally fixed in this case should be made with reference to conditions as they will be when the improvements and additions are made. From the table shown above it will be seen that the property to be displaced has a cost of reproduction of \$4,808 and a present value of \$2,646. When the changes are made, therefore, the cost new and present value of the total property will be increased \$17,622 and \$19,784, respectively, and the respective totals, with the addition of 12 per cent for interest during construction, contingencies, etc., will be \$137,892.42 and \$130,703.00.

Owing to the fact that all meter expenses may best be regarded as consumer expenses, it may be best to deal with the cost of installing meters separately from the rest of the valuation. Excluding the cost of meters, including the 12 per cent overhead, the cost new and present value of the property will be respectively \$126,692 and \$119,503. With the additions, exclusive of meters, charged entirely to the fire service the results would be as follows:

	Cost new.	Present value.
Fire service.....	\$76,782	\$74,507
Other service.....	49,910	44,996

EFFECT OF IMPROVEMENTS IN PLANT UPON OPERATING EXPENSES.

As stated earlier in this decision, a normal amount for operating expenses as the plant is run at present, appears to be about \$11,398.40, including taxes but not including depreciation and interest. With the change in operating conditions it is to be expected that there will be a number of changes in expenses of operation. The nature and extent of these changes, as estimated by the company, are stated in a letter filed with the Commission on Sept. 18, 1912. The following is quoted from that letter:

"1. The wages now paid are abnormally low on account of the special conditions of the plant. When the new machinery

is installed the company expects to pay \$40 per month for increased payroll at the pumping station.

"2. The installation of meters will make it necessary for the local manager to have an office clerk and a regular 'street man,' in addition to his present staff. This will add \$90 per month to the operating expenses.

"3. The installation of meters will make it necessary to rent a ground floor office and workshop for testing and repairs. This will add about \$20 per month to the operating expense account.

"4. Up to the present time the charge made for office salaries, central office expense and administration have been abnormally low. We think that an allowance of \$2,500 for office salaries and clerk hire should be allowed and \$1,200 for central office expense and administration. This will make an increase in the operating expense amounting to approximately \$1,600 per year over and above the present charges."

There is no question but that the installation of meters will increase the operating expenses. The amount to be allowed for this change will be discussed later in this decision. At this point it is essential that we estimate the other changes which will be occasioned by the improvement contemplated. These are practically all expenses of pumping, as the change in central office expenses, if any, except as occasioned by the introduction of meters, will not be related to the changes in equipment.

Normal expenses of pumping were estimated above at \$5,546.59, of which \$4,221.71 is the cost of steam generation. The cost of steam generation is as reported for the last fiscal year, but the total cost of pumping, as estimated, is \$426.67 above the reported expenses for the past year, due to the inclusion of certain items of expense which do not appear in the 1912 report, but which may be expected under normal conditions.

The total operating labor cost at the pumping station was \$1,320.00, and the cost of fuel was \$3,261.87. The inspection by the Commission's engineers showed that the present conditions of pumping result in a wasteful use of steam and fuel, and it is expected that the installation of new boilers and of new and improved type of pumps will materially reduce the cost of fuel. Just the extent of this reduction cannot be stated at this time, but it will probably be sufficient to offset any increased cost of labor at the pumping station. The maintenance expenses included in the estimate, shown earlier in this decision,

may be affected somewhat by changed conditions, but they are believed to be placed at a high enough figure.

General expenses are estimated by the company at \$3,700.00 per year. The Commission's estimate, shown above, which was used tentatively in making the apportionment of expenses, was \$3,236.84.

Comparative methods are of little value in fixing the normal amount of general expenses, as there are very few privately owned water utilities in the state which are comparable with the Beaver Dam utility. Leaving out of consideration expenses which are entirely due to meters, and considering that no report has been made of undistributed, as distinct from general expense, the estimate of \$3,236.84 does not seem to be far from correct.

This brings us to the consideration of the operating expenses which will be engendered by the adoption of a general meter system. These are expenses connected with the meter and fittings department, the reading and maintenance of meters, and the office work connected with the meter system. The utility's estimate places the amount of such expenses at \$1,320 per year, which apparently does not include supplies connected with the meter system. Including these, the total, according to the company's estimate, would not be far from \$1,500 per year.

Another method of estimating these expenses is by a comparison of the amounts expended by other utilities in connection with the use of meters. The classification of accounts for class A water utilities provides for a complete segregation of meter expenses. The difficulty connected with the use of the reports of class A utilities for comparative purposes, however, arises from the failure of some of these utilities to comply fully with the requirements of the classification. Comparative figures, taken from the 1911 reports of such class A utilities as had between 400 and 2,000 meters in use, show a total meter expense of from \$0.04 to \$1.57 per meter. In some cases meters are read each month instead of each quarter, and expenses are increased as a result. Consequently the comparative method of determining meter expenses is not altogether reliable, but so far as it may be accepted as indicative of actual costs, it indicates that about \$1.00 per meter per year will be required to meet the meter expenses in Beaver Dam.

Consumer Statistics. A record was obtained on Dec. 15, 1911, of all consumers connected on that date. The following table shows the number of consumers of each class and the number and nature of fixtures supplied, with the exception of such consumers as were supplied at special rates:

CONSUMERS SUPPLIED AT REGULAR RATES.

Class	No. of consumers.	Faucets.	Yard hydrants.	Baths.	Beer pump motors and lifts.	Wash basins.	Water closets.	Hose.	Boilers.	Cows.	Horses.	Laundry tubs.	Gas mch.	Urinals.	Miscellaneous.
Residences.....	991	993	4	55	127	113	627	69	6	3	56	7	3	.....	3
Stores.....	46	45	.....	.....	2	7	37	2	1	.....	3	.....	1	.....	2
Saloons.....	29	37	.....	.....	9	4	33	1	.....	.....	5	.....	1	.....	2
Offices.....	27	22	.....	.....	2	14	24	.....	.....	.....	12	.....	.....	.....	8
Churches.....	4	2	.....	.....	.....	2	3	1	.....	.....	.....	.....	.....	.....	.....
Clubs.....	6	6	.....	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....
Boarding houses.....	2	3	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
Theaters.....	2	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Factories.....	7	3	.....	.....	.....	6	3	.....	.....	.....	.....	.....	.....	1	1
Miscellaneous.....	4	2	1	.....	.....	3	6	.....	.....	.....	2	.....	1	.....	3
Total.....	1,118	1,122	5	55	140	152	745	75	8	3	68	7	6	20	20

In compiling the above table careful examination was made of the records in order to determine whether rates are discriminatory, as charged in the complaint. In the case of six dwellings it was admitted by the utility that the full scheduled rates had not been charged. It appeared from the records that there were some other discriminations among residence users, but as the consumer's ledgers did not show the number of families or tenants supplied through each service pipe it has not been practicable to determine to just what extent the schedule is violated. The actual extent of discriminations is not of so much importance, for purposes of this case, as the fact that some discriminations have been practiced. These must be discontinued and the schedule of rates as finally fixed by this decision must be strictly adhered to.

There are a number of consumers supplied at special rates, in most cases because the present rate schedule fails to provide for them. The following table shows the nature, and number, and the annual revenue from such consumers:

CONSUMERS SUPPLIED AT SPECIAL RATES.

Class.	Number.	Annual charges.
Schools	3	\$270 00
Barber shops	4	64 00
Church	1	18 00
Hotels	3 and 1 saloon	159 00
Dwellings	7	89 00—1 free
Mfg. establishments	10	755 00
Offices	1	20 00
Barns	6	122 00
Garage	1	10 00
Armory	1	14 00
Library	1	15 00
Pastures	3	10 00—1 free
Laundry	1	36 00
Printing shop	1	15 00
Photo galleries	2	16 00
Meat market	1	10 00
Green house	1	10 00
Bakery	1	19 00
Blacksmith shop	1	4 00
Fair grounds	1	35 00
Lodge hall	1	18 00
Store	1	10 00
Total.....	52	\$1,719 00

The free list at Beaver Dam includes four schools, four public drinking fountains, and the city hall. Street sprinkling is paid for at the rate of \$37.50 per month for three wagons. Only a small amount of water seems to be used for flushing sewers.

Besides the consumers mentioned above there were on Dec. 15, 1911, three meters in use, for which various rates were charged. The facts concerning these meters were as follows:

1. $\frac{5}{8}$ " meter supplying four apartments. 122,000 gallons used in nine months.
Rate—35 cts. per 1,000 gallons.
2. $\frac{5}{8}$ " meter supplying Beaver Dam Cement Block Works. 78,225 gallons used in five months.
Rate—15 cts. per 1,000 gallons.
3. $\frac{5}{8}$ " meter supplying Beaver Dam Malleable Iron Co. 72,260 cubic feet used in ten months.
Rate $7\frac{1}{2}$ cts. per 100 cubic feet, or 10 cts. per 1,000 gallons.

Because of the imperfect manner in which the consumer's ledger is kept it is impossible to state the actual number of consumers supplied, but the records do show the total number of service connections on which meters would have to be installed. As the report for the fiscal year from June 30, 1911, to June 30, 1912, has been used to a considerable extent in determining the

estimated normal operating expenses, it seems fair to use the consumer statistics of Dec. 15, 1911, which represent substantially the average conditions for that year. According to these statistics a total of 1,182 meters would be required.

The utility has been unable to furnish any record of the size of service connections, so that we have no means of stating exactly how many meters of each size will be required. Some light may, however, be thrown upon this by an examination of the records of other utilities. The following shows the number of meters of each size of two water utilities in the southern part of the state, where all consumers are supplied through meters, and where the total number of consumers is nearly the same as at Beaver Dam:

	½"	¾"	1"	1½"	2"	3"	4"	8"	Total.
A	1,041	21	11	2	5	...	1		1,082
B	1,410	.....	9	7	6	3	.....	1	1,435

These show that only a few of the larger sizes of meters will probably be installed. If interest, depreciation, and taxes are based upon the estimated cost of each size of meter, it is not essential that we know the exact number of each size, although that information would aid in estimating the amount of water used.

Amount of Revenue to be Obtained from Each Class of Service: As stated above, the capacity expenses amount to \$3,434.31, and output expenses amount to \$5,758.25. Capacity expenses are unusually low, because of the conditions under which the plant has been operating. Some changes will probably occur when the improved fire service is installed, but it is doubtful whether the increase of capacity expenses will reach a very large amount. Capacity expenses, amounting in all to \$3,434.31, have been apportioned between fire and general service along lines outlined in former decisions. According to this apportionment the fire service should be charged with \$1,769.46 of capacity expenses and the remainder, amounting to \$1,664.85, should be borne by the general service.

In the last apportionment, shown on an earlier page, of the property of the utility, as between the two classes of service, it

was assumed that, because all of the contemplated improvements except the meters are resulting directly from the deficiency in the fire protection, all of the improvements should be charged to the fire service. This basis is not strictly accurate, as part of the improvements are of such a nature that they will work an improvement in the general service, especially as this branch of the service develops. Instead, therefore, of an apportionment of property as referred to above, the final apportionment will be as follows:

	New.	Present value.
Fire.....	\$73,367	\$70,124
General.....	53,325	49,379

With interest and depreciation computed at the rates shown below, upon an amount equal to the cost new, the amounts due to each class of service are as follows:

	Interest and depreciation at	
	7 per cent.	8 per cent.
Fire.....	\$5,135 69	\$5,869 36
General.....	3,732 75	4,266 00

Taxes may be apportioned according to the value of the property. Assuming that taxes will be increased proportionately to the increase in value of the property, the amount chargeable to each class of service will be as follows:

Taxes.

Fire	\$1,369.14
General	995.52

The amount of output expenses chargeable to fire service is so small as not to have any material bearing on the conclusions in this case.

The total cost of each class of service, therefore, is made up as follows:

1. *With Interest and Depreciation at 7%*

	Fire.	General.
Capacity.....		
Output.....	\$1,769 46	\$1,664 85
Interest and depreciation.....	5,135 69	5,758 25
Taxes.....	1,369 14	3,732 75
		995 52
Total.....	\$8,274 29	\$12,151 37

2. *With Interest and Depreciation at 8%*

	Fire.	General.
Capacity.....		
Output.....	\$1,769 46	\$1,664 85
Interest and depreciation.....	5,869 36	5,758 25
Taxes.....	1,369 14	4,266 00
		995 52
Total.....	\$9,007 96	\$12,684 62

According to these computations the cost of furnishing fire protection will be considerably greater than the present revenue from that service. The revenue from general service for the past fiscal year was \$12,627.31, or very nearly the cost of that service on an 8 per cent interest and depreciation basis. The costs shown above do not include the amount which should be added for meter expenses, neither do they contain the interest and depreciation upon meters.

Interest, depreciation, and taxes which are properly charged against the general service have been apportioned between capacity and output on the basis of the apportionment of the total direct operating expenses, and the results are shown below:

	Capacity	Output
Taxes & 7 per cent int. & depr.....	\$1,768 37	\$2,959 90
Taxes & 8 per cent int. & depr.....	1,967 81	3,293 71

The total expenses of general service, excluding meter expenses, as divided between capacity and output are as follows:

	Capacity	Output
With 7 per cent int. & depr.....	\$3,433 22	\$8,718 15
With 8 per cent int. & depr.....	3,632 66	9,051 96

As stated in the memorandum quoted above, the exact cost of installing meters cannot be stated in advance, but the following appear to be fair prices for meters installed under the conditions which will be met in Beaver Dam.

The table following also contains the statement of interest and depreciation, at 12 per cent of the cost of meters:

Size	Cost in place	Interest & depreciation
1".....	\$8 00	\$0 96
3".....	12 00	1 44
1".....	16 00	1 92
1½".....	32 00	3 84
2".....	50 00	6 00
3".....	90 00	10 80
4".....	180 00	21 60
6".....	360 00	43 20

The foregoing costs are based upon the assumption that the meters to be installed will be chosen from the types in general use, for which the prices shown are reasonable.

There is no information available for the purposes of this case which will enable us to distribute the cost of maintaining meters among the different sizes. It will be sufficient, however, for our purposes to distribute these equally, as a consumer expense, among all meters. The following table shows the estimated meter costs per meter, which must be provided for by the rate schedule, in addition to the capacity and output expenses determined above:

Size.	Interest and depreciation.	Taxes.	Consumer expenses.	Total per meter.
¾".....	\$0 96	\$0 12	\$1 00	\$2 08
3".....	1 44	17	1 00	2 61
1".....	1 92	23	1 00	3 15
1½".....	3 84	46	1 00	5 30
2".....	6 00	72	1 00	7 72
3".....	10 80	1 30	1 00	13 10
4".....	21 60	2 60	1 00	25 20
6".....	43 20	5 20	1 00	49 40

The total expenses of general services, under a meter system, include meter expenses as shown above and capacity and output expenses, amounting to \$3,433.22 or \$3,632.66, and \$8,718.15 or \$9,051.96, respectively, depending on whether interest and depreciation are computed at 7 per cent or at 8 per cent of the value of the property.

Rate of Return to be Used in Determining the Rates for General Service: It is believed that 7 per cent of the cost of the property constitutes as large an allowance for interest and depreciation to be used in this case in fixing rates for general service as the conditions under which the utility is operating warrant. This does not mean that the utility should never be allowed to earn a somewhat higher rate. As pointed out above, the consumer statistics which are used in this decision represent conditions as of Dec. 15, 1911, or very nearly at the middle of the last fiscal year. The report of the utility, as of June 30, 1912, showed a total of 1,244 consumers, public and private, so that the actual number of consumers at present is higher than indicated by the data tabulated above. The effect of these added consumers will be to materially increase the revenues of the utility. It is to be expected that they will also have an effect upon the expenses but these will not increase in the same ratio as the number of consumers increases.

The net result of this growing condition of the business will be to increase the net earnings of the utility and make the actual rate of return somewhat higher than the rate as indicated by the use of average conditions for the past fiscal year as a basis for rates for general service. Consequently it is believed that rates computed on the basis of a 7 per cent allowance for interest and depreciation will really yield a rate of return somewhat above this amount, and 7 per cent seems to be a sufficiently high rate for use in our computations. That is, the total expenses upon which rates for general service should be based consist of consumer expenses as shown above and capacity and output expenses of \$3,433.22 and \$8,718.15, respectively.

As there are only three meters in use it becomes necessary to estimate the amount of water which will be used when meters are generally installed. For this purpose the pumpage reported by the utility is practically worthless. The natural effect of the use of meters will be to decrease the amount of water used to such an extent that no conclusions can be drawn from the present indicated pumpage. The best that can be done in this matter is to estimate the amount of water which will be used. The following table shows the actual use of water through meters for a number of Wisconsin cities where practically all consumers are supplied on a meter basis:

Location	Year of report	1910 population	Consumers average for year	Metered consumers average for year	Per cent of consumers on meter basis	Gallons per year sold through meters	Gallons per yr. through meters per metered consumer	Gallons per day per metered consumer through meters
Berlin.....	1912	4,636	539	382	71	14,950,000	39,000	107
Burlington....	1912	3,212	595	595	100	29,748,000	50,000	136
Jefferson.....	1911	2,582	374	370	99	18,533,000	50,000	137
Sparta, excluding 2 railroads....	1912	3,973	405	372	91	28,461,000	77,000	207
Watertown....	1912	8,829	1120	1120	100	234,429,000	211,000	576
Waukesha....	1912	8,740	1539	1539	100	67,240,000	44,000	120

It will be noted that in four of the cities listed above the actual use of water by metered consumers is from 107 to 137 gallons per day per metered consumer. The use of water in Sparta and Watertown is much greater. No analysis of local conditions in Beaver Dam can enable us to state in advance of the actual use of meters, how much water will actually be used through meters. There are some features of the situation, however, which do have a bearing and which should be given proper weight.

The manufacturing industries of the city are of considerable importance. Although nothing as to the actual amount of water to be used by factories can be stated now, it is only reasonable to suppose that a well developed manufacturing center will use more water than a city which is not industrially developed. The residences, in general, appear to be of a class which will use a large amount of water, as they are well equipped with fixtures for the use of water. In the 991 residences whose fixtures are tabulated above, there were 627 water closets and 127 water lifts for pumping soft water.

In view of the conditions pointed out it is believed that rates based upon an estimated use of 140 gallons per meter per day, or a little less than that amount per consumer supplied through meters, will be reasonable. This is equivalent to an annual consumption of 61,109,400 gallons by metered consumers.

There are some phases of the situation which seem to indicate that the consumption will be higher than this. The rates for metered service, as fixed by this decision, must be understood to be tentative in nature. It is not at all improbable that experi-

ence will show that such rates will need revision, but what must be done here is to determine, as nearly as possible under the circumstances, what rate may be adopted for metered service during this period of trial, which will not be likely to work injustice either to the utility or to consumers.

Besides the use of water estimated above, the amount used for sprinkling streets and flushing sewers must be considered. The amount of water used for these purposes appears to be in the neighborhood of 7,000,000 gallons per year, but may be even more than this amount. At this rate the \$275 paid by the city for street sprinkling would be equivalent to a trifle less than 4 cts. per thousand gallons.

When water for these purposes is used under proper supervision it may justly be sold at a rather low rate, as it has little if any effect on capacity expenses. The utility estimates that only $1\frac{1}{2}$ cts. per thousand gallons is obtained at present for the water used for street sprinkling, but we have not been furnished with the basis of this estimate. The amount which the utility considers reasonable for this purpose is 6 cts. per thousand gallons. With an estimated use of 7,000,000 gallons this would cost the city \$420 per year.

The city has four drinking fountains for which no charge is made at present. If these are metered the cost of water to the city may be large, but this can be overcome to a great extent by equipping the fountains with automatic shut-offs.

Assuming a total use of water amounting to 68,000,000 gallons, the output cost will amount to 12.82 cts. per thousand gallons. Capacity expenses, if distributed over 61,000,000 gallons would average 5.63 cts. per thousand gallons.

If water rates are made in the form of a service charge and a charge for each unit of water used, independent of the service charge, the service charge should be sufficient to cover the consumer expenses and part of the capacity expenses. With annual service charges as outlined below, the amount of consumer and capacity expenses which the service charge will provide for each size of meter, is as shown below:

Size.	Consumer expense.	Service charge.	Capacity expense.
½ "	\$2.08	\$4.00	\$1.92
¾ "	2.61	6.00	3.39
1 "	3.15	8.00	4.85
1½ "	5.30	12.00	6.70
2 "	7.72	20.00	12.98
3 "	13.10	30.00	16.90
4 "	25.20	50.00	24.80
6 "	49.40	100.00	50.60

In order to determine how much of total capacity expenses would be met by service charges as outlined above, it becomes necessary to estimate the number of meters of each size which will be found necessary. Assuming that the distribution of meters by sizes is about the same as for the two cities for which the distribution has been published above, which seems to be a reasonable assumption, the number of meters of each size and the total amount of capacity expenses which would be covered by the service charge are as shown in the following summary:

Size.	No. of meters.	Capacity exp. per meter.	Total capacity expense.
½ "	1,148	\$1.92	\$2,204.16
¾ "	10	3.39	33.90
1 "	10	4.85	48.50
1½ "	3	6.70	33.50
2 "	5	12.28	61.40
3 "	2	16.90	33.80
4 "	1	24.80	24.80
6 "	1	50.60	50.60
			\$2,490.66

Even if the number of meters of each of the larger sizes should vary a little from the number given here, the total of capacity expenses to be met by the service charge will not be very much affected by that fact. If service charges are fixed as outlined above, therefore, it appears that about \$942.56 of capacity expenses must be met by the charge for water. This, with output expenses of \$8,718.15, makes a total of \$9,660.71 to be met by the charge for water used.

The rate for water used for sprinkling streets, although rather low, does not seem to be so low, in view of the circumstances under which the water should be used, as to be actually unreasonable and we do not believe that this rate should be changed at

the present time. Neither does it appear necessary to change the rates for water used for building purposes. Under proper regulations this water will in the future be used through meters and will be paid for at the regular meter rates.

These two classes of service provided a total revenue, during the year ended June 30, 1912, of \$433.90. If this remains the same it will leave \$9,226.81 to be obtained from the charge for water, or 15.12 cts. per thousand gallons of estimated sales.

Another difficulty in the way of fixing a schedule of meter rates is that there is very little to indicate what proportion of the water used will come under each step of the rate schedule. A schedule for Beaver Dam may well provide for a primary rate applicable to the first 1,000 cubic feet per quarter, a secondary rate for the next 4,000 cubic feet, and rates for the next 20,000 cubic feet, and for the excess or the amount above 25,000 cubic feet per quarter. As careful an estimate as circumstances permit seems to indicate that about 3,500,000 cubic feet per year will be used under such a primary rate, but for the other steps no estimate can be made with any assurance of accuracy. It may not be very far wrong, however, to assume a distribution as shown below, with the amounts used expressed in terms of cubic feet instead of gallons:

Used in first 1,000 cu. ft. per quarter.....	3,500,000 cu. ft.
Used in next 4,000 cu. ft. per quarter.....	2,000,000 cu. ft.
Used in next 20,000 cu. ft. per quarter.....	1,000,000 cu. ft.
Excess	1,655,000 cu. ft.

If this distribution is in error it probably is because of an excessive amount having been assumed in the "Excess" group. The effect of such a condition would be to make estimated revenues somewhat lower than actual earnings, so that the following statement of revenues from the charge for water is probably conservative. If the distribution of sales is about as shown above, the revenue from the charge for water will be as follows, if rates are as indicated:

3,500,000 cu. ft. at 14 cts.	\$4,900.00
2,000,000 " " 12 cts.	2,400.00
1,000,000 " " 9 cts.	900.00
1,655,000 " " 7 cts.	1,158.50
Total	<u>\$9,358.50</u>

This total is very near the amount determined above, which should be obtained from the charge for water.

As stated above, there is very little to indicate what the actual division of sales will be and experience may show that the actual division is considerably different from that assumed here, but it is believed that the total revenue from the charge for water will not be very far from the amount which should be derived from that charge. It should be understood that rates as fixed in this decision are tentative. The computations in this case have been too much matters of estimate, for us to expect that rates which can be fixed now will answer the needs of the situation at Beaver Dam permanently, but if experience shows that the rates named in the order are either excessive or inadequate, the Commission will make such revisions of the order as experience shows to be necessary.

The actual revenue will probably be above the amounts arrived at in our estimates, because the extension of the service to new consumers takes place more rapidly than the increase of operating expense, but as our estimates have been based upon an allowance of only 7 per cent for interest and depreciation, such increase of revenues as is occasioned by the increased number of consumers is not likely to make the total revenues excessive.

If it shall appear that there are certain classes of consumers whom it would not be advisable to meter, the Commission will entertain a motion for the modification of that portion of the order which relates to the general installation of meters.

Improvements in the plant which will enable the utility to furnish adequate fire service should be made within a reasonable time, and these improvements should follow the suggestions of the Commission's engineers as outlined in the memoranda quoted above.

An annual charge of \$8,500 to the city for fire protection is considered reasonable. This will meet the operating expenses of the service and provide a return of about $7\frac{1}{3}$ per cent for interest and depreciation. With conditions as they exist at Beaver Dam this rate of return appears to be as high as the service should reasonably produce.

Estimate of Probable Revenue: With consumers connected, as of Dec. 15, 1911, the probable revenue would be as follows:

From fire service	\$8,500.00	per year
From street sprinkling	275.00	"
From water for construction.....	158.90	"
From metered sales:		
1. Service charge	2,490.66	"
2. Charge for water.....	9,358.50	"
Total	<u>\$20,783.06</u>	"

Meter consumer expenses have not been included in our statements of expenses, and so much of the revenue from the service charge as is necessary to meet these expenses has been excluded from the statement of earnings. These amounts balance, so that their exclusion does not affect the relation of earnings to expenses as shown above,

IT IS THEREFORE ORDERED:

I. That meters be placed on all services and bills rendered quarterly in accordance with the following schedule.

A. *Service Charges*—One consumer on a meter:

5/8" meters—\$1.00 per quarter.

3/4" meters— 1.50 per quarter.

1" meters— 2.00 per quarter.

1 1/2" meters— 3.00 per quarter.

2" meters— 5.00 per quarter.

3" meters— 7.50 per quarter.

4" meters— 12.50 per quarter.

6" meters— 25.00 per quarter.

For each additional consumer on a meter 50 cts. per quarter.

B. *Charges for Water:*

1. For the first 1,000 cubic feet per quarter through a meter, 14 cts. per 100 cubic feet.
2. For the next 4,000 cubic feet per quarter through a meter, 12 cts. per 100 cubic feet.
3. For the next 20,000 cubic feet per quarter through a meter, 9 cts. per 100 cubic feet.
4. For all water above 25,000 cubic feet per quarter, through a meter, 7 cts. per 100 cubic feet.

II. That rates for street sprinkling and construction purposes remain as at present.

III. That the annual charge to the city for fire protection shall be \$8,500. This section of the order shall take effect

when improvements affecting the fire service are made as outlined in this decision.

IV. That all services, public and private, with the exception of hydrants, be metered. One year from the date of this order is considered a reasonable time for the installation of meters.

V. That the utility make improvements in its plant and equipment as outlined in this decision and as planned in conference with the Commission's engineer, so that it will be in a position to furnish adequate fire protection. Six months is deemed sufficient time to comply with this portion of the order.

VI. Meter rates as fixed in this order shall take effect immediately upon the installation of meters.

IN RE INVESTIGATION, ON MOTION OF THE COMMISSION, OF THE RULES, REGULATIONS, AND PRACTICES OF THE CHIPPEWA VALLEY RAILWAY, LIGHT AND POWER COMPANY IN FORCE IN THE CITY OF EAU CLAIRE.

Decided Nov. 11, 1912.

Subsequent to complaint of discrimination the Commission on its own motion investigated the rates, rules and regulations of the Chippewa Val. Ry. Lt. & P. Co. in force in the city of Eau Claire, Wis. After the complaint the company submitted an amendment designed to eliminate the objectionable features of its schedule.

Held: The present schedule contains arbitrary and discriminatory provisions. The discriminations arise from the preferences given by the company to consumers using electricity exclusively, as against consumers using other methods of lighting or power. Consumers should be treated in the same manner and should be given the same privileges unless there is some just basis on which they could be divided into classes. All consumers of a class should be governed by the same rates. It is ordered that the company amend its present schedule of rates for electric light and power, and substitute therefor the rates as prescribed by the Commission. The company is to place in effect either schedule A, or schedule B, or both, giving consumers their option as to the schedule under which they wish to come. The company is to notify the Commission within ten days as to what it elects to do under this order.

Notice of complaint of discrimination in the electric rates of the Chippewa Valley Railway, Light and Power Company in force in the city of Eau Claire was brought to the attention of the Commission on several occasions through its inspectors, and under date of April 26, 1912, the Eau Claire Gas Light Company submitted a written complaint also alleging certain discriminations.

The complaints against the rates and rules of this utility are essentially as follows:

1. That there is a difference in the rate through the method of classifying the active lamps, as a basis for the readiness-to-serve charge, for consumers using only electricity for light and those using some other method in addition.

2. That the company may charge its flat rates at its option.

3. That as an introductory rate a refund is granted to consumers using only electricity for power for a period of three years.

4. That for small miscellaneous motors the rate is arbitrary and not based on the use in case the consumer does not use current exclusively for light; whereas a different rate based on current consumed is granted in case the premises are lighted exclusively by electric current.

5. That all consumers using 5 h. p. or more may be charged either flat rate or meter rate at the option of the company.

6. That the classification of lamps into active and non-active for hotels, clubs, and boarding houses is arbitrary and unjust and the same as for residences.

7. That the classification for auditoriums, dance halls, opera houses, lodge rooms, churches, warehouses, warerooms of wholesale and jobber's houses, and manufacturing plants is arbitrary and based on whether consumer uses electricity exclusively or not.

On May 14 the respondent submitted an amendment to its schedule designed to eliminate the objectionable features which were the subject of complaint.

The present rate for residences provides for a readiness-to-serve charge of 15 cts. for each active connected incandescent unit of 50 watts capacity, and then classifies the lights into active and non-active according to the rooms in which they are located. It further provides, however, that in case electricity is not used exclusively for lighting when available, all lights shall be deemed active. The proposed amendment provides that active connected load or demand shall consist of 60 per cent of the first 500 watts connected and 33 1-3 per cent of all additional watts connected; or where all rooms are wired and connected, the consumer may, at his option, elect to use the classification of the present rate.

While this amendment may do away with the discrimination complained of in connection with the residence rate, it is not wholly satisfactory, as it leaves loopholes for other complaints that might result in friction and bad feeling which should by all means be avoided so far as public utilities are concerned. For instance, if a consumer should have only the lower floor of his home lighted by electricity he could not take advantage of the classification open to consumers who have all their rooms

wired and connected. Again, a consumer may be using gas for fuel and at the same time lighting the kitchen with gas. Such a consumer would also be subject to the one classification. No attempt has been made to determine whether one classification is any more advantageous than the other, but it would seem that all residence consumers should be treated the same and be given the same privileges, unless there is some just basis on which they could be divided into classes and a rate provided for each class. There does not seem to be enough difference, however, in the present instance, to warrant the establishment of classes such as would exist if the proposed amendment were accepted.

Respondent wishes to retain its present classification but claims that it is so constructed that it can apply only to residences where all rooms are wired and connected, and for that reason does not wish to make it applicable to all consumers. We can not see the logic of this in view of the fact that a classification of lamps into active and non-active is for the purpose of distributing to each consumer the share of the capacity expenses he occasions and as measured by his demand during the station peak. If, as respondent states, the present residence rate is based on a careful analysis of the demand factor among this class, we see no reason why it can not be made applicable to all consumers regardless of whether they have all their rooms wired and connected or not. Take two consumers—one has his entire house wired, the other only the second floor. Obviously each is going to use the lights on his second floor about the same time and in the same manner. If such is the case, the cost of furnishing service to the second floor of each is practically the same. It must be borne in mind, however, that the consumer expenses, such as maintenance of meters, reading meters and delivering bills, etc., are covered by the minimum monthly bill. As the non-active lamps are burned during an off-peak time, it seems that it would be good policy on the part of the utility to encourage their installation, not only in places that have active lamps but also in places where very few or no active lamps are used, as for instance in residences where gas is used as the principal source of light but electricity is desired for convenience lighting, and not to charge the readiness-to-serve rate on such non-active lamps even though they are the only lamps installed. From the foregoing it appears that it would not be unreasonable

to require the utility to make its present classification apply to all residence users. Much could be said in favor of such a classification so used, but particularly the fact that in the assessment of the demand charges it shows great flexibility, as the per cent active varies with each consumer according to his installation. From data compiled in this office we find that the ratio of demand to connected load for residences varies inversely with the size of the installation. For installations from one to five lamps the ratio is 70 per cent, and in installations of fifty-one and over the ratio is about 35 per cent. The present classification would not only follow the above percentages which represent an average experience, but would also vary with deviations from this average.

If, however, the utility does not feel that it wishes to make its present classification applicable to all residence consumers, it would seem that the only thing that can be done to secure a more perfect adjustment is to adopt some other method of classification. The classification generally followed by the Commission might be used. This method is the result of extensive investigations and tests and has proved satisfactory wherever used. It is simply to establish as active a certain per cent of the connected load as is suggested by the utility for consumers who do not have all their rooms wired and connected. The institution of such a system would not be so radical and sweeping as to jeopardize the sales of the company and it would have the advantage of eliminating all possibility of discrimination and complaint.

It seems advisable that all consumers of a class should be governed by the same rate. If the proposed amendment were accepted such, however, would not be the case, as residence consumers would be arbitrarily divided into two classes, depending upon whether all their rooms were wired and connected. Furthermore, as the amendment leaves it to the option of one of these classes, i. e., those who have all their rooms wired and connected, which classification they wish to use, it is probable that all those whose bills will be reduced thereby will want to change to the percentage classification. If there is to be a reduction in rates it seems that it should be done in some other than the proposed arbitrary manner.

The present rate for business incandescent lighting contains a discriminatory feature similar to the one in residence lighting,

in that it permits consumers who use electricity exclusively and who use 10 per cent of their total connected capacity for window display or advertising purposes, to class such window or advertising lights as non-active. The amendment submitted on May 14, seeking to correct this, provides that "if any commercial customer shall contract to use, for not less than two thousand hours for each light per year, an additional amount of light not exceeding 100 per cent of his total interior capacity connected and used, for sign, window display or advertising purposes, such percentage of light so used shall be considered non-active." It is evident at once that this amendment tends to compel consumers who wish to use electricity for display lighting also to use electricity for interior lighting. Not only that, but it compels a consumer to use electricity almost exclusively for interior lighting if he wishes to do very much display lighting, as not exceeding 100 per cent of his interior capacity can be used for such purposes. If, for instance, a merchant was using a private system or gas for interior lighting, but wanted to use electricity for window display and advertising lighting, he would have to pay the regular service charge of 15 cents per 50 watt capacity, which he would not have to pay if he used electricity exclusively. There is another objection to this amendment, namely, that the per cent of the total installation deemed active varies from 50 to 100 per cent. The installation of a commercial consumer who uses no lights for display purposes will be classed as 100 per cent active; whereas one who uses one-half of his installation for the above named purpose will have his entire connected load classed as 50 per cent active. There does not seem to be any justification for such a discrimination. In view of the fact that window display and advertising lighting is all the same whether electricity is used for interior lighting or not, it seems that it would not be unreasonable to put it all in the same class. Most of it is off-peak and long-hour business and could be covered by a flat rate per kw. hr. with a certain number of hours per year guaranteed. For business consumers who wish to use window display lighting in connection with their interior lighting, a certain fixed percentage of the installation should be taken as active. The demand of this class of consumers varies a great deal, depending upon the nature of the lighting done. It will be found that those who use relatively a great number of lights for display and advertising purposes have a high demand, as

the lights used for this purpose are practically all active at the time of the peak. On the other hand, those who have little or no use for this kind of lighting have comparatively a low demand. The amendment proposed by the utility treats this class as though it were just the opposite. From data on file in this office we find that the average demand of this class is about 70 per cent. It would seem that a rate based on this percentage would be more equitable and just than the proposed amendment.

The present rate for business arc lighting provides that the rate for such lighting "shall be the same as for commercial incandescent lighting, except that to all consumers using electricity exclusively for lighting, when available, the company shall furnish the wiring, lamps, and maintenance of the same at its own expense, and the rate in such case shall be 45 cts. per month for each six ampere a. c. arc lamp connected, plus 3 cts. per kw. hr. for all current consumed." The amendment of May 14 removes the discrimination in the above by establishing a rate for everybody at 45 cts. per arc plus 3 cts. per kw. hr. for all current consumed, and the company to furnish the lamps and maintenance of the same at its own expense. It will be noted that under the present rate for consumers who use electricity exclusively, the company also furnishes the wiring free. This is not included in the amendment; consequently it will result in an increase to some consumers; but under the circumstances such an increase is not deemed unreasonable or unjust, as in an adjustment seeking to eliminate discrimination all consumers cannot be benefited—some may even have to give up privileges which they enjoyed. In the present case the privilege given up, free wiring, is not such as the utility can ordinarily be expected to furnish, and for that reason this part of the amendment of May 14 is acceptable.

One of the complaints lodged against respondent is that it may charge its flat rates at its option. However, there is no foundation for such a complaint. The company's rule under flat rates provides "that the company shall not be required, at its own expense, to furnish or install meters for any consumer using less than five 50 watt units or the equivalent thereof * * * or the company may, at its own option, install a meter for any such consumer." This rule is not deemed to be unreasonable; as it is hardly profitable under ordinary circum-

stances to install a meter for a consumer who has only four 50 watt units or less connected.

Complaint is also made against the company's introductory power rate which provides that all consumers using company's wholesale power rate, and purchasing their electrical equipment from the company or others at a price not exceeding that for which the company would furnish the same, and provided such customer shall use electric power purchased exclusively from the company for the operation of his machinery for a period of three years, he shall be entitled to a refund of 25 per cent of the cost of the electrical equipment, refunded monthly and deducted from his monthly bill. The complaint against this rate is to the effect that it tends to monopolize the sale of power by giving a special rate to exclusive users of electrical current. In view of the fact that this period of exclusion is only for three years, during part of which time the company is refunding a part of the cost of the electrical equipment installed, we cannot see that it is unreasonable. Surely a consumer cannot expect that 25 per cent of his equipment be furnished free, and that then he be permitted to use some other kind of power at the same time, as that would defeat the purpose of the rate, which is to encourage the use of electrical current. After the three-year period has expired the consumer can use any other kind of power he chooses. This might result in serious competition for the gas company, but that cannot be helped. Each utility is entitled to develop its business as far as possible. For an electric utility it is important that the sale of power be encouraged, as it is through the greatest possible development of its power business that lower rates for its customers can be obtained. It must be borne in mind, however, that the cost of any concession offered as an inducement to manufacturers to use power cannot be charged so that they can or will be made the basis for increases in rates to other customers; and further that such concessions must not result in unjust discrimination between those engaged in competitive and other enterprises. If the electric company can manufacture and sell current for power at the rate quoted without endangering its financial stability or impairing its service, we see no reason why it should not be permitted to do so. If the gas company cannot meet this competition without impairing its service or financial stability, then it will have to leave the field and confine

its attention to those branches of service in which it is the most efficient.

A complaint also was made against respondent's "combination power rate for small motors," which reads as follows: "Where individual motors of less than 5 h. p. are installed by customers using electric light exclusively, the current for such motors may be measured through the lighting watt meter, and in such cases consumers shall be charged the lighting rate of 3 cts. per kw. hr. in lieu of the regular power rate of 75 cts. per h. p. and 2 cts. per kw. hr. for the current." The objection to this rate is the same as to the lighting rates, namely that it is applicable only to consumers who use electricity only for lighting. No amendment has been offered to correct this discrimination. If this rate were made applicable to all consumers, irrespective of whether they use electricity exclusively or not, it would be acceptable and the cause for complaint would be removed.

So far as we can see, complaints numbered five, six and seven are without foundation. There is nothing in the rate schedule on file in this office that would permit the company at its option to charge either its flat or meter rate to consumers using 5 h. p. or more. As to the classification of lamps for hotels, clubs, and boarding houses, it does not appear that one classification applies in case electricity is used exclusively and another in case some other method is also used; at least the rate schedule on file here makes no such provisions. Nor do the rates on file for auditoriums, dance halls, opera houses, etc., make any difference in classification based on exclusive use of electricity, as is alleged in the complaint filed.

IT IS ORDERED, That the respondent, the Chippewa Valley Railway, Light and Power Company, amend its present schedule of rates for electric light and power and place in effect, as a substitute therefor, either schedule A or schedule B, or both, giving consumers their option as to the schedule under which they wish to come.

SCHEDULE A.

LIGHTING SERVICE.

All lighting service furnished residences and businesses (hereinafter specifically referred to as classes A, B, C, D, and E), including such incidental use of heating or power used on lighting

circuits and passing through the same meter, shall be charged for as follows:

Readiness-to-Serve Rate:

15 cts. per month for each active connected incandescent unit of 50 watt capacity.

Energy Charge:

3 cts. per kw. hr. for all current consumed.

For all sign, window display, and advertising lighting on a yearly contract basis (hereinafter specifically referred to as class E) the rate shall be 5 cts. per active 50 watt equivalent per month plus 3 cts. for all current consumed.

Arc Lighting:

The rate for commercial arc lighting shall be 45 cts. per month for each 6 ampere a. c. lamp connected, plus 3 cts. per kw. hr. for all current consumed, provided that the maximum rate shall not exceed 6 cts. per kw. hr. for the total current used each month. The company shall furnish the lamps and maintenance of the same at its own expense.

Class A shall include residences, dwellings, flats and private rooming houses. The active connected load shall consist of 60 per cent of the first 500 watts connected and $33\frac{1}{3}$ per cent of all additional watts connected.

Class B shall include retail and wholesale mercantile establishments, saloons, restaurants, depots, and all other consumers not herein otherwise specifically provided for. The active load or demand shall consist of 70 per cent of the watts connected. The maximum rate in this class shall be 6 cts. per kw. hr. for the total current used.

Class C shall include hotels, clubs, and boarding houses. The active load shall consist of 55 per cent of the watts connected.

Class D shall consist of auditoriums, dance halls, opera houses, lodge rooms, churches, warehouses, warerooms of wholesale and jobbers houses, and manufacturing plants. The active load shall consist of 40 per cent of the watts connected.

Class E shall consist of unmetered lighting for signs, window display, or advertising purposes. The total connected load shall be deemed active.

Equipment and Renewals: In all foregoing rates, unless otherwise specifically stated, the consumer shall furnish and renew all lamps, except arc lamps, and all switching and wiring

on the premises, and the company shall furnish arc lamps, transformers, meters and sufficient wiring, pole line and other equipment necessary to deliver the current to the premises.

Flat Rates: The company shall not be required at its own expense to furnish or install meters for any consumer using less than five 50 watt units, or the equivalent thereof, in any one building, and shall be authorized to charge consumers using three or more such units a flat rate of 30 cts. per month per unit in residences and 50 cts. per month per unit in business places; or the company may, at its own option, install a meter for any such consumer, in which event the rate shall be as specified in the above classification.

Minimum Rate: The company shall be authorized in every case where a meter is installed to make a minimum charge of \$1.00 per month, and to flat rate customers a minimum charge of 90 cts. per month in residences and \$1.50 per month in places of business.

Maximum Rate: The maximum rate, except where authorized by the minimum charge heretofore provided for, shall in no instance exceed 9 cts. per kw. hr.

POWER SERVICE.

The schedule for power service shall be amended so that the "Combination power rate for small motors" shall read as follows: Where individual motors of less than 5 h. p. are installed by customers using electricity for lighting, the current for such motors may be measured through the lighting watt meter, and in such cases consumers shall be charged the lighting rate of 3 cts. per kw. hr. in lieu of the regular power rate of 75 cts. per h. p. and 2 cts. per kw. hr. for the current.

SCHEDULE B.

LIGHTING SERVICE.

Residences.

In all residences the rate shall be 15 cts. per month for each active connected incandescent unit of 50 watts capacity, or the equivalent thereof, and 3 cts. per kw. hr. for all current consumed by the connected units, whether active or inactive. Active lights are lights used or connected for use in the following

rooms: main hall, main stairway, parlors, library, one 50 watt unit in dining room, sitting room, living room, kitchen, den, music room, conservatory, butler's pantry, and one 50 watt unit on the second floor. Non-active lights shall include lights used on porches, in vestibules, basements, attics, closets, bed rooms, bath rooms, lavatories, wood sheds, stables, back halls,, back stairways, one portable reading lamp used in active rooms, and all other rooms not herein otherwise specifically mentioned; provided the active lights shall not exceed 75 per cent of the total installation.

Business.

Commercial lighting shall include retail and wholesale mercantile establishments, saloons, restaurants, depots and all other consumers not herein otherwise specifically provided for. Such lighting will be done by means of approved incandescent lamps, or by six ampere, a. c. arc lamps, at the option of the consumer, and the prices for such lighting shall be as follows:

Incandescent Lighting: The rate for business incandescent lighting shall be 15 cts. per month for each 50 watt connected capacity or its equivalent, and 3 cts. per kw. hr. for all current consumed; provided that to all consumers using 10 per cent or less of their total connected capacity for window display or advertising purposes, all lights so used shall be considered and paid for as non-active lights, at the rate of 3 cts. per kw. hr. for the current actually consumed; and the maximum rate to all consumers who shall come within the terms of this proviso shall not exceed 6 cts. per kw. hr. for the total current used.

Arc Lighting: The rate for business arc lighting shall be 45 cts. per month for each six ampere a. c. arc lamp connected, plus 3 cts. per kw. hr. for all current consumed; the maximum rate per month, however, in such case shall not exceed 6 cts. per kw. hr. for the total current used each month.

Readiness-to-Serve Rating: In determining the readiness-to-serve charge for residences and commercial lighting, all units of 8 c. p. or less shall be counted as 8 c. p. and rated at 30 watts per hour, and the readiness-to-serve charge for all such lights in active rooms shall be 9 cts. per month in addition to the charge for current consumed.

Hotels, Clubs and Boarding Houses: The rate shall be 15 cts. per month for all active lights and 3 cts. per kw. hr. for all

current consumed. The classification of active and non-active lights shall be the same as for residences, except lights connected for use in dining rooms, buffets, bars, bowling alleys, billiard rooms, card rooms, barber shops, lobbies, main halls, corridors on each floor, wash rooms, and lavatories shall be deemed active lights.

Auditoriums, Dancing Halls, Opera Houses, Lodge Rooms, Churches, Warehouses, Warerooms of Wholesale and Jobbers' Houses, and Manufacturing Plants: The rate shall be 15 cts. per month for one-third of all connected units of 50 watts or its equivalent, and 3 cts. per kw. hr. for all current consumed, provided that all lights in general offices and clerical rooms of this class shall be rated as active lights.

Equipment and Renewals: In all foregoing rates, unless otherwise specifically stated, the consumer shall furnish and renew all lamps, except arc lamps, and all switching and wiring on the premises, and the company shall furnish arc lamps, transformers, meters, and sufficient wiring, pole line and other equipment necessary to deliver the current to the premises.

Flat Rates: The company shall not be required, at its own expense, to furnish or install meters for any consumer using less than five 50 watt units, or the equivalent thereof, in any one building, and shall be authorized to charge consumers using three or more such units a flat rate of 30 cts. per month per unit in residences and 50 cts. per month per unit in business places; or the company may, at its own option, install a meter for any such consumer, in which event the rate shall be as specified in the above classification.

Minimum Rate: The company shall be authorized in every case where a meter is installed to make a minimum charge of \$1.00 per month, and to flat rate customers a minimum charge of 90 cts. per month in residences and \$1.50 per month in places of business.

POWER SERVICE.

The schedule for power service shall be amended in the manner indicated in schedule A.

The utility shall notify this Commission within ten days as to what it elects to do under this order.

SUPERIOR COMMERCIAL CLUB ET AL.

vs.

SUPERIOR WATER, LIGHT AND POWER COMPANY.

Decided Nov. 13, 1912.

Complaint was made that the water, gas and electric rates charged by the respondent in Superior, Wis., are unreasonable and unjustly discriminatory, and that the rates charged the city for water and electricity are unjustly discriminatory as against private consumers. Complaint was also made of inferior service. It was alleged that the reservoir is inadequate, that the water pumps are inadequate to furnish such quantity and pressure as might be required if any serious fire should occur in the city, and that the service for the west and south end of the city is particularly inadequate. A valuation of the property was made and the revenues and expenditures were investigated. Apportionments were made as among the different plants and among the different departments of the service.

A valuation of the total property of the company as of June 30, 1911, gave a cost new of \$1,564,663 and a present value of \$1,360,196. Of this entire value the water plant showed a cost of reproduction new of \$888,322 and a present value of \$838,242. The gas plant showed a cost of reproduction new of \$251,849 and a present value of \$218,195, and the electric plant a cost new of \$395,096 and a present value of \$295,575.

In the present case the real estate owned by the company was purchased during a boom period, and as a result considerable depreciation is noted when the investment value is compared with the value as found in the final appraisal. The company contended that these expenditures should be taken into consideration in determining the basis upon which the rate of return is properly computed. In passing upon the question of appreciation of land values in former cases the Commission pointed out that the law as well as our social system recognizes gains due to appreciation in practically all other undertakings and that the owners would have to bear losses in case land and other property had depreciated instead of appreciated. It would seem only just that the rule should work both ways. There seems to be no reason for a departure from this position in the present case. (*State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 579.)

The cost of marketing bonds is an allowance to be considered in arriving at the value of the property of a utility for rate-making purposes, but this does not mean that all discounts constitute proper additions to physical value. If this were the case a company with poor credit, which had been obliged to allow a large discount on its bonds, would have a higher value and be entitled to a return on a greater valuation than a utility owning precisely similar property, but whose credit was good enough so that it was not obliged to issue its bonds at a considerable

discount. However, if business enterprises can not secure capital on any better terms, then it necessarily follows that such bond discounts must represent a part of the cost of securing the capital. In the present case the question to be determined is whether the capital necessary for the construction of the plants at that time could not have been secured upon any better terms. It appears that an amount not to exceed \$100,000 out of the total discount of \$298,948 is properly made a part of the value of the property for rate-making purposes and represents the estimated amount of discount over the prevailing rate of interest necessarily made in an open market to secure funds to construct the plants.

In estimating the amount of working capital necessary, consideration should be given to the nature of the business. When a company is in a position to meet substantially all of its current outlays from its current receipts, it does not need to keep on hand any current funds for the purpose of covering operating expenses, but it was pointed out by the respondent that current funds are needed, due to the fact that the company is constantly called upon to expend money for small property items, and must have working capital to carry on the work of an expanding plant. In a previous decision it has been pointed out that with a liberal amount of quick assets available, new extensions to the plants may be more cheaply constructed than otherwise, and this for the reason that temporarily it may be more economical to use working capital for such purposes than to meet the cost by regular loans or by the sale of new securities. In the present case it appears that a working capital of 10 per cent of the amount derived from the gross sales of water, gas and current, or from \$25,000 to \$30,000 in addition to the amount already invested in materials and supplies, is fully adequate under present conditions.

Expenditures for the development of the business, such as free house-piping, when reasonable and when well placed, would seem to be legitimate and to constitute a charge that, in some form, should be borne by the customers or by those who avail themselves of the service in question. Whether these expenditures should be charged to construction and thereby become a permanent charge on the customer, or be charged to the operating expenses and thereby be wiped out about as incurred, are questions that cannot be settled independently of the surrounding conditions. In the present case the expenses for free house-piping are considered as operating expenses rather than capital charges. (*State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 750.)

The cost of building up the business must under certain conditions be taken into consideration in determining the value of the plants for rate-fixing purposes. Development costs which are actual and necessary belong among those classes of costs which, on the ground of equity as well as because of public policy, should ordinarily receive consideration in fixing the amounts upon which, under normal conditions, public utilities are entitled to reasonable returns for interest and profits. To consider such costs in determining the cost-value of the property of public utilities that is actually used in serving the public, is of special importance in cases where the returns on such cost-values are not fixed at higher figures than those which will barely bring the necessary capital and business ability into this field. The early losses or deficits, or the amounts by which the earnings of the plant have failed to meet the ordinary operating expenses, taxes, depreciation, and a reasonable return on the in-

vestment, will, in the majority of cases, very closely measure the cost of developing the business. Deficits from operation, however, cannot equitably be taken into account in the appraisals of plants regardless of the conditions under which they were incurred. Deficits due to abnormal conditions, bad management, poor judgment, extravagance, lack of ordinary care and foresight, and extremely high capital charges, etc., it is clear, should receive very little consideration. Nor does it seem clear that losses due to lack of growth or retrogression of community development should be charged in their entirety against the consumers, even though the sacrifices of the owners have been prudently made. Returns upon such total costs may result in rates not reasonably within the value of the product or service to the user. In the present case, the cost of building up the business was estimated upon both the deficit basis and the comparative plant basis, and an allowance for going value was made. Under the deficit method the amount for the water plant was found to equal \$33,001, for the gas plant \$61,039, and for the electric plant \$67,657.

From the facts available in regard to the original cost of construction, the subsequent additions to the property, the earnings and operating expenses, the development of the business, and other factors, it appears that the cost of reproduction is not far away from the value upon which respondent is entitled to returns that are reasonable under the circumstances.

In determining the basis for reasonable rates some consideration should be given as to the investment necessary for an adequate plant. What may appear to be reasonable rates when the investment line has fallen below the business line, may prove to be much lower than sufficient to produce a revenue which will give a reasonable return upon the investment a year or a few years later when the investment will have to be materially increased in order to meet the demands of the business. (*City of Beloit v. Beloit W. G. & El. Co.* 1911, 7 W. R. C. R. 187, 298.) It does not appear equitable, however, to make present consumers bear the entire burden of future additions. It appears proper to make slight additions to the unit costs, but proper allowances must necessarily be made for such additional business which is anticipated when the extension is made.

Interest and profits are necessary in all lines of industry and callings in order to secure the capital and the abilities that are required. Necessary charges of this nature are therefore in a sense as much a part of the cost of production of the products turned out and of the services rendered as any part of the operating expenses. The minimum rates of interest and profits that must be allowed in cases of this kind are those under which the necessary capital and business capacity can be had. The rate of interest at which capital can be had is influenced by the supply and demand for loanable funds; by the risks involved; by the care and work required in placing the loans and in looking after them; by whether the loans are readily transferred or converted into cash; and by other local and general conditions. The rate of profits depends upon the supply of business capacity and initiative, the risks involved, the nature of the undertakings, and many other conditions. These rates, therefore, vary as between the different industries and the different classes of service. They even vary as between the various public utilities in the same place, as well as often also between like utilities in different localities. The supply of capital and business capacity seems to vary more with general than with local conditions, although affected by both.

Risks and many other conditions by which rates are affected seem to be more particularly dependent on local conditions. As public utilities are monopolistic in their nature, they are, to some extent at least, relieved from active competition. This is especially true where they are operating under indeterminate or more exclusive franchises. Active competition is one of the more important elements of risks. To the extent to which public utilities are relieved from such competition they are also relieved from one element which make for higher charges for interest and profits. The amount allowed for interest and profits in the present case has been determined in view of all the conditions surrounding the utilities.

Held: The water department of respondent's business was found to be operating at a loss upon a rate of 7 per cent for interest and profits and 0.8 per cent for depreciation upon the present value, plus the intangible elements allowed, and the cost new of the physical property, respectively. No material reduction of rates can therefore be considered, but a form of schedule can be found which will abolish the regressive features of the old rate schedule. In the analysis of the water rates it was found that the city was not paying its fair share of the total cost of the service incurred by reason of the fire service and the public use of water, and that the difference between what the city should pay, as shown by the costs, and what it will pay under the contract, must be made up by private consumers. The interests of all parties would be served if the city and the utility would agree upon a revision of water rates along the lines outlined by the Commission, but for the present no change in water rates will be ordered.

In the gas department, while the existing rate schedule might conform more closely to the cost curve, the gas rates which took effect May 1, 1912, are not disturbed. The low rate in the gas department, together with the abolition of the double meter system, will in all probability result in a large increase in gas sales. Without such increase there will, without a doubt, be considerable reduction in revenue. The total cost of the gas delivered to the consumer is above normal. This may be the result of undeveloped business for which peculiarly local conditions may be responsible.

The electric rates for general, commercial and residence lighting are found to be somewhat inequitable and to be such as tend to retard the development of at least certain parts of the business involved. The revenue from the street lighting appears to be somewhat less than the expenses of this department when the operating expenses are divided upon a strictly cost of service basis, however, the rates for municipal lighting service as now in effect are not disturbed. The power schedule does not appear to be high, but owing to local conditions is not as closely adjusted to the cost curve as it might otherwise be but it is not thought advisable to make any changes in the power rates at the present time. With the establishment of a minimum bill the monthly bills of some of the smallest consumers may be increased, but it is only equitable that there should be a minimum assessed and collected that will reimburse the company for at least a part of the overhead charges. In devising a rate schedule there should be some consideration taken between the residence and business use of current. The respondent is ordered to put in effect the schedule of rates approved by the Commission. It is further ordered that the bills rendered by the company shall state plainly the connected load of each con-

sumer and the percentage which is considered active in computing the rate.

If the conditions warrant it, the Commission will make such modifications as may appear necessary after a year's operation under these schedules.

It appears that the company has reached the limit of the present a. c. arc lamp service as now installed, and additional station equipment must be provided to take care of additional lamps. It seems that the best policy of the company is to install additional arc generators or if a contract can be consummated with the city for the substitution of large size tungstens in place of the 7.5 amp. arcs, then a new tungsten arc system could very likely be advantageously installed to the benefit of both the city and the company.

The expenditures for improvements recently made in the plants have improved service conditions. At the present time the plants are, as a whole, economically operated and maintained.

The complaint in the above entitled matter was filed with the Commission on March 20, 1911, and alleges excessive rates and inferior service for water, gas and electric service in Superior.

The complaint alleges in substance that the reservoir is inadequate, the water pumps inadequate and insufficient to furnish such quantity and pressure as might be required if any serious fire should occur in the city, and that the west end and south end of Superior are particularly insufficiently and inadequately supplied. Prices and rates charged for water and electricity to the city, it is alleged, are unjustly discriminatory as against the citizens and private consumers. Water, gas and electric rates are unreasonable and unjustly discriminatory, and more than such commodities and services are reasonably worth. Reductions in rates can be made and company still be permitted to earn a reasonable return upon the value of the property necessarily used in supplying water, gas and electricity, and reasonable expenses of management, operation, and allowances for depreciation.

Complainants further allege that a number of water, gas and electric meters are inaccurate, and that the readings of meters are frequently inaccurately and carelessly made.

The respondent company, in its answer filed on March 31, 1911, denies that the reservoir is inadequate and necessitates the filling of mains or other conduits with sewage contaminated water. To meet future needs it is pointed out that additional reservoir property has been purchased, and the construction of additional capacity planned. Pumps are denied to be inadequate to meet present needs and additional new pumps are being installed designed to furnish the quantity or pressure probably required in the future.

Bakery—each oven.....	\$12.00 to \$25.00
Barber shop—first chair.....	6.40
—each additional chair.....	3.20
Bath—without heating apparatus—private.....	3.20
“—with “ “ “.....	4.00
“—in boarding house or hotel—first tub.....	6.40
“— “ “ “ “.....	4.80
“—public—not less than.....	9.60
—each additional tub.....	3.20
Billiard saloon—each table.....	1.20
Boarding house, per room (no license less than \$10.00).....	1.20
Brick work—per M laid.....	.084
Butcher shop—(steam extra).....	8.00
Candy manufactory.....	\$12.00-28.80
Cigar factory (no license less than \$10) per hand.....	1.60
Cows—each.....	1.60
Dyeing and scouring.....	8.00-26.00
Forge—first fire.....	3.20
—each additional fire.....	2.40
Fountains—1/16 in. orifice—per season.....	9.60
“—large orifice.....	Special
Fountains not to run more than 5 months in the year or more than 4 hours per day without special permit from company.....	8.00-16.00
Halls and lodges.....	4.00
Horse—one, including washing carriage.....	2.40
“—for private stable.....	1.60
“—each additional.....	8.00-16.00
Ice cream saloons.....	4.00- 6.40
Offices or sleeping rooms.....	9.60
Printing offices—six hands or less (engine extra).....	8.00-16.00
Photograph galleries.....	.004
Plastering—per square yard.....	4.80
Residence—1 family for domestic use—1 to 4 rooms.....	.80
“—each additional room.....	9.60-24.00
Restaurant.....	9.60-24.00
Saloons.....	9.60-24.00
Sprinkling, private gardens, 3/4 hose 1/8 nozzle first 50 yds., per sq. yd. per season.....	.032
Sprinkling, all over 50 yds.—per sq. yd.....	.016
“ sidewalk to center of street 3/4 hose 1/8 nozzle, 1 1/2 hrs. per day (no license less than \$5) per foot front per season.....	.08
“ over 100 feet front, per foot.....	.056
Stable, livery, sale or boarding—six horses or less, including carriage washing.....	12.00
Stable—each additional stall.....	1.60
Steam boilers—rates per h. p. from 1 to 10 h. p. (working 10 hrs. per day).....	4.00
“ each additional h. p. up to 20.....	3.20
“ over 20 h. p.....	Special
Stone work—per perch.....	.056
Stores and shops.....	\$8.00-16.00
Tenement (min. license \$6.00) per room.....	1.20
Urinals in private houses—self closing—each.....	3.20
“ stores, banks, offices “ “.....	4.00
“ hotels, boarding houses, saloons—self closing—each..	Special
Size of orifice at discretion of company.....	4.00- 4.80
Water closets—self closing.....	Special
“—hopper.....	3.20
Wash basins.....	3.20
Water supplied to circuses and other temporary uses requiring use of hydrant and man to operate same—time of men 60 cts. per hour—water 30 cts. per M gallons.....	

Refunds on Account of Leaks.

In cases of excessive consumption of water through meters due to leaks, consumers will be entitled to an allowance on the following basis upon filing the certificate of a licensed plumber of the existence of a leak or leaks: A consumption equal to the maximum used in any one month during the last six months to be paid for at regular rate and the excess of 10 cts. per M gallons.

Where a number of families take water from a yard hydrant, same must be enclosed in a small house and kept locked. All rates must be paid by one person and at the rate of 50 cts. per month for each family.

In all cases of non-payment of water meter or quarterly bills, within fifteen days after same becomes due, the supply may be shut off and not turned on again, except upon the payment of the amount due, together with the sum of \$1.00 for expenses of shutting off and turning on the water.

Schedule of Charges on Private Fire Hydrants and Standpipes.

Private Fire Hydrants

1st hydrants	\$40.00 per year
Additional hydrants each.....	10.00 "

Standpipes.

2" stand pipe per year	\$25.00
3" " "	35.00
4" " "	50.00

All private standpipes and hydrants must be kept sealed and used for no other purpose than extinguishing fires.

In exhibit A attached to the complaint in this case the gas rates for lighting are shown as follows:

GAS RATES

Monthly consumption of

100 cu. ft. or less.....	\$0.25 net
200-1,000 cu. ft. per M	1.40 "
1,100-5,000 " for 1st M \$1.40, additional	1.30 "
5,100 cu. ft. and over 1st M.....	1.40 "
Next 4 M.....	1.30 "
Additional consumption	1.20 "

The rates and amendments as filed with the Commission are shown in the following paragraph. The illuminating gas rate there shown was amended February 16, 1911, to take effect May 1, 1911, and differs materially from the illuminating rate shown above.

Lighting:

Monthly consumption of 100 cu. ft. or less.....	\$0.25
" " of 200 to 5,000 cu. ft.....	1.25 per M
All consumption over 5,000 cu. ft. per month.....	1.20 "

Penalty—10 cts per M cu. ft. added if bills are not paid by the 15th of the month following, and an additional 10 cts. per M cu. ft. if not paid by the 25th of the month.

Fuel:

Monthly consumption of	
200 cu. ft. or less	\$0.25 net
300 " and over per M.....	1.00

Power:

Monthly consumption of	
300 cu. ft. or less	\$0.25 net
400 " to 20,000 cu. ft. per M.....	.75 "
Over 20,000 cu. ft. (1st 20,000 at 75 cts.).....	.60 "
Penalty—same as lighting.	

An amendment to the gas rates was filed on Mar. 10, 1912, during the progress of this case, to take effect May 1, 1912:

For all gas service furnished for lighting and fuel and passing through meter or meters owned and installed by the company, a charge of \$1.00 net or \$1.10 gross, per M cu. ft. for the first 20 M cu. ft. used during any one month, through any one meter; \$0.80 net, or \$0.90 gross, per M cu. ft. for all gas in excess of 20 M cu. ft. used during the same month and passing through the same meter.

For all gas furnished for power purposes and passing through meter or meters, owned and installed by the company, a charge of \$0.75 net or \$0.85 gross, per M cu. ft. for the first 20 M cu. ft. used during any one month, through any one meter; \$0.60 net, or \$0.70 gross, for all gas in excess of 20 M cu. ft. used during the same month and passing through the same meter.

Minimum Bill—Cash Discounts.

The minimum bill shall be \$0.40 net per month. All consumers to be billed at the gross rate, and the difference between the gross and the net rates specified above, or \$0.10 per M cu. ft., to constitute a discount for payment on or before 10 o'clock a. m. on the 16th of the succeeding month. When payment is made between 10 a. m. on the 16th of the month, and 10 a. m. on the 25th of the month, one half of the above discount, or \$0.05 per M cu. ft. shall be allowed.

Reconnection of Meters.

For the reconnection of a meter for the same consumer on the same premises, a charge of \$1.00 net shall be made.

ELECTRIC RATES

Lighting:

12½ cts. per kw. hr. 1st 4 hrs. use per day of connected load.

6¼ cts. per kw. hr. over 4 hrs. use.

Net minimum charge of 5 cts. per month per 16 c. p. lamp installed.

Discount—(applying to general residence and commercial rates only)—Consumption of over 500 kw. hrs.—discount 3 cts. per kw. hr. on excess above 500 kw. hrs. in addition to discount for prompt payment.

20 per cent discount for prompt payment on or before the 15th of following month and 15 per cent for payment after the 15th and not later than the 25th of the month.

Flat rate residence lighting only—current limiting device and 25 watt tungsten lamps—yearly contracts.

30 cts. per month per 25 watts up to wattage at which current limiter is set (range 100 to 300 watts). Must use 25 watt lamps—Number not limited.

Discount 5 cts. per 25 watts for payment by 15th of following month, 2½ cts. per 25 watts for payment later than the 25th.

Consumer agrees to pay 60 cts. each for original installation and renewals of 25 watt tungsten lamps.

Monthly rates on incandescent lamps. Applying to installations of not more than four 16 c. p. lamps—30 day basis.

For each 16 c. p. l. burning from dusk until 10 p. m.....	\$0 80
For each 16 c. p. l. burning from dusk until 12 p. m.....	1.00
For each 16 c. p. l. burning all night.....	1.65

26 Day Basis.

For each 16 c. p. l. burning from dusk until 10 p. m.....	\$0.70
For each 16 c. p. l. burning from dusk until 12 p. m.....	.90
For each 16 c. p. l. burning all night.....	1.40

Company reserves right to set a meter on all installations.

Discount—20 per cent if paid on or before 15th following month and 10 per cent when paid after 15th but not later than the 25th.

Heating and Cooking:

6¼ cts. per kw. hr.—Minimum charge \$1.00 per month per kw. capacity installed.

Subject to same discount as kw. hr. lighting rate.

Flat rate residence lighting with current limiting device—Electric iron clause.

When consumer desires, receptacle will be installed in kitchen, not controlled by limiter, to be used for an electric iron only (6 lb. or less) for which 72 cts. per month will be charged, subject to a discount of 12 cts. if paid by 15th of following month, and of 6 cts. if paid later than the 15th but not later than the 25th.

Arc lamps installed and owned by the company.—A monthly rental of 50 cts. per lamp is charged unless the annual consumption of current reaches 600 kw. hrs. per lamp.

Power Rates:

General:—Applying to regular commercial service on installations of over 4 horse power.

Option of either of following rates:

Fixed charge of \$2.50 per month, per h. p. of maximum demand; plus a charge of 2 cts. per kw. hr. for current consumed.

Fixed charge of \$1.25 per month per h. p. of maximum demand, plus a charge of 3.75 cts. per kw. hr. for current consumed.

Discount: 20 per cent if paid before 15th, 10 per cent if between 15th and 25th of following month.

Direct current power rate:—Applying to installations of 100 h. p. and over.

Minimum bill 60 cts. per month, per h. p. of motors installed.

1st	5,000 kw. hrs. per mo.	2¾	cts. per kw. hr.
Next	5,000 “ “	2½	“ “
“	5,000 “ “	2¼	“ “
“	5,000 “ “	2	“ “
“	5,000 “ “	1¾	“ “
Over	25,000 “ “	1½	“ “

Service of a special nature: elevators, motors, etc. rates are made in accordance with the conditions, as no fixed schedule can do justice to such consumers.

Small motor power rate: Applying to regular commercial service installations of 4 h. p. or less.

Horse power.	Fixed charge.	Output charge.	Minimum mo. bill—net
¼	\$0.65	\$0.02	\$1.25
½	.85	.02	1.50
¾	1.25	.02	2.00
1	2.00	.02	3.00
1½	2.50	.02	4.00
2	3.75	.02	5.00
2½	5.00	.02	6.50
3	6.25	.02	7.50
3½	7.50	.02	9.00
4	10.00	.02	11 00

Consumers having less than 5 h. p. have option of taking current at regular general residence and commercial lighting rates with monthly minimum charge of \$1.50 per month, per h. p.

Discount:—20 per cent if paid on or before 15th, 10 per cent after the 15th and before the 25th of the following months.

Power:

Minimum charges for motors on lighting circuits (current at lighting rates)

12"	fan motors, minimum charge per month	10 cts.
16"	"	20 "
1/8 h. p.	"	25 "
1/4 "	"	40 "
1/2 "	"	50 "
3/4 "	"	75 "
1 "	"	\$1.15 "
		1.50 "

Non-peak power rates.—Optional with all power consumers:

Rate of \$0.03125 per kw. hr., subject to discount of 20 per cent for payment on or before 15th and 10 per cent between 15th and 25th of following month.

Consumer not to use power during following hours:

Oct. 1-15	5:00-10 p. m.
Oct. 16-Nov. 15	4:45-10 "
Nov. 16-Dec. 10	4:30-10 "
Dec. 11-Jan. 1	4:15-10 "
Jan. 2-Feb. 1	4:30-10 "
Feb. 2-Mch. 1	5:00-10 "

On Saturdays during above period—same as above—except that 10:30 be substituted for 10 o'clock. No power to be used on Saturdays between 5:30 and 10:20 p. m. from March 1 to October 1.

Consumer to install and operate one or more recording ampere meters, charts from which are to be delivered to company at end of each month.

Minimum charge \$12.00 per h. p. of motors installed.

Such evidence as has been presented upon the reasonableness of these charges relate principally (1) to the rate of income to which the respondent is entitled and (2) the amount of capital properly used in computing what is a reasonable return. No issue is raised as to the expense of operation and its apportionment in determining the cost of service to various classes of consumers. These facts have, however, been gone into in some detail in determining the reasonableness of present rates of charge.

DEVELOPMENT OF PROPERTY.

The facts relating to the history and development of the water, gas and electric property of the respondent company are of importance as affecting both the valuation and the reasonable return to the properties.

It appears from the record that the respondent, the Superior Water, Light and Power Company was organized as a consolidation of the Superior Water Works Company, the Superior Light

and Fuel Company, and the Superior and Duluth Electric Company.

The Superior Water Works Company was organized under ch. 359, Private and Local Laws of Wisconsin for 1866, but did not become an active corporation until June 10, 1887. The original water works plant for the city of Superior was built at this latter date and consisted of a pumping station located on Tower Bay slip and a line of main extending on Tower avenue for a distance of some blocks. This plant was a temporary structure and constructed to afford fire protection to the wooden buildings of which the village of Superior was then composed. In an effort to afford a good supply of water for domestic purposes a 16" pipe line was laid across the St. Louis Bay and connected with the mains of the Duluth Gas & Water Company, whose source of supply was Lake Superior. The actual furnishing of this service, however, was prevented by an injunction obtained by certain citizens of Duluth. These original pipes were not removed until 1892. A second attempt to obtain water was made in 1888 and an intake was laid into the Bay of Superior, a new brick station built at the foot of Winter street, and pumps, filters and boilers installed. These plans conformed with the franchise granted by the village of Superior to the Superior Water Works company dated Oct. 15, 1887, which specified, among other things, a source of supply from the Bay of Superior, or, in event rights were obtained for the company by the city, a source of supply across the Bay of Superior and Minnesota Point into Lake Superior. The ordinance provided, in addition, the right of purchase by the city and the conditions under which such purchase might be consummated. The original ordinance was amended on Oct. 1, 1889, by changing the provisions of the purchase clause and releasing the city from its obligation to obtain a right for the water company to lay its pipes across the Bay of Superior and Minnesota Point. By the provision of this later grant the Superior Water Works Company bound itself and its successors to obtain at its own expense good and wholesome water for domestic and public purposes from Lake Superior within a period of two years. On Aug. 22, 1889, the Superior Water, Light and Power Company was incorporated and on Nov. 1, 1889, absorbed the Superior Water Works Company. Legal difficulties made it impossible for the new company to secure the contemplated easement on Minnesota Point opposite to

or within reaching distance of the pumping station already erected, and finally it was necessary to secure an easement opposite old Superior, which again necessitated the removal of the pumping plant to a point opposite Minnesota Point where the easement was obtained. An intake was laid across the Bay at this point and out into the Lake Superior a distance of 2000 feet.

The operation of this plant developed other obstacles. The source of supply proved satisfactory for some three years until the dredging operations undertaken by the U. S. government so contaminated the water with sewage as to necessitate the purchase of additional property on Minnesota Point and the construction of a filter plant. The results obtained under the operation of the filter plant were again disappointing. Animal and vegetable growths, sand fleas, algae, etc., made the water unattractive, if not dangerous. Additional investigation by hydraulic engineers and chemists resulted in the sinking of sixty wells in the sand on the lake side of Minnesota Point and on either side of the intake pipe. This change necessitated the purchase of additional land and the taking up of about 1,300 feet of intake pipe extending into the lake. This method again proved unsatisfactory since the water contained sufficient iron to cause trouble with crenothrix growth in the distribution system and discoloration of the water. To overcome this latter difficulty and in compliance with an ordinance of the city dated June 13, 1889, slow sand filters were installed to handle the water from the wells. This final change necessitated an enlargement and reconstruction of the pumping station, the installation of additional pumps, and the purchase of ground for filters.

Water rates were lowered by an ordinance of the city on Aug. 11, 1896, providing for a reduction of 20 per cent in both hydrant rentals and rates to private consumers, and this reduction was further increased by ordinances of June 27, 1899, and Oct. 13, 1899.

The Superior Light and Fuel Company was organized on Aug. 4, 1888, for the purpose of manufacturing and selling gas and operated under a franchise granted Aug. 10, 1888, obligating the company to lay eight miles of main and to erect and maintain 125 gas lights for public lighting, and specifying a rate of \$2.00 per M cubic feet for gas consumed. An amending ordinance, dated July 27, 1888, obligated the company to erect a plant sufficient to furnish 250,000 cubic feet of gas per day and to have the

plant completed by Nov. 1, 1889. The Superior Light and Fuel Company was absorbed by the Superior Water, Light and Power Company under deed dated Oct. 31, 1889, and the delivery of gas to consumers began when the new company took over the property. By ordinance of May 12, 1892, the city discontinued the use of all gas street lamps, it is alleged, at great loss to the company. In August, 1904, the source of supply was changed to the Zenith Furnace Company of West Duluth, and this change involved the laying of a connecting main. The old steam plant was still used to prevent freezing and the gas generation plant to provide emergency service.

By ordinance dated Sep. 24, 1903, a net price not to exceed \$1.40 per M for illuminating purposes, \$1.00 per M for fuel purposes, and 75 cts. per M for mechanical purposes was established for twenty years. This franchise was surrendered by the company on June 27, 1908, and an indeterminate permit obtained.

The original electric franchise, village of Superior, was granted on Jan. 3, 1888, to the Daft Electric Light Company, a New York corporation, to extend for a period of thirty years, and such rights, privileges and franchises were transferred to the Superior and Duluth Electric Company, a corporation organized on June 2, 1885, by deed dated Oct. 12, 1888. The Superior and Duluth Electric Company, in turn, sold all of the plant and works situated in the city of Superior to Robert C. Elliot on Oct. 25, 1889, the consideration being \$72,309.07. The property thus obtained was sold at the cost price to the Superior Water, Light and Power Company by deed dated Oct. 1, 1889. On July 13, 1889, the city of Superior granted a franchise to the Superior Arc Light and Power Company to construct and operate a system of electric arc lighting and to provide for the lighting of the streets, public grounds, and buildings. Some construction was completed under this franchise and all property and rights were conveyed to the Superior Water, Light and Power Company on Nov. 8, 1889, for a consideration of \$4,500.

Beginning Nov. 9, 1907, the respondent company began purchasing power from the Great Northern Power Company. The old plant is still furnishing stand-by service.

TABLE
BALANCE
SUPERIOR WATER, LIGHT
Nov. 1, 1890--

Italic figures denote debits.

	Nov. 1, 1890	Nov. 1, 1891	Nov. 1, 1892	Nov. 1, 1893
ASSETS.				
Cash and bank balance.....	\$4,591 86	\$7,385 15	\$13,767 49	\$3,263 09
Accounts and bills receivable.....	13,438 81	27,164 51	28,069 08	30,309 15
Merchandise.....	9,164 21	10,638 12	12,902 97	11,920 30
Expense inventories.....		549 30	31,183 50	34,902 41
Property and plant.....	321,461 62	610,876 84	1,103,767 83	1,116,039 48
Construction during year.....	372,154 96	496,526 74	61,940 81	107,934 34
Franchises, charters and grants.....	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00
Bonds in treasury.....	350,000 00		115,000 00	
Investment.....				
Current losses.....				25,929 44
Total assets.....	\$2,130,811 46	\$2,153,140 16	\$2,366,631 68	\$2,330,298 21
LIABILITIES.				
Accounts payable.....	\$43,179 04	\$111,175 11	\$146,827 28	\$23,814 19
Bills payable.....	236,550 00	160,000 00	47,800 00	134,479 62
Mortgages payable.....	850,000 00	850,000 00	1,115,000 00	1,115,000 00
Reserves.....				
Capital stock.....	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00
Surplus.....	1,082 42	30,882 63	31,865 65	57,004 40
Current profits.....	1,082 42	30,882 63	25,039 35	
Total liabilities.....	\$2,130,811 46	\$2,153,140 16	\$2,366,631 68	\$2,330,298 21

	Nov. 1, 1901	Nov. 1, 1902	Nov. 1, 1903	Nov. 1, 1904
ASSETS.				
Cash and bank balance.....	\$3,831 52	\$7,089 02	\$3,599 84	\$2,660 76
Accounts and bills receivable.....	41,708 18	22,680 28	23,400 87	20,107 62
Merchandise.....	21,177 04	21,238 06	33,929 64	26,140 89
Expense inventories.....	3,487 52	5,950 92	3,636 30	
Property and plant.....	1,551,662 47	1,570,876 00	1,597,486 10	1,625,074 57
Construction during year.....	19,205 53	23,232 82	27,518 15	25,362 03
Franchises, charters and grants.....	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00
Bonds in treasury.....	250,000 00	237,000 00	237,000 00	237,000 00
Investment.....				
Current losses.....	9,711 72			
Total assets.....	\$2,900,783 98	\$2,891,067 10	\$2,926,568 90	\$2,939,878 37
LIABILITIES.				
Accounts payable.....	\$23,154 95	\$22,841 83	\$32,372 23	\$27,887 49
Bills payable.....	138,029 00	117,329 00	128,579 00	128,329 00
Mortgages payable.....	1,750,000 00	1,750,000 00	1,750,000 00	1,750,000 00
Reserves.....				
Capital stock.....	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00
Surplus.....	10,399 97	20,111 69	896 27	15,617 67
Current profits.....		21,907 96	14,721 40	18,044 21
Total liabilities.....	\$2,900,783 98	\$2,891,067 10	\$2,926,568 90	\$2,939,878 37

I.
SHEETS.
& Power Co.
June 30, 1911.

Nov. 1, 1894	Nov. 1, 1895	Nov. 1, 1896	Nov. 1, 1897	Nov. 1, 1898	Nov. 1, 1899	Nov. 1, 1900
\$4,968 15	\$4,936 45	\$3,136 77	\$502 17	\$2,620 89	\$2,216 13	\$2,699 95
32,540 20	33,068 97	25,028 41	43,704 87	76,655 63	42,318 06	51,741 91
11,050 28	12,741 78	12,466 09	15,731 49	13,930 95	16,898 49	19,164 86
15,524 13	2,605 15	4,509 59	24,540 81	9,456 15	45,897 40	101,822 54
1,223,973 82	1,238,711 54	1,289,515 95	1,303,584 62	1,327,085 03	1,337,499 57	1,347,853 42
14,877 72	3,135 25	14,068 67	4,621 41	13,859 41	10,430 53	18,936 54
1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00
.....	.....	100,000 00	100,000 00	125,000 00	125,000 00	125,000 00
.....
9,054 81	1,618 72	.....	5,464 50	14,559 87	52,719 15	15,433 09
\$2,311,989 11	\$2,296,717 86	\$2,448,725 48	\$2,498,249 87	\$2,583,168 03	\$2,632,979 93	\$2,682,652 31
\$5,414 15	\$5,697 71	\$5,948 84	\$27,987 68	\$71,324 57	\$137,123 66	\$205,451 89
75,500 00	69,000 00	65,000 00	92,485 55	114,531 32	113,104 00	147,167 30
1,200,000 00	1,300,000 00	1,300,000 00	1,300,000 00	1,325,000 00	1,325,000 00	1,325,000 00
.....
1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00
31,074 96	22,020 15	20,401 43	77,776 64	72,312 14	57,752 27	5,633 12
.....	.....	57,375 21	.....	.....	.....	.....
\$2,311,989 11	\$2,296,717 86	\$2,448,725 48	\$2,498,249 87	\$2,583,168 03	\$2,632,979 93	\$2,682,652 31

Nov. 1, 1905	Nov. 1, 1906	Nov. 1, 1907	June 30, 1908	June 30, 1909	June 30, 1910	June 30, 1911
\$2,577 90	\$3,727 76	\$2,029 03	\$7,414 41	\$9,406 40	\$51,902 15	\$40,039 54
23,106 51	27,000 02	34,864 62	28,953 20	36,246 34	61,326 30	89,822 52
24,006 33	22,052 34	22,859 51	25,717 59	30,308 66	32,379 17	25,944 99
6,685 06	9,863 73	79,961 43	95,529 87	108,578 75	6,427 08	9,562 21
1,650,595 94	1,675,243 53	1,705,792 35	1,732,710 32	1,857,020 87	1,811,964 20	1,862,377 58
113,934 97	113,748 20	117,477 09	124,470 57	42,685 50	50,943 25	128,653 30
1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00
249,000 00	249,000 00	249,000 00	249,000 00	249,000 00	81,000 00	.....
.....	.....	.....	.....	.....	19,000 70	18,975 80
.....	.....	.....	.....	.....	19,796 09	16,344 92
\$3,069,916 71	\$3,100,635 68	\$3,211,983 43	\$3,263,795 96	\$3,333,246 52	\$3,134,738 94	\$3,191,720 86
\$32,561 67	\$29,069 09	\$26,527 81	\$15,696 15	\$19,249 26	\$24,111 95	\$33,931 86
129,425 50	132,298 50	113,829 00	118,695 72	108,380 00	.....	.....
1,850,000 00	1,850,000 00	1,850,000 00	1,850,000 00	1,850,000 00	1,800,000 00	1,800,000 00
.....	.....	110,500 00	150,418 24	194,978 39	149,988 12	216,946 22
1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00
33,661 88	57,929 54	89,267 99	111,126 62	128,985 85	160,638 87	140,842 78
24,267 66	31,338 45	21,858 63	17,859 23	31,653 02	.....	.....
\$3,069,916 71	\$3,100,635 58	\$3,211,983 43	\$3,263,795 96	\$3,333,246 52	\$3,134,738 94	\$3,191,720 86

TAB
CONDENSED STATEMENT
SUPERIOR WATER, GAS
WATER

	Year Ending			
	1890	1891	1892	1893
Gross Earnings:				
Hydrant rental.....	\$9,075 00	\$29,455 00	\$30,691 87	\$32,155 22
Rents.....	4,300 00	9,323 00	15,069 51	18,555 81
Collections.....	4,494 25	9,691 13	17,196 84	18,706 37
Total.....	\$17,829 25	\$48,471 13	\$62,958 22	\$69,417 40
Operating Expenses:				
Production.....	\$1,680 27	\$5,222 62	\$5,258 31	\$5,967 97
Distribution.....	419 07	960 82	1,048 29	968 92
General.....	3,170 58	4,105 25	4,379 60	5,176 89
Insurance, misc. and bad debts.....		490 00	1,533 00	5,657 00
Total.....	\$8,269 92	\$10,778 69	\$12,219 20	\$17,770 69
Taxes.....				
Total.....	\$8,269 92	\$10,778 69	\$12,219 20	\$17,770 69
Net earnings available for depreciation and return upon the investment.....	\$9,559 33	\$37,692 44	\$50,739 02	\$51,646 71
Add non-operating revenues.....	746 04	1,440 84	640 08	1,782 51
Total available.....	\$10,305 37	\$39,133 28	\$51,379 10	\$53,429 22

	Year Ending			
	1901	1902	1903	1904
Gross Earnings:				
Hydrant rental.....	\$23,200 02	\$23,522 64	\$23,854 89	\$23,958 20
Rents.....	29,426 72	30,813 63	31,978 70	30,244 40
Collection.....	14,921 80	19,355 20	21,232 20	22,529 65
Total.....	\$67,548 54	\$73,691 47	\$77,065 79	\$76,732 25
Operating Expenses:				
Production.....	\$10,665 55	\$11,786 34	\$13,934 66	\$11,748 90
Distribution.....	2,507 55	3,128 94	3,286 92	3,627 91
General.....	6,145 61	6,238 45	6,533 03	6,388 27
Insurance, misc. and bad debts.....	623 70	894 65	823 08	762 16
Total.....	\$19,942 21	\$22,048 38	\$24,577 69	\$22,527 24
Taxes.....	6,668 72	6,418 44	7,133 57	6,437 96
Total.....	\$26,610 93	\$28,466 82	\$31,711 26	\$28,965 20
Net earnings available for depreciation and return upon the investment.....	\$40,937 61	\$45,224 65	\$45,354 53	\$47,767 03
Add non-operating revenues.....				
Total.....	\$40,937 61	\$45,224 65	\$45,354 53	\$47,767 03
Deduct charges to profit and loss.....	4,018 00	522 00	195 00	622 00
Amount available.....	\$36,919 61	\$44,702 65	\$45,159 53	\$47,145 03

¹ Industrial.

L E 2.
EARNINGS AND EXPENSES.
AND ELECTRIC COMPANY.
DEPARTMENT.

Year Ending November 1.

1894	1895	1896	1897	1898	1899	1900
\$32,492 01	\$32,638 30	\$30,818 90	\$25,880 00	\$25,906 68	\$24,073 28	\$23,081 32
20,544 64	22,038 19	21,963 85	20,093 34	23,106 77	24,957 67	26,071 24
17,468 32	15,947 91	15,192 88	13,233 06	13,525 08	13,007 97	13,244 01
\$70,504 97	\$70,704 40	\$67,978 63	\$59,206 40	\$32,534 53	\$62,938 92	\$62,396 57
\$5,923 43	\$5,785 13	\$6,042 49	\$6,276 69	\$6,432 72	\$5,495 90	\$9,192 31
508 43	819 66	709 10	768 32	1,751 77	2,541 34	2,297 84
5,543 29	5,095 96	5,352 08	5,227 40	5,436 83	5,233 56	5,925 41
2,780 00	4,001 00	6,923 00	9,249 00	13,917 00	20,018 00	10,984 00
\$14,755 15	\$15,701 75	\$19,026 67	\$21,521 41	\$27,538 32	\$33,318 80	\$28,402 56
\$14,755 15	\$15,701 75	\$19,026 67	\$21,521 41	\$27,538 32	\$33,318 80	\$28,402 56
\$55,749 82	\$55,002 65	\$48,951 96	\$37,684 99	\$35,000 21	\$29,620 12	\$33,994 01
489 28	534 95		94 72			
\$56,239 10	\$55,537 60	\$48,951 96	\$37,779 71	\$35,000 21	\$29,620 12	\$33,994 01

November 1.

Year Ending June 30,

1905	1906	1907	8 mo. 1908	1909	1910	1911
\$24,082 32	\$24,240 10	\$24,385 83	\$16,408 00	Misc \$177 48 25,043 46	\$26,486 76	\$27,813 74
26,496 85	25,773 68	25,160 61	15,836 90	16,110 11	18,150 34	10,183 12
25,233 00	28,487 20	35,482 75	25,772 75	57,843 99	61,404 63	67,087 41
\$75,812 17	\$78,500 98	\$85,029 22	\$58,017 65	\$89,175 04	\$96,041 73	\$105,084 27
\$11,240 71	\$13,953 16	\$16,927 69	\$10,777 63	\$16,114 90	\$15,976 40	\$17,780 88
4,248 73	4,199 70	4,946 64	4,650 07	5,255 48	5,679 45	6,964 57
6,530 67	7,054 22	6,422 78	4,572 23	7,164 35	7,137 77	10,595 15
596 09	656 61	731 72	627 81			
\$22,616 20	\$25,863 69	\$29,028 83	\$20,627 74	\$28,534 73	\$28,793 62	\$35,340 60
7,500 92	6,280 09	6,923 52	5,069 04	7,651 08	7,796 60	8,536 96
\$30,117 12	\$32,143 78	\$35,952 35	\$25,696 78	\$36,185 81	\$36,590 22	\$43,877 56
\$45,695 05	\$46,357 20	\$49,076 87	\$32,320 87	\$52,989 23	\$59,451 51	\$61,206 71
			887 26	944 16	1,872 76	2,200 03
\$45,695 05	\$46,357 20	\$49,076 87	\$33,208 13	\$53,933 39	\$61,324 27	\$63,406 74
\$1,278 00	\$521 00		377 48			
\$44,487 05	\$45,836 20	\$49,076 87	\$32,830 65	\$53,933 39	\$61,324 27	\$63,406 74

TABLE
CONDENSED STATEMENT,
SUPERIOR WATER, GAS
GAS

	Year Ending			
	1890	1891	1892	1893
Gross Earnings:				
Street lamps.....	\$3,259 38	\$4,461 88	\$4,508 42	.....
Collections.....	9,086 88	23,453 53	31,708 90	\$34,919 08
Total.....	\$12,346 26	\$27,915 41	\$36,217 32	\$34,919 08
Operating Expenses:				
Production.....	\$5,367 67	\$6,500 90	\$7,812 03	\$10,082 63
Distribution.....	866 63	1,103 99	1,165 58	524 26
General operation.....	2,707 45	3,036 37	3,027 19	3,930 72
Insurance misc. & bad debts.....	716 56	303 00	2,157 00	1,156 00
Total.....	\$9,658 31	\$10,944 26	\$14,161 80	\$16,693 61
Taxes.....				
Total.....	\$9,658 31	\$10,944 26	\$14,161 80	\$16,693 61
Net earnings available for depreciation and return on the investment.....	\$2,687 95	\$16,971 15	\$22,055 52	\$18,825 47
Add non-operating revenues.....	268 31	941 42	172 47	15 74
Total available.....	\$2,956 26	\$17,912 57	\$22,227 99	\$18,841 21

	Year Ending			
	1901	1902	1903	1904
Operating Revenues:				
Street lamps.....				
Collections.....	\$30,795 30	\$37,232 71	\$41,369 25	\$40,907 97
Total.....	\$30,795 30	\$37,232 71	\$41,369 25	\$40,907 97
Operating Expenses:				
Production.....	\$11,918 64	\$14,234 11	\$18,295 76	\$20,552 30
Distribution.....	2,556 95	2,422 62	2,999 93	4,041 03
General operation.....	5,786 35	5,059 76	5,473 04	5,676 26
Insurance, misc. & bad debts.....	547 82	558 00	583 27	598 08
Total.....	\$20,809 76	\$22,314 49	\$27,352 00	\$30,867 67
Taxes.....	1,261 18	1,475 40	1,139 92	1,066 32
Total.....	\$22,070 94	\$23,789 89	\$28,491 62	\$31,933 99
Net earnings available for depreciation and return of investment.....	\$8,724 36	\$13,442 82	\$12,877 63	\$8,973 98
Deduct charges to profit and loss.....	3,260 00	248 00	479 00	859 00
Amount available.....	\$5,464 36	\$13,194 82	\$12,398 63	\$8,114 98

¹Deficit.

3.
EARNINGS AND EXPENSES,
AND ELECTRIC CO.
DEPARTMENT.

November 1.

1894	1895	1896	1897	1898	1899	1900
\$24,715 23	\$21,052 64	\$20,669 47	\$21,311 01	\$21,412 80	\$21,014 84	\$27,292 44
\$24,715 23	\$21,052 64	\$20,669 47	\$21,311 01	\$21,412 80	\$21,014 84	\$27,292 44
\$7,031 89 469 22 4,297 00 2,047 00	\$6,354 24 738 74 3,514 31 4,774 00	\$6,673 25 871 08 3,505 94 6,566 00	\$7,175 76 697 35 3,449 36 5,390 00	\$6,072 60 684 39 3,436 45 1,130 00	\$6,973 93 921 90 3,450 99 11,378 00	\$11,542 46 2,053 63 4,353 44 6,849 00
\$13,845 11	\$15,281 32	\$17,616 27	\$16,712 47	\$11,323 44	\$22,724 82	\$25,098 53
\$13,845 11	\$15,281 32	\$17,616 27	\$16,712 47	\$11,323 44	\$22,724 82	\$25,098 53
\$10,870 12 9 12	\$5,771 32 5 93	\$3,053 20	\$4,598 54	\$10,089 36	\$11,709 98	\$2,193 91
\$10,879 24	\$5,777 25	\$3,053 20	\$4,598 54	\$10,089 36	\$11,709 98	\$2,193 91

November 1.

Year Ending June 30,

1905	1906	1907	8 mo. 1908	1909	1910	1911
\$43,544 04	\$48,058 04	\$55,818 78	\$39,155 09	\$59,079 88	\$64,424 02	\$68,710 27
\$43,544 04	\$48,058 04	\$55,818 78	\$39,155 09	\$59,079 88	\$64,424 02	\$68,710 27
\$16,121 09 3,350 70 6,082 01 888 68	\$16,750 50 3,849 35 6,354 59 548 88	\$19,081 21 4,544 50 7,545 21 631 72	\$14,232 61 3,571 68 5,898 36 479 69	\$20,828 79 5,998 04 8,860 45	\$22,258 60 6,653 49 9,006 87	\$23,969 02 7,454 81 10,518 64
\$26,442 48 1,284 36	\$27,503 32 1,268 14	\$31,802 64 1,864 01	\$24,182 34 1,758 68	\$35,687 78 2,359 25	\$37,978 96 2,304 26	\$41,972 47 2,655 40
\$27,726 84	\$28,771 46	\$33,666 65	\$25,941 02	\$38,047 03	\$40,283 22	\$44,627 87
\$15,817 20 1,290 00	\$19,286 58 1,690 00	\$22,152 13 1,253 00	\$13,214 07 2,776 55	\$21,032 85 1,290 45	\$24,140 80 1,160 12	\$24,082 40 2,276 45
\$14,527 20	\$17,596 58	\$20,899 13	\$10,437 52	\$19,742 40	\$22,980 68	\$23,805 95

² Non-operating loss

TABLE
CONDENSED STATEMENT
SUPERIOR WATER, GAS
ELECTRIC

	Year Ending			
	1890	1891	1892	1893
Gross Earnings:				
Municipal arcs.....	\$13,990 05	\$21,652 65	\$28,239 65	\$32,354 76
Power.....	2,642 14	8,356 14	3,011 00	3,597 63
Commercial lighting.....	13,087 84	24,216 28	34,469 81	40,395 68
Total.....	\$30,320 03	\$54,225 07	\$65,720 46	\$76,348 07
Operating Expenses:				
Production.....	\$12,089 59	\$18,758 24	\$23,545 85	\$33,700 23
Distribution.....	3,075 04	5,849 74	6,398 06	6,230 84
General.....	3,385 92	5,028 49	5,876 79	6,738 40
Insurance, miscellan. and bad debts	737 00	446 00	1,376 00	2,621 00
Total.....	\$19,287 55	\$30,682 47	\$37,196 70	\$49,290 47
Taxes.....				
Total.....	\$19,287 55	\$30,682 47	\$37,196 70	\$49,290 47
Net earnings available for depreciation and return upon the investment.....	\$11,032 48	\$23,542 60	\$28,523 76	\$27,057 60
Add non-operating revenues.....	648 34	1,295 13	1,958 46	784 21
Total available.....	\$11,680 82	\$24,837 73	\$30,482 22	\$27,841 81

	Year Ending			
	1901	1902	1903	1904
Gross Earnings:				
Municipal arcs.....	\$12,655 84	\$12,095 92	\$12,266 85	\$13,081 61
Power.....	4,178 51	4,155 40	4,008 30	4,412 20
Commercial lighting.....	43,761 35	42,028 09	42,643 60	45,469 02
Total.....	\$60,595 70	\$58,279 41	\$58,918 75	\$62,962 83
Operating Expenses:				
Production.....	\$21,068 94	\$18,503 24	\$25,011 56	\$24,380 14
Distribution.....	8,994 19	9,102 95	10,168 53	9,246 53
General.....	6,426 10	7,634 98	7,271 06	7,360 63
Insurance, miscellan. and bad debts	808 13	848 75	794 69	861 65
Total.....	\$37,297 36	\$36,689 92	\$43,245 84	\$41,848 95
Taxes.....	1,696 55	1,788 81	1,875 95	1,807 44
Total.....	\$38,993 91	\$38,478 73	\$45,121 79	\$43,656 39
Net earnings available for depreciation and return upon the investment.....	\$21,601 79	\$20,400 68	\$13,796 96	\$19,306 44
Add non-operating revenues.....				
Total.....	\$21,601 79	\$20,400 68	\$13,796 96	\$19,306 44
Deduct charges to profit and loss.....	5,534 00	1,584 00	1,112 00	543 00
Amount available.....	\$16,067 79	\$18,816 68	\$12,684 96	\$18,763 44

4.
EARNINGS AND EXPENSES.
AND ELECTRIC COMPANY.
DEPARTMENT.

November 1,

1894	1895	1896	1897	1898	1899	1900
\$32,849 62	\$33,668 66	\$33,645 98	\$33,648 15	\$18,873 16	12,441 51	\$12,601 86
3,492 45	3,633 35	3,480 85	2,688 05	2,831 20	2,296 27	4,893 23
23,300 37	22,592 30	24,878 35	24,885 63	29,829 58	\$33,878 59	41,340 44
\$59,642 44	\$59,894 31	\$62,005 18	\$61,219 83	\$51,533 94	\$48,616 37	\$58,835 53
\$16,634 33	\$14,543 08	\$14,603 89	\$15,375 39	\$12,725 68	\$14,069 32	\$19,223 96
5,693 62	5,495 96	6,147 37	6,189 09	5,285 44	6,365 41	7,112 62
7,394 50	6,631 21	6,681 77	6,750 71	6,951 39	5,619 19	6,549 36
3,760 00	8,011 00	5,759 00	7,335 00	3,759 00	13,562 00	8,460 00
\$33,512 45	\$34,681 25	\$33,192 03	\$35,650 19	\$28,721 51	\$39,615 92	\$41,645 94
\$33,512 45	\$34,681 25	\$38,192 63	\$35,650 19	\$28,721 51	\$39,615 92	\$41,645 94
\$26,129 99	\$25,213 06	\$28,813 15	\$25,569 64	\$22,812 43	\$9,000 45	\$17,189 59
289 98	621 49	1,606 98	795 82	309 51		387 12
\$26,419 97	\$25,834 55	\$30,420 13	\$26,365 46	\$23,121 94	\$9,000 45	\$17,576 71

November 1,

Year Ending June 30,

1905	1906	1907	8 mo. 1908	1909	1910	1911
\$13,810 64	\$13,770 77	\$13,696 13	\$10,127 72	\$16,632 60	\$17,926 60	\$19,364 98
5,030 40	10,145 05	18,322 65	14,180 38	16,601 14	18,839 59	15,846 85
48,284 11	55,021 41	68,567 79	54,861 32	74,875 27	88,479 63	102,193 54
\$67,125 15	\$78,937 23	\$100,586 57	\$79,169 42	\$108,109 01	\$125,245 82	\$137,405 37
\$24,779 07	\$31,656 15	\$31,610 02	\$25,567 96	\$31,238 75	\$34,095 95	\$35,678 83
10,096 70	11,204 36	12,115 60	8,594 62	12,180 52	14,167 27	13,767 66
7,654 93	9,127 63	9,349 89	7,263 06	12,466 11	14,051 62	15,686 26
955 20	984 46	1,349 98	744 18			
\$43,485 90	\$52,972 60	\$54,425 49	\$42,169 82	\$55,885 38	\$62,314 84	\$60,132 75
2,033 02	1,706 06	2,431 68	2,138 72	3,421 04	3,519 78	4,230 13
\$45,518 92	\$54,678 66	\$56,857 17	\$44,308 54	\$59,506 42	\$65,834 62	\$69,362 88
\$21,606 23	\$24,258 57	\$43,729 40	\$34,860 88	\$48,802 59	\$59,411 20	\$68,042 49
			1,270 75	1,150 96	4,729 78	3,770 42
\$21,606 23	\$24,258 57	\$43,729 40	\$36,131 63	\$49,953 55	\$64,140 98	\$71,812 91
494 00	393 00		226 48			
\$21,112 23	\$23,865 57	\$43,729 40	\$35,905 15	\$49,953 55	\$64,140 98	\$71,812 91

TA
CONDENSED STATEMENT
SUPERIOR WATER, GAS
ALL DE

	<i>Year Ending</i>			
	1890	1891	1892	1893
Gross Earnings:				
Hydrant rental.....	\$9,035 00	\$29,455 00	\$60,691 87	\$82,155 22
Water collection and rents.....	8,794 25	19,016 13	32,266 35	37,262 18
Gas collections.....	12,346 26	27,915 41	36,217 32	34,919 08
Electric collections.....	30,320 03	54,225 07	65,720 46	76,348 07
Total	\$60,495 54	\$130,611 61	\$164,896 00	\$180,684 55
Operating Expenses:				
Production—Water dept.....	\$4,630 27	\$5,222 62	\$5,258 31	\$5,967 97
Production—Gas dept.....	5,367 67	6,500 90	7,812 03	10,082 63
Production—Electric dept.....	12,089 59	18,758 24	23,545 85	33,700 23
Distribution—Water.....	419 07	960 82	1,048 29	968 92
Distribution—Gas.....	866 63	1,103 99	1,165 58	524 26
Distribution—Electric.....	3,075 04	5,849 74	6,398 06	6,230 84
General—Water.....	3,170 58	4,105 25	4,379 60	5,176 80
General—Gas.....	2,707 45	3,036 37	3,027 19	3,930 72
General—Electric.....	3,385 92	5,628 49	5,876 79	6,738 40
Insurance misc. and bad debts (W).....		490 00	1,533 00	5,657 03
Insurance (G).....	716 56	303 00	2,157 00	1,556 00
Insurance (E).....	737 00	446 00	1,376 00	2,621 00
Total	\$37,215 78	\$52,405 42	\$63,577 70	\$83,154 77
Taxes (W. G. & Elec.)				
Total	\$37,215 78	\$52,405 42	\$63,577 70	\$83,154 77
Net earnings available for depreciation and return on the investment	\$23,279 76	\$78,206 19	\$101,318 30	\$97,529 78
Add non-operating revenue	1,662 69	3,677 41	2,771 01	2,582 46
Total available	\$24,942 45	\$81,883 60	\$104,089 31	\$100,112 24

BLE 5.
EARNINGS AND EXPENSES.
AND ELECTRIC COMPANY.
PARTMENTS.

November 1.

1894	1895	1896	1897	1898	1899	1900
\$32,492 01	\$32,688 30	\$30,818 90	\$25,880 00	\$25,906 68	\$24,973 28	\$23,081 32
38,012 96	35,016 10	37,159 73	33,326 40	36,631 85	37,965 64	39,315 25
24,715 23	21,052 64	20,669 47	21,311 01	21,412 80	21,014 84	27,292 44
59,642 44	59,894 31	62,005 18	61,219 83	51,533 94	48,616 37	58,835 53
\$154,862 64	\$151,651 35	\$150,653 28	\$141,737 24	\$135,485 27	\$132,570 13	\$149,524 54
\$5,923 43	\$5,785 13	\$6,042 49	\$6,276 69	\$6,432 72	\$5,495 90	\$9,192 31
7,031 89	6,354 24	6,673 25	7,175 76	6,072 60	6,973 93	11,842 46
16,034 33	14,543 08	14,603 89	15,375 39	12,725 68	14,069 32	19,223 96
508 43	819 66	709 10	768 32	1,751 77	2,541 34	2,297 84
469 22	638 74	871 08	687 35	1,384 39	921 90	2,053 63
5,093 62	5,495 96	6,147 37	6,189 09	5,285 44	6,365 41	7,412 62
5,543 29	5,095 96	5,352 08	5,227 40	5,436 83	5,233 56	5,928 41
4,297 00	3,514 34	3,505 94	3,449 36	3,436 45	3,450 99	4,353 44
7,394 50	6,631 21	6,681 77	6,750 71	6,951 39	5,619 19	6,549 36
2,780 00	4,001 00	6,923 00	9,249 00	13,917 00	20,048 00	10,984 00
2,047 00	4,744 00	6,566 09	5,390 00	1,130 00	11,378 00	6,849 00
3,790 00	8,011 00	5,759 00	7,335 00	3,759 00	13,562 00	8,460 00
\$62,112 71	\$65,664 32	\$69,834 97	\$73,884 07	\$67,583 27	\$95,659 54	\$35,147 03
.....
\$62,112 71	\$65,664 32	\$69,834 97	\$73,884 07	\$67,583 27	\$95,659 54	\$95,147 03
\$92,749 93	\$35,967 03	\$80,818 30	\$67,853 17	\$67,902 00	\$36,910 59	\$53,377 51
788 38	1,162 37	1,006 98	890 54	309 51	.....	387 12
\$93,538 31	\$87,149 40	\$82,425 28	\$68,743 71	\$68,211 51	\$36,910 59	\$53,764 63

TABLE 5

	Year Ending			
	1901	1902	1903	1904
Gross Earnings:				
Hydrant rental.....	\$23,200 02	\$23,522 64	\$23,854 89	\$23,958 20
Water collection and rents.....	44,348 52	50,168 83	53,210 90	52,774 05
Gas collections.....	30,795 30	37,232 71	41,369 25	40,967 47
Electric collections.....	60,595 70	58,279 41	58,918 75	62,962 83
Total.....	\$158,939 54	\$169,203 59	\$177,353 79	\$180,603 05
Operating Expenses:				
Production—Water department.....	\$10,665 35	\$11,786 34	\$13,934 66	\$11,748 90
Production—Gas department.....	11,918 64	14,234 11	18,295 76	*20,552 39
Production—Electric department.....	21,068 94	18,503 24	25,011 56	24,380 14
Distribution—Water.....	2,507 55	3,128 94	3,286 92	3,627 91
Distribution—Gas.....	2,556 95	2,422 62	2,999 93	4,041 03
Distribution—Electric.....	8,994 19	9,102 95	10,168 53	9,246 53
General—Water.....	6,145 61	6,238 45	6,533 03	6,388 27
General—Gas.....	5,786 35	5,099 76	5,473 04	5,676 26
General—Electric.....	6,426 10	7,634 98	7,271 06	7,360 63
Insurance, misc. and bad debts (W)	623 70	894 65	823 08	762 16
Insurance, " " " " (G)	547 82	558 00	583 27	598 08
Insurance, " " " " (E)	808 13	848 75	794 69	861 65
Total.....	\$78,043 33	\$80,452 79	\$95,175 53	\$95,243 86
Taxes (W. G. & Elec.).....	9,626 45	9,682 65	10,149 14	9,311 72
Total.....	\$87,675 78	\$90,135 44	\$105,324 67	\$104,555 58
Net earnings available for depreciation and return on the investment.....	\$71,263 76	\$79,068 15	\$72,029 12	\$76,047 47
Add non-operating revenue.....				
Total.....	\$71,263 76	\$79,068 15	\$72,029 12	\$76,047 47
Deduct profit and loss charges.....	12,812 00	2,354 00	1,786 00	2,034 00
Amount available.....	\$58,451 76	\$76,714 15	\$70,243 12	\$74,013 47

¹ Includes \$177.48 miscellaneous.

Concluded.

November 1,			Year Ending June 30,			
1905	1906	1907	8 mo. 1908.	1909	1910	1911
\$24,082 32	\$24,240 10	\$24,385 83	\$16,408 00	\$25,043 46	\$26,486 76	\$27,813 74
51,729 85	54,260 88	60,643 39	41,609 65	¹ 64,131 58	69,554 97	77,270 53
43,544 04	48,058 04	55,818 78	39,155 09	59,079 88	64,424 02	68,710 27
67,125 15	78,937 23	100,586 57	79,169 42	108,109 01	125,245 82	137,405 37
\$186,481 36	\$205,496 25	\$241,434 57	\$176,342 16	\$256,363 93	\$285,711 57	\$311,199 91
\$11,240 71	\$13,953 16	\$16,927 69	\$10,777 63	\$16,114 90	\$15,976 40	\$17,780 88
16,121 09	16,750 50	19,081 21	14,232 61	20,828 79	22,258 60	23,969 02
24,779 07	31,656 15	31,610 02	25,567 96	31,238 75	34,095 95	35,678 83
4,248 73	4,199 70	4,946 64	4,650 07	5,255 48	5,679 45	6,964 57
3,350 70	3,849 35	4,544 50	3,571 68	5,998 04	6,653 49	7,454 81
10,096 70	11,204 36	12,115 60	² 8,594 62	² 12,180 52	² 14,167 27	13,767 66
6,530 67	7,054 22	6,422 78	4,572 23	7,164 35	7,137 77	10,595 15
6,082 01	6,354 59	7,545 21	5,888 36	8,860 95	9,066 87	10,548 64
7,654 93	9,127 63	9,349 89	7,263 06	12,466 11	14,051 62	15,686 26
596 09	656 61	731 72	627 81	.....	.....	.....
888 68	548 88	631 72	479 69	.....	.....	.....
955 20	984 46	1,349 98	744 18	.....	.....	.....
\$92,544 58	\$106,339 61	\$115,256 96	\$86,979 90	\$120,107 89	\$129,087 42	\$142,445 82
10,818 30	9,254 29	11,219 21	8,966 44	13,431 37	13,620 64	15,422 49
\$103,362 88	\$115,593 90	\$126,476 17	\$95,946 34	\$133,539 26	\$142,708 06	\$157,868 31
\$83,118 48	\$89,902 35	\$114,958 40	\$80,395 82	\$122,824 67	\$113,003 51	\$153,316 00
.....	.....	.....	2,158 01	804 67	5,442 42	5,694 00
\$83,118 48	\$89,902 35	\$114,958 40	\$82,553 83	\$123,629 34	\$148,445 93	\$159,025 60
2,992 00	2,604 00	1,253 00	3,380 51	.....	.....	.....
\$ 0,126 48	\$87,298 35	\$113,705 40	\$79,173 32	\$123,629 34	\$148,445 93	\$159,025 60

² Contains consumption expenses.

The development of the property, as reflected upon the books of the company, is summarized in a comparative balance sheet statement table 1 and comparative income account statement tables 2, 3, 4 and 5, summarizing earnings, expenses and net income available for depreciation and return upon the investment for the water, gas, electric and total of all departments from the date of reorganization until June 30, 1912.

These statements have been compiled from the detailed reports prepared by Temple Webb & Company, certified public accountants of St. Paul and Minneapolis. The terminology and form of presentation as follows is that contained in the accountants report.

Referring to table 1, it will be noted that there has been a total increase in assets of \$1,044,564.48 between Nov. 1, 1890, and June 30, 1911. The detail of these increases and decreases of resources and liabilities is as follows:

	Nov. 1, 1890.	June 30, 1911.	Increase.	Decrease.
RESOURCES:				
Cash and cash balances.....	\$4,561 86	\$40,039 54	\$35,447 68	
Rents and bills rec.....	13,438 81	89,822 52	76,383 71	
Merchandise.....	9,164 21	25,944 99	16,780 78	
Expense inventories.....		9,562 21	9,562 21	
Property and plant.....	381,461 02	1,862,377 58	1,480,915 96	
Construction during year.....	372,154 96	128,653 30		\$243,501 66
Franchises, charters and grants.....	1,000,000 00	1,000,000 00		
Bonds in treasury.....	350,000 00			350,000 00
Investments.....		18,975 80	18,975 80	
Total.....	\$2,130,811 46	\$3,175,375 94	\$1,044,564 48	
LIABILITIES:				
Accts. payable.....	\$43,179 04	\$33,931 86		\$9,247 18
Bills payable.....	236,350 00			236,350 00
Mortgages payable.....	850,000 00	1,800,000 00	950,000 00	
Reserves.....		216,946 22	216,946 22	
Capital stock.....	1,000,000 00	1,000,000 00		
Total.....	\$2,129,729 04	\$3,050,878 08	\$921,149 04	
Surplus.....	1,082 42	124,497 86	\$123,415 44	
	\$2,130,811 46	\$3,175,375 94	\$1,044,564 48	

It will be noted that the additions to property and plant have been met by increases in mortgages payable and by the increases in reserves and surplus on hand.

Referring to the income account table, decreases are noted in the earnings during the period 1893 to 1894, this being coincident with the period of business depression with which Superior was particularly affected. The low year in the water plant was reached in 1897, the low year in the gas plant in 1896, and the

low year in the electric plant in 1899. From these years on the business shows an almost steady increase.

VALUE.

Complainant contends that the amount upon which a rate of return should be allowed is properly limited to the present value of the physical property. The respondent company points out that such a value ignores the existence of intangible elements which in the present case, it is contended, reach substantial proportion. Stress is also laid upon the investment or cost to the owners as an element of value. The evidence submitted upon the various factors usually included in valuations for rate-making purposes has been thorough and is not a matter of extended controversy in the present case. The question of valuation has therefore resolved itself into an examination of principles rather than a further sifting and discussion of facts.

ORIGINAL COST.

From table 1 it is noted that the plant account aggregated \$381,461.62 at the time of reorganization on Dec. 1, 1889. To this has been added \$372,154.96 construction during year, giving total cost of plant for year ending Nov. 1, 1890, of \$753,616.58.

Summarized, the original investments in the three properties were as follows:

Water department	\$210,000.00
Gas department	94,073.33
Electric department	77,388.29
Total	<u>\$381,461.62</u>

The original cost of the water plant is thus described in the report of Temple Webb and Company:

“There are outstanding \$200,000 in 6% bonds of the Superior Water Works Company redeemable November 1, 1890 at 5% premium. The \$210,000 required to redeem these bonds represents the cost to the Superior Water, Light & Power Company of the Superior water works plant acquired by it. The sum of \$260,000 of the Superior Water, Light & Power Co. 5% first mortgage bonds are deposited with the Central Trust Co. to secure the payment of the \$210,000 to the Superior Water Works Company on or before November 1, 1890.”

A memorandum appearing upon the books of the company in regard to the original cost of the gas plant states:

“Amount paid to W. S. Culbertson & First National Bank, New Albany, for the following notes of the Superior Light & Fuel Company. These notes were given by said company for money borrowed by it to build gas works at Superior. All the rights, franchises and contracts of said company have been duly transferred and assigned to the Superior Water, Light & Power Company, which latter company assumed all of the indebtedness of the Superior Light & Fuel Company.

Superior Light & Fuel Co.....		\$76,886.11	
Paid bill Detroit Pipe & Foundry Co. v. Superior L. & P. Co.		5,133.35	
Paid bill Morris Tasher & Co. v. Superior L. & F. Co.....		2,500.00	
Payment of balance due on one mile of gas pipe laid by original projectors		1,711.00	
Payment bill Rochester Iron Works.....		1,273.00	
Misc. bills paid.....		135.00	
Tel. tolls paid in connection with construction matters....		41.98	
Misc. bills paid.....		14.76	
Paid Morris Tasher & Company.....		1,500.00	
Paid American Meter Co.....		1,504.75	
Legal services—organization		625.00	
Paid bill Nat. G. L. & Fuel Co. v. Superior L. & F. Co.....		4,522.41	
			\$95,847.36
Less estimated value of horses on hand transferred to Live Stock account.....	\$1,400.00		
Collection bills of Superior L. & F. Co.....	374.03		1,774.03
Total			\$94,073.33

Similarly the following memorandum relates to the original cost of the electric department:

“Nov. 1889: Amount paid to R. C. Elliot for the plant and property of the Superior and Duluth Electric Company, said Elliot having acquired same from R. L. Belknap and associates, same price. This amount includes sums paid in by original owners, and interest to date at 6 per cent upon same, but does not include sundry items of cost represented by subsequent entries as to two notes outstanding aggregating \$1,500.00 and interest thereon, and this sum of \$1,830.97 representing accounts due by the Superior & Duluth Electric Company. Against these additional charges are credits respectively of \$319.39, \$1,090.41 and \$590.70, shown by subsequent entries. The essence of this entry being that this company purchased the plant for a sum representing actual cost to owners as above stated, acquiring all assets and assuming all liabilities		\$72,309.07
Cash paid U. W. Elec. Construction and Supply Company, assignee of the Superior Arc Light & Power Company, for the franchises granted by the city of Superior to said Superior Arc Light & Power Company and for the pole line erected by it.....		4,500.00

Estimated value of supplies on hand turned over by the Superior & Duluth Electric Company, as part of its assets	\$1,500.00
Vouchers, bills and pay rolls of Superior & Duluth Electric Company unpaid	1,830.97
	<hr/>
	\$80,140.04
Less bills for collection due Superior & Duluth Electric Company	2,751.75
	<hr/>
Value at commencement.....	\$77,388.29

PROPERTY.

From the report of Temple Webb & Company it appears that the increases in property value recorded upon the book will aggregate \$1,609,568. This sum was expended upon the three utilities as follows:

Water department	\$850,077
Gas department	215,979
Electric department	543,512
	<hr/>
Total	\$1,609,568

It is admitted that this amount includes property aggregating \$190,608 which is now discarded, items for organization aggregating \$5,458, discount on bonds charged to capital aggregating \$183,249, and losses due to depreciation in real estate amounting to \$30,610.

It is the contention of the respondent that these values are properly made a part of the capitalization upon which a fair rate of return is allowed unless additional compensation is made for the risks they represent in the rate of return. Including such items it would appear that the investment cost as appearing upon the books will aggregate \$1,991,029, which has been distributed among the three utilities as follows:

Water department	\$1,060,077
Gas department	310,052
Electric department	620,900
	<hr/>
Total	\$1,991,029

APPRAISED VALUE.

A detailed inventory and appraisal of the property used and useful for water, gas and electric service was prepared by the engineer of the Commission and discloses the following costs to reproduce new and existing values including materials and supplies of date June 30, 1911:

RAILROAD COMMISSION OF WISCONSIN.

	Cost of reproduction	
	New.	Existing.
Water department.....	\$888,322	\$838,242
Gas department.....	251,849	218,195
Electric department.....	395,096	295,575
Non-operating property.....	29,396	8,184
	\$1,564,663	\$1,360,196

These values have been made the matter of careful check by both parties to the complaint and are evidently accepted under the provisions of the following stipulation:

“It is hereby stipulated and agreed by and between the above named complainants and defendant, by their respective attorneys, that the quantities and unit values as contained in the engineer’s tentative valuations made for the Railroad Commission herein will not be questioned by either party in this proceeding, it being the intention and purpose of this stipulation that the said engineer’s tentative valuation is correct in so far as it goes, but either party has the right to supplement any omission therein; and it is further stipulated that an addition of 12 per cent for engineering and so forth as fixed by the engineer’s tentative valuation will not be questioned by either party.

[Signed] Hanitch & Hartley
Attorneys for Complainant.

[Signed] Grace & Hudnall,
Attorneys for Respondent.”

The final summary of the detailed valuation was submitted by the engineer after consideration of the list of omissions submitted by the respondent and after the hearing follows:

TABLE 6.
FINAL SUMMARY.
APPRAISED VALUE SUPERIOR WATER, LIGHT & POWER CO.
As of June 30, 1911.

Classification.	WATER.		GAS.		ELECTRIC.		TOTAL.	
	Cost new.	Present value.	Cost new.	Present value.	Cost new.	Present value.	Cost new.	Present value.
A. Land.....	\$26,693	\$26,693	\$4,043	\$4,043	\$4,114	\$4,114	\$34,850	\$34,850
B. Transmission and distribution system.....	590,328	571,027	142,213	121,071	192,353	139,107	924,934	841,205
C. Buildings and miscellaneous structures....	93,976	90,375	5,794	4,519	35,595	30,555	135,365	125,449
D. Power plant equipment	66,710	46,979	61,089	44,776	102,482	75,391	230,281	167,146
E. General equipment....	8,347	6,268	4,057	2,866	8,040	4,599	20,444	13,733
F. Paving.....	66	64	2,566	2,458	.....	.....	2,632	2,502
Total.....	\$786,120	\$741,406	\$219,762	\$189,713	\$342,624	\$253,766	\$1,348,506	\$1,184,885
Add 12% (see note below) ..	94,334	88,968	26,371	22,766	41,115	30,452	161,800	142,186
Total.....	\$880,454	\$830,374	\$246,133	\$212,479	\$383,739	\$284,218	\$1,510,326	\$1,327,071
H. Materials and supplies	7,868	7,868	5,716	5,716	11,357	11,357	24,941	24,941
Total.....	\$888,322	\$838,242	\$251,849	\$218,195	\$395,096	\$295,575	\$1,535,267	\$1,352,012
J. Non-operating.....	.....	.....	.....	.....	.....	.....	29,396	8,184
Total.....	\$888,322	\$838,242	\$251,849	\$218,195	\$395,096	\$295,575	\$1,564,663	\$1,360,196

NOTE:—Addition of 12% to cover engineering, superintendence, interest during construction, contingencies, etc.

RECONCILIATION OF COST OF REPRODUCTION NEW AND INVESTMENT VALUE.

The company submits the statement which follows, reconciling the tentative valuation of the physical property by the staff with the book value of the plants:

	Water	Gas	Electric
A. Commission's tentative value, net of operating property only.....	\$885,465	\$251,849	\$395,096
Less stores and supplies.....	7,868	5,716	11,357
Balance.....	\$877,597	\$246,133	\$383,739
B. Add gas services at cost on company's books.....		23,218	
C. Add cost discarded apparatus, etc.....	\$877,597	\$269,351	\$383,739
	65,000	4,808	120,800
D. Add cost real estate in excess of valuation.....	\$942,597	\$274,159	\$504,539
	14,650	5,794	10,166
E. Add reorganization expense.....	\$957,247	\$279,953	\$514,705
	2,889	1,159	1,410
F. Add gas services charged to profit and loss in 1893.....	\$960,136	\$281,112	\$516,115
		1,696	
G. Add construction items—not valued by Commission, being incomplete.....	\$960,136	\$282,808	\$516,115
	3,954		
H. Discounts on bonds charged to plant.....	\$964,090	\$282,808	\$516,115
	89,737	31,985	61,527
Book value on company's books, June 30, 1911..	\$1,053,827	\$314,793	\$577,642
	1,060,077	310,052	620,900
Book value excess of Commission's valuation plus additions.....	\$6,250		\$43,258
Book value less than Commission's valuation plus additions.....		\$1,741	

All of these differences are claimed by the respondents as additions properly made to the cost of reproduction new.

Examining each of these items separately the following facts are noted:

B. *Gas services at cost on company's books.* This item represents gratuitous work performed by the utility in an effort to secure added consumers. A policy of extending service pipes from the main at rates below the actual cost of such service has been responsible, it appears, for the greater part of this item. Following a precedent which has been laid down in the case *State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, such expenses are considered as operating expenses rather than capital charges.

“To put in piping or connections between the curb and the house, wholly or partly at their own expense, is a practice that is quite common among public utilities. This practice is undoubtedly quite effective as an aid in extending their business, and this is undoubtedly the main reason for its existence as well as the main ground upon which it is justified. In order to be a success from a financial point of view, public utilities, the same as other enterprises, must have customers, and these, even for

the former, are not always secured without cost. This is especially true in cases where the desire is to secure this business more promptly or with less delay than that which is quite common where the demand for the services is left to take its course and is not stimulated by artificial means. In a general way it can perhaps be said, that the greater the business of such a utility is, the lower are also its rates and the better the service it renders. Extensions in their business, even when secured through the expenditures of money and efforts, are therefore in line with sound business principles and in harmony with the best interests of the plant as well as of its customers. Expenditures for the development of the business, when reasonable and when well placed, would, therefore, seem to be legitimate and to constitute a charge that, in some form, should be borne by the customers or by those who avail themselves of the service in question. Whether these expenditures should be charged to construction and thereby become a permanent charge on the consumer, or be charged to the operating expenses and thereby be wiped out about as incurred, are questions that cannot be settled independently of the surrounding conditions. When the rates and the earnings of the utility are such as to yield a reasonable return to the investors if the expenditures in question are included in the operating expense, then 'operating expense' also appears to be the place to which they should be charged. When, on the other hand, the rates and the earnings are not high enough to permit these expenditures to be charged to operating expenses without resulting in less than reasonable returns on the investment, then it would seem that, until the earnings become adequate at least, they should be charged to the cost of the plant. These rules are supported by reasons that appear to meet the requirements under ordinary conditions. While they may not apply without modifications under all circumstances, they appear to be as sound under such conditions as those by which we are confronted in these particular proceedings. They are, in fact, the main reasons why it was deemed proper in this case to leave that part of the expenditures in question, which has been charged to operating expenses, in these expenses, and to transfer such items of these expenditures, which had been charged to new extensions, from the construction to the operating accounts." *State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 588, 589.

C. *Discarded Property.* The matter of discarded property, especially as related to the electric department, was discussed in a report made to the respondent by D. C. & Wm. B. Jackson, consulting engineers, of date Oct. 5, 1911, and by W. J. Crumpton, an engineer associated with the above named firm of consulting engineers.

The total of the estimates of discarded equipment is placed at \$120,800. This total does not include items of real estate. The detail of this estimate follows:

DETAILS OF DISCARDED PROPERTY.

1. Removal from Winter street station:		
Brick station building.....	\$7,483	
Smoke flue	338	
Brick chimney	2,349	
Machine foundations	2,899	
Boiler setting	1,499	
Boiler bridging	119	
Steam piping	971	
Buckeye engine	747	
35 kw. Daft alternator.....	1,680	
2-35 kw. Daft alternators.....	2,049	
Loss due to renewal equal to original cost of installing and expense of removal and cartage to new station.....	2,666	
Miscellaneous (no details).....	800	
Total		\$23,600
2. Change to 60 cycle (1906)		
Remodeling building	\$6,595	
Generators, switchboard, shafting, pulleys, clutches, etc.....	45,720	
Bldgs. and station wiring.....	1,430	
130 h. p. buckeye engine.....	1,783	
125 cyc. transformers.....	7,459	
Meters changed on a. c. system.....	3,221	
D. c. arc lamps discarded.....	15,992	
		82,200
3. Overhead line and equipment discarded from time to time during life of property.....		15,000
		<u>\$120,800</u>

It was estimated that the expenditures made for property abandoned because of experimentation and other causes in the water department amounted to about \$65,000, covering the following items:

- 1887—Temporary pumping station, Tower Bay slip.
- 1888—16" submerged line to Duluth.
- 1888—Filters at station at foot of Winter street.
- 1888—Intake in crib—foot of Winter street.
- 1891—Forced removal to new location.
- 1896—Filter gallery on Minnesota Point
- 1896—Portion of intake into lake (1300 feet).

No detailed values are assigned to the separate items listed above.

The equipment discarded in the gas department is estimated as amounting to \$4,808 and is made up as follows:

Cost of street lamps and connections, less salvage.....	\$3,002
Cost of 2684 feet 4" main abandoned at 61 cts.....	1,625
Cost of 213 feet 6" main abandoned at 85 cts.....	181
	\$4,808

D. *Depreciation of Real Estate.* It appears that the real estate owned by the respondent company was purchased during a boom period and that as a result considerable depreciation is noted when the investment value is compared with the value as found by the appraising engineer. It is contended that no more property was purchased than was actually necessary at the time nor greater amounts paid than the prevailing market prices, and that since these items were a legitimate and necessary expenditure they should be taken into consideration in determining the basis upon which the rate of return is properly computed. This Commission has had occasion in former cases to pass upon the question of appreciation of land values. It was held in the *Madison* case:

“That the law as well as our social system recognizes such gains in practically all other undertakings, is evident from the fact that rents and interest charges usually vary with the natural increase in the value of the property they cover. As the cost of reproduction of a plant usually plays perhaps the most important part in determining its value, it is more than likely that the owners would have to bear losses in case land and other property had depreciated instead of appreciated. It would seem only just that the rule would work both ways. * * * In view of these facts there would seem to be good ground, from both a legal and economic view point, for giving such appreciations in value consideration in appraising public utilities. At any rate we can not now see good reasons upon which to exclude these elements from the appraisal of utility properties.” *State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 579.

There seems no reason why a departure should be made from this rule in the present case.

E. *Reorganization Expense.* This item is relatively small and needs no extended discussion. Expenditures of this character are a necessary and legitimate part of the cost of the business and have for this reason received consideration in the *Milwaukee* case for rate-making purposes. *City of Milwaukee v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 1, 156.

H. *Discount on Bonds.* The respondent maintains that all discounts on the 6 per cent bonds, which were largely to offset the risk incurred by investors, should be included in the valuation of the property of the company, but concedes that discounts on the 4 per cent bonds should be excluded. It is pointed out that the allowance for bond discounts as a legitimate part of the valuation for rate-making purposes must be determined not on the basis of present conditions but with regard to the capital hazard involved at the time of issue.

In investigating these bond discounts the question to be determined is, whether the capital necessary for the construction of the plants at that time could not have been secured upon any better terms. It appears that by 1889 Superior was "intoxicated with another boom," and that the financial storm that swept the country in 1893 was severely felt in Superior, and was succeeded by a period of slow recovery. It is noted that before the panic the bonds sold by the respondent were disposed of at a fairly large discount. It is claimed that the first bonds sold during the height of the boom might have been sold to local investors at a higher rate than 80. It does not seem probable, however, that a higher price could have been secured from outside investors in a practically untried enterprise with very little earning power. It is difficult to see on what grounds a part, at least, of the bond discounts made should not be included in the cost of the plant. In the case before us of the total discounts on the 6 per cent bonds \$188,000 was charged by the company to plant and \$14,250 to profit and loss. Of the amount discounted on the 4 per cent bonds \$25,250 was charged to plant and \$71,445 to profit and loss. If business enterprises cannot secure capital on any better terms, then it necessarily follows that such bond discounts must represent a part of the cost of securing the capital.

"This does not mean that all discounts constitute proper additions to physical value. If this were the case, a company with poor credit, which had been obliged to allow a large discount on its bonds, would have a higher value and be entitled to a return on a greater valuation than a utility owning precisely similar property, but whose credit was good enough so that it was not obliged to issue its bonds at a considerable discount." *City of Marinette v. City W. Co.* 1911, 8 W. R. C. R. 334, 343.

From the analysis of cash receipts from bond sales it appears that of the total amount of bonds outstanding, amounting to \$1,800,000, only \$1,301,055 was received, making an average price of about 81½. The company submits the following statement:

Total cash cost of plants, exclusive of discount on bonds, organization expenses, etc., June 30, 1911.....	\$1,793,073.00
Proceeds sales of	
6% 1st mtg. bonds (face value - \$1,200,000)	\$997,750.00
4% 1st mtg. bonds (face value 400,000)	303,305.00
Total.. (face value 1,600,000)	\$1,301,055.00
Depreciation reserve (borrowed at 4% interest)	157,245 00
Part proceeds \$216,000 income bonds*..	150,000.00
Balance provided from earnings.....	184,773.00
	\$1,793,073.00

It is of interest to note that the engineers' appraisal of the present value, after deducting material and supplies on hand and non-operating property, leaves an aggregate of \$1,327,071. It would appear that an amount not to exceed \$100,000 out of the total discount of \$298,948 is properly made a part of value of the property for rate-making purposes and represents the estimated amount of discount over the prevailing rate of interest necessarily made in an open market to secure funds to construct the plants.

GOING VALUE

Respondent claims an addition is equitably made to the physical value of the business to cover the cost of establishing the business upon a paying basis. Such a going value, it alleges, will aggregate \$1,384,852. Complainant alleges that no evidence has been presented substantiating the claim for compensation for special efforts to obtain business, and argues that going value is synonymous with good will and hence not properly a part of the value for rate-making purposes. Special emphasis is placed upon the respondent company's policy as regards extensions, it being claimed that needed additions are not made until the utility has assured itself of an adequate income from such extensions.

* Bonds alleged to be a forced loan were given to take up three years coupons on 6% bonds, thus enabling the company to expend for extensions a large portion of the sum which would otherwise have been needed to pay the coupons.

The matter of going value or the cost of the plants and their business has been extensively considered in previous decisions, and further elaborate discussion of the principles therein announced would only result in unnecessary repetition. Briefly stated, it has been held that the cost of building up the business must under certain conditions be taken into consideration in determining the value of the plants for rate-fixing purposes. *Hill v. Antigo Water Co.* 1909, 3 W. R. C. R. 623, 711. *State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 568. *City of Milwaukee v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 1, 122, etc.

The early losses or deficits, or the amounts by which the earnings of the plant have failed to meet the ordinary operating expenses, taxes, depreciation, and a reasonable return on the investment, will measure, in the majority of cases, very closely the cost of developing the business. Deficits from operation, however, cannot equitably be taken into account in the appraisals of plants regardless of the conditions under which they were incurred. Deficits due to abnormal conditions, bad management, poor judgment, extravagance, lack of ordinary care and foresight, and extremely high capital charges, etc., it is clear should receive very little consideration.

“Going value must, of course, be applied to plants that have been constructed and operated under normal conditions and when ordinary business capacity has been exercised.” *City of Appleton v. Appleton W. Wks. Co.* 1910, 5 W. R. C. R. 215, 276. *Cunningham v. Chippewa Falls W. Wks. & Lt. Co.* 1910, 5 W. R. C. R. 302, 314.

It appears that the investment in the physical property of the Superior Water, Light & Power Company was greater at various periods than the immediate business of the company required. Upon the collapse of the boom in Superior the company found itself encumbered with plants considerably larger than necessary to supply the needs of all users. Going costs incurred during periods of depression became a burden upon succeeding years until the natural conditions of business growth may again exist and the company is enabled to recoup itself for early losses.

It is not clear, however, that such losses, due to lack of growth or retrogression of community development, should be charged in their entirety against the consumers, even though the sacrifices

of the owners have been prudently made. Returns upon such total costs may result in rates not reasonably within the value of the product or service to the user.

In connection with the calculations of the cost of the plants and their business submitted by the respondent and those made by the Commission there are many differences to be noted. The cost of the plants in 1889, the beginning of the period, was placed by the company at \$210,000 for the water plant, \$94,073 for the gas plant, and \$77,388 for the electric plant, or a total of \$381,461 for the three utilities. The cost of each plant at the beginning of the period used by the Commission amounted to \$200,768 for the water plant, \$66,337 for the gas plant, and \$31,602 for the electric plant. The figures for the new extensions or additions are as furnished by records, but are so corrected as to exclude certain items from the years reported and to include them in the years where it appeared they more properly belonged in the Commissions' computations. The returns upon the investment in the companys' computation are based upon the value at the beginning of the year. Those of the Commission are based upon average values for the year. The company, however, has calculated its return at 7 per cent for the water plant, 7½ per cent for the gas plant and 8 per cent for the electric plant. In the Commissions' computations 6 per cent is used for all plants. Two bases have been employed in estimating going value. One of these takes into account past losses and the offset obtained by recent earnings and is commonly known as the "deficit" method; the other is a continuation of the cost of reproduction idea and assumes the development of a hypothetical plant under present conditions and is commonly known as the "comparative" plant basis. The equitable considerations urged in justification of either of these methods has been pointed out in previous decisions. (See *City of Milwaukee v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 1, 122.)

The cost of the water plant and business at the end of the fiscal year 1911 upon the deficit method is found to be \$871,243, which exceeds the present value of the property by \$33,001. The cost of the plant and business of the electric department is found to be \$363,232 at the close of the year ending June 30, 1911. This amount exceeds the present value of the plant by about \$67,657. In the gas department the cost of developing the business is found to be \$61,039, the earning value being \$279,234.

By constructing hypothetical new plants equal in physical cost and similarly situated to the old plants, but only reaching in their earnings the level of the returns of the old plants at the end of such terms of years as was considered reasonable under the surrounding circumstances, costs of building up the business or "going value" have been secured, varying somewhat from the results noted above. Such computations disclose a going value of \$60,800 for the water plant, \$23,300 for the gas plant, and \$49,825 for the electric plant.

When the results obtained upon both the "deficit" basis and "comparative plant" basis are compared with the estimates submitted by the respondent company, the following costs are noted as of June 30, 1911:

Departments.	Company.	Commission.	
		Deficit basis.	Comparative plant basis.
Water department.....	\$387,747	\$33,001	\$60,800
Gas department.....	218,073	61,039	23,300
Electric department.....	779,032	67,657	49,825
Total.....	\$1,384,852	\$161,697	\$133,925

These facts indicate quite clearly that the respondent has not only not earned enough in the past to wipe out the original cost to it of developing its business, but that even under present conditions it would cost considerable sums to reproduce its businesses as they now stand. Development costs of this kind are actual and necessary. Without them the services rendered the public could not have been performed. They belong among those classes of costs which, on the ground of equity as well as because of public policy, should ordinarily receive consideration in fixing the amounts upon which, under normal conditions, public utilities are entitled to reasonable returns for interest and profits. To consider such costs in determining the cost-value of the property of public utilities that is actually used in serving the public, is of special importance in cases where the returns on such cost-values are not fixed at higher figures than those which will barely bring the necessary capital and business ability into this field.

WORKING CAPITAL

The amount of the working capital required by the plant rather than the question as to whether something should be allowed for such capital, is the issue raised by the testimony.

The quick assets and liabilities of the company for the past two years ending June 30, found in the balance sheets, are as follows:

	Year ending June 30.	
	1910.	1911.
CURRENT ASSETS:		
Stores and supplies.....	\$32,379.17	\$25,944.99
Cash.....	51,902.15	40,038.54
Accounts receivable.....	46,326.10	59,062.52
Total.....	\$130,607.62	\$125,047.05
CURRENT LIABILITIES:		
Accounts payable.....	\$18,447.68	\$19,917.06
Deposits.....	5,664.27	14,014.80
Total.....	\$24,111.95	\$33,931.86
Difference.....	\$106,495.67	\$91,115.19

In respondent's brief a statement is attached showing the net working capital on June 30, 1911, as amounting to \$85,887.41. Of this total \$24,941.00 has been included by the Commission in the valuation of the physical property as materials and supplies, leaving a balance of \$60,946.41.

It appears clear that stores and supplies, and cash in sufficient amounts to insure economical and safe operation of the plants, are proper items to be included in the working capital. This, in a sense, might also be true of bills receivable, except in such cases where they are offset by bills payable.

Different methods of estimating the amount required for working capital were discussed in *State Journal Prtg. Company v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 552, and *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 157. In applying these methods it is necessary to observe closely the nature of the business and local conditions in Superior, in order to clearly understand the situation with respect to the amount of working capital required. The company collects its revenue

monthly in all three departments and receives the bulk of these earnings before it is obliged to settle with the two companies from which it obtains the gas and electric energy. All of its outlays in connection with producing, delivering and selling its products, except taxes, depreciation, interest and profits, are thus made after the monthly collections are received.

An examination of the monthly earnings statements submitted to the Commission for the nine months extending from July 1, 1911, to March 31, 1912, indicates that the average net income per month for the year ending June 30, 1912, will be about \$5,800 for the water, \$2,100 for the gas, and \$6,270 for the electric plant, or a total of \$14,170 for the three departments. The monthly depreciation reserve amounts to about \$3,333. Assuming an average interest charge of $7\frac{1}{2}$ per cent on the present value of the physical property, amounts to about \$8,430 per month. Deducting these items from the total net income, leaves a balance of approximately \$2,400 per month. Adding to this \$2,400 the consumers' deposit for a surety reserve amounting to about \$6,600 which remains about stationary during the year, gives the company each month over and above their entire expenses approximately \$9,000. The receipts, taken as a whole, are greater than that part of the expenses which, when considered together, it would be of any advantage to the plants to pay as often as once a month.

The significance of these facts is readily seen. They show that the company is in a position to meet substantially all of its current outlays from its current receipts, thus being practically on a cash basis. They show that the conditions under which the company is operating are such that a close relation exists between the collection of its receipts and the payment of its expenses. A uniform adjustment of the one to the other ought to be little trouble, due to this close relation. The respondent brought out at the hearing that taking into account the receipts and disbursements, the company does not need to keep on hand any current funds for the purpose of covering operating expenses, but that the current funds are needed, due to the fact that the company is constantly called upon to expend money for small property items, and must have working capital to carry on the work of an expanding plant.

A previous decision of the Commission is in point:

“It is also a fact that, with a liberal amount of quick assets available, new extensions to the plants may be more cheaply constructed than otherwise, and this for the reason that temporarily it may be more economical to use working capital for such purposes than to meet the cost by regular loans or by the sales of new securities.” *State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 554. See also *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 157.

Upon considering the facts brought out, it appears that \$60,-946.41 in addition to the appraisal of materials and supplies is a greater amount for working capital than that which is required for operating the plants and properly conducting the business as a whole. It appears that a working capital of 10 per cent of the amount derived from the gross sales of water, gas and current, or from \$25,000 to \$30,000 in addition to the amount already invested in materials and supplies, is fully adequate under present conditions.

VALUE OF AN ADEQUATE PLANT.

A determination of the values of the water and electric plants for rate-making purposes at this time is complicated by the fact that both these plants had at the date of valuation reached their economical capacity. It became apparent to the appraising engineer that extensions and additions were properly made in order to adequately handle future business. Since that date extensive additions have been made to the water plant. Prior to July 1, 1911, there was expended upon the reservoir, extension to building, and pump foundations about \$3,954.76, all of which does not appear in the engineer's appraisal, due to the fact that such plant additions were not in operation on that date. Since that time an additional \$58,502.61 was expended during the nine months period ending April 1, 1912, as follows:

Land	\$223.00
Buildings and structures.....	25,998.17
Station apparatus	20,058.27
Mains	6,718.80
Meters	5,174.05
Miscellaneous	330.32
Total	<u>\$58,502.61</u>

The engineering staff of the Commission have estimated that the expenditures for improvements which may be required in the water works by 1915 and 1920 will be about as follows:

	By 1915.	Period, 1915-1920
WATER SUPPLY:		
Substation and equipment on Minnesota Point		\$10,000
Filter bed		12,000
PUMPING PLANT AND EQUIPMENT:		
5 million gallon pump and foundation.....		\$10,500
Two 150 h. p. boilers (Co. rating).....		2,500
Additional new cost for replating 66" x 14' boiler.....		150
Piping and miscellaneous.....		1,000
Building extensions, say.....		5,850
Total.....		\$20,000
DISTRIBUTION SYSTEM:		
Mains.....	\$41,500	\$12,500
Hydrants and connections.....	2,700	1,500
Meters.....	15,070	13,200
Services, at Co's expense after June 30, 1912.....	22,500	35,025
Total.....	\$81,770	\$104,825
Total to 1920.....		\$186,595

Adding what has already been expended up to April 1, 1912, to the foregoing, gives a total of \$249,052.

These estimates are conservative and are claimed to underestimate the additions planned by the company during that period.

It appears that the electric plant has reached a point where the demand has entirely overtaken the capacity, so that material additions must be made in the not distant future. As it is manifestly impossible to take on added capacity in small installations, the company must anticipate the future demand to the extent that when the new equipment is added the capacity of the plant will be sufficiently enlarged to take care of the increasing demand for a considerable period of time. About \$15,374 in additions were undertaken during the year ending June 30, 1912, and this expenditure has been largely preparatory to large changes in station capacity made since that date.

Gas service has been extended to the east end, notwithstanding the fact that this territory is so sparsely populated that the returns are at present somewhat meager. Extensions on mains, meters and services for the entire plant during the past fiscal year aggregated \$18,558.

Some light is thrown upon what is the investment in an adequate plant by a comparative study of the unit appraisals of physical property as inventoried by the engineering staff of the Commission of other plants in the state. Some comparative analyses of the detailed valuations of the largest plants have been made and interesting results obtained.

The water utility valuation discloses a percentage of total investment in wells, intakes and suction, and in filters and reservoirs, that is somewhat in excess of the average for the fifteen plants listed. This is due, in a large measure, to peculiar local conditions affecting the water supply. The investments, however, in distribution system, pumping equipment and buildings fall well below the average. These conclusions are borne out by a comparative analysis of the investment in each group determined as per M gallons pumped per consumer and per mile of main.

It is found that of twelve large gas plants the Superior gas plant has the largest percentage of total investment in the distribution system. It is the minimum, however, in the per cent invested in the station, this being caused by the fact that the company purchases its gas and hence is not making much investment in buildings and the stand-by plant.

It is found, also, that the investment in the Superior gas plant per consumer is smaller than in any of the other plants listed. The total investment per mile of main, however, is slightly above the average. The total investment per M sales in Superior is slightly below the average.

Among twelve electric plants valued by the Commission, it is found that the Superior plant has the largest percentage of total investment in the distribution system. Its investment in power plant equipment is near the minimum for the plants listed. The total investment per consumer and per kw. hr. sales is well below the average.

As has been pointed out in former decisions, the investment in an adequate plant must be taken into consideration since

“* * * what may appear to be reasonable rates when the investment line has fallen below the business line, may prove to be much lower than sufficient to produce a revenue which will give a reasonable return upon the investment a year or a few years later when the investment will have to be materially in-

creased in order to meet the demands of the business." *City of Beloit v. Beloit W. G. & El. L. Co.* 1911, 7 W. R. C. R. 187, 289.

It does not appear equitable, however, to make present consumers bear the entire burden of these future additions. It appears proper to make slight additions to the unit costs, but proper allowances must necessarily be made for such additional business which is anticipated when the extension is made.

COST OF SERVICE.

No suggestion is made by either respondent or complainant as to possible readjustment in the joint operating expenses applicable to the water, gas and electric departments. An examination of the detailed income accounts for the three years ending June 30, 1909, 1910 and 1911, tables 2, 3 and 4, discloses the necessity of certain corrections in the distribution of the general and undistributed expenses. The Commission's analysis discloses total direct expenses in the three departments of about 23 per cent of the total in the water department, 30 per cent in the gas, and about 47 per cent in the electric department.

According to company's practice the general and undistributed expenses have been distributed about 31 per cent to 35 per cent to the water plant, about 24 per cent to the gas department, and about 43 per cent to the electric plant. This method has brought about an increased cost in the water department operating statement and a reduction in the gas and electric operating statements. In the corrected apportionments made by the Commission, this shifting of the burden of the overhead expenses has been remedied.

The following table shows the apportionment of the corrected expenses over the three departments for the year ending June 30, 1911:

TABLE 7.
 REAPPORTIONMENT EXPENSES AS BETWEEN WATER, GAS AND ELECTRIC DE-
 PARTMENTS.
 SUPERIOR WATER, LIGHT & POWER CO.
 Year Ending June 30, 1911.

	Total.	WATER.		GAS.		ELECTRIC.	
		Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
Pumping, production & power:							
Superintendence	\$2,460 00	\$1,328 40	54.	\$418 20	17.	\$713 40 ¹	29.
Operating labor	7,199 09	3,866 43	53.7	1,260 00	17.6	2,072 66	28.7
Steam generated	8,028 66	7,498 37	.....	192 25	.....	338 04	.....
Gas and electricity pur- chased	51,073 36	.....	.....	22,061 55	.....	129,011 75	.....
Station supplies and expen- ses	3,778 68	1,951 08	.....	155 22	.....	1,672 38	.....
Maint. station equipment.....	1,980 00	1,500 00	.....	.....	.....	440 00	.....
Maint. source of supply.....	630 00	630 00	.....	.....	.....	.....	.....
Maint. buildings, fixtures and grounds.....	1,060 00	725 00	.....	.....	.....	335 00	.....
Total	\$76,219 73	\$17,549 28	.....	\$24,087 22	.....	\$34,583 23	.....
Distribution	24,367 05	6,964 57	.....	7,454 81	.....	9,947 67	.....
Consumption	3,819 99	.....	.....	.....	.....	3,819 99	.....
Commercial	19,439 88	4,440 63	22.9	6,570 45	33.7	8,428 80	43.4
Total direct expenses.....	\$123,846 65	\$28,954 48	23.4	\$38,112 48	30.7	\$56,779 69	45.9
General	17,990 17	4,069 30	23.4	5,338 78	30.7	7,982 09	.....
Taxes	15,422 49	9,561 94	62.	2,467 60	16.	3,392 95	22.
Total operating expenses	\$156,659 31	\$42,585 72	.....	\$45,918 86	.....	\$68,154 73	.....

¹ Power purchased for purposes of resale, not included.

DEPRECIATION.

No evidence is presented as to the proper rates of depreciation. An allowance to cover depreciation is included, however, in the computation as to net revenue available for return upon the investment submitted in the brief of counsel for the complainant. Respondent's counsel suggest that proper rates will vary from 1 to 2 per cent for water plants, from 2 to 3 per cent on gas plants and from 5 to 10 per cent on electric plants. The company has only of late years made provision for depreciation. For the year ending June 30, 1907, \$54,500 was set aside at the end of the year. The accumulated balance for the year ending June 30, 1912, aggregated \$168,794.57, of which \$41,260.32 was set aside for the water department, \$31,890.80 for the gas department, and \$95,643.45 for the electric department. Only minor deductions have been made to the reserve.

Reduced to percentages of the Commission's cost of reproduction new, it is noted that for the year ending June 30, 1911, com-

pany has set aside 6.75 per cent to cover depreciation in the electric department, 2.382 per cent to cover depreciation in the gas department, and 1.1257 per cent to cover depreciation in the water department. For the year ending June 30, 1912, these reserves aggregated 5.847 per cent for the electric department, 2.219 per cent for the gas department, and 1.0566 per cent for the water department. A computation of the average life of various groups of depreciable property would indicate that these allowances are in excess of what would be reasonably required each year to offset depreciation, and accordingly the allowances made in determining the cost of service have been placed at 4.5 per cent of the total cost of reproduction new in the electric department, 2 per cent of the total cost of reproduction new in the gas department and 0.8 per cent of the total cost of reproduction new in the water department. As a result the depreciation allowance for the year ending June 30, 1912, has been reduced in the electric department from \$24,000 to \$18,471, in the gas department from \$6,000 to \$5,408, and in the water department from \$10,000 to \$7,571.

AMOUNTS AVAILABLE FOR RETURN UPON THE INVESTMENT.

When the adjustments already outlined are made to general and undistributed expenses and to the depreciation allowance, it is noted that the net earnings available for return upon the investment for the year ending June 30, 1911, aggregated \$124,617.72. Of this amount \$55,391.97 was applicable to the water department, \$17,754.43 was applicable to the gas department, and \$51,471.32 was applicable to the electric department.

It is noted that, as regards the water department, this surplus aggregated 6.298 per cent upon the present value of the property plus the amount of depreciation reserve actually set aside on June 30, 1911, and aggregated 6.399 per cent upon the same basis for the year ending June 30, 1912. When there is added to the total value of the physical property an allowance for going value, working capital, and bond discount, this return is reduced in each case somewhat below 6 per cent. Under these circumstances it does not appear equitable that general reductions should be made in the rates for water service at this time.

As regards the gas department, it is noted that the surplus aggregated 7.102 per cent upon the present value of the property plus the depreciation reserve actually set aside for the year ending June 30, 1911, and 6.749 per cent upon the same basis for the year ending June 30, 1912. When allowances are made for going value, working capital, and bond discount, the rate of return is reduced somewhat below 6 per cent, and under these circumstances, as in the water department, it is apparent that no general reduction can be made in the rate of charge under present conditions.

In the electric department, on the other hand, some reduction can equitably be made to the consumers. We find that for the year ending June 30, 1911, the net earnings available for return upon the investment aggregated \$51,471.32. According to the appraisal of the Commission's engineer, the present value of the property will aggregate \$295,575 upon that date. There was set aside out of surplus the sum of \$95,643.45 to cover depreciation actually occurring in the property as of the same date. The cost of building up the property and its business may be estimated at not to exceed \$55,000, and the sum of \$11,500 is deemed sufficient working capital. It appears further that the necessary discounts of securities below prevailing rates of interest will amount to some \$26,000 for this plant. These items are elements which enter into the fair cost-value in this case. On these items, even if so included at their face value, the net earnings as stated would seem to be large enough to yield reasonable returns and to allow for some reductions in the rates.

The following tables show the rate of return upon average cost of reproduction new for each of the three departments of the utility:

TABLE 7.
 RATE OF RETURN UPON AVERAGE COST OF REPRODUCTION NEW.
 SUPERIOR WATER, GAS AND ELECTRIC COMPANY.
 WATER DEPARTMENT.

Year.	Net earnings available for depreciation & return on investment. ¹	Depreciation.	Net earnings after deducting depreciation.	Plant investment.	Rate of return.
1890.....	\$9,559.33	\$3,531.00	\$6,028.33	\$320,679.00	1.88
1891.....	37,692.44	4,576.00	33,116.44	481,823.00	6.87
1892.....	50,739.02	5,187.00	45,552.02	540,291.00	8.43
1893.....	51,646.71	5,400.00	46,246.71	561,614.00	8.23
1894.....	55,749.82	5,451.00	50,298.82	566,710.00	8.87
1895.....	55,002.65	5,464.00	49,538.65	567,953.00	8.72
1896.....	48,951.96	5,522.00	43,429.96	564,759.00	7.69
1897.....	37,684.99	5,687.00	31,997.99	572,243.00	5.59
1898.....	35,600.21	5,848.00	29,752.21	588,361.00	4.96
1899.....	29,620.12	5,922.00	23,698.12	595,736.00	3.98
1900.....	33,994.01	6,454.00	27,540.01	648,634.00	4.24
1901.....	36,919.61	6,999.00	29,920.61	702,850.00	4.26
1902.....	44,702.65	7,057.00	37,645.65	708,719.00	5.31
1903.....	45,159.53	7,108.00	38,051.53	713,793.00	5.33
1904.....	47,145.03	7,152.00	39,993.03	718,193.00	5.57
1905.....	44,487.05	7,195.00	37,292.05	722,506.00	5.16
1906.....	45,836.20	7,258.00	38,578.20	728,735.00	5.29
1907.....	49,076.87	7,362.00	41,714.87	736,331.00	5.66
1908.....	31,943.39	5,008.00	26,935.39	748,895.00	3.60
1909.....	52,989.23	7,660.00	45,329.23	764,625.00	5.93
1910.....	59,451.51	7,871.00	51,580.51	786,437.00	6.56
1911.....	61,206.71	8,447.00	52,759.71	844,716.00	6.25
Total.....	\$964,559.04	\$138,159.00	\$826,400.04	\$14,184,603.00	5.83

¹ Net earnings here do not include non-operating revenue.

TABLE 8.
 RATE OF RETURN UPON AVERAGE COST OF REPRODUCTION NEW.
 SUPERIOR WATER, GAS AND ELECTRIC COMPANY.
 GAS DEPARTMENT.

Italic figures denote deficits.

Year.	Net earnings available for depreciation and return on investment. ¹	Depreciation.	Net earnings minus depreciation.	Plant investment.	Rate of return.
1890.....	\$2,687 95	\$1,401 00	\$1,286 95	\$75,041 00	1.71
1891.....	16,971 15	2,209 00	14,762 15	110,479 00	13.35
1892.....	22,055 52	2,691 00	19,364 52	134,535 00	14.38
1893.....	18,825 47	2,751 00	16,074 47	137,557 00	11.68
1894.....	10,870 12	2,772 00	8,098 12	138,601 00	5.84
1895.....	5,771 32	2,777 00	2,994 32	138,839 00	2.16
1896.....	3,053 20	2,779 00	274 20	138,925 00	1.97
1897.....	4,598 54	2,787 00	1,811 54	139,345 00	1.30
1898.....	10,089 36	2,824 00	7,265 36	141,187 00	5.15
1899.....	1,709 98	2,883 00	4,592 98	144,168 00	.....
1900.....	2,193 91	3,017 00	823 09	150,827 00	.....
1901.....	5,464 36	3,184 00	2,280 36	159,187 00	1.43
1902.....	13,194 82	3,310 00	9,884 82	165,513 00	5.97
1903.....	12,398 63	3,494 00	8,904 63	174,707 00	5.10
1904.....	8,104 98	3,780 00	4,324 98	189,021 00	2.29
1905.....	14,527 20	4,017 00	10,510 20	200,836 00	5.23
1906.....	17,596 58	4,137 00	13,459 58	206,847 00	6.58
1907.....	20,899 13	4,284 00	16,615 13	214,185 00	7.76
1908.....	10,437 52	2,944 00	7,493 52	220,620 00	3.40
1909.....	21,032 85	4,470 00	16,562 85	223,516 00	7.41
1910.....	24,140 80	4,652 00	19,488 80	232,590 00	8.38
1911.....	24,082 40	4,881 00	19,201 40	244,048 00	7.87
Total... ..	\$267,285 83	\$72,044 00	\$195,241 83	\$3,680,574 00	5.34

¹ Net earnings here do not include non-operating revenue.

TABLE 9.
RATE OF RETURN UPON AVERAGE COST OF REPRODUCTION NEW.
SUPERIOR WATER, GAS AND ELECTRIC CO.
ELECTRIC DEPARTMENT.

Italic figures denote deficits.

Year.	Net earnings available for depreciation and return of investment. ¹	Depreciation.	Net earnings after deducting depreciation.	Plant investment.	Rate of return.
1890.....	\$11,032 48	\$4,880 00	\$6,152 48	\$66,144 00	9.30
1891.....	23,542 60	6,641 00	16,901 60	115,586 00	14.60
1892.....	28,523 76	7,206 00	21,317 76	141,780 00	15.00
1893.....	27,057 60	9,811 00	17,246 60	194,562 00	8.87
1894.....	26,129 99	12,199 00	13,930 99	242,326 00	5.76
1895.....	25,213 06	12,575 00	12,638 06	250,051 00	5.06
1896.....	28,813 15	12,711 00	16,102 15	252,962 00	6.38
1897.....	25,569 64	12,805 00	12,764 64	254,842 00	5.00
1898.....	22,812 43	12,841 00	9,971 43	255,562 00	3.91
1899.....	9,000 45	12,930 00	3,929 55	257,352 00	.....
1900.....	17,189 59	13,199 00	3,990 59	262,622 00	1.52
1901.....	16,057 79	13,726 00	2,341 79	269,259 00	.87
1902.....	18,846 68	13,977 00	4,839 68	278,285 00	1.74
1903.....	12,684 96	14,532 00	1,847 04	289,390 00	.....
1904.....	18,763 44	14,919 00	3,844 44	297,117 00	1.29
1905.....	21,112 23	15,395 00	5,717 23	306,638 00	1.86
1906.....	23,865 57	15,635 00	8,230 57	312,080 00	2.64
1907.....	43,729 40	15,786 00	27,943 40	315,721 00	8.85
1908.....	34,634 40	10,920 00	23,714 40	327,993 00	7.23
1909.....	48,802 59	17,556 00	31,246 59	351,126 00	8.90
1910.....	59,411 20	18,067 00	41,344 20	363,349 00	11.37
1911.....	68,042 49	19,122 00	48,920 49	382,440 00	12.80
Total.....	\$610,815 50	\$287,433 00	\$323,382 50	\$5,787,187 00	5.59

¹ Net earnings here do not include non-operating revenue.

RATE OF RETURN.

Complaint alleges that the rate of income the company is entitled to earn is properly restricted to 6 per cent and computes this return upon the present value of the property of the respondent. In arguing for a 6 per cent return it is claimed that conditions making for security of investment are especially favorable in Superior. Reference is made to the rates of interest paid on borrowed money by the municipality and by certain large industrial concerns in the city. Attention is likewise called to various cases where a return as low as 5 per cent upon the investment has been sustained as reasonable by a court of review. Especial emphasis is placed upon the fact that Duluth and Superior obtain their supplies of water, light and power from the

same source, and that the Superior rates are in excess of those obtaining in Duluth which fact, it is claimed, should sustain a low rate of return. It is urged, moreover, that since the company purchases its gas and electric service, much of the hazard obtaining in gas and electric enterprises in other cities has been eliminated. The respondent company cites in rebuttal various recent authorities upon the rate of return and especially calls attention to court decisions wherein rates of return as high as 10 per cent have been allowed by the courts. Attention is called to the fact that the rates passed upon by courts are in many instances the minimum reasonable rates and that in the rates fixed by a commission these may reach higher figures.

Respondent contends that the valuation of the property and rate of return upon such a property are complementary and that the amount allowed as a reasonable return upon the investment must be determined after consideration of past risks already contained in the total of the property. It is contended that the rate of return should be fixed to cover: (1) A rate of interest made up of pure interest plus additions due to narrow market and lack of established value for purposes of sale or hypothecation plus an addition for lack of an established earning power. (2) A rate to cover inherent risks of the business. (3) A rate to cover risks due to short term and non-exclusive franchises. (4) A rate to cover community hazards. Where the valuation is restricted to the mere cost of reproducing the physical property service value of the lowest measure of economic value of the plant to the community, it is stated that the return upon the investment should be taken at 10 per cent for the water plant, 11 per cent for the gas plant, and 17 per cent for the electric plant. If bond discounts on 6 per cent securities are included in the capital value and organization expenses are added, thus eliminating in part the element of narrow market and the lack of established earning power, the proper rates are estimated at $8\frac{3}{4}$ per cent for water, $9\frac{1}{2}$ per cent for gas, and 15 per cent for the electric plant. If a further addition is made to cover discarded apparatus, shrinkage in the value of portions of the existing property, etc., thus eliminating the hazards due to the state of the art, changed conditions, etc., these rates of return may be further reduced to $8\frac{1}{4}$ per cent on the water plant, $9\frac{1}{4}$ per cent on the gas, and 11 per cent on the electric plant. If in addition to this there is added to

the value that sum by which net earnings have fallen short of covering depreciation and a 7 per cent return upon the water department, a $7\frac{1}{2}$ per cent return upon the gas department, and an 8 per cent return upon the electric department, these amounts covering compensation for the losses sustained in the past due to building up the business, then it is contended that the fair rate of return may be reduced to 7 per cent on the water department, $7\frac{1}{2}$ per cent on the gas department, and 8 per cent on the electric department.

Interest and profits are necessary in all lines of industry and callings in order to secure the capital and the abilities that are required. Necessary charges of this nature are therefore, in a sense, as much a part of the cost of production of the products turned out and of the services rendered as any part of the operating expenses. All this is quite generally admitted. Such differences of opinion upon these points as are frequently arising in cases before us are concerned with what rates or amounts that should be allowed for such charges rather than with the necessity of providing for such charges at all.

The minimum rates of interest and profits that must be allowed in cases of this kind are those under which the necessary capital and business capacity can be had. If less than this is allowed then these factors will be withheld, not only from original undertakings, but from extensions or additions to existing plants. Such a course would deprive the public of needed service and would clearly be contrary to public policy.

The rate of interest at which capital can be had is influenced by the supply and demand for loanable funds; by the risks involved; by the care and work required in placing the loans and in looking after them; by whether the loans are readily transferred or converted into cash; and by other local and general conditions. The rate of profits depends upon the supply of business capacity and initiative, the risks involved, the nature of the undertakings, and many other conditions. These rates therefore vary as between the different industries and the different classes of service. They even vary as between the various public utilities in the same place, as well as often also between like utilities in different localities.

The supply of capital and business capacity seems to vary more with general than with local conditions, although it is affected

by both. Risks and many other conditions by which rates are affected seem to be more particularly dependent on local conditions. As public utilities are monopolistic in their nature, they are, to some extent at least, relieved from active competition. This is especially true where they are operating under indeterminate or more exclusive franchises. Active competition is one of the more important elements of risks. To the extent to which public utilities are relieved from such competition they are also relieved from one element which makes for higher charges for interest and profit.

But even where active competition is minimized, public utilities are not free from risks. Individual users are often providing their business houses and factories with light, power and even water through their own plants. New inventions and discoveries are constantly changing present conditions, and such changes, even when profitable, in the end often result in serious temporary losses. During the past twenty years, for instance, gas has almost been driven out of the illuminating field by electricity. Unexpected stagnations and radical changes in the growth of cities often lead to considerable losses and this may also be the effect of far reaching ordinances and other legislative requirements. The marked tendencies of indeterminate or more exclusive franchises to reduce capital charges is not as yet felt to its full extent in this state because of the uncertainties in the minds of investors as to whether the policy of granting such franchises will be permanently adhered to.

The questions as to what constitutes reasonable returns for interest and profits are raised before this Commission in practically every rate case as well as in all cases where we are asked to authorize security issues for new plants and for extensions and additions to existing plants. Every phase of the issues involved in these questions is thus repeatedly gone over by the Commission. In fact, these questions are constantly under investigation by us. In these investigations the actual and relative importance of the various factors which affect the charges in question are presented and argued. The minimum rates at which capital can be had, both on securities which cover a part of the cost value of the property and on securities which cover the entire cost value of the property again and again, had to be more definitely determined by us. It is by

facts obtained in this way that the Commission is largely guided in its conclusions.

It is perhaps only fair to say that our conclusions in these respects are not satisfactory to all. Complainants often say that the amounts we allow for interest and profit and for discounts on bonds are higher than they deem proper. The utilities, on the other hand, in almost every case hold that our allowances for these purposes are too low. When the facts upon these points are summed up, however, it will be found that our allowances for capital charges are no higher than those which have been shown to be necessary to obtain needed service that is adequate and continuous. In fact, many instances are met with where, because of the limited business of the plants, the allowances, for the time being at least, are lower than this.

WATER DEPARTMENT.

The following table discloses comparative operating statements of the water department of the Superior Water, Light & Power Co. for the three years ending June 30, 1909, 1910 and 1911, as reported to the Commission by the utility:

TABLE 10.
COMPARATIVE OPERATING STATEMENTS.
SUPERIOR WATER, LIGHT AND POWER CO.
WATER DEPARTMENT.

	Year ending June 30.		
	1909	1910	1911
OPERATING REVENUES.			
Commercial earnings.....	\$57,843 99	\$61,404 63	\$67,087 41
Industrial earnings.....	6,110 11	8,150 34	10,183 12
Power earnings.....			
Mun. contract earnings.....	25,043 46	26,486 76	27,813 74
Misc. earnings.....	177 48		
Total.....	\$89,175 04	\$96,041 73	\$105,084 27
OPERATING EXPENSES.			
Pumping (steam)			
Superintendence.....	\$1,562 40	\$1,500 00	\$1,560 00
Pump labor.....	2,108 56	2,223 72	3,154 67
Purification labor.....	633 07	636 43	485 86
Misc. labor.....	175 78	261 31	225 90
Steam generated.....	8,073 04	7,798 15	7,498 37
Lubricants.....	119 89	162 80	235 27
Purification supplies and expenses.....	655 03	628 35	589 54
Misc. pumping sta. sup. and expenses.....	845 33	958 14	1,126 27
Maint. steam pr. pumping equipment.....	1,045 00	1,170 00	1,550 00
Maint. pumping sta. aux. equip.....	50 00	17 50	
Maint. boilers.....	321 50		
Maint. ground source supply.....	277 50	490 00	510 00
Maint. coll. aqueducts, intake and sup. main.....	120 00	45 00	
Maint. purification equipment.....		17 50	120 00
Maint. purification bldg. fix. and grds.....	72 50		725 00
Maint. pumping. sta. bldg. fix. and grds.....	55 30	67 50	
Total.....	\$16,114 90	\$15,976 40	\$7,780 88
Distribution			
Superintendence.....	\$910 00	\$920 00	\$735 00
Labor removing and resetting meters.....	307 61	385 91	445 65
Street department labor.....	1,082 95	1,043 45	1,133 20
Meter and fittings dept. labor.....			
Customers premises expenses.....	151 81	112 94	119 10
Street supplies and expenses.....	243 23	267 15	456 62
Maint. of distribution mains.....	610 80	695 00	1,215 00
Maint. of services.....	585 00	690 00	710 00
Maint. of hydrants.....	396 80	520 00	520 00
Maint. of meters.....	937 22	1,045 00	1,630 00
Total.....	\$5,256 48	\$5,679 45	\$6,964 57
Commercial			
Collection salaries and commissions.....	\$1,124 11	\$1,193 03	\$1,595 10
Reading meters and delivering bills.....	825 35	791 74	1,038 40
Collection supplies and expenses.....	1,078 32	989 83	1,131 98
Uncollectible acct's (reserve).....	252 80	300 00	300 00
Promotion of business sal's and comm.....	49 98	149 90	245 15
Promotion of business sup's and exp.....	100 00	12 34	130 00
Total.....	\$4,440 57	\$3,436 89	\$4,440 63
General			
Salaries of general officers.....	\$1,918 00	\$1,720 00	\$3,547 22
Salaries of general office clerks.....	683 30	723 16	611 67
General office rent.....	300 00	320 00	435 00
Misc. gen. office sup's and expenses.....	58 49	76 61	47 02
Law expenses—general.....	478 95	441 41	347 99
Misc. general expenses.....	305 01	419 90	1,165 62
Total.....	\$3,723 78	\$3,700 88	\$3,154 52
Total above items.....	\$28,534 73	\$28,793 62	\$35,340 60
Depreciation.....	9,000 00	9,000 00	10,000 00
Taxes.....	7,651 08	7,796 60	8,536 96
Total oper. expenses.....	\$45,185 81	\$45,590 22	\$53,877 56
Net operating revenue.....	\$43,989 23	\$50,451 51	\$51,206 71
Non-operating revenue.....	944 16	1,872 76	2,200 03
Gross income.....	\$44,933 39	\$52,324 27	\$53,406 74

In a percentage analysis of summary of operating expenses of private class A water utilities for 1911, Superior compares very favorably in regard to the pumping and general expenses but unfavorably with respect to the distribution and commercial expenses. 50.31 per cent of the operating expenses in the water department of the Superior Water, Light & Power Company are pumping expenses; this is two points below the average for the group of the thirteen private class A plants taken, the maximum being 72.27 per cent, the minimum 29.08 per cent, and the median 57.45 per cent. Superior is the maximum with 19.71 per cent with regard to the distribution expenses, the average being 10.31 per cent, the median 10.19 per cent, and the minimum 2.61 per cent. Superior with 12.56 per cent is also the maximum of the group of commercial expenses, the average being 5.90 per cent, median 5.39 per cent, and the minimum 1.16 per cent. General expenses are 17.42 per cent of total operating expenses in Superior, being about one and one-half points above the minimum. The maximum is 66.88 per cent, the average 30.12 per cent, with the median 26.24 per cent.

The item "Maintenance of mains" is high. This makes the maintenance per mile of main nearly double the average of this item for other class A plants. The collection expenses are higher than for many plants, due to the monthly collection of bills.

Some corrections and changes have been made in the apportionment of the expenses between the water, gas and electric departments of the utility, so that the expenses of the water department used here are not identical with those reported by the utility. The overhead expenses were apportioned on the basis of the direct expenses. The superintendent's labor was apportioned on the basis of the operating labor. Expenses of the water department as used in our computations were as follows:

Pumping	\$17,549.28
Distribution	6,964.57
Commercial	4,440.63
General	4,069.30
Taxes	9,561.94
Interest	58,676.94
Depreciation	8,883.22
Total	<u>\$110,145.88</u>

In the final apportionment of expenses of the water department it was found that of the total expenses of operation (excluding taxes, interest and depreciation charges upon the present value and cost new of the water plant, respectively), \$12,161.54 were capacity expenses, \$12,640.62 were output expenses, and \$662.39 and \$7,559.23 were consumer expenses of fire and general service, respectively.

It is necessary, in order to get at the costs chargeable to private consumers and to the city of Superior, to make a separation of the capacity and output costs to each of these classes of service. The engineering staff of the Commission has made an apportionment of the value of the water plant between public and private service. The method of apportionment used has been discussed in previous decisions, *City of Beloit v. Beloit W. G. & El. Co.* 1911, 7 W. R. C. R. 187, 320, and *Dick et al. v. Madison W. Comm.* 1910, 5 W. R. C. R. 731, 757, and will not be taken up here. The following table shows the staff's division between domestic and industrial service, and fire service. The domestic and industrial service includes all city uses except for fire protection.

TABLE 11.
 APPORTIONMENT WATER DEPT. BETWEEN PUBLIC AND PRIVATE.
 SUPERIOR WATER, LIGHT & POWER CO.
 June 30, 1911.

Classification.	Domestic and industrial.		Fire service.		Total.	
	Cost new.	Present value.	Cost new.	Present value.	Cost new.	Present value.
A. Land	\$20,267	\$20,267	\$6,426	\$6,426	\$26,693	\$26,693
B. Transmission and distribution	287,606	276,886	302,722	294,141	590,328	571,027
C. Buildings and miscellaneous structures.....	75,745	73,497	18,231	16,878	93,976	90,375
D. Plant equipment.....	34,505	25,592	37,205	21,387	66,710	46,979
E. General equipment.....	5,307	4,069	3,040	2,199	8,347	6,268
F. Paving.....	26	25	40	39	66	64
Total	\$423,456	\$400,336	\$362,664	\$341,070	\$783,120	\$741,406
Add 12% (see note below) ..	50,814	48,040	43,520	40,928	94,334	88,968
Total	\$474,270	\$448,376	\$406,184	\$381,998	\$880,454	\$830,374
H. Materials and supplies.	4,027	4,027	3,841	3,841	7,868	7,868
Grand total.....	\$478,297	\$452,403	\$410,025	\$385,839	\$888,322	\$838,242
	54%		46%		100%	

■ NOTE:—Addition of 12% to cover engineering, superintendence, interest during construction, contingencies, etc.

From this table it is seen that about 54 per cent of both the cost new and present value of the water plant is charged against the domestic and industrial service, while 46 per cent is charged against fire service.

It is necessary before a correct apportionment of the operating expenses as between classes of services can be made, to know the demands of the different services and the amount of water sold or delivered to each. It appears from the testimony in this case that the fire demand will amount to about 2,500 gallons per minute. A careful estimate of the domestic demand, based upon a study of local conditions and of the experience of other water utilities, shows that the maximum domestic and industrial demand rate is 3,000 gallons per minute.

With a total demand of 5,500 gallons of water per minute the fire service is responsible for about 46 per cent and the domestic service about 54 per cent. From the report of the utility to the Commission for the year ending June 30, 1911, it is found that at the end of the year there were 3,142 metered and 1,218 unmetered commercial and industrial consumers, or a total of 4,360. In addition there were 42 public connections of which 39 were unmetered. This gives a grand total of 4,492, with 3,181 metered.

A tabulation was made of six months of the water meter register showing the distribution of the metered water sold over various groups. These data are shown in the following table for the calendar year 1910:

TABLE 12.
WATER CONSUMER DATA.
SUPERIOR WATER, LIGHT AND POWER CO.
SUMMARY FOR CALENDAR YEAR 1910—METERED CONSUMERS.

Months.	First 200 c. f. per mo.	Next 300	Next 500	Next 2M	Next 7M	Next 15	Next 25	Excess	Total cu. ft.
Jan.....	428,250	291,150	161,000	261,000	321,200	277,600	249,700	218,500	2,208,400
Mar.....	428,200	287,500	181,900	282,100	300,600	271,400	245,100	276,400	2,273,200
May.....	449,700	292,200	170,550	266,300	276,500	234,100	208,300	306,500	2,204,150
July....	475,850	384,300	252,900	376,850	364,300	296,400	216,200	246,900	2,613,700
Sept....	507,850	363,150	203,500	296,450	306,000	238,100	234,800	640,300	2,790,150
Nov.....	524,400	334,400	191,050	284,750	293,600	235,400	263,400	840,000	3,017,000
Total...	2,814,250	1,952,700	1,160,900	1,767,450	1,862,200	1,553,000	1,417,500	2,578,600	15,106,600
Per cent	18.6	12.9	7.7	11.7	12.3	10.3	9.4	17.1	

Total first M cu. ft. 39.2%

From table 12 it is noted that 39.2 per cent of the total water sold to metered consumers fell under the first thousand cubic feet per month, 11.7 per cent under the next two thousand cubic feet, 12.3 per cent under the next seven, and 10.3 per cent under the next fifteen thousand, while 26.5 per cent came in the groups over the first 25 thousand cubic feet per month.

A number of similar analyses have been made for other cities but they are not of much importance for comparative purposes, due to the fact that they were quarterly readings instead of monthly readings as in Superior. Again, there is much uncertainty in the consumption of water, so that uniformity in consumption of various cities cannot be looked for.

From the foregoing table it is seen that the total consumption is increasing each month. From 2,208,400 cu. ft. in Jan. 1910, metered consumption increased to 3,017,000 in Nov. 1910. The total consumption for the six months shown amounts to 15,106,600 cu. ft. Assuming that this will be doubled for the entire year, the total sales to metered consumers would be 30,213,200 cu. ft.

The company submitted a detailed statement showing the water pumped and used for the year ending June 30, 1912. This statement follows:

TABLE 13.
WATER PUMPED AND USED.
SUPERIOR WATER, LIGHT & POWER COMPANY.
Year ending June 30, 1911.

	Per cent.	Gallons.
Private:		
Metered consumers.....		245,335,500
Flat rate consumers (estimated).....		100,000,000
Standard Oil Co.....		2,200,000
Skating rinks.....		2,000,000
Total.....	76.5	349,535,500
Public:		
Schools (nine) (part estimated).....		40,000,000
Flushing sewers.....		8,000,000
Public fountains (eight).....		30,000,000
Fire service.....	(2.0)	6,000,000
Fire halls.....		250,000
Sprinkling parks.....		600,000
Total.....	18.6	84,850,000
Company:		
Washing filter sand.....		12,000,000
Flushing hydrants.....		2,500,000
Breaks (this year only).....		500,000
Miscellaneous service flushing.....		7,300,000
Total.....	4.9	22,300,000
Grand total used 66%.....	100.0	456,685,500
Lost and unaccounted for 34%.....		236,064,000
Total pumped 100%.....		692,749,500

This table shows that of the total 692,749,500 gallons pumped about 66 per cent or 456,685,500 gallons were actually used, while 34 per cent or 236,064,000 gallons were lost and unaccounted for.

It appears highly probable that this total figure of 456,685,500 gallons actually used by all consumers is more than will be used with all consumers metered, and a consumption of approximately 300,000,000 gallons, as explained later, appears nearer correct.

From statistics for class A water utilities for the year ending June 30, 1911, it is found that Superior has 56.3 miles of main which is slightly above the median and considerably above the average for the plants taken. With 4,402 consumers Superior has 78.2 consumers per mile of main, the average being 78.8, the median 72.3. In Superior, 156 M gallons are pumped per consumer which is much below the average of 233 M or the median which is 228 M gallons. As regards the pumpage per inhabitant Superior is less than one-half of the average, 16.9 M against 34.1 M gallons.

An apportionment of the output and capacity expenses was made between the domestic and industrial service and the fire service. It was found that of the total demands of the two classes of water service, fire service was about 46 per cent and all other service about 54 per cent. Of the total water used, it was found that the fire service was responsible for only about 2 per cent of the amount, so that the fire service was charged with 2 per cent of the output expenses.

Taxes, interest and depreciation amounted in all to \$77,122.10. Divided between fire and general service upon the basis of the apportionment of the property, the taxes, interest, and depreciation chargeable to fire service amount to \$35,476.17, and to general service, \$41,645.93.

The following table shows the results of the apportionment of all expenses of operation, excepting taxes, interest and depreciation:

	Capacity.	Output.	Consumer.
Fire service	\$5,728 56	\$252 81	\$662 39
General service.....	6,432 98	12,387 81	7,559 23

The total cost of each class of service is made up as follows:

	Expenses of operation.	Taxes, interest, and depreciation.	Total.
Fire.....	\$6,643 76	\$35,476 17	\$42,119 93
General.....	26,380 02	41,645 93	68,025 95
Total.....			\$110,145 88

The total cost of fire service, amounting to \$42,119.93, is \$14,306.19 in excess of the revenue from this service. The revenue from general service, on the other hand, was \$9,244.58 in excess of the cost of that service. The total expenses of general service, including taxes, interest, and depreciation, are divided among capacity, consumer, and output, as follows:

Capacity	\$24,572.39
Output	31,267.61
Consumer	12,185.95
Total	\$68,025.95

Consumer expenses may be further subdivided between those with which all general consumers are concerned and those which are due to metered users only, as follows:

All consumers	\$4,415.18
Metered consumers	7,770.77
Total	\$12,185.95

Interest, depreciation, and taxes upon the value of the meters, at a rate equivalent to 12 per cent of the cost new have been considered as consumer expenses. Services are paid for by consumers, so no provision need be made for taxes, interest, and depreciation upon this portion of the equipment.

The facts outlined above clearly indicate that the present distribution of the cost of water service is not an equitable one. The city is not bearing its proper share of the cost. In order for water rates to be just for all classes of consumers and of

service, each class should pay that portion of the total expenses for which it is responsible. In this case the city is not paying as much as it should for fire protection, and other consumers pay a total somewhat above the cost of their service, although the excess obtained from general service does not equal the deficiency from the fire service. Owing to contractual features involved in this case no adjustment of water rates can be ordered at the present time, but it seems only fair to all parties involved that the exact extent and nature of the defects of present schedule should be shown.

We have already called attention to the fact that the fire service is not paying its share of total expenses. Although no revised schedule can be established for general service, we have made an analysis of the costs of that service with a view to determine what schedule ought to be installed if a change were to be made.

Instead of treating the interest, depreciation, and taxes on meters as a lump sum, we have excluded the total amount of these expenses from the total expenses of general service, as determined above, and made an allowance for each meter of the different sizes to provide for these items. That is, these expenses have been handled as expenses connected directly with and related directly to the value of the meters and they are included in the table shown later. With these expenses taken from the total cost of the service shown above, the distribution of that cost over the various classes of expenses is as follows:

Capacity	\$24,572.39
Output	31,267.61
Consumer	
All consumers	4,415.18
Metered consumers	3,144.05
	\$63,399.23

Consumer expenses may be divided over the average number of consumers and the average number of metered consumers for the year under consideration. These are, respectively, 4,203 and 2,867.

With interest, depreciation, and taxes on meters based upon the values of the various sizes of meters, the consumer expenses are as shown below:

Size of meter.	Interest, depreciation and taxes	Meter consumer expenses.	Other consumer expenses.	Total.
1/2"	\$1.08	\$1.10	\$1.05	\$3.23
3/4"	1.48	1.10	1.05	3.23
1"	1.55	1.10	1.05	3.71
1 1/2"	2.04	1.10	1.05	4.19
2"	4.80	1.10	1.05	6.95
2 1/2"	6.60	1.10	1.05	8.75
3"	13.20	1.10	1.05	15.35
4"	21.00	1.10	1.05	23.15
6"	42.00	1.10	1.05	44.15

If all consumers are placed on a meter basis, the total consumer expenses will be increased, but this will not affect the amount of consumer expenses which each consumer should bear, except as increased metering may lead to a different degree of economy in dealing with metered consumers. If the rate for general service were made in the form of a service charge and a charge for water used, the service charge would meet the consumer expenses and a part of the capacity expenses. Output expenses and the remainder of capacity expenses would be met by the charge for water.

With consumer expenses as shown above, the service charge should be about as shown in the following table. The table also shows the amount of capacity expenses which the service charge would impose on each size of meter:

TABLE 14.

Size.	Consumer expenses.	Annual service charge.	Capacity costs met by service charge.
1/2"	\$3.23	\$4.80	\$1.57
3/4"	3.23	4.80	1.57
1"	3.71	6.00	2.29
1 1/2"	4.19	8.40	4.21
2"	6.95	12.00	5.05
2 1/2"	8.75	18.00	9.25
3"	15.35	24.00	8.65
4"	23.15	48.00	24.85
6"	44.15	96.00	51.85

In estimating what the revenues would be under a meter rate as outlined in this decision, it has been assumed that all services would be metered. According to the report as of June 30, 1911, the number of meters of each size which would be used to meter all services in use at that date would be about as shown below.

The following table shows also the total of capacity expenses which would be provided by service charges as outlined above:

TABLE 15.

Size.	Number.	Capacity expense per meter met by service charge	Total capacity expense met by service charge.
½"	15	\$1 57	\$23 55
¾"	4166	1 57	6,510 62
1"	100	2 29	229 00
1 1/8"	40	4 21	168 40
1 1/4"	11	5 05	55 55
1 1/2"	24	9 25	222 00
1 3/4"	3	8 65	25 95
2"	12	24 85	298 20
2 1/2"	12	51 85	622 20
Total.....			\$8,185 47

The foregoing estimate may not represent conditions exactly because the distribution of meters by sizes might vary somewhat from the figures used, but the total effect of such differences upon the amount of capacity expenses which would be borne by the service charge would not be important.

With total capacity and output expenses amounting to \$55,840.00, the total revenue to be obtained from the charge for water would be \$47,654.53. With a consumption of 300,000,000 gallons per year this is equivalent to an average rate of 15.88 cts. per 1000 gallons, or 11.88 cts. per 100 cubic feet.

As stated above, the distribution of sales of water, as shown by an analysis of the water consumer statistics, was as follows:

In the first 1,000 cu. ft. per month.....	39.2	per cent
“ next 2,000 “ “	11.7	“
“ “ 7,000 “ “	12.3	“
“ “ 15,000 “ “	10.3	“
Excess	26.5	“
Total	100.0	per cent

Assuming that the same distribution would hold for a total consumption of 300,000,000 gallons or about 40,107,000 cubic feet, the amount used in each group would be:

In first 1,000 cubic feet per month.....	15,721,944	cu. ft.
“ next 2,000 “ “	4,692,519	“
“ “ 7,000 “ “	4,933,161	“
“ “ 15,000 “ “	4,131,021	“
Excess	10,628,355	“

Revenue from the charge for water under rates as outlined in the following summary would be as shown below:

15,721,944 cu. ft. at 18 cts. per .100 cu. ft.....	\$28,299.50
4,692,519 " at 13 " 100 "	6,100.27
4,933,161 " at 10 " 100 "	4,933.16
4,131,021 " at 7 " 100 "	2,891.71
10,628,355 " at 5 " 100 "	5,314.18
Total	\$47,538.82

The total of output expenses and of that part of capacity expenses which should be met by the charge for water, as determined above, was \$47,654.53. The total of capacity and output costs of general service was \$55,840.00. The service charges, as outlined above, would provide for \$8,185.47 of capacity expenses, so that rates as suggested would provide a probable revenue to meet capacity and output expenses, amounting to \$55,724.29.

The service charges would also meet the consumer expenses, so that the total estimated revenue from general service would be practically identical with the cost of that service.

The foregoing analysis of the rate situation at Superior shows that the present distribution of the expenses there, as between fire and general service, is not a correct one. The existing rates for general service are also defective because the rates are regressive. That is, under the existing schedule it is possible to use a larger amount of water for a smaller payment than a less amount. In making up the schedule of rates outlined here, no allowance has been made for interest on the amount which should be added to the present value of the property on account of bond discounts, working capital, and going value. If allowance were made for these items, the rates for water used would have to be somewhat higher than those suggested above. The schedule recommended is as follows:

Monthly Service Charges.

1/2" meter	\$0.40
5/8" meter .....	.40
3/4" meter .....	.50
1 " meter .....	.70
1 1/2" meter	1.00
2 " meter	1.50
3 " meter	2.00
4 " meter	4.00
6 " meter	8.00

For each additional consumer on a meter 25 cts. per month in addition to service charges outlined above.

Charges for Water.

For the first 1,000 cu. ft. per mo. through a meter	18 cts. per 100 cu. ft.
“ next 2,000 “ “ “ “	13 “ “ “
“ “ 7,000 “ “ “ “	10 “ “ “
“ “ 15,000 “ “ “ “	7 “ “ “
Excess	5 “ “ “

If allowance is to be made for other elements affecting the value of the property, the rates for water used should be increased accordingly.

The interests of all parties would be served if the city and the utility would agree upon a revision of water rates along the lines outlined here, but for the present no change in water rates will be ordered.

GAS DEPARTMENT.

The comparative operating statement, as reported by the utility for the gas department for the three years ending June 30, 1909, 1910, and 1911, is shown in the following table:

TABLE 16.
 DETAILED OPERATING STATEMENT,
 SUPERIOR WATER, LIGHT & POWER COMPANY.
 GAS DEPARTMENT.

	Year Ending June 30,		
	1909	1910	1911
OPERATING REVENUE.			
Commercial earnings.....	\$55,100 59	\$60,555 67	\$64,880 15
Industrial earnings.....	2,151 93	2,326 10	2,459 8
Power earnings.....	1,827 36	1,342 25	1,370 24
Total.....	\$59,079 88	\$64,424 02	\$68,710 27
OPERATING EXPENSES.			
Purchased gas:			
Superintendence.....	\$300 00	\$300 00	\$300 00
Miscellaneous labor.....	1,260 00	1,260 00	1,260 00
Gas purchased.....	18,593 40	20,285 30	22,661 55
Steam.....	230 14	198 82	192 25
Miscellaneous purchased gas supp. and expense	166 77	159 48	155 22
Maintenance of purchased gas apparatus.....	40 00	44 00	.....
Maintenance purchased gas buildings, fixtures and grounds.....	238 43	11 00	.....
Total.....	\$20,828 79	\$22,258 60	\$23,959 02
Distribution:			
Superintendence.....	\$780 00	\$780 00	\$775 00
Labor removing and resetting meters.....	1,436 17	1,591 32	1,638 98
Street department labor.....	702 12	721 43	1,218 05
Customers' premises expenses.....	802 83	1,095 44	1,839 05
Street department supplies and expenses.....	400 07	365 30	348 72
Maintenance of mains.....	320 00	330 00	465 00
Maintenance of services.....	315 00	375 00	220 00
Maintenance of meters.....	1,241 85	1,395 00	1,000 00
Total distribution.....	\$5,998 04	\$4,653 49	\$7,451 81
Commercial:			
Collection sales and commissions.....	\$1,221 73	\$1,215 50	\$1,637 53
Reading meters and delivering bills.....	577 34	629 79	803 76
Collection supplies and expenses.....	1,150 33	1,260 75	1,188 51
Uncollectible accounts reserve.....	347 37	300 00	300 00
Promotion of business, salaries and commissions	1,105 29	1,428 14	1,414 68
supplies and expenses..	1,456 17	1,374 35	1,224 94
Total.....	\$5,858 23	\$3,138 53	\$3,570 45
General:			
Salaries of general officers.....	\$1,241 64	\$1,123 74	\$1,795 53
Salaries of general office clerks.....	550 00	620 80	603 33
General office rent.....	300 00	320 00	435 00
General office supplies and expense.....	33 26	67 11	49 85
Law expenses—general.....	628 88	419 25	177 49
Miscellaneous general expenses.....	228 94	317 16	916 99
Total.....	\$1,027 72	\$2,938 34	\$3,978 19
Total above items.....	\$35,637 78	\$37,978 96	\$41,972 47
Depreciation.....	6,000 00	6,000 00	6,000 00
Taxes.....	2,359 25	2,334 26	2,655 40
Total operating expenses.....	\$44,047 03	\$46,283 22	\$50,627 87
Net operating revenue.....	15,032 85	18,140 80	18,082 40
Non-operating revenue.....	11,290 45	11,160 12	1276 45
Gross income.....	\$13,742 40	\$16,930 68	\$17,855 95

¹Deficit.

The condensed operating expense statement for the gas department for the year ending June 30, 1911, as adjusted by the Railroad Commission is given in the following table:

TABLE 17.
OPERATING EXPENSE STATEMENT OF GAS DEPARTMENT
SUPERIOR WATER, LIGHT AND POWER COMPANY
Year Ending June 30, 1911.

OPERATING REVENUES.	
Commercial earnings	\$64,880.15
Industrial earnings	2,459.88
Power earnings	1,370.24
Total operating revenues.....	\$68,710.27
OPERATING EXPENSES.	
Production	24,087.22
Distribution	7,454.81
Commercial	6,570.45
General	5,338.78
Taxes	2,467.60
Total above expenses.....	\$45,918.86
Net above	\$22,791.41
Non-operating revenues	276.45
Total available for interest, profits and depreciation.....	\$22,514.96

¹ Deficit.

It will be noted that the foregoing expenses differ somewhat from those allotted to the gas department by the company. This difference is brought about by a reapportionment of production, superintendence, general and undistributed expenses.

Analysis of the expenses and comparison with those of other class A gas utilities indicate that while the Superior company secures its gas delivered in the holder at a low cost, the distribution and commercial expenses are so high that the total cost of the gas delivered to the consumer is above normal. This may be the result of undeveloped business for which peculiarly local conditions may be made responsible. Examination of the development statistics reveals that such is probably the condition and that if the public is inclined, under like circumstances, to use gas to the extent prevailing elsewhere, a considerable field for growth still remains open to the gas business in Superior. Such an increase in business would logically reduce the cost of gas delivered to users, as it appears that a large additional number of consumers could be taken on without much affecting any but the expense of purchased gas.

For the purpose of illustrating about what the gas costs are per unit, depreciation at 2 per cent of the cost new and interest at $7\frac{1}{2}$ per cent of the present value have been added to the operating costs of the gas department. On this basis the total operating costs of this department were \$67,320.46, or an average of \$1.11 per 1,000 cu. ft. of gas sold for the year ending June 30, 1911. By apportionment of the several items of expense, it is found that the output costs are about \$42,160.17 or \$0.696 per 1000 cu. ft. of sales. The consumer and capacity expense amount to about \$25,160.29, or \$0.588 per meter per month.

The company reports 3,566 meters, June 30, 1911. At that time a double meter system was in operation so that, because of duplication, the actual number of consumers was approximately 2,866. Were the meters in use reduced to this number by doing away with the double meter basis of sale, the consumer and capacity expenses per meter per month would be correspondingly increased to \$0.732. Since, however, it is not likely that the number of meters through which gas is sold will be reduced to this minimum, and since such reduction as does take place in the number of meters will be accompanied by certain reduction of expenses, it appears that the consumer expenses per meter, when properly determined, lies somewhere between \$0.59 and \$0.73 per month.

The variable cost of gas is shown by the following table, in which the consumer and capacity expenses are placed at \$0.67 per meter-month and the output expenses at \$0.696 per 1000 cu. ft.:

TABLE 18.
VARIABLE UNIT COST OF THE CONSUMER OUTPUT AND TOTAL EXPENSES.
SUPERIOR WATER, LIGHT AND POWER COMPANY.

M cu. ft. per month	Consumer cost	Output cost	Total cost	Total cost per M cu. ft.
1.....	\$0.67	\$0.696	\$1.366	\$1.766
2.....	"	1.392	2.062	1.032
3.....	"	2.088	2.758	.919
4.....	"	2.784	3.454	.864
5.....	"	3.480	4.150	.830
10.....	"	6.960	7.630	.763
20.....	"	13.920	14.590	.720
50.....	"	34.800	35.470	.703
100.....	"	69.600	70.270	.696
250.....	"	174.000	174.670	.698
500.....	"	348.000	348.670	.698
1,000.....	"	696.000	696.670	.697

Consideration of the foregoing cost curve in connection with the operating statistics shows very clearly the reason for the comparatively high cost of gas per unit. Analysis of the gas sales of other utilities shows that about 65 per cent of gas sold to consumers is delivered in quantities not exceeding 2000 cu. ft. per month and that quantities up to 5000 cu. ft. per month comprise about 82 per cent of the total sales. Detailed analysis of the gas sales in Superior has not been made, but sufficient evidence exists for the conclusion that gas is sold here in even smaller monthly amounts than usual. Under these conditions a relatively high consumer cost affects a large proportion of sales, causing the average cost per 1000 cu. ft. to be considerably above what it would be were the sales much larger per consumer or were the consumer charge much smaller. These expenses, while not much dependent upon the output of the plant, are, on the other hand, not entirely fixed in amount per consumer but will normally decrease as the business grows.

Prior to the issuance of this decision and order new rates were proposed by the respondent and these have been placed in effect. The new schedule for light and fuel gas consists of a rate of \$1.00 net per M cu. ft. for the first 20 M cu. ft. per month, and \$0.80 net per M cu. ft. for gas used in excess of 20 M cu. ft. per month. The rate for gas used for power is \$0.75 per M cu. ft. for the first 20 M cu. ft. used per month and \$0.60 per M cu. ft. for gas used in excess of that amount. We show below a comparison of the estimated revenues under this schedule with those for schedules based on the cost curve set forth above. In arriving at these estimates the total amount of gas sold in various quantities per month was assumed to bear about the usual relation to the total sales. No distinction was made between gas used for power and for other purposes. The estimate based on the company's schedule is therefore somewhat too high. But because of the relatively small amount used for power, it appears that the estimate is excessive by not more than 1 per cent.

TABLE 19.
ESTIMATED REVENUE FROM GAS SALES.
SUPERIOR WATER, LIGHT AND POWER COMPANY.

	Per cent of total gas sales.	M cubic feet.	Estimates based on cost curve				Estimate based on present rate.	
			Estimate No. 1.		Estimate No. 2.		Rate per M.	Revenue.
			Rate per M.	Revenue.	Rate per M.	Revenue.		
First 2 M cu. ft. per mo.....	65	39,388	\$1 20	\$47,266	.....	.....	.....	.....
Next 3 M cu. ft. per mo.....	17	10,301	1 00	10,301	.....	.....	.....	.....
Total of first 5 M cu. ft.....	82	49,689	.....	\$57,567	\$1 18	\$58,633	.....	.....
Next 15 M cu. ft. per mo.....	11	6,666	\$0 75	5,000	80	5,333	.....	.....
Total of first 20 M cu. ft. ...	93	56,355	.....	\$62,567	.....	\$33,966	\$1 00	\$51,355
All over 20 M cu. ft. per mo ..	7	4,241	\$0 75	3,181	\$0 70	2,969	80	3,543
Total.....	100	60,596	.....	\$65,748	.....	\$66,135	.....	\$59,748

The estimated revenue based on the respondent's new rate schedule is about \$9,000 less than the revenue for the year ending June 30, 1911. It is also \$6,000 to \$7,000 less than the estimates based on the cost curve.

The respondent based the new schedule upon the fact that a new contract was consummated with the Zenith Furnace Co. whereby the cost per M cu. ft. of gas to the respondent is increased from 2½ to 5 cts. (depending upon whether it is used for power, heating or for other purposes), and further that an appliance and complaint department is established in Superior by the Zenith Co. through its agent the Gas Appliance Company, in connection with which the Gas Appliance Company agrees to expend a substantial amount each year during the life of the contract on promotion of business, etc. The Gas Appliance Company also agrees to handle all work necessary on consumers' premises beyond the outlet of consumers' meters, consisting of such general work as installing piping, fuel and lighting appliances, repairing leaks, and adjusting lamps. Although "Purchased gas expenses" will be increased as a result of this contract, it is anticipated that substantial reductions in distribution and commercial expenses will more than make up for the additional cost.

The schedule of gas rates recently put into effect is not entirely what it ought to be because of the considerable use of gas to which the primary or maximum rate applies. But on the other hand, this maximum rate is appreciably lower and

the reduction effected to consumers as a whole is greater than would be the case for a schedule more directly based upon the existing expenses and the corresponding cost curve. For such reasons it appears inadvisable at this time to disturb the schedule now established.

Minimum Bill.

The minimum monthly charge made by the respondent under its existing schedule is \$0.40 net. The reasonableness of a minimum charge has been discussed in other opinions of the Commission. The reasonableness of the amount of the charge is most properly tested by the facts in each case. The respondent's direct consumer expenses, consisting of such items as customers' premises expenses, maintenance of meters and services, reading meters and collecting bills, amounted to 19.4 cts. per consumer-month in 1909, 20.2 cts. in 1910 and 20.4 cts. in 1911. This expense, added to the fixed expenses for the several sizes of meters and services, results in the following variable cost:

TABLE 20.
COSTS PER METER PER MONTH.
SUPERIOR WATER, LIGHT AND POWER COMPANY.

Size of meters.	1909	1910	1911
3 light	\$0.252	\$0.260	\$0.262
5 .....	.266	.274	.276
10 .....	.279	.287	.289
20 .....	.323	.331	.333
30 .....	.382	.390	.392
45 .....	.478	.486	.488
60 .....	.561	.569	.571
80 .....	.691	.699	.701
100 .....	.776	.784	.786
200	1.328	1.336	1.338

To these costs must be added a fair allowance for the actual production expense of a small quantity of gas used under the minimum charge. Examination of numerous consumer accounts indicates that the additional allowance should be from 15 cts. to 20 cts. per month for small users and proportionately more for consumers with larger services.

In view of the following schedule of minimum charges based upon these facts, it does not appear that the respondent's minimum charge of \$0.40 per meter per month is unreasonable.

Size of meter.	Minimum charge per month.
3 light	\$0.40
5 " .....	.45
10 " .....	.50
20 " .....	.60
30 " .....	.70
45 " .....	.75
60 "	1.00
80 "	1.50
100 "	2.00
200 "	3.00

COST OF WATER AND GAS SERVICE IN DULUTH AS COMPARED
WITH THE COST IN SUPERIOR.

The question has arisen as to why the rates charged for water, gas, and electricity should be higher in Superior than in Duluth. In order to get a true and fair comparison a detailed analysis will have to be made of the income accounts and operating statistics of the Duluth properties. On the face of the rates in effect it would appear that there is a wide discrepancy between the two cities. The costs, however, are much different in a large city with large sales than in a smaller city with small sales. Duluth has about twice the population of Superior and, as shown later, the sales per consumer are much larger than in Superior. The figures and tables given in the annual reports of the board of commissioners of the water and light department of the city of Duluth are of such a nature that it is almost impossible to get at the exact costs of service plus an interest and depreciation charge for comparative purposes.

It is claimed by many city officials where there are municipally operated water plants that their water departments are making money at the low rates charged and their reports are pointed to to substantiate their statements. In many of these reports, however, of which Duluth's is an example, one can look in vain for a charge of interest on the investment not included in the bonded debt; also for a charge for taxes which would be paid if the property were owned by individuals. Depreciation on the cost of the works is also missing from the production cost. All of these are a part of the cost of production, and, unless they are included, it is impossible to tell what the cost of furnishing the water is or whether there is a loss or profit in conducting the business. There are hundreds of plants in other states that have not at present on their books any charge for depreciation

and that have not considered who is going to make good the plant when it is worn out and who is going to pay the necessary rates in later years, out of which has to come the fund for re-building that plant.

Where all the expenses of operation and fixed charges are not borne by the revenues of the plant but are helped out by taxation, as is frequently the case with municipally owned plants, it is not equitable to the property owners that one should be required to help maintain the plant so that another enjoys the use of the commodities. Private plants often have to charge higher rates to make a legitimate rate of interest on their investment, due to the fact that they have not a source of taxation to care for a large percentage of their expenses. It appears that Duluth has an advantage over many municipalities operating public utilities, in having a very competent staff. It is to be regretted, however, that they have not prepared a more detailed and comprehensive annual report than has been submitted in the past.

The local situation in Duluth ought to be studied so that the costs of the various classes of service throughout the whole works could be ascertained. It is then only that one is in a position to determine whether or not the rates are adequate, so that private consumers and the city alike may know whether the private consumers are paying all the cost of the public service, or whether it is reversed. From the reports available, however, only a partial analysis of the situation can be made.

Sales of water, gas and electricity in Duluth have been much larger than in Superior in proportion to population. The following table shows a comparison of the water pumpage and estimated sales per unit in Duluth and Superior:

	Calendar year 1911 Duluth.	Year ending June 30, 1911 Superior.
Population.....	79,000	40,000
Gallons pumped.....	3,600,126,407	692,749,500
(a) Consumers. (b) water connections.....	(b) 10,630	(a) 4,402
Miles of main.....	127	56.3
Water sold (estimated 66% total pumped).....	2,045,423,400	456,685,500
Consumers per mile of main.....	83.8	78.2
Consumers per 100 population.....	13.5	11.0
Pumpage per capita—gallons.....	31,000	17,350
“ “ consumer.....	291,000	157,400
“ “ mile of main.....	24,350,000	12,300,000
Estimated gallons sold—per capita.....	25,900	11,400
“ “ “ “ consumer.....	192,500	103,700
“ “ “ “ mile of main.....	16,130,000	8,120,000

The following table gives a comparison of the gas statistics of the two cities:

	Duluth.	Superior.
Cubic feet gas sold.....	279,776,800	60,595,900
Consumers.....	7,987	12,766
Miles of main.....	112	29
Sales per consumer per annum.....	35,100	21,900
Consumers per mile of main.....	71	95.04
100 population per mile of main.....	7.05	13.8

¹ Duplicate meters deducted.

An analysis of conditions in Wisconsin cities has shown that, in general, plants with a large pumpage have a lower pumping expense per unit than those with a smaller pumpage. It will be noted that the pumpage in Duluth is over four times as great as in Superior. A curve showing the results for Wisconsin plants has been published in *In re Appl. Oconto City Water Supply Co.* 1911, 7 W. R. C. R. 497-529. The pumpage and estimated consumption per consumer are also much larger in Duluth than in Superior. As a result such expenses as are a function of the number of consumers are distributed over a large volume of sales, and the tendency is to reduce the consumer expense per unit of consumption.

Expenses of distribution are largely fixed and relate rather to the extent of the distribution system than to the volume of sales. In Duluth the number of consumers per mile of main is slightly higher than in Superior, and this, together with the larger consumption per consumer, also tends to reduce the cost of distribution per unit of water sold.

Two tabulations have been made of the income account of the water department and of the gas department of the city of Duluth, from the details published in the annual report of the board of water and light commissioners for 1911. It has been the endeavor in these tabulations to make them correspond as closely as possible with the annual reports received by the Commission. To the expenses reported by the Duluth departments, charges for taxes, depreciation and interest have been added. The two following tables show the results of these compilations:

DULUTH WATER DEPARTMENT

INCOME ACCOUNT

Year 1911.

Commercial Sales	
Output charges	\$173,083.51
Fixed charges	44,067.00
Hydrant rentals	38,856.82
	<hr/>
Total operating revenues.....	\$256,007.33
	<hr/> <hr/>
Operating expenses	
Pumping water	
Lakewood	\$22,266.00
Middle system	5,184.91
Woodland	1,217.04
W. Duluth	2,224.49
Duluth Heights	494.04
Orphanage	281.01
Endion	20.79
Maint. of machinery.....	3,428.57
Maint. of buildings and grounds.....	702.90
	<hr/>
Total	\$35,819.75
	<hr/> <hr/>
Distribution	
Office and shop pay rolls.....	\$24,278.19
Supplies	5,239.31
Maint. of mains	12,495.72
" services	3,528.68
" hydrants	3,604.56
" reservoirs and tanks.....	271.90
" (meter and fittings) tools.....	1,945.50
Customers premises exp. (imp't services).....	325.70
	<hr/>
Total	\$51,689.56
	<hr/> <hr/>
Commercial	
Collection water income.....	\$263.87
	<hr/> <hr/>
General and undistributed	
Office and shop rent.....	\$2,000.01
Insurance	2,085.29
Telephone	677.12
	<hr/>
Total	\$4,762.42
	<hr/> <hr/>
Total above expenses.....	\$92,535.60
	<hr/> <hr/>
Taxes—\$39.30 per \$1,000 on assessed val. of \$1,149,035 equals 40% of book value.....	\$45,157.08
Depreciation—1% on val. of \$1,953,359 which is 68% of the book value of \$2,872,588.....	19,533.59
Interest—6% on a valuation of \$1,855,692 which is the cost new (\$1,953,359) minus 5%.....	111,341.52
	<hr/>
Total	\$176,032.19
	<hr/> <hr/>
Grand total	\$268,567.79
	<hr/> <hr/>
Deficit	\$12,560.46

DULUTH GAS
INCOME ACCOUNT
1911

Income from gas sales.....	\$212,644.12
<hr style="border-top: 3px double #000;"/>	
Operating expenses	
Production	
Gas bought to sell.....	\$111,854.61
Gas bought for department's use.....	1,543.23
Engineers and firemen.....	2,558.20
Coal	1,345.90
Misc. supplies and expenses.....	286.48
Maint. of machinery and apparatus.....	35.54
Maint. buildings and grounds.....	18.90
Total	\$117,642.86
<hr style="border-top: 3px double #000;"/>	
Distribution	
Pay rolls (office and shop).....	\$11,511.55
Supplies	2,614.55
Maint. of mains	6,228.68
" services	1,528.45
" drips and governors.....	3,226.83
" meters	3,771.59
" tools	1,072.29
Customers premises exp's (imp't services).....	865.10
Total	\$30,819.04
<hr style="border-top: 3px double #000;"/>	
Collection exp's (gas income).....	\$78.14
<hr style="border-top: 3px double #000;"/>	
General and undistributed	
Office and shop rent.....	\$999.99
Insurance	1,277.15
Telephone	294.84
Total	\$2,571.98
<hr style="border-top: 3px double #000;"/>	
Total above expenses.....	\$151,112.02
<hr style="border-top: 3px double #000;"/>	
Taxes—\$39.30 per M of assessed val. estimated at \$378,281 being 40% of the book val. of \$945,702.....	\$14,866.44
Depreciation—2% on valuation of \$567,421, being 60% of book value.....	11,348.42
Interest—7% on a valuation (pres. val.) of \$520,136, which is 55% of the book value.....	36,409.63
Total	\$62,624.49
<hr style="border-top: 3px double #000;"/>	
Grand total	\$213,736.51
<hr style="border-top: 3px double #000;"/>	
Deficit	\$1,092.39

In the water department the assessed valuation upon which the taxes were computed was taken at 40 per cent of the reported book value. It was found that the ratio of the book value of the water plants valued by the engineering staff of the Com-

mission, to the staff's valuation was 68 per cent, so that 68 per cent of the book value was taken upon which to figure the depreciation. Interest was computed at only 6 per cent on an assumed present value of \$1,855,692, the reported book value being \$2,872,588.

It is noted that the total revenues received from the operation of the plant amounted to \$256,007.33, while the grand total operating expenses, including taxes, depreciation and interest, amounted to \$268,567.79, leaving a deficit from operation of \$12,560.46. With the tax levy "Reductions of water rates," and non-operating revenues, this deficit is of course wiped out.

It is believed that the estimated amounts upon which the taxes, depreciation, and interest were based are conservative.

If the reported book value is used as a basis upon which to figure these items, the deficit will be enormous. The tax rate in Duluth appears to be high, due, it appears, to her large bonded indebtedness of \$7,022,000, of which \$3,346,000 appears to be water and light plant bonds. The tax rate on \$1,000 of assessed valuation in Duluth in 1910 was \$39.30. The average tax rate on \$1,000 of assessed valuation in 158 cities of more than 40,000 population appears to be \$18.34 and in 47 cities of 50,000 to 100,000 population \$16.86.

The income account of the gas department, summarized in a preceding table, shows the same result as obtained in the water department except that the deficit is not as large.

The percentage analyses of the operating expenses of the gas business of the two cities are shown below:

Production.	Duluth.	Superior.
	Per cent.	Per cent.
Purchased gas.....	53.0	32.8
Other production expenses.....	2.1	3.0
Total production.....	55.1	35.8
Distribution.....	14.4	11.1
Commercial.....		9.7
General and undistributed.....	1.2	7.9
Taxes.....	7.0	3.7
Depreciation.....	5.3	7.5
Interest.....	17.0	24.3
	100.0	100.0

The cost of purchased gas is 32.8 per cent of the operating expenses in Superior. In Duluth, it is 53.0 per cent of the total cost. Total production expenses in Superior are 35.8 per cent

of the total operating costs, while in Duluth they are 55.1 per cent. These facts show that the production expenses have less influence on the total cost per M cu. ft. sold in Superior than they do in Duluth. They show also that the average cost of delivering gas in Superior will be much nearer the average cost for Duluth when the business in Superior has developed to the point where the production expenses constitute a larger proportion of the total costs. This conclusion is borne out by reference to computations of the unit gas costs for Superior. The output expenses for the Superior plant are about 70 cts. per 1000 cu. ft. The consumer and capacity expenses are about 67 cts. per meter per month. But since a substantial reduction may be expected in the consumer and capacity expenses per unit as the business grows, the average cost will decrease proportionately and will approach the output cost of 70 cts. per M cubic feet.

The Superior company compiled figures to account for the difference between the average price paid for gas in Superior and in Duluth made up as follows:

Depreciation charge	Superior, per M	.... 10	cts.	
	Duluth, "	.... 0		10 cts.
		<hr/>		
Sinking fund charge	Superior, per M	.... 4	cts.	
	Duluth, "	.... 0		4 "
		<hr/>		
Taxes	Superior, per M	.... 4.4	cts.	
	Duluth, "	.... 0		4.4 "
		<hr/>		
Gratuitous work for consumers	Superior, per M	.... 3	cts.	
	Duluth, "	.... 0		3 "
		<hr/>		
6% on cost of plant	Superior, per M	.... 30	cts.	
	Duluth, "	.... 20	"	10 "
		<hr/>		
Total				31.4 cts.

The average revenue per M cubic feet for Superior was about \$1.084, and for Duluth about \$0.77.

Without an investigation into the Duluth Edison Electric Company's accounts and operating statistics it is impossible to say definitely what is the cause of the low rates in effect there. From a superficial examination it would appear that this company has cut its prices to the lowest possible figure in order to combat the idea prevalent in Duluth of the desirability of a municipal lighting plant. It appears to be the company's aim that, rather than see a municipal plant with demoralizing com-

petition (for the company claims it cannot be driven out, sold out or confiscated), it would cut its rates to a point where only enormous sales would bring them any profits.

It is realized that there is great danger in generalizing from insufficient data in an investigation of this sort, but without more details relating to the operating and financial statistics of the Duluth plant only general deductions can be made.

The Duluth-Edison Electric Co. maintains that it is only by selling current for power or for operating household appliances, in daylight hours when the current is not needed for lighting, at an extremely low rate for this service and thus building up a larger use of electrical household appliances than in any other city of Duluth's size, that they have been enabled to maintain their present low lighting rate. They claim that at the present rate of 8 cts. per kw. hr. they are serving several hundred "short hour" consumers at a loss, which is only made up by the volume of revenue from all other customers.

The Duluth-Edison company claims it has made Duluth an electric city, with electrical benefits that are utilized to a larger extent, in ratio to population, than in any other city in the world.

It appears that in order to get as low an electric rate in Superior as is now in effect in Duluth, the Superior company must develop an extensive use of electrical appliances to sustain a large day load.

It appears from the investigation made into the Duluth situation that, in as far as the water and light departments are concerned, that in the last fifteen years nearly three times as many bonds have been issued for these departments as for general purposes, and that the plants are showing a surplus of income over operating expenses in their reports only due to the fact that no charge is made in the rates to cover interest, depreciation, and taxes, with the exception of interest on the bonds. With a proper charge for these items included in the rates, the rates will, it seems probable, be as high if not higher than the proposed rates in Superior.

As regards the electric situation, the universal and fundamental law of nature, self-preservation, is pushing the Duluth-Edison company to meet any rate which is feasible and which allows them some profit on large sales, in order that the agita-

tion for the establishment of a municipal electric plant will subside. They do not want a competing plant, and it is a fact that wherever two competing electric plants have been built the people usually have to pay for both. The Duluth company says in one of its advertisements "this company can hold its own against any competition a municipal plant can possibly bring." In order not to have this additional plant established it appears that they are voluntarily reducing their rates right along as their business increases.

ELECTRIC DEPARTMENT.

The following table shows the comparative operating statements for the electric department for the three years ending June 30, 1909, 1910, and 1911, as reported by the utility to the Commission:

TABLE 21.
INCOME ACCOUNTS.
SUPERIOR WATER, LIGHT AND POWER COMPANY.
ELECTRIC DEPARTMENT.

	For the year ending June 30.		
	1909	1910	1911
OPERATING REVENUES.			
Commercial lighting earnings.....	\$74,852 67	\$88,479 67	\$102,193 54
Municipal contract lighting earnings.....	16,632 60	17,926 66	19,364 98
Commercial power earnings.....	16,601 14	18,839 59	15,846 85
Miscellaneous earnings.....	22 60		
Total.....	\$108,109 01	\$125,245 82	\$137,405 37
OPERATING EXPENSES.			
Electric power generation.....			
Superintendence.....	\$800 04	\$825 03	\$600 00
Engine labor.....	47 05		1,912 25
Electrical labor.....	1,506 83	1,597 02	1,660 44
Misc. labor.....	221 26	364 12	338 01
Steam generated.....			300 00
Power purchased.....	23,436 87	27,148 79	29,011 75
Lubricants.....	12 66	6 67	34 62
Misc. pwr. pt. sup's and exp's.....	2,384 47	2,476 32	1,637 76
Maint. engines and boilers.....	320 00	130 00	50 00
Maint. of power plant, aux. equip.....	80 00	45 00	30 00
Maint. of generators and meters.....	507 07	270 00	380 00
Maint. pr. pt., bldgs, fixt. and grds.....	466 50	3 0 00	355 00
Total.....	\$29,782 75	\$33,202 95	\$34,469 83
Comm. elec. current purchased.....	1,456 00	803 00	1,209 00
Total power.....	\$31,238 75	\$34,095 95	\$35,678 83

TABLE 21—Concluded.

	<i>For the year ending June 30,</i>		
	1909	1910	1911
Distribution.			
Superintendence.....	\$720 00	\$740 00	\$660 00
Labor removing and resetting meters.....	1,782 96	1,636 74	1,359 59
Labor rem. and reset. insp. transf.....	152 00	84 12	94 07
Misc. dist. sys. op. labor.....	919 00	1,008 10	1,146 20
Misc. dist. sys. supplies and exp.....	829 07	1,638 48	1,895 16
Maint. overhead dist. system.....	2,770 75	2,135 00	1,912 00
Maint. transformers.....	81 76	105 00	145 25
Maint. of meters.....	638 27	1,550 00	2,725 00
Total distribution.....	\$7,893 81	\$8,917 44	\$8,947 67
Consumption.			
Trimming and insp. lamps comm.....	\$185 90	\$394 93	\$184 00
Comm. lamp. supplies.....	1 9 05	139 02	61 73
Misc. comm. cons. sups. and exps.....	12 39		
Customers premises expenses.....	1,336 91	1,667 82	1,345 86
Trim. and insp. mun. contract lamps.....	1,435 19	1,149 27	1,105 00
Mun. contract lamp supplies.....	456 06	477 21	365 90
Misc. mun. contract lgr. sup. and exp.....	135 67	21 58	51 75
Maint. mun. contract lamps.....	595 54	1,400 00	705 75
Total consumption.....	\$4,286 71	\$5,249 83	\$3,819 99
Commercial.			
Coll. salaries and commissions.....	\$1,429 16	\$1,395 48	\$1,742 20
Reading meters and del. bills.....	993 68	1,132 00	1,098 01
Collection supplies and expenses.....	1,130 75	1,074 46	1,111 19
Uncollectible accts.—reserve.....	589 86	480 00	480 00
Promotion of business sal. and com.....	1,217 63	1,673 79	1,429 13
Promotion of business sup's exp.....	1,939 28	2,828 83	2,567 37
Total commercial.....	\$7,300 36	\$8,584 56	\$8,428 80
General.			
Salaries of general officers.....	\$2,020 36	\$1,781 96	\$3,138 91
Salaries of general office clerks.....	683 34	735 04	613 34
General office rent.....	300 00	320 00	435 00
General office sup's and exp's.....	49 52	110 72	66 38
Law expenses-general.....	1,768 45	1,823 21	1,503 90
Misc. gen. expenses.....	344 08	696 13	1,499 93
Total.....	\$5,165 75	\$5,467 06	\$7,257 46
Total above items.....	\$55,885 38	\$32,314 84	\$65,132 75
Depreciation.....	18,000 00	18,000 00	24,000 00
Taxes.....	3,421 04	3,519 78	4,230 13
Total operating expenses.....	\$77,306 42	\$83,834 62	\$93,362 88
Net operating revenue.....	\$30,802 59	\$41,411 20	\$44,042 49
Non-operating revenue.....	1,150 96	4,729 78	3,770 42
Gross income.....	\$31,953 55	\$46,140 98	\$47,812 91

The condensed operating expense statement for the electric department for the year ending June 30, 1911, as adjusted by the Commission, is given in table 22:

TABLE 22.

OPERATING EXPENSE STATEMENT.
SUPERIOR WATER, LIGHT AND POWER COMPANY.
ELECTRIC DEPARTMENT
Year Ended June 30, 1911.

OPERATING REVENUES.	
Commercial lighting earnings.....	\$102,193.54
Municipal contract lighting earnings.....	19,364.98
Commercial power earnings.....	15,846.85
Total	\$137,405.37
OPERATING EXPENSES.	
Power (including amt. purchased for purpose of re-sale)	\$35,792.23
Distribution	9,947.67
Consumption	3,819.99
Commercial	8,428.80
General	7,982.09
Taxes	3,392.95
Total above	\$69,363.73
Total available for depreciation, interest and profit	\$68,041.64

The foregoing expenses, it will be noted, differ somewhat from those apportioned to the electric department by the company, being brought about as explained previously in the water and gas departments, by a reapportionment of power superintendence, general and undisturbed expenses.

For purposes of determining about what the electric costs are per unit, interest at 8 per cent of the present value of the electric plant, plus the amounts of intangible elements allowed, and depreciation at 4½ per cent of the cost new have been added to the operating costs of the electric department. On this basis the total operating costs of the department were as follows:

Total operating revenues.....	\$137,405.37
Total expenses, excluding depreciation and interest.....	\$69,363.73
Depreciation	17,779.32
Interest and profit.....	38,697.44
Total	\$125,840.49
Surplus	\$11,564.88

The importance of a correct separation of the demand and output expenses has been discussed very fully in a number of proceedings before this Commission. For a discussion of this sub-

ject see, *Ross et al. v. Burkhardt Milling & El. P. Co.* 1910, 5 W. R. C. R. 139, 154. Of the total above expense, amounting to \$125,840.49, it was found that an apportionment between capacity, output and consumer resulted in a charge of 32.5 per cent or \$40,813.76 to capacity, 48.5 per cent or \$61,095.53 to output, and 19 per cent or \$23,931.20 to the consumer:

The utility is engaged in furnishing three forms of electric service, namely, commercial or incandescent lighting, arc lighting, and power service. In order that each branch of service shall be charged with the expenses direct or proportional which it incurs, an apportionment of the capacity, output and consumer expenses over these classes of service has been made. The basis of this apportionment is the same as has been followed in other cases which have been before the Commission and will not be discussed here. The separation of the expenses shows that of the total capacity cost \$8,303.37 should be charged to arc lighting, \$26,059.21 to incandescent service, and \$6,451.18 to power service. Of the output expenses arc lighting was shown to be chargeable with \$13,602.29, incandescent lighting with \$38,860.65, and power service with \$10,632.59. The total consumer expenses were apportioned \$21,190.84 to incandescent, and \$2,740.36 to power service. The following table shows a summary of the apportionment:

TABLE 23.

Service.	Total.	Capacity.	Output.	Consumer.
Incandescent.....	\$84,110 70	\$26,059 21	\$36,860 65	\$21,190 84
Power.....	19,824 13	6,451 18	10,632 59	2,740 36
Arc.....	21,905 66	8,303 37	13,602 29	.....
Total.....	\$125,840 49	\$40,813 76	\$61,095 53	\$23,931 20

The capacity expense and the consumer expense, the latter of which is considered a demand expense, are incurred in the respective departments independent of the sale of any energy for the purpose indicated, while the output expense is due solely to the output of energy.

To determine the costs per unit for the different classes of service an examination of the development statistics is necessary. Table 24, which follows, shows the total number of consum-

ers in the various classes and other data relating to same as taken from the report of the utility to the Commission for the year ending June 30, 1911:

TABLE 24.
SUPERIOR ELECTRIC CONSUMER DATA
Year Ending June 30, 1911.

Class.	Total number.	Conn. load in kws.	50 watt units.	Kw. hrs. consumed.	Cons. receiving service.		
					Full 12 mos.	Less than 12 mos.	Per cent on meter basis.
LIGHTING.							
Residence	1,932	1,245	24,900	434,645	1,665	267	100
Saloons.....	102	76	1,520	52,910	91	11	100
Offices.....	159	88	1,760	30,271	140	19	84
Stores.....	335	348	6,960	202,317	280	55	91
Laundries.....	4	3	60	1,607	4	.....	100
Livery stables.....	9	7	140	5,318	9	.....	100
Industrial estab's.....	24	62	1,240	27,420	23	1	100
Hotels.....	31	72	1,440	47,020	29	2	100
Restaurants.....	18	17	340	16,112	17	1	100
Theaters.....	6	36	720	49,880	6	.....	100
Churches.....	38	94	1,880	12,614	37	1	100
Lodge halls.....	18	35	706	13,719	18	.....	100
Schools.....	5	55	1,100	10,804	4	1	100
Depots.....	8	20	400	11,018	8	.....	100
Signs.....	61	42	840	90,140	61	.....	46
Miscellaneous.....	50	70	1,400	48,682	40	10	72
City bldgs. prks., etc.....	.....	121	2,420	60,443	.....	.....	.....
Decorative st. lighting.....	.....	33	660	89,788	.....	.....	.....
Company.....	.....	27	540	35,387	.....	.....	.....
Total lighting.....	2,800	2,451	49,020	1,240,095	2,432	368	.....
POWER.							
Butcher shops.....	10	15	300	1,906	9	1	100
Groceries.....	6	6	120	2,490	5	1	60
Confectioners.....	3	4	80	1,464	3	.....	100
Elevators.....	8	78	1,560	28,260	8	.....	75
Print shops.....	10	36	720	19,270	10	.....	100
Factories.....	16	627	12,540	335,836	16	.....	100
Miscellaneous.....	28	98	1,960	44,504	22	6	95
Company.....	1	2	40	551	1	.....	100
Total power.....	82	866	17,320	434,281	74	8	.....
Grand total.....	2,882	3,317	66,340	1,674,376	2,506	376	.....

From the foregoing table it is seen that the company furnished service to 2,882 during the fiscal year.

The following table is a compilation of consumer cards submitted by the utility for the calendar year 1910 and brings out the more salient points in regard to the consumption of electricity by the various classes:

TABLE 25.
SUPERIOR ELECTRIC CONSUMER DATA.
Calendar Year 1910.

	Number of consumers	Connected load kws.	50 watt units	Active load in kws.	Revenues.	Kw. hrs. consumed	Kw. hrs. consumed under		
							Primary	Secondary	Excess
Residences.									
12 month consumer.	996	585.30	11,953	315.80	\$22,300 87	224,592	99,741	82,649	42,202
Less than 12 months.....	1,057	560.75	11,215	307.70	12,347 74	121,887	58,317	46,975	16,585
Total residences.....	2,053	1,156.05	23,168	623.50	\$34,648 61	346,479	158,058	129,624	58,787
Class B. Restaurants, stores, saloons, offices etc.	693	629.40	12,588	419.00	\$33,787 21	379,172	111,087	120,934	147,151
Class C. U. States & Co. bldg., churches, hotels, shops, etc.	178	384.62	7,692	211.86	13,626 72	147,664	47,177	45,043	55,444
Class D. Libraries, schools, city bldgs., hospitals, etc.	11	52.55	1,051	28.93	1,405 10	27,838	12,287	9,559	5,992
Class E. Windows, signs, outlines, etc.....	54	58.85	1,177	58.85	4,469 82	88,360	32,092	31,929	24,339
Total B. to E.....	936	1,125.42	22,508	718.64	\$53,288 85	643,034	202,643	207,465	232,926
Grand total.....	2,989	2,281.47	45,676	1,342 14	\$87,937 46	989,513	360,701	357,089	291,723
Arc lights ¹		185.00		165.00		514,670			
Power.....	81	866.00	17,320	2,519.60		434,281			
Grand total.....	3,070	3,312.47		2,026.74		1,938,464			

¹ From reports for year ending June 30, 1911.
² Estimated.

It is to be noted that whereas the company reports 1,665 full twelve-month residence consumers, from the tabulation of the consumer cards, a total of only 996 full twelve-month consumers is obtained. This discrepancy is due to the fact that in the staff's tabulation all consumer cards showing any blank months were classed as less than twelve-month consumers.

The total number of consumers differ also, there being about 107 more at the end of the calendar year 1910 than at the end of the fiscal year 1911.

The residence installation in Superior varies from 3 to 128 lamps of 50 watt equivalent, the prevailing installation being 12 lamps. In Madison the prevailing installation is 10, in Marinette 12, Manitowoc 11, and Beloit 9. Superior appears to have a comparatively high average installation per residence consumer.

The distribution of consumers and connected load for residences is given in percentages of the total groups of five lamps in the table which follows:

TABLE 26.

SUPERIOR ELECTRIC DISTRIBUTION OF CONSUMERS CONNECTED LOAD AND ANALYSIS OF CURRENT SOLD. RESIDENCE LIGHTING.

Group lamps.	Per cent No. consumers.	Per cent No. 50w. units.	Kw. hrs. per lamp per yr.	Kw. hrs. per cons. per yr.	Per cent total current sold.
0-5.....	7.25	3.01	25.3	126.3	4.0
6-10.....	40.40	27.20	19.1	156.0	27.7
11-15.....	35.80	37.89	16.5	208.8	33.3
16-20.....	9.35	13.65	18.9	232.2	13.8
21-25.....	3.60	7.05	16.4	383.0	6.1
26-30.....	1.30	2.98	31.0	852.0	4.9
31-35.....	.80	2.22	45.8	1,514.0	5.4
36-40.....	.90	2.92	14.7	568.0	2.3
41-45.....	.30	1.09	14.1	598.0	.5
45-50.....	.10	.40	25.0	1,188.0	1.1
Over 50.....	.20	1.59	11.5	1,039.0	.9
Total	100.00	100.00	18.8	225.6	100.0

Comparisons of the foregoing tabulation with statistics of other plants, show that in Superior the greatest percentage of twelve-month residence consumers, or 40.4 per cent have installations falling in the group of 6 to 10 (50 watt units), while in Madison, Marinette, Manitowoc and La Crosse the greatest percentage occurs in the 11 to 15 lamp group. It is noted, however, that the greatest percentage of the number of lamps, or

37.89 per cent, falls in the group 11 to 15. It is noted that 83.45 per cent of the total number of residence consumers in Superior have installations of less than 15 lamps connected as against 60.32 per cent in Madison, 43.94 per cent in Marinette, 51.79 per cent in Manitowoc, 38.6 per cent in Beloit, and 49.78 per cent in La Crosse. It would appear from these figures and comparisons that the small consumer field in Superior is fairly well developed, much more so than in the other cities shown.

Studies have been made of the unit sales in Superior "Per lamp per year" and "Per consumer per year", and comparisons of these units made with those of other utilities.

It was noted that the current consumed per lamp per year by residence consumers was 18.8 kw. hrs. for Superior, as against 14.12 kw. hrs. for Madison, 9.33 kw. hrs. for Marinette, 7.64 kw. hrs. for Manitowoc, 12.12 kw. hrs. for Beloit, and 11.8 kw. hrs. for La Crosse. Superior appears better developed in this respect than any of the other cities with Madison second.

As regards the average sales "Per consumer per year", it was found that in Superior the average is 225.6 kw. hrs. against an average of 247.7 kw. hrs. for Beloit, 237 kw. hrs. for Madison, and 225.4 for La Crosse, Marinette and Manitowoc being the lowest with 182 and 131 kw. hrs. respectively. It was further noted that increased consumption occurs for all sizes of installations up to the maximum increases for installations between 31 and 35 lamps, when there is a big drop of nearly 70 per cent in the consumption. For installations of 46 to 50 lamps and over 50 lamps the consumption increases again but remains below the maximum figure. In Beloit, Madison, Marinette, Manitowoc, and La Crosse the increase was especially marked for installations of over 50 lamps.

Comparing the groups in which the greatest percentage of the total current sold falls, it was found that Superior was decidedly prominent in the group 11 to 15 lamps, which shows 33.3 per cent, with the group 6 to 10 lamps a close second. Beloit showed nearly the same amount for the groups 11 to 15 lamps, 16 to 20 and 21 to 25 lamps the percentages being 13.63, 16.48, and 15.13, respectively. Madison was prominent in the 11 to 15 lamp group with 25.02 per cent, Marinette and La Crosse were distributed more evenly over these three groups. Thus, of the proportion of the total sales contributed by installations of 1 to 15 lamps, at

Superior or about 65 per cent, was greater than the proportion contributed in the other cities the nearest to Superior in size, Madison with 42.5 per cent approaching the closest.

Table 27, which follows, shows the proportion of the total number of twelve-months residence consumers, lamps, kw. hrs. used, and total receipts that is included under the various divisions or groups arranged and classified according to the hours daily use of the full connected load:

TABLE 27.
SUPERIOR ELECTRIC RESIDENCE CONSUMER DATA SHOWING AVERAGE HOURS DAILY USE OF FULL CONNECTED LOAD.
TWELVE MONTH USERS.

Hours daily use.	Consumers.		50 watt units.		Kw. hrs. used.		Total receipts.	
	No.	Per cent.	No.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
0 to ¼.....	10	1.0	157	1.3	705	.3	\$92.35	0.4
¼ to ½.....	109	11.0	1,481	12.4	11,827	5.3	1,280.50	5.7
½ to ¾.....	274	27.5	3,497	29.4	40,451	18.0	4,097.33	18.4
¾ to 1.....	250	25.1	3,005	25.1	47,030	20.9	4,723.07	21.2
1 to 1½.....	220	22.1	2,371	19.7	51,607	23.0	5,122.92	22.8
1½ to 2.....	65	6.5	584	4.9	17,770	7.9	1,770.81	7.9
2 to 3.....	39	3.9	353	3.0	15,580	7.0	1,556.15	7.0
3 to 4.....	15	1.5	264	2.2	16,402	7.3	1,619.08	7.3
Over 4.....	14	1.4	236	2.0	23,220	10.3	2,057.90	9.3
Total.....	996	100.0	11,953	100.0	224,592	100.0	\$22,300.11	100.0

It appears that about 40 per cent of the consumers use their connected load for less than ¾ hours per day. The same is true for the number of 50 watt units, which shows 43 per cent for the ¾ hours and less. In the matter of receipts and kilowatt hours used the percentages are about 23.6 per cent and 24.5 per cent, respectively.

The distribution of the groups ½ to ¾, ¾ to 1, and 1 to 1½ shows that Superior consumers are users of the entire connected load for long periods. It appears from this analysis that, as a whole, the consumers in Superior may be designated as long hour users.

An analysis of electric current sold in Superior as distributed over the primary, secondary, and excess groups has been shown in a previous table. The percentage distribution in Superior as compared with other cities, where similar analyses have been made, is shown in the following table:

TABLE 28.
PERCENTAGE DISTRIBUTION OF CONSUMPTION OF CURRENT--
RESIDENCES.

	Primary.	Secondary.	Excess.
Madison.....	48.07	37.97	13.96
La Crosse.....	55.69	33.34	10.97
Marshfield.....	35.89	38.60	5.30
Richland Center ¹	49.53	32.07	13.37
Superior.....	45.40	37.30	17.30

¹ Twelve month users.

From the foregoing tabulation it is seen that Superior has the lowest percentage in the primary. Excluding Marshfield and Richland Center, which are small compared to Superior, it is seen that the per cent of current sold under the secondary is about midway between Madison and La Crosse. Superior shows the maximum sales under the excess after excluding the two smaller towns.

From statistics showing saturation of territory etc., of a number of Wisconsin electric utilities it is noted that, as regards "Consumers per 100 population," "Consumption per 100 population", and "Connected load in kws. per 100 population", Superior is the median. It is below the average in the first and third but above in the second. The "Connected load per consumer" in Superior is above the average and median. The same is true of the "Commercial consumption per kw. of connected load" and the "Commercial consumption per consumer". These facts would seem to indicate that some additional business might be secured. The consumers now attached appear to be substantial users, with well developed connected loads somewhat above the average.

TABLE 29.
SEVENTEEN PLANTS.
Year Ending June 30, 1910.

	Consumers per 100 pop.	Consumption per 100 pop.	Conn. load in kw. per 100 pop.	Conn. load per consumer.	Comm. consumption per kw. conn. load	Comm. consumption per consumer.
Superior.....	6.4	5,940	10.8	1.68	551	927
Average.....	7.6	5,555	12.0	1.51	513	804
Median.....	6.4	5,940	11.0	1.61	536	762
Maximum.....	13.6	9,970	23.7	2.59	693	1,480
Minimum.....	4.4	2,490	4.3	.84	359	528

The total current used and sold for the year ending June 30, 1911, was as follows:

	Kw. hrs.	Per cent.	Per cent.
Municipal arcs.....	514,670	23.5	.....
Commercial lighting.....	1,240,093	56.7	74.1
Power.....	434,281	19.8	25.9
Total.....	2,189,044	100.0	100.0

The data relating to the costs of producing electric service as apportioned in table 28, data relating to current sold, together with the summarized statements of active connected load form the basis of computation for unit costs and base rates. A comparison of cost units follows:

Prorating the variable expenses of the commercial lighting service over the amount of energy sold to this class, the output cost per kilowatt hour is found to be 2.97 cts. Total fixed costs, or the sum of the so-called consumer and demand costs, amounts to \$47,250.05. While the total fixed expenses is the same whether the plant is in operation one or ten hours per day, the cost per hour will vary with the number of hours per day of operation. The total commercial lighting load June 30, 1911, was about 2,330 kws., the active load being about 1,375 kws., including decorative lighting. On this basis the fixed expense per year per kilowatt of active connected load is \$34.36. The cost of one hour's use per day of active connected load is found to be 9.41 cts. It should be mentioned that the above estimated active load is based upon an analysis of the consumer accounts for the year 1910, as that period only was available when the analysis was made. Consequently it appears that this figure is conservative, and hence the above costs are, if anything, high.

The cost of service per month for the various hours use of the active connected load has been computed as follows:

TABLE 30.

Hours use per day.	Capacity cost.	Output cost.	Total cost per kw. hr.
1.....	0.0941	0.0297	0.1238
2.....	.0470	.0297	.0767
3.....	.0313	.0297	.0610
4.....	.0235	.0297	.0532
5.....	.0188	.0297	.0485
6.....	.0156	.0297	.0453
8.....	.0117	.0297	.0414
10.....	.0094	.0297	.0391

The above figures show conclusively that the cost of service is not the same per unit for all consumers, but that there is considerable divergence from the charges that should be made to long and to short hour users of the company's service. It may be pointed out from the analysis shown in table 25 that the average daily use of the connected residence load of the twelve-months users is slightly over one hour, corresponding to nearly 1.95 hours daily use of the active load. The rate which should apply to this use is about $7\frac{1}{2}$ cts. per kw. hr. The average daily use of the entire connected load of classes B, C, and D is about 1.42 hours, corresponding to nearly 2.3 hours daily use of the active load. The rate which should apply to this use is about $7\frac{1}{4}$ cts. per kw. hr. It must be kept in mind, however, that these figures are averages, so that considerable difference may be expected in the cost of supplying current to different residence and business consumers.

From the above costs and similar tentative computations made upon expenses for the year ending June 30, 1912, together with a careful consideration of other elements affecting the rate, the following schedule suggests itself as equitable for the residence and business lighting:

10 cts. per kw. hr. for the first 40 hours' use per month of the active connected load.

7.5 cts. per kw. hr. for the next 60 hours' use per month of the active connected load.

5 cts. per kw. hr. for all in excess of 100 hours' use per month of active connected load.

A minimum charge of 5 cts. per 50 watts equivalent per month, this figure closely approximating the consumer's expense per lamp-month.

The total cost of power service makes it appear that the total gross earnings from this service are no higher than they should be. Peculiar local conditions in Superior have resulted in sales of energy to consumers, which, on the ordinary basis of figuring, yield very little, if anything, in the way of profits. In fact, it appears that many connections are made on the additional business basis, due to the fact that the business could not be had on better terms and that the consumers would otherwise have found it more economical to produce their own power. The total operating expenses of the power service were found

to be \$19,824.13, of which the demand and consumer expense amounts to \$9,191.54 and the output expense to \$10,632.59. Dividing the output expenses by 434,281, the kw. hrs. of energy sold, the output cost per kw. hr. is found to be 2.45 cts. The total horse power connected amounts to about 1,509, excluding a number of small motors. The active horse power months being 10,367. It was found that a number of the power users were connected for periods less than a year, so that the active horse power months were assumed to be 10,100. The capacity cost per active horse power per month amounts to 91 cts. In view of these facts the following rate schedule suggests itself as reasonable for power service:

Fixed charge \$1.00 per month per active horse power or \$16.00 per year per kw. demanded.

Energy charge:

3 cts. net per kw. hr. for the first 5,000 kw. hrs. per month.

2½ cts. net for the next 10,000 kw. hrs. per month.

2 cts. net for the next 10,000 kw. hrs. per month.

1½ cts. net for all in excess of 25,000 kw. hrs. per month.

The output expense of the arc lighting service amounted to \$13,602.29. Prorating this amount over the current used (514,670 kw. hrs.) gives a cost per kw. hr. of 2.64 cts. The capacity cost, amounting to \$8,303.37, divided by the number of lamps in use, results in a capacity cost per lamp of \$27.00. The kind of arcs in use in Superior varies, but it appears that most are 7.5 amp. a. c. enclosed arcs. The output cost per lamp will be between \$40 and \$45, depending upon the type. Adding the output and capacity costs, the total cost per year is found to vary from \$67 to \$75.

Before the rates here suggested are properly ordered effective for the respondent company, the determination of one fact must be made, namely, the effect of the proposed schedules upon sales and changes in revenue. It is difficult to estimate the probable reduction in the revenues of the company which will come as a result of the rates suggested. This difficulty arises from the fact that it has been considered best to base the primary rate in the commercial incandescent lighting service upon the first forty hours' use of active load instead of, as has been the practice in other decisions of the Commission, upon the first thirty hours' use of active load.

It is estimated that the probable revenue of the plant under the proposed rates, based upon the latest figures available, June 30, 1912, will amount to about \$130,000, which will leave a surplus after meeting all legitimate expenses of operation, including an adequate return upon the total tangible and intangible property which the company is entitled to.

Tentative analyses have been made of the expenses of the utility for the year ended June 30, 1912, and the unit costs there found correspond very closely to the costs for the year ended June 30, 1911, being, however, somewhat lower for 1912 than as found for 1911. With sales continuing to increase in the future as in the past, coupled with the addition of a larger connected load consisting of consumers whose demand does not come at the time of the station's maximum demand, the company's present load factor, which is now considerably above the average, will be still further improved, and as a result of this improvement a further reduction of the cost of production will naturally follow. The situation in the future may reveal conditions which will be such that it will be necessary for the Commission to review the facts after a period of a year's operation under the new schedule, when further adjustments may be made.

Proposed Arc Lighting System.

In regard to the arc lighting in Superior, the company desires to make no changes in the rates for this service, but they wish to substitute large size tungsten lamps for the present arc system. All arcs now in use to be replaced with 420 watt and 250 watt tungstens, the latter being installed in outlying districts. The company wishes to use the 420 watt tungstens at the present arc rate, and the 250 watt lamps at a somewhat lower rate.

From the utility's report to the Commission for the year ending June 30, 1911, it is noted that there are between 297 and 306 arcs in municipal use. From a statement issued by the company March 27, 1912, it appears that there were 249 enclosed arcs, 17 420 watt 7½ amp. tungstens, 1 250 watt tungsten, and 53 420 watt 6.6 amp. tungstens. There were two additional lights, one of 800 watts and the other of 760 watts under separate contracts.

The present arc schedule calls for an all night operation, or about 4,000 hours a year, for which the company receives \$58 per arc, with a loading of \$7 on 201 arcs, or \$65 per arc to cover a certain amount of current used in city buildings and elsewhere.

It has been found in the tentative cost curve for the arc system that the cost per arc on an all night schedule varies from \$67 to \$75, depending on the kind of lamps. Assuming that these costs are correct, it would appear that if the present arcs are kept in service an increased return per arc must be obtained from the city. The company does not wish to raise the rates to the city, and believes that with the installation of the 420 and 250 watt tungstens to obviate this and still give the city as much illumination as before.

No investigation by the engineering staff of the Commission has been made as to the relative luminous efficiency and quality of service of 7.5 amp. inclosed a. c. series arc lamps as compared with 250 and 500 watt series tungsten lamps operated on the same circuits.

The quality of the service to be obtained from the two different classes of lamps, which, it appears, must be passed upon in this case, are whether the a. c. series 420 watt lamps are a fair substitute for the enclosed 7.5 amp. a.-c. arc lamps. These points have, the past few years, received much general investigation and discussion by central station officials and it appears to be the opinion of the majority that such a substitution should be made and was especially desirable in districts outside of the down-town section. There has been no detailed study made of these sizes of tungstens by the Commission's staff, however, from which can be secured a basis for opinion without further investigation.

Besides this point in regard to the luminous efficiency of the two types of lamps, which we will not go into at this time, there remains the cost of operation. The items which enter into the consideration of this cost are, fixed charges, maintenance charges, and energy charges. The cost of operation of the arc lamps has been discussed previously. The company submitted data showing that the average hours burning of the tungstens which they had in use amounted to 1,398 hours high efficiency. From computations made with the data available it appears that

the cost of operation of this type of lamp will approximate the maximum rate of \$65 received under the present arc schedule.

It appears that the company has reached the limit of the present a. c. arc lamp service as now installed, and additional station equipment must be provided to take care of additional lamps. It seems that the best policy of the company is to install additional arc generators, or, if a contract can be consummated with the city for the substitution of large size tungstens in place of the 7.5 amp. arcs, then a new tungsten arc system could very likely be advantageously installed to the benefit of both the city and the company.

The respondent at this time does not wish to make any changes in the charges for incandescent lighting for the city. It does not appear, however, that, with the high cost of the arcs, as previously shown, the incandescent lighting can be included in this rate but should be paid for under the regular rate schedule.

SUMMARY.

A general summary of the facts brought out in the proceedings and investigation connected with this case, and the findings from these facts, is presented in the following statements:

1. Tentative valuation of June 30, 1911, by the Commission's staff found a cost new of reproducing the physical property of \$1,564,663 and a present value of \$1,360,196.

2. The parties to this action entered into a stipulation agreeing that the quantities and unit values as contained in engineer's valuation are correct insofar as it goes, but that either party had the right to supplement any omission therein. In the above amounts consideration has been taken of the alleged omissions and shortages.

3. It is found that economical and effective operation of the business of the company requires a working capital of about \$50,000, including stores and supplies on hand.

4. The company claimed certain allowances should be made for the bond discounts, discarded apparatus, going value, etc. The amounts that should be allowed for these items are discussed and analyzed in the opinion. It was pointed out that it was questionable to allow the total amount of bond discounts as

claimed by the respondent. An allowance for going value or cost of building up the business of the respondent was found to be equitable by the Commission in fixing the amount upon which, under normal conditions, the utility is entitled to reasonable returns for interest and profits.

5. From the facts available in regard to the original cost of construction of respondent's plants, the subsequent additions to the property, its earnings and operating expenses, the development of its business, and other factors, it appears that the cost of reproduction is not far away from the values upon which respondent is entitled to returns that are reasonable under the circumstances.

6. The plants are, as a whole, fairly efficiently and economically operated and maintained. Under the new contracts made in the gas department the efficiency of the plant will probably be considerably increased.

7. Development of the company's business in all three plants is comparatively good for the territory supplied, but due to the wide area covered by the city of Superior there is a large field for future development in all departments. With a fair distribution of the burden of expense between the different classes, and by the granting of reasonable rates to the several classes of consumers, the business in Superior can be further developed and the interests of both the public and the company be best served.

8. The water department of respondent's business was found to be operating at a loss upon a rate of 7 per cent for interest and profits and 0.8 per cent for depreciation upon the present value plus the intangible elements allowed, and cost new of the physical property, respectively. No material reduction of rates can therefore be considered, but a form of schedule can be found which will abolish the regressive features of the old rate schedule. In the analysis of the water rates it was found that the city was not paying its fair share of the total cost of the service incurred by reason of the fire service and the public use of water, and that the difference between what the city should pay, as shown by the costs, and what it will pay under the contract, must be made up by private consumers.

9. In the gas department, while the existing rate schedule as suggested by the company may not be just what it ought to

be when considered from the standpoint of consumer, demand and output expenses, and might more closely conform to the cost curve, the facts in the case seem to indicate that the gas schedule put into effect by the company should be left for the present as it is. It is believed that the new arrangements made with the Zenith company will result in increases in sales sufficient to offset to a large extent any loss of revenue under the low rates put in effect.

10. In the electric department the rates for general, commercial, and residence lighting are found to be somewhat inequitable and to be such as to tend to retard the development of at least certain parts of the business involved. There should be some consideration taken in devising a rate schedule of the varying relation between the residence and business use of current. The revenue from the street lighting appears to be somewhat less than the expenses of this department when the operating expenses are divided upon a strictly cost of service basis. The power schedule does not appear to be too high, but, owing to local conditions, is not as closely adjusted to the cost curve as it might otherwise be made.

11. It is difficult to estimate the probable revenues of the company which will come as a result of the rates ordered. This difficulty arises from the fact that the statistics of consumption, etc., of the water department are not at all accurate. The low rate in the gas department, together with the abolition of the double meter system, will, in all probability, result in a large increase in gas sales. Without such increase there will, without a doubt, be considerable reduction in revenue. As regards the electric department, a closer estimate can be made of the probable revenue than in either the water or gas. It appears inevitable that some of the smallest consumers should have their monthly bills increased, due to the establishment and enforcement, in the rate schedule, of a minimum bill, but that there should be a minimum assessed and collected that will reimburse the company, for part at least, of the overhead charges is only equitable.

12. It is realized that the rates, as fixed by this decision, are tentative in nature. If the conditions warrant it, it may be necessary, after a period of a year's operation under these schedules, for the Commission to make such modifications of this order as appear necessary.

ORDER.

IT IS ORDERED, That the respondent in this case, the Superior Water, Light and Power Company, discontinue its present schedules of rates for water service, electric light and power service, and for gas service, and place in effect as a substitute therefor the following rate schedules deemed just and reasonable, as provided under ch. 499, sec. 1797m—46, Laws of 1907:

SCHEDULE OF RATES FOR WATER SERVICE.

Rates for water service as now in effect are not disturbed.

SCHEDULE OF RATES FOR GAS SERVICE.

Rates for gas service as prescribed in amendment to gas rates that took effect May 1, 1912, are not disturbed.

SCHEDULE OF RATES FOR INCANDESCENT LIGHTING

for all lighting service furnished residences and business and passing through the same meter and measured by a meter or meters owned and installed by the company.

This lighting service will include electric energy furnished for lamps and other appliances utilized for illumination purposes; motors and appliances other than lighting equipment, when motors are of 1 h. p. rated capacity or less. When the aggregate rated capacity of such appliances does not exceed 2 kw. they will be included in this class when used in connection with lighting equipment and when the connected load of such motors and appliances does not exceed the aggregate rated capacity of lighting equipment. Service for heating, cooking, and power, when metered separately from the light service rates as hereinafter specified.

Primary rate: 10 cts. net or 11 cts. gross per kilowatt hour for current used equivalent to or less than the first forty hours' use per month of the active connected load.

Secondary rate: 7½ cts. net or 8½ cts. gross per kilowatt hour for additional current used equivalent to or less than the next sixty hours' use per month of active connected load.

Excess rate: 5 cts. net or 6 cts. gross per kilowatt hour for all current used in excess of the above one hundred hours' use per month of active connected load.

For all signs and outside decorative lighting on a yearly contract basis, a charge of 6 cts. net or 7 cts. gross per kilowatt hour consumed, as estimated according to the schedule of hours of lighting now in use by the company.

Window, show case, and basement salesroom lighting, a charge of 7 cts. net or 8 cts. gross per kilowatt hour.

All electric energy utilized for heating and cooking purposes, 5 cts. net or 6 cts. gross per kilowatt hour.

Active connected load shall in every case be a fixed percentage of connected load, consisting of lamps, appliances, etc., installed upon consumer's premises.

Class A. Residences, dwellings, flats, and private rooming houses, when the total connected load is equal to or less than 500 watts nominal rate of capacity, 60 per cent of such total connected load shall be deemed active. Where the installation exceeds 500 watts nominal rate of capacity, $33\frac{1}{3}$ per cent of such a part of the total connected load over and above 500 watts shall be deemed active.

Class B. When the total connected load is equal to or less than $2\frac{1}{2}$ kilowatts nominal rate of capacity, 70 per cent of such total connected load shall be deemed active. When the installation exceeds $2\frac{1}{2}$ kilowatts nominal rate of capacity, 55 per cent of such a part of the total connected load over and above $2\frac{1}{2}$ kilowatts shall be deemed active; provided that lamps used exclusively in space devoted to the storing of goods shall be placed at 20 per cent active and shall not be included in the $2\frac{1}{2}$ kilowatts specified above.

Class B shall consist of banks, offices, business and professional (including studios, dressmaking parlors, massage parlors, millinery and hair dressing establishments, and photograph galleries), wholesale and retail merchandise establishments, such as art stores, bakeries, barber shops (including shoe-shining parlors and public baths), book stores, cigar stores, coffee and tea stores, commission stores, confectionery stores (including ice cream parlors), crockery, china, dry goods and drug stores, electrical supply houses, flower stores (including green houses), furniture and house furnishing, gents furnishing stores (in-

cluding hat stores and haberdasheries), grocery stores, hardware stores, harness shops, hay, grain, feed and coal offices and stores, jewelry stores, meat markets, millinery stores, milk depots, paint and wall paper shops, piano and music stores, picture stores, plumbing shops, saloons (including pool and billiard halls and adjoining card rooms), shoe stores and shoe repair shops, stationery stores, tailor shops (including dyers, cleaners and clothes pressing establishments), undertakers, upholsterers, and wine and liquor stores, theaters (including nickelodions, shooting galleries and similar amusement places), corridors and halls in office and apartment buildings upon separate meter, dance and public halls (including lodge and society rooms), restaurants (including eating places and lunch wagons), depots and public places for the conduct of railroad, street railway, express and telephone business (excluding freight warehouses), and all other consumers not herein otherwise specifically provided for.

Class C. 55 per cent of the total connected load shall be deemed active. Such class shall consist of federal, state, and county buildings; churches and missions, hotels and clubs; factories (including small industrial establishments such as machine shops, carpenter shops, blacksmith shops, tin shops and cigar factories) closing not later than 6 p. m., private and parochial schools, grain and tobacco elevators and warehouses, freight and storage warehouses, stables and garages, both private, boarding and livery. All interior lighting for the city of Superior, including schools, police and fire stations, libraries, hospitals and other city buildings.

Class D. The total connected load shall be deemed active. Such class shall consist of unmetered lighting for signs, outlines and windows, contracted for upon a yearly basis.

Minimum Bills.

The minimum bill for general commercial and residence lighting shall consist of a charge of 5 cts. net per 50 watt unit per month.

The minimum bill for sign and outside decorative lighting shall be 35 cts. per 100 watts.

The minimum bill for heating and cooking shall be \$1.00 net per kilowatt installed.

The minimum bill for window, show case and basement sales-room lighting shall be 30 cts. per 100 watts.

POWER.

This service will include electric energy utilized for power and miscellaneous lighting service, where the demand arising from such miscellaneous lighting service shall not be in excess of 20 per cent of the total simultaneous demand for lighting and power service. Stereopticians, moving picture machines, photographers' arcs and rectifiers shall be billed at the power rate.

Owing to local conditions it is not thought advisable to make any changes in the power rates at this time. Present rates for power, as filed with the Commission, are therefore unchanged.

MUNICIPAL LIGHTING CONTRACT.

Rates for municipal lighting service as now in effect are not disturbed.

IT IS FURTHER ORDERED, That all bills rendered by the company to the electrical consumers shall state plainly the connected load of each consumer and the percentage which is considered active in computing the rates.

INDEX-DIGEST

Every point taken by the Commission has been included in the INDEX-DIGEST, whether essential to the decision or not. Wherever feasible the exact language used by the Commission, both in the *dicta* and in the decisions, has been embodied in the digest, so that for practical purposes reference back to the decision will in most cases be unnecessary.

ABSORPTION OF CHARGES.

Switching charges, absorption of, *see* RATES, 17-18.

absorption of, refund ordered on basis of rule providing for absorption, *see* REPARATION, 7.

ACCOUNTING.

COST ACCOUNTING—ELECTRIC UTILITIES.

Determination of unit costs—Apportionment of expenses over output, capacity and consumer expenses.

1. Case followed in the apportionment over output, capacity and consumer expenses: *Ross et al. v. Burkhardt Milling & El. P. Co.* 1910, 5 W. R. C. R. 139, 154. Followed in *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 790.

Determination of unit costs—Apportionment of expenses over output, capacity and consumer expenses—Further apportionment among the different departments of the service.

2. In order that each branch of service might be charged with the expenses direct or proportional which it incurred, an apportionment of the capacity output and consumer expenses was made over commercial or incandescent lighting, arc lighting, and power service. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 790.

Determination of unit costs—Prorating of output, capacity and consumer expenses.

3. Prorating the variable expenses over the amount of energy sold and prorating the fixed expenses over the active connected load, the unit cost per kw. hr. is found. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 797.

COST ACCOUNTING—GAS UTILITIES.

Determination of unit costs—Apportionment of expenses over output, capacity and consumer expenses.

4. In the present case the total costs were apportioned over output, capacity and consumer expenses. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 775.

COST ACCOUNTING—INTERURBAN RAILWAYS.

Determination of unit costs—Apportionment of value of physical property among the different departments or branches of the service (urban, suburban and interurban).

5. In apportioning the value of physical property over urban, suburban and interurban departments the items were directly localized wherever possible, and in cases where equipment was used jointly, separations were made upon an arbitrary unit basis. *Deakin et al. v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 306, 310.

Determination of unit costs—Apportionment of expenses among the different departments or branches of the service (urban, suburban and interurban).

6. The operating expenses for the entire traction system were apportioned among the urban, suburban and interurban departments, in the present case. *Deakin et al. v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 306, 311.

Determination of unit costs—Apportionment of expenses among the different departments or branches of the service (urban, suburban and interurban)—Apportionment among different lines.

7. In the present case expenses for the interurban department were apportioned over the several lines involved. *Deakin et al. v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 306, 312.

Determination of unit costs—Apportionment of expenses among the different departments or branches of the service (urban, suburban and interurban)—Apportionment among different lines—Apportionment between movement and terminal expenses.

8. In the present case the total cost of service for the interurban line was apportioned between movement and terminal costs. *Deakin et al. v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 306, 313.

Determination of unit costs—Prorating of expenses over units of service.

9. In the present case terminal expenses were prorated according to the number of revenue passengers while the movement expenses were distributed over revenue passenger miles. *Deakin et al. v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 306, 313.

COST ACCOUNTING—JOINT UTILITIES.

Determination of unit costs—Apportionment of value of physical property among the different plants (railway, electric and heating utilities).

10. In the present case an apportionment of the value of the physical property was made among the different plants. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 111, 113-114.

Determination of unit costs—Apportionment of expenses among different plants (railway, electric, and heating utilities)—General expenses.

11. In the present case an apportionment of general expenses was made among the different plants. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 165.

Determination of unit costs—Apportionment of expenses among different plants (railway, electric, and heating utilities)—Power expenses.

12. Cases followed in apportionment of power expenses: *In re Menominee and Marinette Lt. & Tr. Co.* 1909, 3 W. R. C. R. 778, 831; *State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 664; *City of Ripon v. Ripon Lt. & W. Co.* 1910, 5 W. R. C. R. 1, 27. Followed in *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 171.

COST ACCOUNTING—STREET RAILWAYS.

Determination of unit costs—Apportionment of value of physical property among the different departments or branches of the service (urban, suburban and interurban).

13. In the present case the total cost of reproduction new of property used and useful was apportioned as between urban railway service, suburban service, interurban railway service, and local service. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 112, 115; *Cusick et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 314, 328; *Koenig et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 337, 346; *Village of East Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 358, 364.

Determination of unit costs—Apportionment of value of physical property among the different departments or branches of the service (urban, suburban and interurban)—Apportionment among different lines.

14. In segregating the tangible values applicable to the different lines, the appraisal of the engineer of the Commission has been directly localized wherever possible. In instances, however, where track and other equipment have been used jointly, the separation of values has necessarily been made upon an arbitrary unit basis. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 275, 276-277.

Determination of unit costs—Apportionment of the value of physical property among the different departments or branches of the service (urban, suburban and interurban)—Apportionment among the different lines—Apportionment of joint track.

15. For the purpose of distributing joint track values in the apportionment of cost of reproduction new it has been deemed advisable in the present case, to base the apportionment of joint track upon the relative headway of the various lines using such track. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 274.

Determination of unit costs—Apportionment of expenses among the different departments or branches of the service (urban, suburban and interurban).

16. In the present case an apportionment of the operating expenses for the entire traction system was made as among urban, suburban and

interurban departments. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 160, 282-283; *Cusick et al. v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 314, 331; *Koenig et al. v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 337, 349; *Village of East Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 358, 366.

Determination of unit costs—Apportionment of expenses among the different departments or branches of the service (urban, suburban and interurban)—Conducting transportation.

17. In the present case certain of the costs of conducting transportation vary proportionately to the car-hour, certain other costs to the car-mile, and a third class of costs to the number of passengers carried. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 209-215.

Determination of unit costs—Apportionment of expenses among the different departments or branches of the service (urban, suburban and interurban)—Maintenance of rolling stock expenses.

18. In the present case the apportionment of expenses for maintenance of rolling stock was made on the car-mile basis. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 205-209.

Determination of unit costs—Apportionment of expenses among the different departments or branches of the service (urban, suburban and interurban)—Maintenance of way and structures.

19. In making an apportionment of expense accounts on an arbitrary basis, the rule usually observed is that only those units should be used which have the closest relation to the expenses under consideration. Expenses varying with the volume of traffic should, therefore, be apportioned upon the basis of a traffic unit. If they are unaffected by the volume of traffic, a stationary unit is necessary. An inspection of the units for separate years in the present case indicates that the total way expenses vary more closely with the car-mile than with the miles of single track. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 190, 196.

20. In the present case the various items were apportioned according to their nature, on a car-mile, track-mile, overhead, direct charge or arbitrary percentage basis. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 204.

Determination of unit costs—Apportionment of expenses among the different departments or branches of the service (urban, suburban and interurban)—Overhead expenses.

21. Cases followed in apportionment of overhead expenses: *Lamp v. Eastern Wis. R. & Lt. Co.* 1911, 6 W. R. C. R. 473, 483, 492; *Schicker v. Rockford & I. Ry. Co.* 1911, 6 W. R. C. R. 695, 709. Followed in *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 167.

Determination of unit costs—Apportionment of expenses among the different departments or branches of the service (urban, suburban and interurban)—Power expenses.

22. In the present case the power plant expenses for the separate power stations were apportioned to the urban, suburban, interurban and

local departments on the basis of weighted car-miles tributary to each station. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 186-188.

Determination of unit costs—Apportionment of expenses among the different departments or branches of the service (urban, suburban and interurban)—Apportionment among the different lines.

23. In the present case the expenses for the entire railway system were apportioned among the different lines. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 284.

Determination of unit costs—Apportionment of expenses among the different departments or branches of the service (urban, suburban and interurban)—Apportionment among the different lines—Apportionment of joint track expenses.

24. In the present case the apportionment of joint track expenses varying with the track-mile is based upon the relative headway of the various lines using the track. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 274

Determination of unit costs—Prorating of expenses over units of service.

25. In the present case the total cost of service was prorated over the various units of service according to the number of passengers carried, the car-miles, the car-hours and the track-miles for the various systems, services and companies. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 274; *Cusick et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 314, 334; *Koenig et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 337, 350-351; *Village of East Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 358, 365, 367.

COST ACCOUNTING—WATER UTILITIES.

Determination of unit costs—Apportionment of value of physical property among the different departments of the service.

26. In the present case an apportionment of the physical property of the utility was made as between fire service and domestic and industrial service. *Civic League et al. v. Beaver Dam W. Co.* 1912, 10 W. R. C. R. 661, 665.

27. In the present case about 54 per cent of both the cost new and present value of the water plant is charged against the domestic and industrial service, while 46 per cent is charged against fire service. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 764.

Determination of unit costs—Apportionment of expenses over output, capacity and consumer expenses.

28. In the present case the total expenses of operation were apportioned over output, capacity and consumer expenses. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 763.

29. In the present case interest, depreciation, and taxes upon the value of the meters, at a rate equivalent to 12 per cent of the cost new have been considered as consumer expenses. Services are paid for by consumers, so no provision need be made for taxes, interest, and depreciation upon this portion of the equipment. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 767.

Determination of unit costs—Apportionment of expenses over output, capacity and consumer expenses—Further apportionment among the different departments of the service.

30. In the present case capacity expenses were apportioned between fire and general service along lines outlined in former decisions. The amount of output expenses chargeable to fire service is so small as not to have any material bearing. *Civic League et al. v. Beaver Dam W. Co.* 1912, 10 W. R. C. R. 661, 680-681.

31. Before a correct apportionment of the operating expenses as between classes of services can be made it is necessary to know the demands of the different services and the amount of water sold or delivered to each. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 764.

32. An apportionment of the output and capacity expenses was made between the domestic and industrial service and the fire service. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 766.

33. In the present case about 46 per cent of the total demand was due to fire service and about 54 per cent to all other service. Fire service was responsible for about 2 per cent of the total water used. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 766.

Determination of unit costs—Apportionment of expenses over output, capacity and consumer expenses—Further apportionment among different departments of the service—Depreciation.

34. In the present case depreciation was divided between fire and general service upon the basis of the apportionment of the property. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 706, 766.

35. In the present case depreciation was apportioned between the different departments of the service on the basis of the cost of reproduction new. *Civic League et al. v. Beaver Dam W. Co.* 1912, 10 W. R. C. R. 661, 681.

Determination of unit costs—Apportionment of expenses over output, capacity, and consumer expenses—Further apportionment among different departments of the service—Interest.

36. In the present case interest was apportioned between the different departments of the service on the basis of the cost of reproduction new. *Civic League et al. v. Beaver Dam W. Co.* 1912, 10 W. R. C. R. 661, 681.

37. Interest was divided between fire and general service, in the present case, upon the basis of the apportionment of the property. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 766.

Determination of unit costs—Apportionment of expenses over output, capacity and consumer expenses—Further apportionment among different departments of the service—Taxes.

38. In the present case taxes were apportioned between the different departments of the service according to the value of the property. *Civic League et al. v. Beaver Dam W. Co.* 1912, 10 W. R. C. R. 661, 681.

39. In the present case taxes were divided between fire and general service upon the basis of the apportionment of the property. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 766.

Determination of unit costs—Prorating of output, capacity and consumer expenses.

40. In the present case the cost of maintaining meters was distributed as a consumer expense among all meters. *Civic League et al. v. Beaver Dam W. Co.* 1912, 10 W. R. C. R. 661, 683.

41. In determining the service charge in the present case, consumer expenses were prorated over the average number of consumers, and the average number of metered consumers, while the average meter rate per 1,000 gallons, or per 100 cubic feet, was obtained by prorating capacity and output expenses over the annual consumption. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 768-770.

UNIFORM ACCOUNTS—TELEPHONE UTILITIES.

In general—Keeping of accounts—Conformity to Public Utilities Law required.

Rates, advance in, deferred until accounting data of utility conform to the standards prescribed by Commission, see RATES, 35.

ADVANCE IN RATES.

See RATES

ADVANTAGE.

See DISCRIMINATION.

AGREEMENTS.

See CONTRACTS

ALLOWANCES.

Allowance for weight of car stakes, in charging for shipment of piling, see RATES, 20.

Depreciation charge, allowance for, in determining reasonable rates, see DEPRECIATION, 3.

APPORTIONMENT.

Apportionment of value of physical property among the different plants.

In the determination of unit costs for joint utilities, apportionment among railway, electric and heating utilities, see ACCOUNTING, 10.

- Apportionment of value of physical property among the different departments of service.*
 In the determination of unit costs, for water utilities, see ACCOUNTING, 26-27.
- Apportionment of value of physical property among the different departments or branches of the service.*
 In the determination of unit costs for interurban railways. Apportionment among urban, suburban and interurban systems, see ACCOUNTING, 5.
 In the determination of unit costs for street railways. Apportionment among urban, suburban and interurban systems, see ACCOUNTING, 13.
 In the determination of unit costs for street railways. Apportionment among urban, suburban and interurban systems. Apportionment among the different lines, see ACCOUNTING, 14.
 In the determination of unit costs for street railways, Apportionment among urban, suburban and interurban systems. Apportionment among the different lines. Apportionment of joint track, see ACCOUNTING, 15.
- Apportionment of expenses among the different plants.*
 In the determination of unit costs for joint utilities, apportionment among railways, electric and heating utilities, apportionment of general expenses, see ACCOUNTING, 11.
 Apportionment of power expenses, see ACCOUNTING, 12.
- Apportionment of expenses over output, capacity and consumer expenses.*
 In the determination of unit costs for electric utilities, see ACCOUNTING, 1.
 for gas utilities, see ACCOUNTING, 4.
 for water utilities, see ACCOUNTING, 28-29.
- Apportionment of expenses over output, capacity, and consumer expenses, further apportionment among the different departments of the service.*
 In the determination of unit costs for electric utilities, see ACCOUNTING, 2.
 for water utilities, see ACCOUNTING, 30-33.
 for water utilities, apportionment of depreciation, see ACCOUNTING, 34-35.
 of interest, see ACCOUNTING, 36-37.
 of taxes, see ACCOUNTING, 38-39.
- Apportionment of expenses among different departments or branches of the service, apportionment among urban, suburban and interurban systems.*
 In the determination of unit costs for interurban railways, see ACCOUNTING, 6.
 for street railways, see ACCOUNTING, 16.
 for street railways, apportionment of expenses for conducting transportation, see ACCOUNTING, 17.
 of maintenance of rolling stock expenses, see ACCOUNTING, 18.
 of maintenance of way and structures expenses, see ACCOUNTING, 19-20.
 of overhead expenses, see ACCOUNTING, 21.
 of power expenses, see ACCOUNTING, 22.
 for interurban railways, apportionment among different lines, see ACCOUNTING, 7.
 for interurban railways, apportionment among different lines, apportionment between movement and terminal expenses, see ACCOUNTING, 8.
 for street railways, apportionment among the different lines, see ACCOUNTING, 23.

for street railways, apportionment among the different lines,
apportionment of joint track expenses, *see* ACCOUNTING,
24.

Apportionment of expenses for railway crossings.
Among the different parties, *see* RAILROADS, 13.

APPRAISAL.

Methods of appraisal of the property of public utilities, *see* VALUATION,
27-32.

APPRECIATION.

Appreciation of land values, *see* VALUATION, 20.

ARBITRARIES.

Reasonableness of arbitrary, *see* RATES, 13.

AUTOMATIC CROSSING ALARM.

Installation of, *see* RAILROADS, 2-12.

BOLTS.

Rates, joint rates, establishment of, Wisconsin points on the Marathon
Co. Ry. and the C. & N. W. line, *see* RATES, 13.

BRANCH LINE.

Adequacy of branch line service, *see* TRAIN SERVICE, 7-9.

BULK OF COMMODITIES.

Bulk of commodities in relation to weight as matter considered in de-
termining reasonableness of railway rates, *see* RATES, 12-14.

CAPACITY COSTS.

As matter considered in making rates for electric utilities, *see* RATES, 1.
for gas utilities, *see* RATES, 6.
for water utilities, *see* RATES, 38-41.

CAPACITY EXPENSES.

Apportionment of capacity expenses in the determination of unit costs
for electric utilities, *see* ACCOUNTING, 1-2.
for gas utilities, *see* ACCOUNTING, 4.
for water utilities, *see* ACCOUNTING, 28-39.
Prorating of capacity expenses in the determination of unit costs for
electric utilities, *see* ACCOUNTING, 3.
for water utilities, *see* ACCOUNTING, 40-41.

CAPITALIZATION.

As matter considered in the valuation of public utilities, *see* VALUA-
TION, 4.

CARLOAD WEIGHTS.

See WEIGHTS.

CARRIERS.**CONTROL AND REGULATION OF COMMON CARRIERS.**

Power of state to regulate charges, *see* RATES, 22-23.

Power of state to regulate service and facilities, *see* RAILROADS, 14-16;
STREET RAILWAYS, 1.

CEMENT.

Rates, joint rates, establishment of, Wisconsin points on the Marathon Co. Ry. and the C. & N. W. line, *see* RATES, 13.

CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY.

Application for, dismissed.

1. Application was made for a certificate of public convenience and necessity authorizing the Interstate Lt. & P. Co. to extend its electric power and lighting service to certain mines in the town of Mifflin, Iowa county, Wis. The Mineral Point El. Lt. Co. was granted an indeterminate permit by the town of Mifflin and has made preparation for the extension of its service into the territory in question. Applicant alleges, however, that this company has delayed its work and is not in as good a position to furnish the service as the Interstate Co. The Mineral Pt. El. Co. has been placed upon a secure financial basis and possesses ample equipment for supplying present demands and anticipated future demands of the locality. *Held*: Every company acting in good faith is entitled to a reasonable time within which to promote and complete the project for which an indeterminate permit is granted. There is no necessity for a second electric utility in the territory in question, nor would public convenience be subserved by permitting a second utility to operate therein. Application is dismissed. *In re Appl. Interstate Lt. & P. Co. et al.* 1912, 10 W. R. C. R. 603, 610-612.

CHARGES.

See MINIMUM CHARGES; RATES; TERMINAL CHARGES.

CITIES.

See MUNICIPALITIES.

CLASS RATES.

See RATES.

CLASSIFICATION.

Discrimination as between consumers of a class, prohibited, *see* DISCRIMINATION, 1.

COAL.

Refund on shipment, Milwaukee to Lake, Wis., *see* RATES, 14; Reparation, 4.

COLLECTION EXPENSES.

As element included in consumer costs for water utilities, *see* MINIMUM CHARGES, 4; RATES, 38, 42.

COMMISSION.

See RAILROAD COMMISSION.

COMMODITIES.

See various commodity subject headings.

COMMODITY RATES.

See RATES; *also* various commodity subject headings.

COMMON CARRIERS.

See CARRIERS.

COMMUTATION TICKETS.

Street railway, sale of commutation tickets on cars, *see* RATES, 25-27, 32.

COMPARISON OF RATES.

Comparative data as matter considered in determining reasonableness of railway rates, *see* RATES, 15.

COMPENSATION.

Compensation for property of public utilities in case of municipal acquisition, *see* WATER UTILITIES, 2-5.

in case of municipal acquisition, compensation to cover property used and useful, *see* WATER UTILITIES, 2.

Municipal acquisition of public utilities, compensation, procedure for, *see* WATER UTILITIES, 3-5.

Taxable property, as fund available for just compensation upon municipal acquisition of public utility, *see* EMINENT DOMAIN, 3-5.

COMPETITION.

Competitive conditions as matter considered in determining reasonableness of railway rates, *see* RATES, 17.

Competitive risks as element in rate of interest, *see* RETURN, 2-3, 5, 8. of profits, *see* RETURN, 5, 8-11.

Duplication of plant—Theory with respect to.

1. Cases followed on theory of duplication of plants: *In re Appl. La Crosse Gas & El. Co.* 1907, 2 W. R. C. R. 3; *In re Appl. Village of Cash-ton*, 1908, 2 W. R. C. R. 677; *In re Invest. Milw. Ltg. Rates*, 1912, 9 W. R. C. R. 544. *In re Appl. Interstate Lt. & P. Co. et al.* 1912, 10 W. R. C. R. 603, 610.

COMPOSITE LIFE.

Of electric plant, *see* DEPRECIATION, 4.

Of gas plant, *see* DEPRECIATION, 5.

Of street railway, *see* DEPRECIATION, 6.

Of water plant, *see* DEPRECIATION, 7.

CONCENTRATION RATES.

See RATES.

CONDUCTING TRANSPORTATION.

Apportionment of expenses for conducting transportation in the determination of unit costs for street railways, *see* ACCOUNTING, 17.

CONNECTED LOAD.

Ratio of active to connected load as matter considered in determining reasonableness of electric rates, *see* RATES, 4.

CONNECTING CARRIERS.

Joint or through rates, *see* RATES, 11.

Train schedules, adjustment of, between connecting carriers to provide for interchange of traffic, *see* TRAIN SERVICE, 5.

CONNECTING LINES.

See CONNECTING CARRIERS.

CONNECTIONS.

See SWITCH CONNECTIONS; TRAIN SERVICE.

Telephone lines, physical connection of, *see* TELEPHONE UTILITIES, 1.

CONSTRUCTION OF STATUTES.

See STATUTES.

Public Utilities Law, sections construed, *see* PUBLIC UTILITIES LAW.

Railroad Law, sections construed, *see* RAILROAD LAW.

CONSUMER CHARGES.

See MINIMUM CHARGES.

CONSUMER COSTS.

As element considered in making rates for electric utilities, *see* RATES, 1.

for gas utilities, *see* RATES, 6.

for water utilities, *see* RATES, 38-41.

Elements included in consumer costs for water utilities.

1. The principal elements entering into consumer costs in the present case are interest, depreciation, and taxes on the investments in services and meters, maintenance of meters, maintenance of services, collection expenses, and a certain proportion of general expenses. *In re Appl. People's W. Lt. & P. Co.* 1912, 10 W. R. C. R. 651, 656.

CONSUMER EXPENSES.

See MINIMUM CHARGES.

Apportionment of consumer expenses in the determination of unit costs for electric utilities, *see* ACCOUNTING, 1-2.

for gas utilities, *see* ACCOUNTING, 4.

for water utilities, *see* ACCOUNTING, 28-39.

Prorating of consumer expenses in the determination of unit costs for electric utilities, *see* ACCOUNTING, 3.

for water utilities, *see* ACCOUNTING, 40-41.

CONTRACTS.

Power of Commission to vary a rate fixed in a special franchise granted by a municipality to a street railway company, *see* FRANCHISES, 1-2.

CONVENIENCE AND NECESSITY.

See CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY.

COST ACCOUNTING.

See ACCOUNTING.

COST OF BUILDING UP THE BUSINESS.

Net cost of building up the business, as element in the valuation of public utilities, *see* VALUATION, 6-9.

COST OF REPRODUCTION.

Cost of reproduction new as matter considered in the valuation of public utilities, *see* VALUATION, 11-24.

COST OF SERVICE.

As element in making rates for electric utilities, *see* RATES, 1.
for railways, *see* RATES, 11.
for water utilities, *see* RATES, 37-41.

As matter considered in determining reasonableness of railway rates, *see* RATES, 12.

of street railway rates, *see* RATES, 30.

Cost of service of electric utilities, *see* ACCOUNTING, 1-3, 10-12.

of gas utilities, *see* ACCOUNTING, 4.

of heating utilities, *see* ACCOUNTING, 10-12.

of interurban railways, *see* ACCOUNTING, 5-9.

of street railways, *see* ACCOUNTING, 10-25.

of water utilities, *see* ACCOUNTING, 26-41.

CROSSINGS.

See INTERURBAN RAILWAYS; RAILROADS.

DAMS.

See WATER POWERS.

DEFINITIONS.

See specific headings.

DEPOTS.

See STATION FACILITIES.

DEPRECIATION.

Apportionment of depreciation in the determination of unit costs for water utilities, *see* ACCOUNTING, 34-35.

As element in the valuation of public utilities, *see* VALUATION, 3, 20-21.

As matter considered in determining reasonableness of rates for street railways, *see* RATES, 30.

of rates for water utilities, *see* RATES, 46.

As matter considered in making rates for water utilities, see RATES, 38, 40, 42.

IN GENERAL.

Nature of depreciation.

1. It seems that the loss from discontinuing all use of certain portions of the property, with the introduction of a higher grade of service, is such a loss as should be provided for in the setting aside of a depreciation reserve. *King et al. v. Wis. Tel. Co.* 1912, 10 W. R. C. R. 517, 521.

2. The depreciation reserve should ordinarily be sufficient to provide for wear and tear, obsolescence, and inadequacy. *King et al. v. Wis. Tel. Co.* 1912, 10 W. R. C. R. 517, 521.

Necessity of allowance for depreciation.

3. Previous decisions have given recognition to the fact that some allowance should be made for depreciation and pointed out the economic necessity of such a charge. It is admitted that, generally speaking, an operating public utility plant is limited in life; that even where current repairs are properly met and the utility efficiently maintained, there exists a loss in value directly dependent upon the length of operation; that such losses are always present, whether a plant be in its initial or last stages of operation; and that such losses are properly borne by the consumers and properly made a charge against the revenues of the company. Such an allowance is in keeping with the provisions of the Utilities Law providing that depreciation be considered in determining reasonable rates. (*State Journal Prtg. Co. et al. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 599.) (*In re Appl. Manitowoc G. Co.* 1908, 3 W. R. C. R. 163, 170.) (*Hill et al. v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 643.) *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 216.

RATE OF DEPRECIATION.

Rate of depreciation of electric plant.

4. In the present case the depreciation allowed in the electric department was 4.5 per cent of the total cost of reproduction new. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 752.

Rate of depreciation of gas plant.

5. In the present case 2 per cent of the total cost of reproduction new was allowed for depreciation in the gas plant. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 752.

Rate of depreciation of street railway plant (urban, suburban and interurban).

6. The rate of depreciation as estimated by the Commission approximates 5.35 per cent of the depreciable property for the entire plant. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 227.

Rate of depreciation of water plant.

7. In the present case the depreciation for the water plant was placed at 0.8 per cent of the total cost of reproduction new. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 752.

DEVELOPMENT COSTS.

As element in the valuation of public utilities, see VALUATION, 8-9.

DISADVANTAGE.

See DISCRIMINATION.

DISCOUNTS.

Discounts on bonds as element in the valuation of public utilities, see VALUATION, 14-15.

DISCRIMINATION.**AS BETWEEN CUSTOMERS.**

Electric Rates—Discrimination as between consumers using electricity exclusively and those using other methods of lighting or power.

1. In the present case discriminations arise from the preferences given by the company to consumers using electricity exclusively, as against consumers using other methods of lighting or power. Consumers should be treated in the same manner and should be given the same privileges unless there is some just basis on which they could be divided into classes. All consumers of a class should be governed by the same rates. *In re Invest. Chippewa Valley Ry. Lt. & P. Co.* 1912, 10 W. R. C. R. 692, 694-695.

Water rates—Discrimination in favor of consumers as against taxpayers.

2. Where all the expenses of operation and fixed charges are not borne by the revenues of the plant but are helped out by taxation, as is frequently the case with municipally owned plants, it is not equitable to the property owners that one should be required to help maintain the plant so that another enjoys the use of the commodities. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 780.

AS BETWEEN SUBSCRIBERS.

Telephone rates, different rates for stockholders and nonstockholders.

3. In order to secure subscribers, the company in the present case offered both a business and a residence phone to a number of business men upon a single share of stock, the assessment on which was equal to the amount paid for a single phone by other subscribers. The applicant has passed beyond the purely mutual stage and has entered business as a public utility furnishing service to others than its own stockholders, consequently it cannot be permitted to furnish free or reduced rate service and it is obliged to charge all patrons, whether stockholders or not, the same rate. This rate must be fixed and certain, and cannot be in the form of a stock assessment which may vary from year to year. Any departure from this constitutes a discrimination within the meaning of the Public Utilities Law and is prohibited. The utility in the present case is ordered to bill all telephones in accordance with its schedule of rates on file. *In re Appl. Platteville, Rewey & Ellenboro Tel. Co.* 1912, 10 W. R. C. R. 534, 540-541.

Telephone service—Discrimination resulting from refusal of service.

4. Past misconduct of a subscriber will not justify the refusal of future service to him unless it has been habitual or so frequent and under such circumstances that his assurance of reformation cannot be reasonably relied upon as sincere. *In re Invest. Pulaski Merchants' & Farmers' Tel. Co.* 1912, 10 W. R. C. R. 558, 562-563.

DISSIMILAR SERVICES.

Different telephone rates for dissimilar services, *see* RATES, 35.

DISTANCE TARIFF RATES.

See RATES.

DIVISION OF JOINT RATES.

See RATES.

EARNING VALUE.

Earning value as matter considered in the valuation of public utilities, *see* VALUATION, 5.

ELECTRIC RAILWAYS.

See INTERURBAN RAILWAYS; STREET RAILWAYS.

ELECTRIC RATES.

See RATES.

ELECTRIC SIGNALS.

Installation of, *see* RAILROADS, 2-12.

ELECTRIC UTILITIES.

Certificate for public convenience and necessity, *see* CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY, 1.

Depreciation, rate of depreciation of electric plant, *see* DEPRECIATION, 4. Discrimination as between customers of electric utility, *see* DISCRIMINATION, 1; RATES, 3-4.

Minimum charges for electric utilities, *see* MINIMUM CHARGES, 1.

ACCOUNTING.

See ACCOUNTING.

OPERATION.*Standards of service.*

1. The Commission, on its own motion, investigated the electric service furnished by the Brodhead El. Co. at Brodhead, Wis. The respondent has meters in service which have not been tested as required in the standards of service prescribed by the Commission. The voltage regulation is very irregular and unsatisfactory. It seems necessary for the company to either install an automatic voltage regulator, or employ station operators who can give their time undividedly to the operation of the electric light plant. *Held:* The standards of service in force and applicable to the respondent are not unreasonable. Respondent is ordered to comply strictly with the various rules of electric service as set forth in the two decisions covering these matters. *In re Standards for Gas and Electric Service*, 1908, 2 W. R. C. R. 632, and *In re Merrill Ry. and Lt. Co.* 1911, 8 W. R. C. R. 270. Thirty days is deemed a sufficient time within which to comply with this order. *In re Brodhead El. Co.* 1912, 10 W. R. C. R. 630, 631.

RATES.

See RATES.

VALUATION.

See VALUATION.

EMINENT DOMAIN.**COMPENSATION.***Necessity for and right to compensation—Provision for compensation.*

1. The law is well settled that when private property is appropriated by a municipality for public purposes such compensation must be actually made or the means provided whereby it can be certainly obtained. (*Brock et al. v. Hishen et al.* 1876, 40 Wis. 674) (*Smeaton et al. v. Martin et al.* 1883, 57 Wis. 364) (*State v. Hogue*, 1888, 71 Wis. 384) (*State ex rel. Burbank v. Superior*, 1892, 81 Wis. 649) (*State ex rel. Andrews v. Oshkosh*, 1893, 84 Wis. 548.) *In re Racine W. Co.* 1912, 10 W. R. C. R. 543, 550.

2. Although the proposition may not have been definitely held by this court, yet doubtless a statute which authorizes a municipal corporation to take private property for public use is valid if it provides an adequate process for ascertaining and paying the value of such property; and private property may be so taken under a statute without violating the constitutional restrictions on that subject (Const., art. I, sec. 13), although payment has not been actually made therefor. The conditions precedent to such taking are, that the value be ascertained and an adequate and safe fund provided from which payment is to be made, which in the case of a taking by municipal corporations is considered equivalent to actual compensation. (*Brock et al. v. Hishen et al.* 1876, 40 Wis. 674, 680-681.) *In re Racine W. Co.* 1912, 10 W. R. C. R. 543, 550.

3. Where the property is taken for public use by a town or municipal corporation which is made liable to the owner for any damages sustained by reason thereof, the taxable property of such town or municipality constitutes a pledge or fund to which such owner may resort for payment in the manner prescribed by the statute, with absolute safety, and hence we must hold, that the providing of such a method of enforcing payment in such a case and out of such a pledge or fund, is the making of just compensation for the property taken, within the meaning of the constitution. (*Smeaton et al. v. Martin et al.* 1883, 57 Wis. 364, 376.) *In re Racine W. Co.* 1912, 10 W. R. C. R. 543, 551.

4. Where the land is taken by a town or municipality for public use, the fact that the entire taxable property of the town or municipality is liable for its payment, and to which the owner may resort to enforce such payment, relieves the town or municipality from the necessity of making actual prepayment before appropriating the land to the use of the public. (*State v. Hogue*, 1888, 71 Wis. 384, 390-391.) *In re Racine W. Co.* 1912, 10 W. R. C. R. 543, 551.

5. Where property is taken for a public use by a municipal or quasi-municipal corporation, the taxable property thereof constitutes a fund to which the owner may resort in the way pointed out by law, and the existence of a method by which payment may thus be compelled satisfies the constitutional requirement. (*State ex rel. Burbank v. Superior*, 1892, 81 Wis. 649, 654.) *In re Racine W. Co.* 1912, 10 W. R. C. R. 543, 551.

6. In the instant case the act authorizing the taking of the company's plant and providing the procedure by which the value of the property is to be ascertained, does not make provision for obtaining the required compensation which must be paid to the owner therefor, but the omission of any means for securing such compensation is not an infirmity of the act if such means otherwise exist and are sufficient for the purpose. *In re Racine W. Co.* 1912, 10 W. R. C. R. 543, 551-552.

ENGINEERING.

Cost of engineering during construction as element in the valuation of public utilities, see VALUATION, 16-18.

EXCELSIOR.

Rates, Marshfield to Sheboygan, Wis., *see* RATES, 15.

EXORBITANT RATES.

See RATES.

EXPENSES.

Apportionment of expenses, *see* ACCOUNTING, 1-2, 4, 6-8, 11-12, 16-24, 28-39.

Prorating of expenses, *see* ACCOUNTING, 3, 9, 25, 40-41.

EXTENSIONS.

Extension of water mains, *see* WATER UTILITIES, 1.

FARE LIMITS.

Extension of fare limits for street railways, *see* RATES, 24-27.

FARE ZONES.

Zone rates for street railways, *see* RATES, 33.

FARES.

See RATES.

FEED AND REFUSE.

Refund on shipment, Milwaukee to Lake, Wis., *see* RATES, 16.

FIRE PROTECTION.

Adequacy of fire protection, *see* WATER UTILITIES, 9, 14.

Apportionment of expenses between fire and general service in the determination of unit costs for water utilities, *see* ACCOUNTING, 30-39.

Apportionment of value of property between fire and general service in the determination of unit costs for water utilities, *see* ACCOUNTING, 26-27.

FIXED EXPENSES.

Apportionment of fixed or capacity expenses, *see* ACCOUNTING, 1-2, 4, 28-39.

Prorating of fixed or capacity expenses, *see* ACCOUNTING, 3, 40-41.

FLAGMAN.

Flagman, for protection of railroad crossing, *see* RAILROADS, 1, 11.

FLAT RATES.

Water rates, flat rates for water utility, *see* RATES, 44.

FRANCHISES.

See also INDETERMINATE PERMIT.

Franchise subject to amendment or repeal by legislature.

1. Some issue was raised in the present case as to whether the city ordinance, granting an extension of franchise to 1934 and providing a

rate of charge of six tickets for a quarter or twenty-five tickets for a dollar, is not a contract between the city and company which cannot be violated, altered, or amended without the consent of both parties. This issue is, however, not pressing in view of the decisions of our supreme court that the provisions of such ordinances relating to limitations of rate of fare are subject to the determination as to reasonableness by the Railroad Commission as provided by ch. 362, Laws of 1905. (*Manitowoc v. Manitowoc & N. Tr. Co.* 1911, 145 Wis. 13; 129 N. W. 925.) *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 12.

2. Respondent's objection that an order of the Commission, decreasing the rates of fare below the point fixed by the terms of the present franchise, would constitute an impairment of the obligation of contracts does not seem tenable. A similar question as to the jurisdiction of the Commission in instances where ordinances have specified the rate of fare has been raised in the case *Manitowoc v. Manitowoc & Northern Tr. Co.* 1911, 145 Wis. 13; 129 N. W. 925. It is there held that in the absence of specific authority to fix rates delegated to the municipality the right of the state to regulate where public policy demands has not been abrogated. *Cusick et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 314, 335.

FREE HOUSE PIPING.

As element in the valuation of public utilities, see VALUATION, 22.

FREE OR REDUCED RATE SERVICE.

Discrimination due to free or reduced rate service, see DISCRIMINATION, 3.

FREIGHT RATES.

See RATES.

FREIGHT SERVICE.

See TRAIN SERVICE.

GAS RATES.

See RATES.

GAS UTILITIES.

Cost of service of gas utilities, determination of unit costs, see ACCOUNTING, 4.

Depreciation, rate of depreciation of gas plant, see DEPRECIATION, 5.

Minimum charges for gas utilities, see MINIMUM CHARGES, 2-3.

ACCOUNTING.

See ACCOUNTING.

RATES

See RATES.

VALUATION.

See VALUATION.

GENERAL EXPENSES.

Apportionment of general expenses in the determination of unit costs for electric utilities, see ACCOUNTING, 1-2, 11.

- Apportionment of general expenses in the determination of unit costs
 for gas utilities, *see* ACCOUNTING, 4.
 for heating utilities, *see* ACCOUNTING, 11.
 for interurban railways, *see* ACCOUNTING, 6-8.
 for street railways, *see* ACCOUNTING, 11, 16.
 for water utilities, *see* ACCOUNTING, 28-29.
- As element included in consumer costs for water utilities, *see* MINIMUM CHARGES, 4; RATES, 38, 42.
- Percentage of general expenses as element included in consumer costs for water utilities, *see* RATES, 38, 42.

GOING VALUE.

- As element in the valuation of public utilities, *see* VALUATION, 6-9.
 Method of appraising going value, *see* VALUATION, 27-32.

GRADATION OF RATES.

See RATES.

GRADE CROSSINGS.

See INTERURBAN RAILWAYS; RAILROADS.

GRAIN.

- Rates, joint rates, establishment of, Wis. points on the Marathon Co. Ry. and the C. & N. W. line, *see* RATES, 13.
 Refund on shipment, Wis. points on the C. M. & St. P. line to Janesville, Wis., *see* RATES, 17; REPARATION, 7.

GRAVEL AND SAND.

- Rates, switching charges, Janesville, Wis., *see* RATES, 18.

GROUP OR BLANKET RATES.

See RATES.

HAUL.

- Paying haul for street railways, *see* RATES, 24, 26-27, 33.

HAY.

- Rates, joint rates, establishment of, Wis. points on the Marathon Co. Ry. and the C. & N. W. line, *see* RATES, 13.

HEATING UTILITIES.

OPERATION.

Requirements as to service and facilities—Duty of utility to supply appliances.

1. Sec. 1797m-90 exempts the public utility from furnishing any part of the appliances which are situated in and upon the premises of any consumer or user except telephone station equipment upon the subscriber's premises and, unless otherwise ordered by the Commission, meters and appliances for the measurement of any product or service. *In re Invest. Berlin Public Service Co.* 1912, 10 W. R. C. R. 468, 472.

*Requirements as to service and facilities—Regulating devices—
Thermostats.*

2. Complaint was made that the rule of the Berlin Public Service Co. of Berlin, Wis., relating to the installation of thermostats is unreasonable. Under the rule in question the company reserves the right to furnish and install all thermostats connected to its heating system at or as near cost to the consumer as they can be installed. Supplies and repairs are made by the company at cost for breakage by consumer or for the replacement of worn out parts. All other expenses of maintaining and adjusting the thermostats are borne by the company. It appears that the consumers situated on lower levels not having thermostats to regulate the heating of their buildings opened windows when the temperature became too high, and as a result it was impossible to supply those on the higher elevations. To make the service adequate to all patrons, the rule in question was established. *Held:* While it is the duty of the utility to furnish service to the public desiring the same, it cannot be compelled to serve those who are unwilling to provide proper installations and appliances on their premises. No one can insist upon service if his installation is such as to impair the service to others. The obligation of the utility in the premises is not absolute but relative. (1 Wyman Public Service Corp., sec. 418.) Thermostats are essential to efficient and economic heating service. It is ordered that the rule of the Berlin Public Service Company relating to the installation of thermostats be and the same hereby is sustained as a reasonable regulation and as lawfully in effect. *In re Invest. Berlin Public Service Co.* 1912, 10 W. R. C. R. 468, 472-473.

HIGHWAYS.

Crossing by interurban railways, *see* INTERURBAN RAILWAYS, 1.
by railroads, *see* RAILROADS, 1-13.

ILLUMINATED SIGN.

Installation of, for protection of railway crossing, *see* RAILROADS, 4-12.

INDETERMINATE PERMIT.

See also FRANCHISES.

Authority to construct plant.

1. No company can lawfully construct a plant until it has obtained authority from the municipality. *In re Appl. Interstate Lt. & P. Co. et al.* 1912, 10 W. R. C. R. 603, 611.

Continuous operation—Definition of.

2. The words "operating under an existing permit" do not suggest necessarily, in continuous operation, absence of momentary or reasonable cessation. Excusable, temporary suspensions, involving no purpose to abandon, the owner being willing and seasonably, under the circumstances, able to resume and doing so, as in this case, satisfies the calls for a "public utility operating under any indeterminate permit." (Sec. 1797m-79.) (*Calumet Service Co. v. Chilton*, 1912, 135 N. W. 131, 144.) *In re Appl. Interstate Lt. & P. Co. et al.* 1912, 10 W. R. C. R. 603, 611.

Time allowed for completion of enterprise.

3. Every company acting in good faith is entitled to a reasonable time within which to promote and complete the project for which an indeterminate permit is granted. This is in harmony with the spirit of the

law as expressed by the supreme court in *Calumet Service Co. v. Chilton*, 1912, 135 N. W. 131, 144. *In re Appl. Interstate Lt. & P. Co. et al.* 1912, 10 W. R. C. R. 603, 611.

INDUSTRIAL TRACKS.

See SWITCH CONNECTIONS.

INTANGIBLE VALUE.

See VALUATION.

INTERCHANGE OF TRAFFIC.

See CONNECTING CARRIERS.

Adjustment of train schedules between connecting carriers to provide for interchange of traffic, see TRAIN SERVICE, 5.

INTEREST.

Apportionment of interest in the determination of unit costs for water utilities, see ACCOUNTING, 36-37.

As matter considered in determining reasonableness of rates for street railways, see RATES, 30.

for water utilities, see RATES, 46.

As matter considered in making rates for water utilities, see RATES, 38, 42.

Interest during construction as element in the valuation of public utilities, see VALUATION, 16-18.

What constitutes a reasonable return for interest for public utilities, see RETURN, 1-8.

INTERURBAN RAILWAY RATES.

See RATES.

INTERURBAN RAILWAYS.

See also STREET RAILWAYS.

ACCOUNTING.

See ACCOUNTING.

CONSTRUCTION, MAINTENANCE AND EQUIPMENT.

Crossings—Interurban by Highway—Protection of.

1. Complaint was made that the crossing of the Chi. & Mil. El. Ry. Co. with the Five Mile road north of Racine, in the town of Caledonia, Racine county, Wis., is dangerous. *Held*: The crossing is dangerous to public travel and because of the irregularity in the operation of the warning signal respondent is ordered to remove the corners of the cut at the crossing so as to give a better view of the tracks and to change the highway to an effective width of 24 ft. within its right of way. Thirty days is deemed a reasonable time within which to comply with this order. *Town of Caledonia v. Chi. & Mil. El. Ry. Co.* 1912, 10 W. R. C. R. 420, 421-422.

FARES, TICKETS, AND SPECIAL CONTRACTS.

Zone system rates.

See RATES, 33.

RATES.

See RATES.

VALUATION.
See VALUATION.

INTERURBAN RATES.
See RATES.

INVESTMENT.
Amount of investment as matter considered in determining reasonableness of street railway rates, *see RATES*, 31.
Investment for anticipated needs, as element in valuation of public utilities, *see VALUATION*, 19.

JOINT RATES.
See RATES.

JOINT TRACK.
Apportionment of the value of joint track in the determination of unit costs for street railways, *see ACCOUNTING*, 15.
Apportionment of joint track expenses in the determination of unit costs for street railways, *see ACCOUNTING*, 24.

JOINT USE.
Of telephone lines, *see TELEPHONE UTILITIES*, 1.

JURISDICTION.
Commission, jurisdiction of, authority in awarding reparation, *see RAILROAD COMMISSION*, 1.
over water powers, level and flow of water, *see RAILROAD COMMISSION*, 4.
power of Commission to regulate rates, *see RAILROAD COMMISSION*, 2-3.

JUST COMPENSATION.
See COMPENSATION.

LAND.
As element in the valuation of the physical property of public utilities, *see VALUATION*, 20.

LAWFUL RATE.
See SCHEDULES FOR UTILITIES.

LEGAL SERVICES.
Legal services during construction as element in the valuation of public utilities, *see VALUATION*, 16-18.

LIFE OF PUBLIC UTILITY PLANT.
Of electric plant, *see DEPRECIATION*, 4.
Of gas plant, *see DEPRECIATION*, 5.
Of street railway, *see DEPRECIATION*, 6.
Of water plant, *see DEPRECIATION*, 7.

LIVE STOCK.

Rates, joint rates, establishment of, Wis. points on the Marathon Co. Ry. and the C. & N. W. line, *see* RATES, 13.

LOAD FACTOR.

As matter considered in making rates for electric utilities, *see* RATES, 4.

LOADING.

See WEIGHTS.

LOADING PER CAR.

As matter considered in determining reasonableness of railway rates, *see* RATES, 13-14.

LOCAL CONDITIONS.

As matter considered in determining reasonableness of electric rates, *see* RATES, 4.
of gas rates, *see* RATES, 8.

LOCAL RATES.

See RATES.

LOGS.

Rates, joint rates, establishment of, Wis. points on the Marathon Co. Ry. and the C. & N. W. line, *see* RATES, 13.
Refund on shipment, Campia to Rice Lake, Wis., *see* RATES, 19; REPARATION, 5.

LONG HAUL.

Length of haul a matter considered in determining reasonableness of railway rates, *see* RATES, 12, 14.

LUMBER.

Rates, joint rates, establishment of, Wis. points on the Marathon Co. Ry. and the C. & N. W. line, *see* RATES, 13.

MAINS.

Extension of water mains, *see* WATER UTILITIES, 1.

MAKING RATES.

See RATES.

MANAGEMENT.

Wages of management, as element in profits, *see* RETURN, 12.

METALLIC SERVICE.

Telephone rates for metallic service, *see* RATES, 35.

METERS.

Accuracy of meters, *see* ELECTRIC UTILITIES, 1.
Depreciation on meters as element included in consumer costs for water utilities, *see* MINIMUM CHARGES, 4; RATES, 38, 42.
Double meter system or two-rate system for gas discontinued, *see* RATES, 8.

- Duty of utility to provide meters, *see* WATER UTILITIES, 10-11.
 Electric meters, accuracy of, *see* ELECTRIC UTILITIES, 1.
 Interest on meters as element included in consumer costs for water utilities, *see* MINIMUM CHARGES, 4; RATES, 38, 42.
 Location of water meters, *see* WATER UTILITIES, 12.
 Maintenance of meters as element included in consumer costs for gas utilities, *see* MINIMUM CHARGES, 2; RATES, 6.
 for water utilities, *see* MINIMUM CHARGES, 4; RATES, 38, 42.
 Meter reading charges, as element included in consumer costs for gas utilities, *see* MINIMUM CHARGES, 2; RATES 6.
 Meter maintenance charges, as element included in consumer costs for water utilities, *see* MINIMUM CHARGES, 4; RATES, 38, 42.
 Taxes on investment in meters as element included in consumer costs for water utilities, *see* MINIMUM CHARGES, 4; RATES, 38, 42.

MINIMUM CARLOAD WEIGHTS.

See WEIGHTS.

MINIMUM CHARGES.

ELECTRIC UTILITIES.

Establishment of minimum charges in particular cases.
See RATES, 4.

Purpose of minimum charge.

1. It is only equitable that there should be a minimum assessed and collected that will reimburse the company for at least a part of the overhead charges. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 804.

GAS UTILITIES.

Determination of minimum charge.

2. In the present case the respondent's direct consumer expenses, consisting of such items as customers' premises expenses, maintenance of meters and services, reading meters and collecting bills were added to the fixed expenses for the several sizes of meters and services. To these costs was added a fair allowance for the actual production expense of a small quantity of gas used under the minimum charge. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 778.

Establishment of minimum charges in particular cases.
See RATES, 6.

Reasonableness of minimum charge.

3. The reasonableness of the amount of the minimum charge is most properly tested by the facts in each case. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 778.

WATER UTILITIES.

Determination of minimum charge.

4. In determining the minimum charge in the present case, a schedule of consumer costs per metered consumer was prepared. The principal elements entering into consumer costs are interest, depreciation, and taxes on the investment in services and meters, maintenance of meters, maintenance of services, collection expenses, and a certain proportion of general expenses. *In re Appl. People's W. Lt. & P. Co.* 1912, 10 W. R. C. R. 651, 656.

Establishment of minimum charges in particular cases.
See RATES, 44.

MINIMUM LOADING REQUIREMENT.

See WEIGHTS.

MINIMUM RATES.

See RATES.

MINIMUM WEIGHTS.

See WEIGHTS.

MONOPOLY.

- Capitalization of estimated monopoly profits, *see VALUATION, 4.*
- Monopoly power as factor in rate of interest and profits of public utilities, *see RETURN, 8.*
- Monopoly value as element in valuation, *see VALUATION, 4.*

MORTGAGE CERTIFICATE LAW.

See PUBLIC UTILITIES LAW.

MOVEMENT EXPENSES.

- Apportionment of movement expenses in the determination of unit costs for interurban railways, *see ACCOUNTING, 8.*
- As matter considered in making joint railway rates, *see RATES, 11.*

MUNICIPAL ACQUISITION OF PUBLIC UTILITIES.

- Compensation for property of public utilities in case of municipal acquisition, *see WATER UTILITIES, 2-5.*

MUNICIPALITIES.

See also CITIES; TOWNS; VILLAGES.

- Elections for municipal acquisition of public utility, validity of, *see WATER UTILITIES, 6-8.*
- Indebtedness, capacity of city to incur, *see WATER UTILITIES, 4.*
- Indeterminate permit, necessity of grant by municipality, *see INDETERMINATE PERMIT, 1.*
- Municipal council, procedure upon municipal acquisition of public utility, regularity of, *see WATER UTILITIES, 3-8.*
- Public utilities, municipal acquisition of, *see WATER UTILITIES, 2-8.*
- Public utilities, municipal acquisition of, action of municipal council, regularity of action, *see WATER UTILITIES, 3-8.*
- Public utilities, municipal acquisition of, action of municipal council, regularity, capacity of municipality to incur indebtedness, *see WATER UTILITIES, 4.*
- Water utilities, municipal acquisition of, *see WATER UTILITIES, 2-8.*

NECESSITY.

See CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY.

NON-DUPLICATION.

- Of public utilities, *see COMPETITION, 1.*

OBSOLESCENCE.

- As element in depreciation, *see DEPRECIATION, 2.*

OPERATION OF TRAINS.

See TRAIN SERVICE.

ORIGINAL COST.

Original cost of physical property as matter considered in the valuation of public utilities, *see VALUATION*, 2-3.

OUTPUT COSTS.

As matter considered in making rates for electric utilities, *see RATES*, 1. for water utilities, *see RATES*, 38-41.

OUTPUT EXPENSES.

Apportionment of output expenses in the determination of unit costs for electric utilities, *see ACCOUNTING*, 1-2.

for gas utilities, *see ACCOUNTING*, 4.

for water utilities, *see ACCOUNTING*, 28-39.

Prorating of output expenses in the determination of unit costs for electric utilities, *see ACCOUNTING*, 3.

for water utilities, *see ACCOUNTING*, 40-41.

OVERCHARGES.

See REPARATION.

OVERHEAD EXPENSES.

Apportionment of overhead expenses in the determination of unit costs for street railways, *see ACCOUNTING*, 21.

PASSENGER SERVICE.

See TRAIN SERVICE.

PASSENGERS.

Station accommodations, *see STATION FACILITIES*, 1-11.

Trains, stopping of passenger train at particular station, *see TRAIN SERVICE*, 1-2.

PATENT RIGHTS.

As element in valuation of public utilities, *see VALUATION*, 10.

PAVING.

Allowance for cost of paving in the valuation of property of public utilities, when the cost was not actually incurred, *see VALUATION*, 11-12.

PAYING HAUL.

For street railways, *see RATES*, 24, 26-27, 33.

For street railways, per car, *see RATES*, 24, 27.

For street railways, per revenue passenger, *see RATES*, 24, 27.

PAYMENT OF RATES.

Regulation as to payment of rates for services rendered by public utilities, *see RULES AND REGULATIONS*, 1-2.

PENALTIES.

Regulation as to payment of rates for services rendered by public utility, penalties for failure to pay telephone rates, *see RULES AND REGULATIONS*, 1-2.

PHYSICAL CONNECTION.

Of telephone lines, *see* TELEPHONE UTILITIES, 1.

Of telephone lines, adjustment of rates upon physical connection, *see* RATES, 36.

PHYSICAL PROPERTY.

As element in the valuation of public utilities, *see* VALUATION, 11-24.

PILING.

Refund on shipment, Long Lake to Green Bay, Wis., *see* RATES, 20; REPARATION, 3.

POLES AND POSTS.

Rates, concentration rates, Galloway to Clintonville, Wis., *see* RATES, 21; REPARATION, 6.

POSTS.

See POLES AND POSTS.

POTATOES.

Rates, joint rates, establishment of, Wis. points on the Marathon Co. Ry. and the C. & N. W. line, *see* RATES, 13.

POWER EXPENSES.

Apportionment of power expenses in the determination of unit costs for electric utilities, *see* ACCOUNTING, 11.

for heating utilities, *see* ACCOUNTING, 11.

for street railways, *see* ACCOUNTING, 11, 22.

PREFERENCE OR PREJUDICE.

See DISCRIMINATION.

PRESENT VALUE.

Present value of physical property as matter considered in the valuation of public utilities, *see* VALUATION, 1.

PRIVATE SIDETRACKS.

See SWITCH CONNECTIONS.

PROFITS.

What constitutes a reasonable return for profits for public utilities, *see* RETURN, 4-12.

PROPERTY RIGHTS.

Compensation for private property upon municipal acquisition, *see* EMINENT DOMAIN, 1-6.

Compensation, necessity for and right to compensation upon public appropriation, *see* EMINENT DOMAIN, 1-6.

Operation of railways at pecuniary loss, duty to operate, *see* RAILROADS, 15.

PRORATING OF EXPENSES.

Prorating of expenses in the determination of unit costs for electric utilities, *see* ACCOUNTING, 3.

for interurban railways, *see* ACCOUNTING, 9.

for street railways, *see* ACCOUNTING, 25.

for water utilities, *see* ACCOUNTING, 40-41.

PUBLIC CONVENIENCE AND NECESSITY.

See CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY.
Telephone utilities, physical connection for public convenience and necessity, *see* TELEPHONE UTILITIES, 1.

PUBLIC CONVENIENCE AND NECESSITY LAW.

See RAILROAD LAW.

PUBLIC CORPORATION.

See CITIES; MUNICIPALITIES; TOWNS; VILLAGES.

PUBLIC FRANCHISES.

See FRANCHISES.

PUBLIC SERVICE CORPORATIONS.

See ELECTRIC UTILITIES; GAS UTILITIES; HEATING UTILITIES; INTERURBAN RAILWAYS; RAILROADS; STREET RAILWAYS; TELEPHONE UTILITIES; WATER UTILITIES.

PUBLIC UTILITIES.

See ELECTRIC UTILITIES; GAS UTILITIES; HEATING UTILITIES; TELEPHONE UTILITIES; WATER UTILITIES.

PUBLIC UTILITIES LAW.**SECTIONS CONSTRUED.**

- Sec. 926—11, municipal acquisition of public utility, provision for compensation, *see* WATER UTILITIES.
Sec. 927—11 to sec. 927—19, municipal acquisition of public utility, method of acquisition under Mortgage Certificate Law, *see* WATER UTILITIES.
Sec. 1596, water powers, dams, construction of, necessity for permit from legislature, *see* WATER POWERS.
Sec. 1797m—79, indeterminate permit, operation under permit, continuous operation, *see* INDETERMINATE PERMIT.
Sec. 1797m—80, municipal acquisition of public utility, regularity of procedure, condemnation proceedings, *see* WATER UTILITIES.
Sec. 1797m—81, municipal acquisition of public utility, regularity of procedure, submission of question to voters, *see* WATER UTILITIES.
Sec. 1797m—90, service and facilities, heating utilities, duty of utility to supply appliances, *see* HEATING UTILITIES.
Sec. 1797m—108, municipal acquisition of public utility, provision for compensation, *see* WATER UTILITIES.

PUBLISHED RATE.

Departure from, prohibited, *see* SCHEDULES FOR UTILITIES, 2.

PURPOSE OF LAW.

See PUBLIC UTILITIES LAW; RAILROAD LAW.

RAILROAD COMMISSION.

Authority of Commission in awarding reparation—Power to make a finding of the specific amount of refund authorized.

1. It is clearly implied in the statutes (sec. 1797—37m) that the Commission has authority to make a finding of the specific amount of refund

authorized. *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 10 W. R. C. R. 632, 633-634.

Jurisdiction of Commission—Over rates.

2. The Railroad Commission is empowered to carry out the provisions of ch. 362 of the Laws of 1905, by holding hearings, conducting investigations, and determining and establishing reasonable charges. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 11.

Jurisdiction of Commission—Over rates for street railways.

3. Under the provisions of ch. 362, Laws of 1905, and acts amendatory thereto, the Railroad Commission has been created to determine the reasonableness of rates of traction utilities and where present rates are unreasonable to fix and determine the lawful rate. *Cusick et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 314, 335.

Jurisdiction of Commission—Over water powers—Level and flow of water.

4. Since ch. 652, Wis. Laws, 1911, has been declared unconstitutional (*Water Power Cases*, 1912, 148 Wis. 124) the Commission is without jurisdiction to regulate and control the level and flow of water in navigable streams within the state. *Law et al. v. Darlington El. Lt. & P. Co.* 1912, 10 W. R. C. R. 380, 381-382.

RAILROAD COMMISSION ACT.

See RAILROAD LAW.

RAILROAD COMMISSION LAW.

See RAILROAD LAW.

RAILROAD CROSSINGS.

See RAILROADS.

RAILROAD LAW.

SECTIONS CONSTRUED.

- Sec. 1797—2 as amended by ch. 582 of Laws of 1907, street and inter-urban railways subject to Railroad Commission Law, see WATER UTILITIES.
- Sec. 1797—37m, reparation, authority of Commission in awarding reparation, power to make finding of specific amount of refund, see RAILROAD COMMISSION.
- Sec. 1797—37m, reparation, authority of Commission in awarding reparation, power to make finding of specific amount of refund, see REPARATION.

RAILROADS.

See also CARRIERS; INTERURBAN RAILWAYS; STREET RAILWAYS.

ACCOUNTING.

See ACCOUNTING.

CONSTRUCTION, MAINTENANCE AND EQUIPMENT.

Crossings—Railroad by highway—Protection of.

1. Petitioner alleged that three grade crossings on the C. M. & St. P. Ry. in Boscobel, Wis., located at Church and Walnut streets, Wisconsin ave. and Park st. are dangerous to public travel. *Held*: The crossings:

in question are dangerous. The respondent is ordered to reduce the speed of all trains to twelve miles per hour when crossing Wisconsin ave., Park st., and Church and Walnut streets and to discontinue the practice of making "flying switches" where cars are run over such streets detached from an engine. It is further ordered that, before any switching is done on Wisconsin ave., either on the main track or sidetracks, the respondent is to station some person at such crossing to give warning to travelers on the street and sidewalks and to see that the passage is clear at all times when switching is done over this highway. *City of Boscobel v. C. M. & St. P. R. Co.* 1912, 10 W. R. C. R. 423, 425.

Crossings—Railroad by highway—Protection of—Automatic alarm.

2. Petitioner alleges that the crossing of the C. M. & St. P. Ry. Co. with the Wauzeka-Boscobel road, about 1¼ mi. north of the village of Wauzeka, Wis., is unsafe and prays that adequate protection be provided. The tracks at the crossing are flooded occasionally and a type of bell is required which will operate even when the tracks are under water. *Held:* The crossing requires protection and the respondent is ordered to install and maintain an alarm bell operating independently of a track circuit, plans for which are to be submitted to the Commission for approval. Respondent is further ordered to provide whistle signals and to widen the crossing by extending the planking further south. Sixty days is deemed a reasonable period within which to comply with this order. *Town of Wauzeka v. C. M. & St. P. R. Co.* 1912, 10 W. R. C. R. 426, 429.

3. Complaint was made by the city of Beaver Dam, Wis., that the highway crossings of the C. M. & St. P. Ry. with Maple ave., Third st., Mackie st., and High st. in this city are dangerous to human life. *Held:* The crossings require protection and the respondent is ordered to install and maintain at each of these crossings an automatic alarm equipped with a time element, so arranged as not to ring while switching is being done. Sixty days is deemed a reasonable time within which to comply with this order. *City of Beaver Dam v. C. M. & St. P. R. Co.* 1912, 10 W. R. C. R. 474, 477.

Crossings—Railroad by highway—Protection of—Automatic alarm with illuminated sign.

See post, 12.

4. Complaint was made by the town of Mentor, Clark county, Wis., that the crossing, known as the King street crossing near the depot at Humbird on the C. St. P. M. & O. Ry., is dangerous to human life. *Held:* The crossing requires continuous protection and the respondent is ordered to install and maintain an automatic electric alarm bell with an illuminated signal for night indication. Sixty days is deemed a reasonable time within which to comply with this order. *Town of Mentor v. C. St. P. M. & O. R. Co.* 1912, 10 W. R. C. R. 434, 435.

5. Complaint was made by the town of Albany that the first highway crossing north of the depot at Albany, Wis., is dangerous. *Held:* The crossing requires protection and the respondent is ordered to install and maintain an automatic crossing alarm with an illuminated sign for night indication. Sixty days is regarded as a reasonable period within which to comply with this order. *Town of Albany v. C. M. & St. P. R. Co.* 1912, 10 W. R. C. R. 483, 484-485.

6. Complaint was made by the town of Wayne that a crossing, located about four miles south of Theresa in the town of Wayne, Washington county, Wis., is dangerous. *Held:* The crossing is dangerous and the

respondent is ordered to install and maintain an automatic alarm bell with an illuminated sign for night indication and to widen the highway on its right of way to such an extent as to permit teams to pass or turn safely. Sixty days is considered sufficient time in which to comply with this order. *Town of Wayne v. M. St. P. & S. S. M. R. Co.* 1912, 10 W. R. C. R. 493, 494.

7. Petitioner alleges that two highway crossings of the C. M. & St. P. Ry. in the village of Lyons, Wis., are dangerous. *Held:* The crossings require protection and the respondent is ordered to install and maintain an automatic electric alarm bell with an illuminated sign for night indication at each crossing. Sixty days is deemed a reasonable time within which to comply with this order. *Miller v. C. M. & St. P. R. Co.* 1912, 10 W. R. C. R. 499.

8. Complaint was made by the town of Salem, Kenosha county, Wis., that a grade crossing of a highway with the C. & N. W. Ry., one mile east of Salem, is dangerous. *Held:* The crossing requires protection and the respondent is ordered to install and maintain an automatic electric alarm bell, with illuminated sign for night indication. Sixty days is considered sufficient time in which to comply with this order. *Town of Salem v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 510, 511.

9. Upon complaint the Commission, on its own motion, investigated the crossing of the C. St. P. M. & O. Ry. Co. at Yolo, Wis. *Held:* The crossing is dangerous and requires some method of protection. The respondent is ordered to install and maintain an automatic alarm bell, with an illuminated sign for night indication. Sixty days is deemed a sufficient time within which to comply with this order. *In re Invest. C. St. P. M. & O. Crossing, Yolo, Wis.* 1912, 10 W. R. C. R. 528, 529-530.

10. Petitioner alleges that the crossing of the M. St. P. & S. S. M. Ry. Co., located about 165 feet north of respondent's depot at Allenton, Wis., requires protection. *Held:* The crossing is unsafe and respondent is ordered to install and maintain an electric alarm bell with an illuminated sign for night indication, so constructed that when switching is being done on either side of the house track or passing siding, the alarm will operate the same as when the main track is occupied, and when north-bound trains stop, the alarm will stop operating until such time as trains start north from the station. Complete wiring plans and specifications for the bell are to be submitted to the Commission for approval. Sixty days is deemed a reasonable time within which to comply with this order. *Wolf v. M. St. P. & S. S. M. R. Co.* 1912, 10 W. R. C. R. 615, 616-617.

11. Petitioner alleges that four grade crossings in Mount Horeb, Wis., located at the intersections of the tracks of the C. & N. W. Ry. with First, Second, Fourth, and Eighth streets, are dangerous. *Held:* The crossings in question are dangerous to public travel. Respondent is ordered to install at each crossing an automatic crossing alarm, with an illuminated sign for night indication, equipped with a time element, and arranged to operate for the main track only. It is further ordered to flag all cars over First, Second and Fourth streets during switching operations. Sixty days is deemed a sufficient time within which to comply with this order. *Village of Mount Horeb v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 623, 625.

Crossings—Railroad by highway—Protection of—Flagman.
See ante, 1, 11.

Crossings—Railroad by highway—Restoration of.

12. Petitioners alleged that the Johnson crossing situated 2½ miles west of the village of Warrens, in the town of Lincoln, Monroe county, Wis., was closed during reconstruction work on the tracks of the C. St. P. M. & O. Ry. Co. and that it has not been reopened. *Held:* The cross-

ing should be restored. Respondent is ordered to reopen the crossing and place it in proper condition for public use. It is further ordered that the respondent install and maintain an automatic alarm bell with an illuminated sign for night indication. Sixty days is deemed a reasonable time within which to comply with this order. *Streeter et al. v. C. St. P. M. & O. R. Co.* 1912, 10 W. R. C. R. 531, 533.

Crossings—Railroad by highway—Separation of grades—Subways.

13. The Commission, on its own motion, investigated a highway crossing on the C. & N. W. Ry. located four and one-half miles north of Racine in the town of Caledonia, Racine Co., Wis. The grade crossing is extremely dangerous and a subway 800 ft. north of the crossing, for the line of the M. L. H. & T. Co. and dedicated as a public road, is too narrow to be safe for the travel on the highway. *Held:* Grade separation is necessary to meet the requirements of the case. The C. & N. W. Ry. Co. is ordered to construct and maintain a new subway in accordance with plans and specifications to be approved by the Commission. Upon the completion of the subway the company is to close the present grade crossing. The railway company is to furnish all material and labor. 80 per cent of the cost of alteration is apportioned to the railway company and 20 per cent to the town of Caledonia. One year is deemed a reasonable time within which the subway is to be opened for public use. *In re Invest. Crossing of C. & N. W. R. Co.* 1912, 10 W. R. C. R. 618, 621-622.

CONTROL AND REGULATION IN GENERAL.

Extent of control—Details of operation left to company.

14. The Commission is always reluctant to interfere in details of operation unless absolutely necessary, and they are here left to the railroad management. *Webster v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 500, 508-509.

OPERATION.

Duty to operate—Operation at pecuniary loss.

15. If, as the Commission has held in speaking of branch service (*Nelson et al. v. N. P. R. Co.* 1912, 8 W. R. C. R. 685): Every part of a railroad system cannot be expected to be profitable and a railway company is generally in duty bound to furnish reasonably adequate service regardless of cost, it, of course, follows strongly that under certain circumstances, on a branch whose business has increased, the adequate service to the public may make it necessary for a railroad to operate a train which is not particularly profitable or even entails some loss. *Webster v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 500, 508.

Requirements as to service and facilities.

See STATION FACILITIES; SWITCH CONNECTIONS; TRAIN SERVICE.

Requirements as to service and facilities—Adequacy of service.

16. There is a certain minimum service to which every community served by a common carrier is entitled, quite independent of the financial results. *Hemmis et al. v. G. B. & W. R. Co.* 1912, 10 W. R. C. R. 626, 628-629.

RATES.

See RATES.

VALUATION.

See VALUATION.

RATE ADJUSTMENT.

See RATES.

RATE SCHEDULES.

See SCHEDULES FOR UTILITIES.

RATES—ELECTRIC.

See also MINIMUM CHARGES.

Discrimination in electric rates, see DISCRIMINATION, 1.

Making rates—Elements considered—Cost of service—Output, capacity and consumer costs.

1. The cost of service is not the same per unit for all consumers, but varies considerably between long and short hour users. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 798.

Reasonableness of rates in particular cases.

2. In the decision *In re Invest. Mil. Ltg. Rates*, 1912, 9 W. R. C. R. 544, no change was made in the demand rates for commercial service. Further investigation discloses inequalities in the relative proportion of demand and output charges. *Held*: A reduction in the maximum demand rates is reasonable and equitable. The T. M. E. R. & L. Co., Commonwealth Power Co., Plankinton El. Lt. & P. Co. and the Wells P. Co. are ordered to make the change as specified by the Commission, in the "Standard rate" for commercial lighting and power effective under the former order. The rates so changed are to apply to service billed after Dec. 1, 1912. *In re Invest. Milwaukee Ltg. Rates*, 1912, 10 W. R. C. R. 613-614.

3. Subsequent to complaint of discrimination the Commission on its own motion investigated the rates, rules and regulations of the Chippewa Val. Ry. Lt. & P. Co. in force in the city of Eau Claire, Wis. After the complaint the company submitted an amendment designed to eliminate the objectionable features of its schedule. *Held*: The present schedule contains arbitrary and discriminatory provisions. The discriminations arise from the preferences given by the company to consumers using electricity exclusively, as against consumers using other methods of lighting or power. Consumers should be treated in the same manner and should be given the same privileges unless there is some just basis on which they could be divided into classes. All consumers of a class should be governed by the same rates. It is ordered that the company amend its present schedule of rates for electric light and power, and substitute therefor the rates as prescribed by the Commission. The company is to place in effect either schedule A, or schedule B, or both, giving consumers their option as to the schedule under which they wish to come. The company is to notify the Commission within ten days as to what it elects to do under this order. *In re Invest. Chippewa Valley Ry. Lt. & P. Co.* 1912, 10 W. R. C. R. 692, 699, 703.

4. Complaint was made that the electric rates charged by the respondent in Superior, Wis., are unreasonable, and that the rates charged the city are unjustly discriminatory as against private consumers. A valuation of the property was made and the revenues and expenditures were investigated. Apportionments were made as among the different plants and among the different departments of the service. *Held*: The electric rates for general, commercial and residence lighting are found to be somewhat inequitable and to be such as tend to retard the development of at least certain parts of the business involved. The revenue from the street lighting appears to be somewhat less than the expenses of this department when the operating expenses are divided upon a strictly cost of service basis, however, the rates for municipal lighting service as now in effect are not disturbed. The power schedule does not appear

to be high, but owing to local conditions is not as closely adjusted to the cost curve as it might otherwise be but it is not thought advisable to make any changes in the power rates at the present time. With the establishment of a minimum bill the monthly bills of some of the smallest consumers may be increased, but it is only equitable that there should be a minimum assessed and collected that will reimburse the company for at least a part of the overhead charges. In devising a rate schedule there should be some consideration taken between the residence and business use of current. The respondent is ordered to put in effect the schedule of rates approved by the Commission. It is further ordered that the bills rendered by the company shall state plainly the connected load of each consumer and the percentage which is considered active in computing the rate. If the conditions warrant it, the Commission will make such modifications as may appear necessary after a year's operation under these schedules. It appears that the company has reached the limit of the present a. c. arc lamp service as now installed, and additional station equipment must be provided to take care of additional lamps. It seems that the best policy of the company is to install additional arc generators or if a contract can be consummated with the city for the substitution of large size tungstens in place of the 7.5 amp. arcs, then a new tungsten arc system could very likely be advantageously installed to the benefit of both the city and the company. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 802, 804, 805-808.

Relation of rates—Adjustment for differences in cost of production.

5. In devising a rate schedule consideration must be given to the relation of rates for general, commercial and residence lighting. *Superior Commercial Club et al. v. Superior W. L. & P. Co.* 1912, 10 W. R. C. R. 704, 798, 804.

RATES—GAS.

See also MINIMUM CHARGES.

Minimum rates.

6. In the present case the respondent's direct consumer expenses, consisting of such items as customers' premises expenses, maintenance of meters and services, reading meters and collecting bills were added to the fixed expenses for the several sizes of meters and services. To these costs was added a fair allowance for the actual production expense of a small quantity of gas used under the minimum charge. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 778.

7. The reasonableness of the amount of the minimum charge is most properly tested by the facts in each case. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 778.

Reasonableness of rates in particular cases.

8. Complaint was made that the gas rates charged by the respondent in Superior, Wis., are unreasonable and unjustly discriminatory. A valuation of the property was made and the revenues and expenditures were investigated. Apportionments were made as among the different plants and among the different departments of the service. *Held:* In the gas department, while the existing rate schedule might conform more closely to the cost curve, the gas rates which took effect May 1, 1912, are not disturbed. The low rate in the gas department, together with the abolition of the double meter system, will in all probability result in a large increase in gas sales. Without such increase there will, without a doubt, be considerable reduction in revenue. The total

cost of the gas delivered to the consumer is above normal. This may be the result of undeveloped business for which peculiarly local conditions may be responsible. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 803-804, 805.

RATES—INTERURBAN.

Reasonableness of rates in particular cases.

9. Complaint was made of excessive rates of fare charged by the T. M. E. R. & L. Co. upon its interurban electric line between Milwaukee and Waukesha, Wis. The rates in question are joint rates involving both the T. M. E. R. & L. Co. and the M. L. H. & T. Co. The latter company has title to the property up to Thirty-fifth and Wells streets, while the single fare limits of the city of Milwaukee extend to Hawley road, approximately 1.97 miles west of the ownership limits. The T. M. E. R. & L. Co. operates the entire interurban line under a traffic agreement by which it is credited with a single fare for each passenger carried within the single fare limits, and under which operating expenses upon the entire line are prorated upon the car-hour basis. The effect of this working agreement has already been fully entered into in *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1. The analysis of the facts in this case have been considered in connection with the application for reduction of fares in the city of Milwaukee and to the outlying suburbs of West Allis, Wauwatosa, and East Milwaukee. (*City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1.) (*Cusick et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 314.) (*Koenig et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 337.) (*Village of East Milwaukee v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 358.) A valuation of the property was made and the revenues and expenditures were investigated. The revenues and expenditures were apportioned between the T. M. E. R. & L. Co. and the M. L. H. & T. Co. and were further apportioned for the Milwaukee-Watertown interurban system. It appears that a rate of fare based upon these terminal and movement expenses, sufficient to meet the operating expenses and a reasonable return upon the investment for a haul covering the distance from Milwaukee to Waukesha will aggregate 39 cts. The present rate of fare for such a haul aggregates 35 cts. *Held:* Aside from the consideration of the cost of service, it does not appear that traffic conditions will warrant a change in the present rates of fare. While there has been a notable increase in the density of traffic since the line first began to operate, the type of traffic at the present time does not differ much from that usually observed between terminal and subterminal points the size of Milwaukee and Waukesha. It does not appear that a decrease in the rate of fare is possible at the present time. The petition is dismissed. *Deakin et al. v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 306, 313.

RATES—RAILWAY.

See REPARATION; TERMINAL CHARGES; WEIGHTS.

Commission, power of Commission to regulate railway rates, see RAILROAD COMMISSION, 2.

Unreasonable rates, reparation for charging, see REPARATION, 3-7.

Concentration rates.

Concentration rates on poles and posts, Galloway to Clintonville, Wis., see post, 21.

Group rates.

10. In the case of specific commodities the rates are generally fixed by groups rather than in direct relation to the distances covered, and the

rate to or from the connecting line point is often the same as that to or from the junction point, or else exceeds the junction point rate by no more than the transfer cost or about a cent per cwt. *Streveler et al. v. Marathon Co. R. Co. et al.* 1912, 10 W. R. C. R. 409, 417-418.

Joint or through rates—Elements of cost.

11. The cost of performing a service in the case of a joint haul includes the movement and terminal expenses of the haul as a whole, and also the cost of transfer between the two lines. The cost of transfer necessarily varies somewhat with different commodities and different conditions of operation, but one cent per cwt. will probably cover it in most cases. *Streveler et al. v. Marathon Co. Ry. Co. et al.* 1912, 10 W. R. C. R. 409, 417.

Joint or through rates—Establishment of joint rates.

Joint rates, Wis. points on the Marathon Co. Ry. and the C. & N. W. line,
 on bolts, *see post*, 13.
 on cement, *see post*, 13.
 on grain, *see post*, 13.
 on hay, *see post*, 13.
 on live stock, *see post*, 13.
 on logs, *see post*, 13.
 on lumber, *see post*, 13.
 on potatoes, *see post*, 13.
 on wood, *see post*, 13.

Reasonableness of rates—Matters considered in determining reasonableness—Cost of service.

12. As is well known, a heavily loaded car is moved at much less expense per unit of weight than a car of light loading; and in the same way a long haul is ordinarily more profitable to the railway company than a short haul. *So. Wis. Sand & Gravel Co. et al. v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 436, 440.

Reasonableness of rates—Matters considered in determining reasonableness—Relation to other rates.

See post, 14-15.

Reasonable of rates—Matters considered in determining reasonableness—Value of articles carried.

See post, 14.

Reasonableness of rates in particular cases—Commodities designated—(Bolts, cement, grain, hay, live stock, logs, lumber, potatoes, wood)—Wis. points on the Marathon Co. Ry. and the C. & N. W. line.

13. Petitioners pray for the establishment of joint rates between the Marathon County Ry. Co. and the C. & N. W. Ry. Co. The present rates on all freight shipped over the two lines consists of the sum of the locals, and petitioners allege that they are unreasonable, excessive and exorbitant. Both respondents admit that the present rates are excessive. A rate on the Marathon County line one cent higher than the rate to Stratford, would be in line with the joint commodity rates usually established. The exact amount of this arbitrary, however, depends somewhat upon the nature of the commodity, the loading per car and other transportation factors, and an arbitrary of a cent per cwt. would not be equally just on all commodities. *Held*: The present rates are excessive and the respondent companies are ordered to estab-

lish commodity rates on the two lines not to exceed the C. & N. W. Ry. local commodity rates to Stratford by more than the arbitraries provided by the Commission on lumber and logs, grain, hay, potatoes, cement, cattle, sheep, hogs, fuel wood, bark, pulp wood and bolts. Class rates are also suggested for use if the occasion exists or should in the future arise. The division of the total through rates between the two carriers is left to them for settlement, with recourse to the Commission in case of failure to agree. *Streveler et al. v. Marathon Co. Ry. Co. et al.* 1912, 10 W. R. C. R. 409, 418-419.

Reasonableness of rates in particular cases—Bolts, Wis. points on the Marathon Co. Ry. and the C. & N. W. line.

See ante, 13.

Reasonableness of rates in particular cases—Cement, Wis. points on the Marathon Co. Ry. and the C. & N. W. line.

See ante, 13.

Reasonableness of rates in particular cases—Coal, Milwaukee to Lake, Wis.

14. Complaint was made that the rates on coal on the C. M. & St. P. Ry. from Milwaukee to Lake, Wis., are excessive as compared with the switching rates to stations at similar distances from Milwaukee, and as compared with rates on the C. & N. W. Ry. The special conditions which make very low rates proper for switching traffic are not entirely applicable to this station. However, the rate in question applies to all stations between Milwaukee and Racine, a maximum distance of thirty-two miles, and Lake is the first station out of Milwaukee. So wide a group, beginning within a few miles of the point of shipment, is hardly justifiable in this case, considering the fact that there is an actual movement of traffic to the point nearest the originating station. *Held*: The rate of 45 cts. per ton on coal yields somewhat higher revenues than the railway company is entitled to receive when the length of haul, the value of the commodity, the loading per car, and all the other transportation factors are taken into account. The respondent is ordered to discontinue its present rate and to substitute a rate of 35 cts. per ton. *Schultz v. C. M. & St. P., R. Co.* 1912, 10 W. R. C. R. 370, 376.

Reasonableness of rates in particular cases—Excelsior, Marshfield to Sheboygan, Wis.

15. Petitioner complains that the respondent's rate of 10.5 cts. per cwt. on excelsior from Marshfield to Sheboygan, Wis., is excessive. The rate complained of is a part of a system of group rates on this commodity covering a large part of the respondent's line in this state and the nearer stations in adjacent states. As compared with other points having the 10.5 ct. rate the points in question are not unfavorably affected. The distances included in this group, however, are the same as a group given a 10 ct. group rate, and there seems to be no reason for the higher rate in this case. *Held*: The rate charged is excessive. Respondent is ordered to substitute for its present rate a rate of 10 cts. per cwt., subject to a minimum weight of 20,000 lbs. as now in effect. *Sheboygan Pad Co. v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 641, 650.

Reasonableness of rates in particular cases—Feed and refuse, Milwaukee to Lake, Wis.

16. Complaint was made that the rates on feed and refuse on the C. M. & St. P. Ry. from Milwaukee to Lake, Wis., are excessive. *Held*: The haul from Milwaukee to Lake partakes of the nature of an eight

mile line haul and not a switching operation. A reduction of the rate on feed and refuse does not seem warranted at this time. *Schultz v. C. M. & St. P. R. Co.* 1912, 10 W. R. C. R. 370, 376.

Reasonableness of rates in particular cases—Grain, Wis. points on the C. M. & St. P. line to Janesville, Wis.

17. The petitioner alleged that the switching charges exacted by the C. & N. W. Ry. Co. on shipments of grain received at Janesville, Wis., and consigned to petitioner on the C. M. & St. P. Ry. were unusual and excessive. The respondent had formerly absorbed switching charges on such shipments but by a supplement to its tariff, effective June 30, 1911, the respondent changed its rule by providing for absorption only upon shipments moving from competitive points. The distinction between competitive and non-competitive points of origin was abolished by the next supplement to the same tariff, effective Oct. 20, 1911, and since that time no switching charges have been assessed against the petitioner. *Held:* The absorption of switching charges on cars earning a given revenue is a common and reasonable practice. The rule previously in effect and subsequently reestablished seems entirely reasonable and the collection of a switching charge during the period under consideration was unusual and excessive. *Blodgett Milling Co. v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 377, 379.

Reasonableness of rates in particular cases—Grain, Wis. points on the Marathon Co. Ry. and the C. & N. W. line.

See ante, 13.

Reasonableness of rates in particular cases—Gravel and sand, Janesville, Wis.

18. Complaint was made by the shippers of sand and gravel at Janesville, Wis., that the collection of switching charges on these commodities for the haul from the companies' sidetracks to the main line of the C. & N. W. resulted in unreasonable and excessive charges. *Held:* The absorption of the switching charge in the present case would seem to be so reasonable a practice that its continuance should be required where the car yields enough revenue to the railway company to make such absorption good business policy. Respondent is ordered to cease and desist from collecting switching charges on cars of sand and gravel switched from the sidetracks of the petitioners to the respondent's line for shipment over that line, where the revenue accruing to the respondent from the haul of such cars equals or exceeds \$15 per car. *So. Wis. Sand & Gravel Co. et al. v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 436, 441.

Reasonableness of rates in particular cases—Hay, Wis. points on the Marathon Co. Ry. and the C. & N. W. line.

See ante, 13

Reasonableness of rates in particular cases—Live stock, Wis. points on the Marathon Co. Ry. and the C. & N. W. line.

See ante, 13

Reasonableness of rates in particular cases—Logs, Campia to Rice Lake, Wis.

19. Petitioner alleged that excessive and unjust charges were exacted on shipments of logs from Campia, Mikana and Spur No. 129 to Rice Lake, Wis. It appears that the charges paid by the petitioner were based on rates which had been greatly increased after part of the ship-

ments moved. Subsequent to the shipments the rates were lowered and left somewhat higher than the rates under which the earlier shipments moved. As the rates now in force involve rates for similar distances between all points on respondent's line, no reduction is made at the present time. *Held*: The charge exacted on the shipments from Campia subsequent to the increase in rates was exorbitant and a reasonable charge would have been based on the rates previously in effect. The part of the complaint relating to overcharge on basis of weight is dismissed. *Hammond-Chandler Lbr. Co. v. M. St. P. & S. S. M. R. Co.* 1912, 10 W. R. C. R. 564, 571.

Reasonableness of rates in particular cases—Logs, Wis. points on the Marathon Co. Ry. and the C. & N. W. line.

See ante, 13.

Reasonableness of rates in particular cases—Lumber, Wis. points on the Marathon Co. Ry. and the C. & N. W. line.

See ante, 13.

Reasonableness of rates in particular cases—Piling, Long Lake to Green Bay, Wis.

20. Petitioner alleges overcharges on two shipments of piling from Long Lake to Green Bay, Wis. The piling was so long as to necessitate loading it on two cars in each case. Petitioner contends that the weight should have been arrived at by an estimate based upon 35 lbs. per lineal foot of piling, deducting 500 lbs. for stakes and wires. This method of estimating weight is to be used only when it is impossible to obtain the actual weight of the piling. The shipments in question were weighed on track scales, and a deduction of 500 lbs. was made for stakes and wires. *Held*: The rule for estimating weight does not apply in this case. The petition is dismissed. *Hale-Myrtrea Co. v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 639, 640.

Reasonableness of rates in particular cases—Poles and posts, Galloway to Clintonville, Wis.

21. Complaint was made that the rate exacted on four shipments of posts and poles from Galloway to Clintonville, Wis., for concentration and reshipment out of Clintonville via respondent's line are excessive. *Held*: The rate exacted is unreasonable and it is ordered that the C. & N. W. Ry. Co. discontinue its present charge upon shipments of posts and poles between the points in question and charge in lieu thereof the rate of 4 cts. per cwt. It is recommended that the respondent revise the concentration rates on posts and poles in line with the rates ordered in the present case to avoid further controversies. *Torrey Cedar Co. v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 461, 467.

Reasonableness of rates in particular cases—Posts, Galloway to Clintonville, Wis.

See ante, 21.

Reasonableness of rates in particular cases—Potatoes, Wis. points on the Marathon Co. Ry. and the C. & N. W. line.

See ante, 13.

Reasonableness of rates in particular cases—Sand, Janesville, Wis.

See ante, 18.

Reasonableness of rates in particular cases—Wood, Wis. points on the Marathon Co. Ry. and the C. & N. W. line.

See ante, 13.

Switching charges.

Switching charge on grain, Wis. points on the C. M. & St. P. line to Janesville, *see ante, 17.*

Switching charges on gravel and sand, Janesville, Wis., *see ante, 18.*

Through rates.

See ante, Joint or through rates, 11.

RATES—STREET RAILWAY.

In general—Power of state to regulate rates.

22. Ch. 362 of the Laws of 1905, known as the Railroad Commission Law, provides that the charge made for any service rendered or to be rendered in the transportation of persons or property or for any service in connection therewith, shall be reasonable and just, and prohibits and declares unlawful every unjust and unreasonable charge for such service. The Railroad Commission is empowered to carry out the provisions of this law by holding hearings, conducting investigations, and determining and establishing reasonable charges. *City of Milwaukee v. T. M. E. R. & L. Co. 1912, 10 W. R. C. R. 1, 11.*

23. Under the provisions of ch. 362, Laws of 1905, and acts amendatory thereto, the Railroad Commission has been created to determine the reasonableness of rates of traction utilities and where present rates are unreasonable to fix and determine the lawful rate. *Cusick et al. v. T. M. E. R. & L. Co. et al. 1912, 10 W. R. C. R. 314, 335.*

Fare limits—Extension of single fare limits.

24. The question of a paying haul and the extension of single fare limits was considered by the Commission. The actual and paying haul per revenue passenger and per car were investigated. A division was made between movement and terminal costs, or the costs affected by the length of haul per passenger and the costs for each passenger irrespective of his haul. It was found that an average increased haul is possible for a single fare under the reduced ticket rate prescribed by the Commission. The adjustment of the different hauls was considered in relation to the entire system. In a measure the entire city traction system is a single unit and it cannot be said that each line must be self-sustaining. Where new extensions are made or new lines built these cannot be expected to pay as well during the first years as the older and more traveled routes, and where single deficits occur, other lines must show compensating surpluses. It is desirable to know, however, in any careful study of traffic conditions, the comparative distance it is profitable to haul a car or carry a passenger. Frequently routes are too long and extend into territory which cannot reasonably be expected to grow and become self-sustaining. The elimination of surplus transportation facilities where such facilities are not needed is of as great an interest to the public as it is to the company's management. *City of Milwaukee v. T. M. E. R. & L. Co. 1912, 10 W. R. C. R. 1, 285, 292-293.*

25. Petitioner complains of excessive and discriminatory rates of fare charged by the T. M. E. R. & L. Co. between the cities of Milwaukee and West Allis, and prays that the single fare limits be extended to the western limits of West Allis. It is alleged that the traffic between the cities is a continuous metropolitan traffic and that West Allis is geographically no further distant from the center of traffic in Milwaukee

than certain other points to which the traffic is considerably less and which are granted a single fare. Petitioner claims that over twelve thousand employes are being hauled to and from the West Allis factories daily, and that such traffic is sufficient to justify a single fare. At present West Allis pays a double cash fare or a 7½ cent commutation rate. These commutation tickets, it is further complained, can be obtained at only two places and at inconvenient hours. A valuation of the property was made and the revenues and expenditures were investigated. An apportionment was made as between the T. M. E. R. & L. Co. and the M. L. H. & T. Co., and a further apportionment as between the different systems involved. *Held*: In the present case the city boundary does not appear to be the practicable zone within which to limit the single fare. In view of all the factors affecting cost of service, geographical location and traffic conditions, an extension of the single fare to 62nd avenue is reasonable and would yield both companies combined a fair return upon their investment. Such a change will necessitate an extension of 1.611 miles upon the Wells-Farwell line and 0.44 miles upon the Fond du Lac-National lines. The respondent companies are ordered to discontinue charging the present rates of fare for transportation to and from any portion within the city of Milwaukee and the intersection of 62nd avenue and Greenfield avenue within the city of West Allis upon the Fond du Lac-National and Wells-Farwell lines, and to substitute in place of such present fares a joint rate of 5 cents cash or ticket fare for one continuous passage. Respondents are further ordered to discontinue their present ticket fare and to sell through their conductors tickets in packages of thirteen for 50 cts., such tickets to entitle the bearer to one continuous passage in the same general direction upon the city lines and to the limits specified. Thirty days is deemed a reasonable time within which to comply with these orders. *Cusick et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 314, 335-336.

26. Petitioner alleges that the rates of fare charged by the T. M. E. R. & L. Co. between the cities of Milwaukee and Wauwatosa are excessive. Complaint is made that the respondent refuses to comply with those provisions of its franchise requiring it to extend its single fare limits to coincide with the extension of the city limits. Petitioner prays that the single fare limits on respondent's Wauwatosa-Wells and Wauwatosa-Walnut lines be extended from Thirty-fifth street to Spring avenue, the present city limits of Milwaukee. Petitioner further alleges inadequacy of service. In *Gillett v. T. M. E. R. & L. Co. et al.* 1907, 1 W. R. C. R. 689, the Commission disposed of the matter of adequacy and discrimination of rates, but postponed action as to reasonableness of rates until a future date. A valuation of the property was made and the revenues and expenditures were investigated. An apportionment was made as between the T. M. E. R. & L. Co. and the M. L. H. & T. Co., and a further apportionment as between the different systems involved. *Held*: When the city business is considered, some extension of the single fare limits can be made and the company still be able to earn a reasonable return upon the investment. It is obvious, however, that the suburban business of itself is not upon a paying basis, but that an extension must be largely determined on the basis of the paying haul of urban business, and that any reasonable extension cannot comprise the most populated portion of Wauwatosa. Respondents are ordered to discontinue charging the present rates of fare for transportation to and from any point within the city of Milwaukee and the intersection of Spring and Pabst avenues on the Walnut-National line, and the intersection of Wells and Fifty-ninth streets on the Wells-Farwell line in Wauwatosa, and substitute in place of such present fares a joint rate of 5 cts. cash or ticket fare for one continuous journey. Respondents are further ordered to discontinue the present ticket rate and to sell through their conductors thirteen tickets for 50 cts., such a ticket

to entitle the bearer to one continuous passage in the same general direction upon the city lines and to the limits specified. Thirty days is deemed a reasonable time within which to comply with this order. *Koenig et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 337, 351.

Fare limits—Extension of single fare limits—Reasonableness of extension.

27. The village of East Milwaukee complains of excessive rates of fare and asks that the T. M. E. R. & L. Co. be required to extend its single fare limits on the Wells-Farwell line from Edgewood avenue to Mineral Spring road, the present second fare limit; for this haul, of approximately 0.44 miles, respondent at present collects one fare. A valuation of the property was made. The revenues and expenditures of respondents were investigated and apportioned as between the T. M. E. R. & L. Co. and the M. L. H. & T. Co. A further apportionment was made between the Wells-Farwell system and the North College avenue suburban service. It appears that the company has sustained an actual loss varying from 7.82 to 11.87 per cent upon that portion of its business transacted between the first and second fare limits. The entire Wells-Farwell avenue business, on the other hand, shows a percentage return upon tangible property considerably in advance of that of the entire traction business. An extension of the single fare limits from first to second fare points in the village of East Milwaukee will aggregate an increase of road mileage of about 0.44 miles. *Held:* The reasonableness of the proposed extension of single fare limits must be considered in relation to the traffic and cost of traffic of the entire system of which the suburban unit is a part. The fact that under the company's present traffic conditions the suburban line, or that portion extending from the first to the second fare points, is not upon a paying basis is no indication that the traffic contributed by the East Milwaukee patrons is not a profitable addition to the entire Wells-Farwell system. One of the elements properly considered in determining the limit of an extension of the single fare point is the paying haul per passenger and per car. A comparison of actual and paying haul per revenue passenger and per car indicates that some extension is possible in the paying haul per revenue passenger upon the Wells-Farwell line. It appears that an extension of the single fare limit from Edgewood avenue to the present terminus, Mineral Spring road, in the village of East Milwaukee is not an unreasonable requirement. Respondents are ordered to discontinue charging the present rates of fare for transportation to and from any points within the city of Milwaukee and the intersection of Mineral Spring road and Downer avenue within the village of East Milwaukee upon the Wells-Farwell line, and to substitute a joint rate of 5 cts. cash, or ticket fare, for one continuous passage. Respondents are further ordered to discontinue the present ticket rate and to sell through their conductors tickets in packages of thirteen for 50 cts., such tickets to entitle the bearer to one continuous passage in the same general direction upon the city lines and to the limits specified. Thirty days is deemed a reasonable time within which to comply with these orders. *Village of East Milwaukee v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 358, 369.

Fares—Transfer privileges on payment of single fare.

28. Petitioner complains that it is the practice of the T. M. E. R. & L. Co. in the city of Milwaukee to give one transfer upon the payment of one fare. It is requested that the company be required to issue a double transfer with such limitations as will prevent back-transferring and other abuses. Under the order of the Commission in *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 8 W. R. C. R. 535, there is at present effective a system of double transfers over the 16th street viaduct, one of

the respondent company's cross-town lines. *Held*: Under present circumstances it does not appear necessary to extend the use of the double transfer. *In re Double Transfers in the City of Milwaukee*, 1912, 10 W. R. C. R. 352, 357.

Reasonableness of rates—Matters considered in determining reasonableness.

29. In the present case the contention was made that, in determining reasonable rates, the value of the service to the users should be considered aside from the determination of what is a reasonable return upon the investment. It was further urged that the 5 ct. fare is the customary fare and that the present commutation rate of six tickets for 25 cts. and twenty-five tickets for \$1 is unusually low. Definite conclusions as to what constitutes the customary charge or the value of the service, when based upon generalized data of the character presented in the present case, are always difficult. Comparisons are likely to be misleading unless they are accompanied by a careful consideration of conditions and facts in each particular case. Service and fares in the traction business are dependent upon the size of the community, the area served, the track mileage, the density of traffic, and other factors. Sufficient variation is shown to justify the conclusion that operating conditions in Milwaukee are sufficiently dissimilar to require a more detailed examination into the reasonableness of the rate of fare than could be afforded by a mere comparison of what is the customary or usual charge. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 24-25.

Reasonableness of rates—Matters considered in determining reasonableness—Cost of service.

30. In the matter of reasonableness of rates, the Commission has always held that public utilities, for adequate service and under normal conditions, are ordinarily entitled to rates that will cover reasonable amounts for operating expenses, including depreciation, and interest and profit on a fair valuation of the property used and useful in serving the public. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 85.

Reasonableness of rates—Matters considered in determining reasonableness—Investment.

31. The value of the property used and useful for street railway purposes in Milwaukee upon which the company is entitled to a fair return, is the most important single factor affecting the determination of whether the company's present rate of fare is unreasonable and excessive. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 63.

Reasonableness of rates in particular cases.

32. Complaint was made by the city of Milwaukee that the rates of fare charged by the T. M. E. R. & L. Co. are unreasonable. It was alleged in substance that the charge of 5 cts. for a single cash fare, six tickets for 25 cts. or twenty-five tickets for \$1, with the privilege of one transfer within the city limits, is unreasonable. The petitioner prayed that a 3 ct. fare be established. The ownership of the properties of the T. M. E. R. & L. Co. and the M. L. H. & T. Co. is practically identical. Both the city and interurban systems are operated by the same management, and both companies are credited with earnings and charged with expenses arising from urban, suburban, and interurban business. A valuation of the property was made and the revenues and expenditures were investigated. An apportionment of the entire properties

was made among the electric lighting, power, heating, and railway businesses. An apportionment for the railway was made as between the T. M. E. R. & L. Co. and the M. L. H. & T. Co., and a further apportionment as between the different classes of service and the different systems involved. *Held*: In the present case, the surplus available for return upon investment shows that a reduction in rates is possible. In determining this reduction the Commission considered the additional expenses contingent upon the claims of employes for standard wages, the claims of the city for fulfillment of franchise and other regulative restrictions, claims of suburban patrons for extension of service and the constantly recurring need for service betterment. The rates of fare should be readjusted and the extensions of the single fare limits as provided in the orders relating to West Allis, Wauwatosa, and to East Milwaukee should be made. The Milwaukee El. Ry. & Lt. Co. is ordered to discontinue the present ticket rate of twenty-five for \$1 and to sell through its conductors tickets in packages of thirteen for 50 cts., and each ticket is to entitle the bearer to one continuous passage in the same general direction, with privilege of usual transfers between the single fare points upon the city lines of the respondent. Thirty days is deemed sufficient time to comply with the above order. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 247, 304-305.

Zone system rates.

33. Concerning the question of zone system rates in the present case the conclusion has been reached that, for a city and its suburbs which does not cover a greater area than Milwaukee and in which the population and industries are distributed as in this city, the best system of rates, for the present at least, is probably a system under which there is but one fare zone for an area varying from about four to five miles from the business center of the city, and under which only one fare, based on the average cost, is charged within this zone. On the whole such a system would seem to meet the present needs of the city somewhat more fully than is likely to be the case for a system made up of a single restricted $3\frac{1}{2}$ mile central zone and outlying one mile zones. It is questionable also whether it is desirable or necessary to place the single fare points in a symmetrical manner around the center of the town. The analysis of cost by lines indicates, for example, that the traffic conditions are such as to permit extensions to the north and west and still maintain a paying haul, which are somewhat beyond extensions which would pay toward the south and southwest. It appears to be more equitable to apply the rule of cost to single areas and lines, with such limitations and qualifications as local circumstances and the need for interrelation of service dictate, rather than to endeavor to merge and equalize the claims of all communities situated a stated distance from the center of the city. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 302-303.

RATES—TELEPHONE.

Regulations as to payment of rates for services rendered by public utility, *see* RULES AND REGULATIONS, 1-2.

Reasonableness of rates in particular cases.

34. Petitioners pray for a higher class of telephone service at Altoona, Wis. Most of the subscribers are, at present, on rural lines with about ten parties on a line, and service is furnished through the Eau Claire exchange. It is thought that most of the subscribers will take four-party service if provided by the company. On account of the additional investment required a schedule of rates is recommended in which four-party service is offered at \$18 per year. *Held*: Until subscribers indicate their desire for the new service at the higher rate it

should not be ordered. It is ordered that the Wis. Tel. Co. be and the same hereby is required to install the new class of service when a majority of the subscribers of Altoona express their willingness to use such service, the rates for such service to be established as provided by the Commission. *King et al. v. Wis. Tel. Co.* 1912, 10 W. R. C. R. 517, 523.

35. Application was made by the Platteville, Rewey & Ellenboro Tel. Co. for a modification of the Commission's former order (7 W. R. C. R. 608), so that the new rates, which were to be put in effect only upon completion of a metallic system over the entire plant, may be made effective as to any subscriber as soon as that subscriber's service is made metallic. *Held*: It does not seem to be unreasonable to charge a higher rate for metallic than for grounded service, even though part of the business consists of messages passing over both grounded and metallic lines. The Commission's former order is amended so as to permit the utility to place in effect the rates authorized in that decision for city patrons at such times as all city lines have been made metallic, provided that the increase in rates is not to take effect until the applicant has brought its accounting practice into conformity with the rules of the Commission. *In re Appl. Platteville, Rewey & Ellenboro Tel. Co.* 1912, 10 W. R. C. R. 534, 542.

Toll rates.

36. Upon establishment of physical connection between the Clinton Tel. Co. and the Bergen Tel. Co. at Clinton and Bergen, Rock county, Wis. the Commission established a toll rate of 2 cts. per completed call from one system to the other. The company on whose line the call originates is to collect the revenue from such toll charge and the toll revenue is to be divided equally between the two utilities. *In re Physical Connection between Clinton & Bergen Tel. Cos.* 1912, 10 W. R. C. R. 598, 602.

RATES—WATER.

See also MINIMUM CHARGES.

Discrimination in water rates, *see* DISCRIMINATION, 2.

Fire protection rates.

See post, 45.

Making rates—Elements considered—Cost of service.

37. In order that water rates may be just for all classes of consumers and for all classes of service, each class should pay that portion of the total expenses for which it is responsible. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 767-768.

Making rates—Elements considered—Cost of service—Output, capacity and consumer costs.

38. The principal elements entering into consumer costs in the present case are interest, depreciation, and taxes on the investments in services and meters, maintenance of meters, maintenance of services, collection expenses, and a certain proportion of general expenses. *In re Appl. People's W. Lt. & P. Co.* 1912, 10 W. R. C. R. 651, 656.

39. If water rates are made in the form of a service charge and a charge for each unit of water used, independent of the service charge, the service charge should be sufficient to cover the consumer expenses and part of the capacity expenses. *Civic League et al. v. Beaver Dam W. Co.* 1912, 10 W. R. C. R. 661, 686.

40. Interest, taxes and depreciation are a part of the cost of production, and unless they are included, it is impossible to tell what the cost

of furnishing the water is or whether there is a loss or profit in conducting the business. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 779.

41. Where all the expenses of operation and fixed charges are not borne by the revenues of the plant but are helped out by taxation, as is frequently the case with municipally owned plants, it is not equitable to the property owners that one should be required to help maintain the plant so that another enjoys the use of the commodities. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 780.

Minimum rates.

Establishment of, *see post*, 44.

42. In determining the minimum charge in the present case, a schedule of consumer costs per metered consumer was prepared. The principal elements entering into consumer costs are interest, depreciation, and taxes on the investments in services and meters, maintenance of meters, maintenance of services, collection expenses, and a certain proportion of general expenses. *In re Appl. People's W. Lt. & P. Co.* 1912, 10 W. R. C. R. 651, 656.

Reasonableness of rates in particular cases.

43. Complaint was made that the city of Manitowoc, a public utility furnishing water service in Manitowoc, Wis., charges unjust and unreasonable rates. *Held:* The matter of rates is continued until the extent of new investment is known and the earnings and expenses of the plant under municipal ownership are determined. *Alter et al. v. City of Manitowoc*, 1912, 10 W. R. C. R. 387, 397-398.

44. Application was made by the People's W. Lt. & P. Co. of Mellen, Wis., for authority to discontinue the present flat rate of \$1.00 per month and the present minimum monthly water charge of 50 cts. and to substitute therefore a flat rate of 75 cents and the minimum meter rate of 75 cents per month. It appears to be the intention of the company to put in meters as rapidly as practicable. Since the flat rate consumers will practically disappear by the end of another year, the estimated drop in revenue by lowering the flat rate will be offset by the substitution of meter rates. *Held:* It appears that a minimum meter charge of 75 cts. per month and a minimum flat rate of 75 cts. are both reasonable and just and the change is hereby authorized. *In re Appl. People's W. Lt. & P. Co.* 1912, 10 W. R. C. R. 651, 659-660.

45. Complaint was made that the Beaver Dam W. Co., Beaver Dam, Wis., refuses to give meter rates, and charges rates that are excessive and discriminatory. In determining the reasonableness of the rates the value of the physical property and the expenses of the utility were apportioned as between fire and general service. *Held:* Improvements ordered in the service necessitate a readjustment in the rates and the respondent is ordered to put in effect the schedule approved by the Commission. The higher rate for fire protection is to take effect when improvements affecting the fire service are made. Present rates for sprinkling and construction purposes are reasonable. Meter rates are to take effect immediately upon the installation of meters and all bills are to be rendered quarterly. The discriminations which have been practiced are ordered discontinued and the schedule of rates as finally fixed by this decision are to be strictly adhered to. The rates and regulations as ordered are tentative, and revisions of the order may be made as experience shows necessary. *Civic League et al. v. Beaver Dam W. Co.* 1912, 10 W. R. C. R. 661, 689-691.

46. Complaint was made that the water rates charged by the respondent in Superior, Wis., are unreasonable and that the rates charged the city are unjustly discriminatory as against private consumers. A valuation of the property was made and the revenues and expenditures

were investigated. Apportionments were made as among the different plants and among the different departments of the service. *Held*: The water department was found to be operating at a loss upon a rate of 7 per cent for interest and profits and 0.8 per cent for depreciation upon the present value, plus the intangible elements allowed, and the cost new of the physical property, respectively. No material reduction of rates can therefore be considered, but a form of schedule can be found which will abolish the regressive features of the old rate schedule. In the analysis of the water rates it was found that the city was not paying its fair share of the total cost of the service incurred by reason of the fire service and the public use of water, and that the difference between what the city should pay, as shown by the costs, and what it will pay under the contract, must be made up by private consumers. The interests of all parties would be served if the city and the utility would agree upon a revision of water rates along the lines outlined by the Commission, but for the present no change in water rates will be ordered. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 772, 803, 805.

REAL PROPERTY.

As element in the valuation of the physical property of public utilities, *see* VALUATION, 20.

REASONABLE RETURN.

See RETURN.

REASONABLENESS OF RATES.

See RATES.

RECONNECTION CHARGES.

Regulation for reconnection of telephone service, *see* RULES AND REGULATIONS, 2.

RECOVERY.

See REPARATION.

REFUNDS.

Refund from charges collected, *see* REPARATION, 4-7.

REFUSE.

See FEED AND REFUSE.

REGRESSIVE RATES.

Regressive rates for water utility, *see* RATES, 46.

REGULATIONS.

See RULES AND REGULATIONS.

RELATION OF RATES.

See RATES.

As matter considered in determining reasonableness of railway rates, *see* RATES, 14-15.

REORGANIZATION EXPENSES.

As element in the valuation of public utilities, *see* VALUATION, 25.

REPARATION.

JURISDICTION OF COMMISSION.

Authority of Commission in awarding reparation—Power to make a specific finding of the amount of refund authorized.

1. The Wisconsin statute on the subject of refunds, so far as it bears upon the nature of the Commission's findings and order, is as follows: "If upon such hearing the commission shall decide that the rate or charge exacted is erroneous, illegal, unusual, or exorbitant, it shall find, what in its judgment, would have been a reasonable rate or charge for the service complained of. If the rate or charge so found shall be less than the charge exacted, the carrier shall have the right to refund to the person paying such charge, the amount so found to be excessive. In case of the refusal of the carrier to make such refund, the party aggrieved thereby, may maintain an action in the courts of this state to recover the amount of such excessive charge as found by said commission, and in the trial thereof the findings of the commission shall be prima facie evidence of the truth of the facts found by it. * * *" (Wis. St. 1797—37m) While the thing this statute specifically requires the Commission to find is, "what in its judgment would have been a reasonable rate or charge for the service complained of," the law further empowers the complainant to sue for recovery of "the amount of such excessive charge as found by said commission." In the language last quoted there would seem to be a clear implication that the Commission has authority to make a specific finding of the amount of refund authorized. *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 10 W. R. C. R. 632, 633—634.

2. Petitioner prays that the Commission determine the actual amount of refund to which it is entitled under the order *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 9 W. R. C. R. 127. Respondent questions the authority of the Commission to fix the exact amount of refund, asserting that it has exhausted its power in the premises when it has determined a reasonable rate to be applied on the shipments in question. *Held:* It is clearly implied in the statutes (sec. 1797—37m) that the Commission has authority to make a specific finding of the amount of refund authorized. Both the past practice of this Commission and the implied authorization of the statute favor the granting of the petitioner's request. The specific overcharge is determined and refund is ordered. *Rhineland Paper Co. v. M. St. P. & S. S. M. R. Co. et al.* 1912, 10 W. R. C. R. 632, 634—638.

REFUND.

Refund from charge based on actual weight instead of estimated weight.

3. Petitioner alleges overcharges on two shipments of piling from Long Lake to Green Bay, Wis. The piling was so long as to necessitate loading it on two cars in each case. Petitioner contends that the weight should have been arrived at by an estimate based upon 35 lbs. per lineal foot of piling, deducting 500 lbs. for stakes and wires. This method of estimating weight is to be used only when it is impossible to obtain the actual weight of the piling. The shipments in question were weighed on track scales, and a deduction of 500 lbs. was made for stakes and wires. *Held:* The rule for estimating weight does not apply in this case. The petition is dismissed. *Hale-Mylrea Co. v. C & N. W. R. Co.* 1912, 10 W. R. C. R. 639, 640.

Refund from excess charge based on rates higher than rates prevailing under substantially similar conditions and also higher than the cost of transportation warrants.

4. Complaint was made that the rates on coal on the C. M. & St. P. Ry. from Milwaukee to Lake, Wis., are excessive as compared with the switching rates to stations at similar distances from Milwaukee, and as compared with rates on the C. & N. W. Ry. The special conditions which make very low rates proper for switching traffic are not entirely applicable to this station. However, the rate in question applies to all stations between Milwaukee and Racine, a maximum distance of thirty-two miles, and Lake is the first station out of Milwaukee. So wide a group, beginning within a few miles of the point of shipment, is hardly justifiable in this case, considering the fact that there is an actual movement of traffic to the point nearest the originating station. *Held:* The rate of 45 cts. per ton on coal yields somewhat higher revenues than the railway company is entitled to receive when the length of haul, the value of the commodity, the loading per car, and all the other transportation factors are taken into account. The respondent is ordered to discontinue its present rate and to substitute a rate of 35 cts. per ton. Refund is ordered on this basis. *Schultz v. C. M. & St. P. R. Co.* 1912, 10 W. R. C. R. 370, 376.

Refund from excess charge ordered on basis of a lower rate previously in effect.

5. Petitioner alleged that excessive and unjust charges were exacted on shipments of logs from Campia, Mikana and Spur No. 129 to Rice Lake, Wis. It appears that the charges paid by the petitioner were based on rates which had been greatly increased after part of the shipments moved. Subsequent to the shipments the rates were lowered and left somewhat higher than the rates under which the earlier shipments moved. As the rates now in force involve rates for similar distances between all points on respondent's line, no reduction is made at the present time. *Held:* The charge exacted on the shipments from Campia subsequent to the increase in rates was exorbitant and a reasonable charge would have been based on the rates previously in effect. Refund is ordered on this basis. The part of the complaint relating to overcharge on basis of weight is dismissed. *Hammond-Chandler Lbr. Co. v. M. St. P. & S. S. M. R. Co.* 1912, 10 W. R. C. R. 564, 571.

Refund from excess charge ordered on basis of revised concentration rates.

6. Complaint was made that the rate exacted on four shipments of posts and poles from Galloway to Clintonville, Wis., for concentration and reshipment out of Clintonville via respondent's line are excessive. *Held:* The rate exacted is unreasonable and it is ordered that the C. & N. W. Ry. Co. discontinue its present charge upon shipments of posts and poles between the points in question and charge in lieu thereof the rate of 4 cts. per cwt. It is recommended that the respondent revise the concentration rates on posts and poles in line with the rates ordered in the present case to avoid further controversies. Refund is ordered. *Torrey Cedar Co. v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 461, 467.

Refund ordered on basis of rule providing for absorption of switching charges as previously in effect and subsequently made effective.

7. The petitioner alleged that the switching charges exacted by the C. & N. W. Ry. Co. on shipments of grain received at Janesville, Wis., and consigned to petitioner on the C. M. & St. P. Ry. were unusual and

excessive. The respondent had formerly absorbed switching charges on such shipments but by a supplement to its tariff, effective June 30, 1911, the respondent changed its rule by providing for absorption only upon shipments moving from competitive points. The distinction between competitive and non-competitive points of origin was abolished by the next supplement to the same tariff, effective Oct. 20, 1911, and since that time no switching charges have been assessed against the petitioner. *Held*: The absorption of switching charges on cars earning a given revenue is a common and reasonable practice. The rule previously in effect and subsequently reestablished seems entirely reasonable and the collection of a switching charge during the period under consideration was unusual and excessive. Refund is ordered. *Blodgett Milling Co. v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 377, 379.

Refund ordered on specific shipment.

Refund on shipment of coal, *see ante*, 4.

of grain, *see ante*, 7.

of logs, *see ante*, 5.

of poles, *see ante*, 6.

of posts, *see ante*, 6.

Refund, petition for, dismissed.

Petition for refund on shipment of logs dismissed, *see ante*, 5.

of piling dismissed, *see ante*, 3.

RETURN.

Basis of reasonable return, value of property, *see* VALUATION, 1-32.

What constitutes a reasonable return for public utilities—Return for interest.

1. The interest proper should include only the amount that is paid for the use of the capital employed. (*Hill et al. v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 764.) *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 240.

2. Interest is dependent upon the location and nature of the undertaking, the security, the degree of convertibility, the amount of risk, skill and supervision necessary to place the loan, and other factors. In the public utility business it is dependent also upon the competition for available investment resources by other types of industry. Necessarily the interest rate is less in a well established, well managed undertaking than when the business is new and just being placed upon a paying basis. (*Hill et al. v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 762.) (*In re Menominee & Marinette Lt. and Tr. Co.* 1909, 3 W. R. C. R. 778, 793.) (*State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 629.) (*In re Fond du Lac W. Co.* 1910, 5 W. R. C. R. 482, 506.) *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 240-241.

3. The rate of interest at which capital can be had is influenced by the supply and demand for loanable funds; by the risks involved; by the care and work required in placing the loans and in looking after them; by whether the loans are readily transferred or converted into cash; and by other local and general conditions. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 758.

What constitutes a reasonable return for public utilities—Return for interest and profits.

4. The determination of what is a proper rate of return upon the reasonable value of the property is dependent largely upon local conditions which surround the plant and may be expected to vary with each particular case. (*Payne v. Wis. Tel. Co. et al.* 1909, 4 W. R. C. R. 1, 63.)

(*In re Appl. North Milwaukee Lt. & P. Co.* 1909, 4 W. R. C. R. 89, 97.)
 (*State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501,
 626.) *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1,
 240.

5. The courts hold, in substance, that the investor is entitled to a reasonable return or reward for his enterprise, his risk and the devotion of his capital to the service of the public. The return or profit under this definition appears to include interest, or the share of the investor, as well as profits, or the share of the entrepreneur. (*Hill et al. v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 751.) *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 240.

6. In the long run interest and profits must be high enough to attract capital and business ability into such utility enterprises, and it is the duty of the Commission, in passing upon matters in which interest and profits are involved, to determine in each particular case how much is to be allowed for each of these elements. (*Hill et al. v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 764.) *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 240.

7. Interest and profits are necessary in all lines of industry and callings in order to secure the capital and the abilities that are required. Necessary charges of this nature are therefore in a sense as much a part of the cost of production of the products turned out and of the services rendered as any part of the operating expenses. The minimum rates of interest and profits that must be allowed in cases of this kind are those under which the necessary capital and business capacity can be had. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 758.

8. The supply of capital and business capacity seems to vary more with general than with local conditions, although it is affected by both. Risks and many other conditions by which rates are affected seem to be more particularly dependent on local conditions. As public utilities are monopolistic in their nature, they are, to some extent at least, relieved from active competition. This is especially true where they are operating under indeterminate or more exclusive franchises. Active competition is one of the more important elements of risks. To the extent to which public utilities are relieved from such competition they are also relieved from one element which makes for higher charges for interest and profits. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 758-759.

What constitutes a reasonable return for public utilities—Return for profits.

9. The profits consist of the wages of management, broadly interpreted, of compensation for the risks and responsibilities that must be borne by the employers, and of such other compensation, if any, as may be demanded by the conditions. (*Hill et al. v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 764.) *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 240.

10. Profit is usually defined as consisting of indemnity for risks assumed by the promotor and reward for the skill of personal management. It is obviously a large part of the cost of production in an undertaking of a new or untried character, or where there is necessity for high skill in purchasing and management of men, or where the industry must be constantly shaped to meet future conditions. Generally speaking, these factors will vary with the extent of the turn-over of the business and may be expected to be greater under competitive rather than under monopoly conditions. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 241.

11. The rate of profits depends upon the supply of business capacity and initiative, the risks involved, the nature of the undertakings, and

many other conditions. These rates, therefore, vary as between the different industries and the different classes of service. They even vary as between the various public utilities in the same place, as well as often also between like utilities in different localities. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 758.

What constitutes a reasonable return for public utilities—Return for profits—Wages of management.

12. In determining the return to the management some allowance should be made in some manner for special efficiency. To deny this is to take away one of the greatest incentives to economy. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 242.

RISK.

As element in rate of interest, see RETURN, 2-3, 5, 8.
of profits, see RETURN, 5, 8-11.

ROLLING STOCK.

Apportionment of maintenance of rolling stock expenses in the determination of unit costs for street railways, see ACCOUNTING, 18.

RULES AND REGULATIONS.

Requirements as to payment of rates for service rendered by public utility—Regulations for discounts or penalties.

1. Some form of penalty for failure to pay bills promptly undoubtedly constitutes a reasonable regulation for a telephone utility, but it has been the opinion of the Commission that where application was made for authority to put into effect such a penalty that somewhat less than 25 cts. per month would be sufficient. The penalty must protect the company without being an unreasonable burden upon such users as may find themselves temporarily unable to meet their bills promptly. Ordinarily a penalty of 15 cts. per month for failure to pay promptly has been found sufficient, and we believe it will prove so in this case. *In re Appl. Platteville, Rewey & Ellenboro Tel. Co.* 1912, 10 W. R. C. R. 534, 539.

Requirements as to payment of rates for service rendered by public utility—Regulations for withdrawal of service.

2. Where a patron allows his bills to run until it becomes necessary to disconnect him from the lines of the utility, it is only reasonable that he and not the utility should bear the expense of reconnection in case he again desired to have service. The proposed regulations for discontinuing service in case payment is not made within one month of the time when it is due and to exact a charge of \$1.50 in addition to rentals due for reconnection of such subscribers does not seem to be unreasonable in the present case. *In re Appl. Platteville, Rewey & Ellenboro Tel. Co.* 1912, 10 W. R. C. R. 534, 539.

Requirements as to service—Withdrawal of telephone service.

3. The rule of a telephone company, which forbids listening on the line when others are talking and provides that subscribers violating this rule will, upon proof being made, have their telephones removed by the company is a reasonable regulation. (*Huffman v. Marcy Mut. Tel. Co.*, 1909, 143 Ia. 590; 121 N. W. 1033.) *In re Invest. Pulaski Merchants' & Farmers' Tel. Co.* 1912, 10 W. R. C. R. 558, 561.

SAFETY APPLIANCES.

Automatic crossing alarm for protection of railroad crossing, *see* RAILROADS, 2-12.

SAND.

See GRAVEL AND SAND.

SCHEDULES.

See TRAIN SCHEDULES; SCHEDULES FOR UTILITIES.

SCHEDULES FOR UTILITIES.

DEPARTURE FROM PUBLISHED SCHEDULES PROHIBITED.

In general.

1. Public utility rates must be fixed and certain and cannot be in the form of a stock assessment, which may vary from year to year. *In re Appl. Platteville, Rewey & Ellenboro Tel. Co.* 1912, 10 W. R. C. R. 534, 540.

2. Any departure from the published schedule constitutes a discrimination within the meaning of the Public Utilities Law and cannot be permitted. *In re Appl. Platteville, Rewey & Ellenboro Tel. Co.* 1912, 10 W. R. C. R. 534, 540.

SCOPE OF LAW.

See PUBLIC UTILITIES LAW; RAILROAD LAW.

SERVICE AND FACILITIES.

Electric utilities,

standards of service, *see* ELECTRIC UTILITIES, 1.

standards of service, meters, accuracy of, *see* ELECTRIC UTILITIES, 1.

standards of service, voltage, regulation of, *see* ELECTRIC UTILITIES, 1.

Heating utilities,

requirements as to service and facilities, regulating devices, thermostats, *see* HEATING UTILITIES, 2.

Railroads,

requirements as to service and facilities, adequacy of service, *see* RAILROADS, 16.

duty of railroad company to perform service entailing pecuniary loss, *see* RAILROADS, 15.

station facilities, *see* STATION FACILITIES, 1-11.

switch connections, *see* SWITCH CONNECTIONS, 1.

train schedules, *see* TRAIN SCHEDULES, 1-3.

train service, *see* TRAIN SERVICE, 1-9.

Telephone Utilities,

physical connection, establishment of, *see* TELEPHONE UTILITIES, 1.

requirements as to service and facilities, withdrawal of service, *see* TELEPHONE UTILITIES, 2.

Water Utilities,

requirements as to service and facilities, adequacy of service, *see* WATER UTILITIES, 9.

appliances for the measurement of product or service, duty of utility to provide meters, *see* WATER UTILITIES, 10-11.

appliances for measurement of product or service, location of meters, *see* WATER UTILITIES, 12.

extension of mains, *see* WATER UTILITIES, 1.

services, duty of utility to provide services, *see* WATER UTILITIES, 13.

standards of service, pressure, *see* WATER UTILITIES, 14.

SERVICE CHARGE.

See MINIMUM CHARGES.

SERVICE CONNECTIONS.

As element in the valuation of public utilities, *see* VALUATION, 21-22.

SERVICES.

Depreciation on services as element included in consumer costs for water utilities, *see* MINIMUM CHARGES, 4; RATES, 38, 42.

Duty of utility to provide services, *see* WATER UTILITIES.

Interest on services as element included in consumer costs for water utilities, *see* MINIMUM CHARGES, 4; RATES, 38, 42.

Maintenance of services as element included in consumer costs for gas utilities, *see* MINIMUM CHARGES, 2; RATES, 6.

for water utilities, *see* MINIMUM CHARGES, 4; RATES, 38, 42.

Taxes on investment in services as element included in consumer costs for water utilities, *see* MINIMUM CHARGES, 4; RATES, 38, 42.

SHIPPING FACILITIES.

See STATION FACILITIES; SWITCH CONNECTIONS.

SHORT HAUL.

Length of haul as matter considered in determining reasonableness of railway rates, *see* RATES, 12, 14.

SIDETRACK FACILITIES.

See SWITCH CONNECTIONS.

SINGLE FARE LIMITS.

For street railways, *see* RATES, 24-27.

STANDARDS OF SERVICE.

Electric utilities, accuracy of meters, *see* ELECTRIC UTILITIES, 1.
uniformity of voltage, *see* ELECTRIC UTILITIES, 1.

Water utilities, standards for pressure, *see* WATER UTILITIES, 14.

STATION FACILITIES.

See also SWITCH CONNECTIONS.

Adequacy of station facilities.

1. Complaint was made that the station facilities at Cobban, Wis., on the C. St. P. M. & O. Ry. are inadequate. At present the respondent maintains only an open platform without shelter for passengers or freight. *Held*: The net income would not seem sufficient to warrant the maintenance of a depot with a regular agent. Respondent is ordered to erect a station building at Cobban which shall provide a sufficient waiting room for passengers and an adequate storeroom for freight, and to place such station in charge of a competent caretaker who will heat and light the waiting room and keep it open for the convenience of the public not less than twenty minutes prior to the scheduled time of arrival of each train carrying passengers. Sixty days is considered a reasonable period within which to comply with this order. *Anderson et al. v. C. St. P. M. & O. R. Co.* 1912, 10 W. R. C. R. 383, 386.

2. Complaint was made that the station and sidetrack facilities at Milan, Wis., on the Athens branch of the M. St. P. & S. S. M. Ry. line are

inadequate. Respondent is willing to lengthen the spur track sufficiently to provide for all shippers. *Held*: The revenue from this station does not warrant the construction of a new building at present. The respondent is ordered to make repairs and to place the station in charge of a competent caretaker who will heat and light the building and keep it open for the convenience of the public a reasonable time prior to the schedule time of the arrival of each train. Thirty days is deemed a reasonable time within which to comply with this order. *Milan Store Co. v. M. St. P. & S. S. M. R. Co.* 1912, 10 W. R. C. R. 399, 402-403.

3. Petitioners pray that respondent, the C. M. & St. P. Ry. Co., be required to provide a shelter for passengers at the crossing just north of the village of Afton, Wis. All passenger trains on respondent's branch line between Beloit and Janesville stop at this point and petitioners allege that these trains are more convenient for the people of Afton than those of the C. & N. W. Ry. At the hearing, a request was also introduced for the handling of freight at this point. The C. & N. W. Ry. furnishes a passenger service superior to that of respondent and also maintains adequate station facilities for the freight and passenger business. The station of the C. & N. W. is near the center of the village, while the crossing in question is distant about three-quarters of a mile. *Held*: The small amount of traffic received at Afton does not justify the erection of a suitable shelter for passengers nor the building of a sidetrack for freight. The petition is dismissed. *Antisdel et al. v. C. M. & St. P. R. Co.* 1912, 10 W. R. C. R. 404, 407-408.

4. Petitioner alleges that the station facilities on the M. St. P. & S. S. M. Ry. at Campia, Wis., are inadequate. *Held*: The freight and passenger business at Campia is not sufficiently remunerative to justify an order requiring the maintenance of a regular agent. Respondent is ordered to place its station building in proper condition for the accommodation of passengers and the storing of freight and to place it in charge of a competent caretaker who is to heat and light the building and keep it open for the convenience of the public not less than twenty minutes prior to the schedule time of the arrival of each train. Thirty days is deemed a reasonable time within which to comply with this order. *Larson v. M. St. P. & S. S. M. R. Co.* 1912, 10 W. R. C. R. 430, 432-433.

5. Complaint was made by the city of Menomonie, Wis., that the passenger facilities provided by the C. St. P. M. & O. R. Co. at North Menomonie are inadequate. *Held*: Station facilities are inadequate and the respondent is ordered to erect and maintain a suitable shelter shed. Sixty days is deemed a reasonable time within which to comply with this order. *City of Menomonie v. C. St. P. M. & O. R. Co.* 1912, 10 W. R. C. R. 478, 482.

6. Complaint was made that the station facilities maintained by the C. M. & St. P. Ry. Co. at Stoughton, Wis., are inadequate. *Held*: The passenger traffic requires larger and more modern accommodations than the present structure and the respondent is ordered to provide a reasonably adequate station building. Plans are to be submitted to the Commission for approval. One year is deemed a reasonable time within which the station is to be opened to public traffic. *Rollis v. C. M. & St. P. R. Co.* 1912, 10 W. R. C. R. 486, 489.

7. The petitioners ask that a flag station be installed on the C. & N. W. line between Gillette and Green Valley at its intersection with the county line between Oconto and Shawano counties, Wis. *Held*: Since the revenue resulting from such service may not be sufficient to justify an order for a flag station, the respondent is ordered to stop the designated north and south bound trains on signal for a period of three months and to keep a complete and accurate record of the passenger business. At the expiration of that period such further order will be made as the facts may warrant. *Gilbertson et al. v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 495, 497-498.

8. The petitioner alleges that a storm shed over the platform opposite the depot of the C. M. & St. P. R. Co. at Sparta, Wis., is necessary for the protection of passengers using eastbound trains on the main lines and trains on the Viroqua branch. *Held*: The present facilities are inadequate and the respondent is ordered to erect and maintain a suitable storm shed over the platform in question. Dec. 31, 1912, is a reasonable date at which the shed is to be opened for public use. *McMillan v. C. M. & St. P. R. Co.* 1912, 10 W. R. C. R. 556-557.

9. Petitioner alleges that the station facilities of the G. B. & W. R. Co. at Meehan, Wis., are inadequate. At present no shelter is provided for either passengers or freight. Trains stop at Meehan on signal. *Held*: The traffic is insufficient to warrant the maintenance of a regular station with an agent, but respondent is ordered to provide a suitable structure with a proper and sufficient waiting room for passengers and an adequate storeroom for freight. Thirty days is deemed a sufficient time within which to comply with this order. *Hemmis et al. v. G. B. & W. R. Co.* 1912, 10 W. R. C. R. 626, 628-629.

Adequacy of station facilities—Dependent upon traffic conditions.

10. To require railway companies to construct new stations and install agents at places where the volume of traffic does not warrant such expenditure would place an unjust burden upon the traffic in general. *Milan Store Co. v. M. St. P. & S. S. M. R. Co.* 1912, 10 W. R. C. R. 399, 402.

Adequacy of station facilities—Minimum service requirements.

11. There is a certain minimum service to which every community served by a common carrier is entitled, quite independent of the financial results. *Hemmis et al. v. G. B. & W. R. Co.* 1912, 10 W. R. C. R. 626, 628-629.

STATIONS.

See STATION FACILITIES.

Stopping of trains at stations, see TRAIN SERVICE, 1-2.

STORAGE FACILITIES.

See STATION FACILITIES; SWITCH CONNECTIONS.

STREET RAILWAY RATES.

See RATES.

STREET RAILWAYS.

See also INTERURBAN RAILWAYS.

Depreciation, rate of depreciation of street railway plant, see DEPRECIATION, 6.

ACCOUNTING.

See ACCOUNTING.

CONTROL AND REGULATION IN GENERAL

Street railways subject to regulation.

1. Sec. 1797-2 as amended by ch. 582 of the Laws of 1907, makes electric railways particularly subject to the Railroad Commission Law. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 11-12.

FARES, TICKETS AND SPECIAL CONTRACTS.

Tickets—Commutation tickets—Sale on cars.

See RATES, 25-27, 32.

Transfers—Double transfers.

See RATES, 28.

RATES.

See RATES.

VALUATION.

See VALUATION.

SUBWAYS.

For separation of grades at railroad crossing, *see RAILROADS, 13.*

SUPERINTENDENCE.

Wages of management and superintendence as element in profits, *see RETURN, 9-12.*

SWITCH CONNECTIONS.

RIGHT OF SHIPPER TO SWITCH CONNECTIONS.

Sidetrack—Construction of—Ordered by Commission.

1. Petitioners alleged that sidetrack facilities of the C. M. & St. P. Ry. Co. at Union Grove, Wis., are inadequate for the traffic in cabbage and sugar beets during the harvest season. *Held:* The urgency of the situation demands that additional shipping facilities be provided at the earliest possible moment. The respondent is ordered to furnish additional sidetrack facilities adequate to serve the convenience and necessity of the public. *Savage et al. v. C. M. & St. P. R. Co. 1912, 10 W. R. C. R. 442, 445-446.*

SWITCHING CHARGES.

See TERMINAL CHARGES.

Reasonableness of switching charges, *see RATES, 17-18.*

TAXABLE VALUE.

Taxable value as matter considered in the valuation of public utilities, *see VALUATION, 26.*

TAXATION.

Taxable property, as fund available for just compensation upon municipal acquisition of public utility, *see EMINENT DOMAIN, 3-5.*

TAXES.

Apportionment of taxes in the determination of unit costs for water utilities, *see ACCOUNTING, 38-39.*

As matter considered in making rates for water utilities, *see RATES, 38, 42.*

Discrimination in favor of consumers as against taxpayers in making rates for water utilities, *see DISCRIMINATION, 2.*

TELEPHONE RATES.

See RATES.

TELEPHONE UTILITIES.

Discrimination between telephone subscribers, *see DISCRIMINATION, 3-4.*
between telephone subscribers, different rates to stockholders and nonstockholders, *see DISCRIMINATION, 3.*

Rules and regulations as to payment of rates, regulations for discounts or penalties, *see* RULES AND REGULATIONS, 1.
regulations for withdrawal of service, *see* RULES AND REGULATIONS, 2.

Schedule of rates and charges, *see* SCHEDULES FOR UTILITIES, 1-2.

ACCOUNTING.

See ACCOUNTING.

OPERATION.

Physical connection—Establishment of.

1. Application was made for physical connection between the Clinton Tel. Co. and Bergen Tel. Co. at Clinton and Bergen, Rock county, Wis. These lines were formerly connected and patrons of both companies desire that the free exchange be resumed. The Clinton Tel. Co. has about six times as many subscribers as the other company and the objection was made that with free exchange of service the larger company would be giving much more than it receives in return. The service has a value to the parties called as well as to those calling and it does not appear that the service would be more valuable to one company than to the other. The basis of adjustment between the utilities would be the portion of the cost of service borne by each company. *Held:* The physical connection between the companies is desirable. When operating data are available the matter of toll rate and division of revenue will be readjusted if experience shows revision is necessary. Thirty days is deemed a reasonable time within which to make such connection. *In re Physical Connection between Clinton and Bergen Tel. Cos.* 1912, 10 W. R. C. R. 598, 602.

Requirements as to service and facilities—Withdrawal of service.

2. Upon complaint against the Pulaski Merchants' & Farmers' Tel. Co. the Commission, on its own motion, investigated the matter of reinstallation of telephone service to the complainant in the town of Chase, Oconto county, Wis. Under claim that complainant had violated the rules of the company by interfering with the service of patrons the telephone was removed by action of replevin. The action was defended in the circuit court of Oconto county and it was decided that the company had waived its right of removal of telephone by accepting a month's rent in advance, and the company was ordered to re-install the instrument. The complainant has agreed to comply with all the rules and regulations of the company if his service is restored, but the company has refused and neglected to furnish such telephone service. *Held:* Past misconduct of a subscriber will not justify the refusal of future service to him unless it has been habitual or so frequent and under such circumstances that his assurance of reformation cannot be reasonably relied upon as sincere. Granting the charges made against him to be true, he would, nevertheless, have a valid claim for an opportunity to demonstrate his good intentions in the matter, independent of the adjudication of the court in his favor upon the question of the waiver of the company's right to declare his contract forfeited. The respondent telephone company is ordered to restore to the complainant the telephone connections, station equipment and services of which he was deprived. Ten days is deemed a reasonable time within which to comply with this order. *In re Invest. Pulaski Merchants' & Farmers' Tel. Co.* 1912, 10 W. R. C. R. 558, 562-563.

RATES.

See RATES.

TERMINAL CHARGES.

Reasonableness of charge, absorption of switching charge on grain, Wis. points on the C. M. & St. P. line to Janesville, *see* RATES, 17.
on gravel and sand, Janesville, Wis., *see* RATES, 18.

TERMINAL EXPENSES.

Apportionment of terminal expenses in the determination of unit costs for interurban railways, *see* ACCOUNTING, 8.
As matter considered in making joint railway rates, *see* RATES, 11.

TERMINAL FACILITIES.

See STATION FACILITIES; SWITCH CONNECTIONS.

THERMOSTATS.

For heating utilities, *see* HEATING UTILITIES, 2.

THROUGH LINES.

See CONNECTING CARRIERS.

THROUGH RATES.

Joint or through rates, *see* RATES, 11.

TICKETS.

Street railways, sale of commutation tickets on cars, *see* RATES, 25-27, 32.

TOLL RATES.

Telephone toll rates, *see* RATES, 36.

TOWNS.

See MUNICIPALITIES.

TRACK CONNECTIONS.

See SWITCH CONNECTIONS.

TRAIN SCHEDULES.

See also TRAIN SERVICE.

Adjustment of train schedules between connecting carriers to provide for interchange of traffic, *see* TRAIN SERVICE, 5.

Adjustment of train schedules.

1. In determining a question as to the adjustment of train schedules not only must the numbers of each case be considered, but the extent of the inconvenience which would be caused to some must be weighed against the benefit to be derived by others. *In re Invest. Dodgeville Branch of the I. C. R. Co.* 1912, 10 W. R. C. R. 572, 578.

Maintenance of published schedule.

2. Barring circumstances absolutely beyond its control, a railroad should substantially maintain its published passenger schedule, whether on branch or main line. Some allowance may be made for a mixed train, but where it is the only train affording service in a direction and at a time at which traffic normally moves, as in the present case, the management should take such measures as may be necessary to maintain the established schedule. *In re Invest. Dodgeville Branch of the I. C. R. Co.* 1912, 10 W. R. C. R. 572, 577.

3. To say that a reasonable maintenance of its published schedule by a railroad company is part of adequate service, is axiomatic, and the company will be required to take such measures as it may deem necessary to maintain within reason its passenger schedules on this branch; of course, occasional and unusual circumstances beyond its control are excepted. As stated by the Commission in *Loyal Business Men's Assn. v. W. C. R. Co.* 1907, 1 W. R. C. R. 720, 723, "Patrons have a right to know when they may expect to go and come, barring unusual contingencies. 'Unusual contingencies' are not daily occurrences." *In re Invest. Dodgeville Branch of the I. C. R. Co.* 1912, 10 W. R. C. R. 572, 582.

TRAIN SERVICE.

See also TRAIN SCHEDULES.

Adequacy of train service.

1. Complaint was made by the city of Menomonie, Wis., that the train service provided by the C. St. P. M. & O. R. Co. at North Menomonie is inadequate. Trains on respondent's line stop on signal. *Held:* The amount of traffic does not seem to warrant the regular stopping of trains. The respondent is ordered to stop its trains on signal and to provide suitable apparatus for signaling trains. Sixty days is deemed a reasonable time within which to comply with this order. *City of Menomonie v. C. St. P. M. & O. R. Co.* 1912, 10 W. R. C. R. 478, 482.

2. Petitioner alleges that the passenger service at Brantwood, Wis., is inadequate and prays for an order requiring the M. St. P. & S. S. M. Ry. Co. to stop trains Nos. 7 and 8 on signal. Respondent stated that the trains in question connect with Canadian Pacific trains through to Boston and New York and if this service were granted to Brantwood and similar stations along the line the general public and interstate passengers would be deprived of fast service. *Held:* The present train service at Brantwood does not seem to be unreasonably inadequate within the terms of the law. The petition is dismissed. *Sandquist v. M. St. P. & S. S. M. R. Co.* 1912, 10 W. R. C. R. 490, 492.

3. Petitioner alleges that the passenger and freight service on the C. & N. W. Ry. from Montfort Jct. south through Livingston, Rewey, Platteville, Cuba City, and Benton is inadequate. It appears that the mixed passenger and freight service recently installed by the Commission between Madison and Lancaster is of little value to towns west of Montfort. Petitioner asks that this service be changed so as to run south from Montfort Jct. through Platteville instead of on to Lancaster. Towns now receiving this service to Lancaster were notified and did not oppose the proposed change. No great modification can be made at the Madison end as this service was ordered to give Dodgeville, Mt. Horeb and Verona people a good margin to transact business in Madison and return the same day. *Held:* The change petitioned for should be made. The respondent is released from compliance with the order of the Commission in *Donald v. C. & N. W. R. Co.* 1911, 8 W. R. C. R. 320, insofar as that order requires it to furnish service there ordered beyond Montfort Jct., and the respondent is ordered to continue the two designated mixed trains from Montfort Jct. south daily, except Sunday, so as to pass through Platteville on the trip south not earlier than 7:00 a. m., and on the return trip north the same day not later than 10:00 p. m., and that the service now given by these trains between Montfort Jct. and Madison be continued as heretofore. *Webster v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 500, 509.

4. The petitioners alleged that the service rendered by the I. C. R. R. Co. at Jonesdale, Wis., is inadequate, in that the station is closed and no agent is on duty when the night train, due at 10 p. m., arrives. *Held:* The station service is inadequate for the needs of the public and respondent is ordered to open the station for the convenience of the public not less than twenty minutes prior to the scheduled arrival of its

northbound night train. *Harris et al. v. I. C. R. Co.* 1912, 10 W. R. C. R. 512, 516.

5. Complaints having been made, the Commission, on its own motion, investigated passenger service on the Dodgeville branch of the I. C. R. Co. The specific complaint pertained to the failure to maintain schedule time and to the late schedule of the evening train. The change from an earlier schedule was ordered in *Knapp v. I. C. R. Co. et al.* 1910, 5 W. R. C. R. 176, in order to make connection at Dill, Wis., with the westbound passenger train of the C. M. & St. P. Ry. Co. The former order provided that each company should hold its trains for such connection for a period of not less than thirty minutes. *Held:* The advantage of the connection at Dill warrants its continuation. The former order is modified so as to provide a maximum wait of fifteen minutes for this connection. The respondent is ordered to so arrange its schedule as to furnish morning passenger or mixed service from Martintown to Dodgeville and afternoon passenger or mixed service from Dodgeville south to Martintown to arrive at Dodgeville not later than 11:10 a. m. and leave not earlier than 3 p. m. The respondent is further ordered to operate its trains on the Dodgeville branch on schedule time, barring accidents and other unusual contingencies. In the case of the mixed train, deviations not ordinarily exceeding an hour later than its published schedule will be considered as conforming with this order. *In re Invest. Dodgeville Branch of the I. C. R. Co.* 1912, 10 W. R. C. R. 572, 583.

6. Petitioners alleged that the passenger service maintained by respondent between Manitowoc and Kaukauna, Wis., is inadequate by reason of the withdrawal of two passenger trains from that line. Petitioners further alleged that the freight service is inadequate, but it was agreed that the present freight schedule is satisfactory if properly maintained. *Held:* The existing passenger service is inadequate. The respondent is ordered to restore the northbound morning train service making connection at Appleton Junction as formerly. It is further ordered that respondent maintain the freight schedule now in force on its Lake Shore division between Manitowoc and Kaukauna. *In re Invest. L. S. Div. of C. & N. W. R. Co.* 1912, 10 W. R. C. R. 590, 596-597.

Adequacy of train service—Branch line service.

7. The Commission does not believe that in a question of service on a branch line the mere fact that passenger earnings for one month or an even longer period may be light or heavy is in itself necessarily a deciding factor. Other questions must also be considered. *Webster v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 500, 507-508.

8. If, as the Commission has held in speaking of branch service (*Nelson et al. v. N. P. R. Co.* 1912, 8 W. R. C. R. 685): "Every part of a railroad system cannot be expected to be profitable" and "a railway company is generally in duty bound to furnish reasonably adequate service regardless of cost", it, of course, follows strongly that under certain circumstances, on a branch whose business has increased, the adequate service to the public may make it necessary for a railroad to operate a train which is not particularly profitable or even entails some loss. *Webster v. C. & N. W. R. Co.* 1912, 10 W. R. C. R. 500, 508.

9. Branch lines must be considered also from the standpoint of their contribution to the business of the company as a whole. *In re Invest. Dodgeville Branch of the I. C. R. Co.* 1912, 10 W. R. C. R. 572, 577.

Freight service.

See ante, 1, 3, 6.

Passenger service.

See ante, 1-6.

TRANSFER OF FREIGHT.

See SWITCH CONNECTIONS.

TRANSFERS.

Double transfers on street railways, *see* RATES, 28.

UNDUE PREFERENCE.

See DISCRIMINATION.

UNEARNED INCREMENT.

Unearned increment as element in the valuation of public utilities, unearned increment due to natural increase in value of land, *see* VALUATION, 20.

UNIFORM ACCOUNTS.

See ACCOUNTING.

UNIT COSTS.

Determination of unit costs for electric utilities, *see* ACCOUNTING, 1-3, 10-12.

for gas utilities, *see* ACCOUNTING, 4.

for heating utilities, *see* ACCOUNTING, 10-12.

for interurban railways, *see* ACCOUNTING, 5-9.

for street railways, *see* ACCOUNTING, 10-25.

for water utilities, *see* ACCOUNTING, 26-41.

UNJUST DISCRIMINATION.

See DISCRIMINATION.

UNJUST RATES.

See RATES.

UNREASONABLE RATES.

See RATES.

VALUATION.

DETERMINATION OF THE VALUE OF PROPERTY OF PUBLIC UTILITIES—ELEMENTS CONSIDERED.

In general.

1. A large number of factors have been suggested as probable tests of value. Among these are capitalization, the appraised cost of reproduction new, the depreciated or present value, the appraised value of the earnings, the value for purposes of taxation, and the appraised value of the service. The importance of the various factors and their equity to both the company and the public will depend upon the availability of evidence and the local circumstances surrounding the case, such as the history of the property, the sacrifices of the owners, and the satisfaction that is given to the public. No single factor can be said to control in each and every valuation case, and it appears that no single rule has been developed by judicial interpretation in proceedings of this kind. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 63-64.

2. The value of a plant and its business that is ultimately found to be fair and equitable under the circumstances, may not agree either

with the original cost or with the cost of reproduction, but in most instances it is likely to be found at some figure in the neighborhood of these costs. Operators in public utilities who fail to use ordinary business judgment either in the location, construction or management of the same, or who incur unnecessary and excessive obligations in other ways, should not be permitted to shift such extra costs upon the public. It is, in fact, to prevent such shifting and other unfair practices of this kind, which are possible under monopolistic conditions, that public utilities have been placed under government regulation. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 85.

3. The fair value of the property and business of utilities can, as a rule, be best determined from such factors as their original cost of construction and development, and from the cost of reproduction of the same under conditions which are normal, and when, in both cases, full consideration is given to the depreciation that has taken place in the property because of age, use, and other reasons. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 85.

Capitalized value.

4. In the present case, capitalized value was suggested by the respondent as a probable test of the value of the property. It is well known from experience that public utilities are mostly over-capitalized, and that the par value of their outstanding securities usually exceeds the actual investment in the property that is used and useful in connection with the services they render to the public. In fact, the bonds alone often amount to more than the cost-value of this property. The reasons for this are easily explained. They are found in the fact that in capitalizing the plants, whether for purposes of consolidation or otherwise, securities are often issued not only against actual and other costs, but against estimated monopoly profits, future increases in the business, estimated savings in expenses and many other elements of this nature. Not only this, but investigators of such matters feel that the greater proportions of the consolidation of business interests during the past three decades have had their sources in the opportunities for private gains that were offered to insiders in connection therewith, through unlimited security issues and the rigging of the markets by which these securities were unloaded upon the public at prices that netted such insiders large profits. In the public utility field, where monopolistic conditions largely obtain, the opportunities for such practices have been relatively large. That security issues, based on such conditions, cannot often fairly measure either actual investments in, or fair value of, the property they represent, is rather obvious. It is equally clear that excessive capital issues of this sort cannot ordinarily constitute a fair and equitable basis for the valuation upon which the rates charged for the services rendered to the public should be fixed. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 84.

Earning value.

5. Since the earning value of a plant and the rates the plant charges for the services it renders depend upon each other, it is clear that the earnings cannot be a fair or equitable basis for any valuation upon which rates must be based. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 63.

Going value—Net cost of building up the business.

6. It is conceded that in addition to the value of the tangible property some allowance is properly made for the cost of building up the business, or the losses sustained before the property has been placed upon a paying basis. Previous decisions of this Commission have

recognized the necessity of compensating for such early losses and the existence of a going value is recognized by both parties to the complaint in the present case. (*Hill et al. v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 706-711.) (*In re Menominee & Marinette Lt. & Tr. Co.* 1909, 3 W. R. C. R. 778, 792.) (*State Journal Prtg. Co. v. Madison Gas & El. Co.* 1910, 4 W. R. C. R. 501, 577.) (*City of Appleton v. Appleton W. Wks. Co.* 1910, 5 W. R. C. R. 215, 276.) (*Cunningham et al. v. Chipewewa Falls W. & Lt. Co.* 1910, 5 W. R. C. R. 302, 315.) (*City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 122-123.

7. The cost of building up the business must under certain conditions be taken into consideration in determining the value of the plants for rate-fixing purposes. (*Hill v. Antigo Water Co.* 1909, 3 W. R. C. R. 623, 711.) (*State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 568.) (*City of Milwaukee v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 1, 122, etc.) (*Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 742.

8. To consider development costs in determining the cost-value of the property of public utilities that is actually used in serving the public, is of special importance in cases where the returns on such cost-values are not fixed at higher figures than those which will barely bring the necessary capital and business ability into this field. (*Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 744.

9. Development costs which are actual and necessary belong among those classes of costs which, on the ground of equity as well as because of public policy, should ordinarily receive consideration in fixing the amounts upon which, under normal conditions, public utilities are entitled to reasonable returns for interest and profits. (*Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 744, 803.

Patent rights value.

10. The respondent in the present case claimed a certain amount of value for certain patent rights. Such rights may, undoubtedly, have values; but it would hardly seem that such values can properly be considered as permanent capital charges. Rights of this kind are, as a rule, secured because they are profitable or because, in one way or another, they tend to increase the net earnings. The prices paid for such rights would seem to be operating expenses rather than capital charges. If regarded as capital charges at all, they should be written off during the life of these rights from the profits for which they are responsible. In the present case the facts presented in relation to these rights are rather indefinite and it is difficult to say just how much importance, if any, should be given to them in the appraisal. (*City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 92.

Physical property—Cost of reproduction new—Allowance for item of cost not actually incurred—Paving.

11. The company contended that the entire cost of pavement laid above conduit and track should be included in the valuation upon the basis of cost of reproduction new, irrespective of whether such paving has been laid by the city or by the company. Heretofore, in cases before the Commission, only the actual paving laid by the company has been included in the value for rate-making purposes and we see no reason for departure from that rule in the present case. (*City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 115-116.

12. Every legitimate expenditure in adapting the utility to the demands of progress and community growth is a proper charge to construction and as such the investment therefor is entitled to participate in the distribution of the earnings from operation. Obviously expendi-

tures for pavement incurred by the utility in response to assessments levied therefor by the city, or the cost of cutting through such pavement for construction purposes and its replacement, are proper capital charges. It does not necessarily follow that the utility is to capitalize expenses for municipal betterment in which it has not participated and where such accruing benefits to the utility are remote and incidental, and thus compel the subscribers for utility service to pay increased rates because of public improvements. The improvement is not a proper element of value where the pavement has not been paid for by the utility, nor any expense in connection with it directly incurred, in determining a value which shall serve as the basis for an adjustment in rates. (*City of Ripon v. Ripon Lt. & W. Co.* 1910, 5 W. R. C. R. 1, 10.) (See also *Ashland v. Ashland W. Co.* 1909, 4 W. R. C. R. 273, 307.) (*State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 554.) (*In re Compensation to Fond du Lac W. Co.* 1910, 5 W. R. C. R. 482, 492.) (*City of Racine v. Racine G. Lt. Co.* 1911, 6 W. R. C. R. 228, 240.) (*In re Manitowoc W. Wks. Co.* 1911, 7 W. R. C. R. 71, 88.) (*City of Beloit v. Beloit W. G. & El. Co.* 1911, 7 W. R. C. R. 187, 233.) (*La Crosse v. La Crosse G. & El. Co.* 1911, 8 W. R. C. R. 138, 162.) Departures from this rule are cited by the respondent in *The Consolidated Gas Co. v. City of N. Y.* 1907, 157 Fed. 849, but this point is not specifically passed upon in the affirming case, *Wilcox v. Consolidated Gas Co.* 1909, 212 U. S. 19, to which citation is also made. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 116.

Physical property—Cost of reproduction new—Average or normal costs.

13. Normal costs may be said to include all reasonable outlays that are necessary to obtain a needed plant and a business for this plant. It does not cover abnormal items such as excessive and unnecessary charges of any kind; nor capitalized monopoly profits, future growth, excessive development costs and other items of this nature. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 85.

Physical property—Cost of reproduction new—Contingencies during construction.

See post, 16.

Physical property—Cost of reproduction new—Discounts on bonds.

14. It has been claimed by the company in the present case that expenditures necessary to the organization and financing of the property are properly a part of the investment and must be so considered, and attention is called particularly to the excluded items of bond discount. It is urged by the city in its brief that the discount or premium is virtually a part of the interest to be paid on the bonds and that the value of the investment for rate-fixing purposes should be limited to the value of the property devoted to the public use without regard to the sources from which the money to develop the property was derived. Respondent claimed discount on bonds should be considered as part of the company's investment and laid stress upon the necessity of a bond discount in issuing securities. Respondent further claimed that any law or regulation which would make it impossible to pay a bond discount and compensate for carrying an enterprise through the doubtful years would make it impossible to float new enterprises. Under certain circumstances a discount on bonds should undoubtedly be included as a portion of the intangible value of the property. An examination of the amounts realized from the sale of securities by the company in the present case, however, discloses instances of sale at a premium as

well as sale at a discount. Whether or not the discount rate is to be included as a portion of the property account will depend upon the interest rate allowed the utility. It is obvious that a 4% bond cannot be expected to sell at the same premium as a 6% security, and the amount of the interest rate allowed the utility must determine whether or not the discount is to be included. In the present case it appears that the allowance for interest and profit is ample to allow for all expenses of the sales and discount upon the securities issued. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 155-157.

15. The cost of marketing bonds is an allowance to be considered in arriving at the value of the property of a utility for rate-making purposes, but this does not mean that all discounts constitute proper additions to physical value. If this were the case a company with poor credit, which had been obliged to allow a large discount on its bonds, would have a higher value and be entitled to a return on a greater valuation than a utility owning precisely similar property, but whose credit was good enough so that it was not obliged to issue its bonds at a considerable discount. However, if business enterprises can not secure capital on any better terms, then it necessarily follows that such bond discounts must represent a part of the cost of securing the capital. (*City of Marinette v. City W. Co.* 1911, 8 W. R. C. R. 334, 342-343.) *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 740-741, 802-803.

Physical property—Cost of reproduction new—Engineering.
See post, 16.

Physical property—Cost of reproduction new—Free house piping.
See post, 22.

Physical property—Cost of reproduction new—Interest during construction, engineering, contingencies, etc.

16. Apart from the expense of labor and material incurred in constructing the plant, many additional costs must be met which do not appear in the appraiser's inventory of tangible property. Among these are the expenses of organization preliminary to the construction of the property, usually consisting of engineering and legal expenses; the expenses of supervising, including the wages of all contractors, superintendence and necessary administrative organization; contingent costs due to loss in time and material, and unexpected obstacles occurring during the progress of construction; and, finally, the expense of financing the construction, consisting principally of interest on money advanced prior to operation. Allowances for such expenditures are usually made in appraisals of public utility properties and have in all instances been made by this Commission. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 118.

17. The amount for a percentage allowance to cover interest during construction, engineering, contingencies, etc. has frequently been made a matter of dispute and is a controverted point in the present case. In previous decisions as to the appraised value of property involved in cases relating to compensation at time of purchase, valuation for stocks and bonds and for reasonable rates, the addition has not exceeded 12% of the priced inventory. (*Hill et al. v. Antigo W. Co.* 1909, 3 W. R. C. R. 623, 685; *State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 540; *In re Fond du Lac W. Co.* 1910, 5 W. R. C. R. 482, 500.) In general this percentage consists of four items: 4% for engineering and superintendence; 2% for organization and legal expenses; 3% for interest during construction; and 3% for contingencies. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 118-119.

18. Under the conditions in the present case, 3% is a sufficient allowance to add to the cost of physical property to cover contingencies. As regards the allowance for interest, 3% is not unreasonable in the light of the allowance for working capital and of the fact that construction has been piecemeal and has frequently been placed in operation during the year of construction. No serious question is raised as to the allowance of 4% to cover engineering and superintendence, and the allowance of 2% to cover organization and legal expenses. In examination of the book-figures these additions appear to be ample. The objection that the Commission's allowance of 12% excluded contractor's or organizer's profits, working capital, discount on bonds, etc. is not valid in view of the fact that these items are included in the unit prices employed by the Commission or otherwise provided for in the valuation made by the Commission. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 121-122.

Physical property—Cost of reproduction new—Investment for anticipated needs.

19. In determining the basis for reasonable rates some consideration should be given as to the investment necessary for an adequate plant. What may appear to be reasonable rates when the investment line has fallen below the business line, may prove to be much lower than sufficient to produce a revenue which will give a reasonable return upon the investment a year or a few years later when the investment will have to be materially increased in order to meet the demands of the business. (*City of Beloit v. Beloit W. G. & El. Co.* 1911, 7 W. R. C. R. 187, 298.) It does not appear equitable, however, to make present consumers bear the entire burden of future additions. It appears proper to make slight additions to the unit costs, but proper allowances must necessarily be made for such additional business which is anticipated when the extension is made. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 749-750.

Physical property—Cost of reproduction new—Land.

20. In the present case the real estate owned by the company was purchased during a boom period, and as a result considerable depreciation is noted when the investment value is compared with the value as found in the final appraisal. The company contended that these expenditures should be taken into consideration in determining the basis upon which the rate of return is properly computed. In passing upon the question of appreciation of land values in former cases the Commission pointed out that the law as well as our social system recognizes gains due to appreciation in practically all other undertakings and that the owners would have to bear losses in case land and other property had depreciated instead of appreciated. It would seem only just that the rule should work both ways. There seems to be no reason for a departure from this position in the present case. (*State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 579.) *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 739.

Physical property—Cost of reproduction new—Legal services, etc. during construction.

See ante, 16-18.

Physical property—Cost of reproduction new—Paving.

Allowance for item of cost not actually incurred, see ante, 11-12.

Physical property—Cost of reproduction new—Service connections.

21. If services are installed by the utility they constitute a part of the plant upon which the utility should be allowed to earn a return

to provide for depreciation and interest. If all services are put in by property owners, none of the cost of such services should be included in the value upon which the utility is entitled to a return. *Alter et al. v. City of Manitowoc*, 1912, 10 W. R. C. R. 387, 394.

22. Expenditures for the development of the business, such as free house-piping, when reasonable and when well placed, would seem to be legitimate and to constitute a charge that, in some form, should be borne by the customers or by those who avail themselves of the service in question. Whether these expenditures should be charged to construction and thereby become a permanent charge on the customer, or be charged to the operating expenses and thereby be wiped out about as incurred, are questions that cannot be settled independently of the surrounding conditions. In the present case the expenses for free house-piping are considered as operating expenses rather than capital charges. (*State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 589.) *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 736-737.

Physical property—Cost of reproduction new—Superintendence.
See ante, 16-18.

Physical property—Cost of reproduction new—Working capital.

23. It is conceded that the respondent company is entitled to an allowance for working capital in order to economically carry on its business. The only question in dispute is the amount of such an allowance. It is apparent that such an amount is dependent largely upon the nature of the business. The electric railway is unlike the water, gas, and telephone utility in that it has no monthly bills but receives a large portion of its transportation revenues daily. The electric railway also has the advantage of selling a part of its transportation service in advance in the form of blocks of tickets or mileage books. The money so received is at the company's disposal as working capital prior to the time when it is necessary for current expenses. In the present case, an amount was allowed for stores and supplies on hand, which item includes material necessary for a reasonable amount of new additions. A further allowance was made to cover other additional working capital for operation and construction purposes. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 157-158.

24. In estimating the amount of working capital necessary, consideration should be given to the nature of the business. When a company is in a position to meet substantially all of its current outlays from its current receipts, it does not need to keep on hand any current funds for the purpose of covering operating expenses, but it was pointed out by the respondent that current funds are needed, due to the fact that the company is constantly called upon to expend money for small property items, and must have working capital to carry on the work of an expanding plant. In a previous decision it has been pointed out that with a liberal amount of quick assets available, new extensions to the plants may be more cheaply constructed than otherwise, and this for the reason that temporarily it may be more economical to use working capital for such purposes than to meet the cost by regular loans or by the sale of new securities. (*State Journal Prtg. Co. v. Madison G. & El. Co.* 1910, 4 W. R. C. R. 501, 554.) (See also *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 157.) *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 745-747.

Reorganization expenses.

25. In the present case reorganization expenses received consideration in the appraisal. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 739.

Taxable value.

26. The appraised value for purposes of taxation may lead to erroneous conclusions when used as a basis for rate making. Such values are frequently based upon net earnings or the ability of the company to carry a portion of the general burden of taxation and involve a capitalization of net profits, even though such profits arise from excessive rates. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 63-64.

DETERMINATION OF THE VALUE OF PROPERTY OF PUBLIC UTILITIES—METHODS OF APPRAISAL.

Determination of going value—Net cost of building up the business.

27. The cost-value of the business alone is usually determined from the original cost of the business, as well as from the cost of reproducing it. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 90.

28. The cost or investment theory of going value is based upon the actual losses sustained by the utility in the past, and its subsequent earnings as an offset to such losses. Under the cost method the going value of the enterprise is properly the difference between gross earnings and operating expenses plus depreciation and interest upon the investment. In determining what expenditures listed as operating are to be included, the distinction as to what are revenue and what are depreciation and capital expenditures should be carefully maintained. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 123, 130.

29. Aside from an arbitrary percentage which must have some basis in fact, the measure of going value must be made either upon the basis of cost or upon the basis of an estimate of a reproductive value. Upon the basis of cost, instances frequently occur where past surpluses have offset and wiped out past losses. Upon the basis of a reproduced plant a going value will be developed in every case dependent largely upon the liberality of the estimate. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 151.

30. The cost basis of estimating going value has been variously criticised, by many upon the ground that its estimates are too liberal, by others that it results in negative values and takes recognition of the utility's passed financial history. Its obvious merit lies in the fact that it assumes the relations of users and utility have at all times been placed upon an equitable basis. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 123, 154.

31. The comparative plant method of estimating going value is a continuation of the appraisal or cost of reproduction theory of value and is based upon the assumption that an identical utility property shall have been reproduced at the present time, and estimates the expenditures probably made before the hypothetical or comparative plant shall have been placed upon an earning basis identical with the present property. The comparative plant basis is open to the objection that it is based upon a large number of varying assumptions, involving practically every factor in the calculation. Its greatest point of weakness is the assumption made with regard to earning power. It is not certain that gross earnings will show a uniform increase year by year. We are not warranted in assuming that rates will remain the same or that the company will increase its net earnings until they yield present revenues. In fact, in a determination of whether present earning power is equitable, no portion of the rate should be based upon present earning power as a factor. There is no reason for assuming, moreover, that gross earnings will not continue to increase

when present earnings have been reached and continue to offset the earlier losses. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 155.

32. The early losses or deficits, or the amounts by which the earnings of the plant have failed to meet the ordinary operating expenses, taxes, depreciation, and a reasonable return on the investment, will, in the majority of cases, very closely measure the cost of developing the business. Deficits from operation, however, cannot equitably be taken into account in the appraisals of plants regardless of the conditions under which they were incurred. Deficits due to abnormal conditions, bad management, poor judgment, extravagance, lack of ordinary care and foresight, and extremely high capital charges, etc., it is clear, should receive very little consideration. Nor does it seem clear that losses due to lack of growth or retrogression of community development should be charged in their entirety against the consumers, even though the sacrifices of the owners have been prudently made. Returns upon such total costs may result in rates not reasonably within the value of the product or service to the user. (*City of Appleton v. Appleton W. Wks. Co.* 1910, 5 W. R. C. R. 215, 276.) (*Cunningham v. Chippewa Falls W. Wks. & Lt. Co.* 1910, 5 W. R. C. R. 302, 314.) (*City of Milwaukee v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 1, 122.) *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 742-744, 803.

DETERMINATION OF VALUE OF PROPERTY OF PUBLIC UTILITIES—VALUATION IN PARTICULAR CASES.

Electric utilities—Superior W. Lt. & P. Co., Superior, Wis.—Appraisal as of June 30, 1911.

33. The electric plant showed a cost new of \$395,096 and a present value of \$295,575. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 735, 802.

Gas utilities—Superior W. Lt. & P. Co., Superior, Wis.—Appraisal as of June 30, 1911.

34. The gas plant showed a cost of reproduction new of \$251,849 and a present value of \$218,195. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 735, 802.

Joint utilities—Superior W. Lt. & P. Co., Superior, Wis.—Appraisal as of June 30, 1911.

35. A valuation of the total property of the company as of June 30, 1911, gave a cost new of \$1,564,663 and a present value of \$1,360,196. Of this entire value the water plant showed a cost of reproduction new of \$888,322 and a present value of \$838,242. The gas plant showed a cost of reproduction new of \$251,849 and a present value of \$218,195, and the electric plant a cost new of \$395,096 and a present value of \$295,575. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 735, 802.

Street railways—T. M. E. R. & L. Co., Milwaukee, Wis.—Appraisal as of January 1, 1910.

36. A valuation for the T. M. E. R. & L. Co. as of Jan. 1, 1910, showed that the cost of reproduction new of the physical property aggregated about \$9,942,125 and the total value of the plant and its business, about \$10,300,000. This sum would not seem to be far away from the amount upon which the respondent is entitled to reasonable returns. Certain adjustments for the period subsequent to 1910 brought the cost of reproduction new, at Jan. 1, 1911, up to \$10,514,201 and the total value

of the plant and its business up to \$10,900,889. In connection with the case of *Cusick et al. v. T. M. E. R. & L. Co. et al.* 1912, 10 W. R. C. R. 314, a valuation was made for the M. L. H. & T. Co. The appraisal of Jan. 1, 1910, showed a cost of reproduction new, inclusive of materials and supplies, of \$6,133,033, and it would seem that the cost-value of this plant and its business cannot greatly exceed this value. *City of Milwaukee v. T. M. E. R. & L. Co.* 1912, 10 W. R. C. R. 1, 63, 158-160.

Water utilities—Beaver Dam W. Co., Beaver Dam, Wis.—Appraisal as of Nov. 9, 1912.

37. A valuation of the physical property of the utility was made as of date June 30, 1911. This valuation fixed the cost new of the property at \$118,060, and the value in existing condition at \$108,409. By adding to this valuation the additions for the succeeding year, the valuation as of June 30, 1912, was determined as \$118,210 cost new and \$108,559 present value. For the purpose of finally fixing a schedule of rates the valuation was increased by the addition of the estimated cost of improvements necessary for adequate service. The final valuation was, cost new \$137,892.42, and value in existing condition \$130,703.00. *Civic League et al. v. Beaver Dam W. Co.* 1912, 10 W. R. C. R. 661, 675.

Water utilities—Superior W. Lt. & P. Co., Superior, Wis.—Appraisal as of June 30, 1911.

38. Of the entire value the water plant showed a cost of reproduction new of \$888,322 and a present value of \$838,242. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 735, 802.

Water utilities—Whitewater W. Wks. Co., Whitewater, Wis.—Appraisal as of Sept. 27, 1912.

39. In accordance with the appraisal of the engineers of the Commission and the agreement between the parties, the sum of \$75,000 is deemed just compensation for the property. *In re Valuation of Whitewater W. Wks. Co.* 1912, 10 W. R. C. R. 524, 527.

VALUE OF ARTICLES CARRIED.

As matter considered in determining reasonableness of railway rates, see RATES, 14.

VARIABLE EXPENSES.

Apportionment of variable expenses, see ACCOUNTING, 1-2, 4, 28-39.
Prorating of variable expenses, see ACCOUNTING, 3, 40-41.

VILLAGES.

See MUNICIPALITIES.

VOLTAGE.

Automatic voltage regulator, see ELECTRIC UTILITIES, 1.
Standards of service for electric utilities, uniformity of voltage, see ELECTRIC UTILITIES, 1.

WAGES.

Standard wages as matter considered in determining reasonableness of street railway rates, see RATES, 32.

WATER POWERS.

Commission without jurisdiction to regulate level and flow of water, see RAILROAD COMMISSION, 4.

CONTROL AND REGULATION IN GENERAL.*Regulation of level and flow of water over dams.*

1. Complaint was made that the average water level above the dam across the Pecatonica river at Darlington, Wis., has been lowered two or three feet rendering all navigation impossible. It was contended that under the present management of the Darlington El. Lt. & P. Co. a wasteful use of water upon the part of the company has existed. The specific sections under which the complaint arose relate to the powers of the Commission to regulate and control the level and flow of water in all navigable rivers in the state and provide "that the navigability of no stream shall be impaired," Laws of 1911, ch. 652, sec. 1596—47, and sec. 1596—73. It appears that the Pecatonica river above the dam at Darlington is a navigable stream. Since the hearing in the present case, the supreme court of Wisconsin in the *Water Power Cases*, 1912, 148 Wis. 124, has held that these sections as well as all other sections of the statute referred to, known as the Water Power Act, except sec. 1596, are unconstitutional. Sec. 1596 relates only to the necessity for a permit from the legislature to construct dams and has no relation to the present case. *Held*: The Commission is without jurisdiction in the matter. The petition is dismissed. *Law et al. v. Darlington El. Lt. & P. Co.* 1912, 10 W. R. C. R. 380, 381-382.

WATER RATES.

See RATES.

WATER UTILITIES.

Cost of service of water utilities, determination of unit costs, see ACCOUNTING, 26-41.
 Depreciation, rate of depreciation of water plant, see DEPRECIATION, 7.
 Discrimination as between customers of water utility, see DISCRIMINATION, 2; RATES, 45-46.
 Minimum charges for water utilities, see MINIMUM CHARGES, 4.

ACCOUNTING.

See ACCOUNTING.

ESTABLISHMENT, CONSTRUCTION AND MAINTENANCE.*Extension of water mains.*

1. Petitioners prayed for an order requiring the city of Madison, Wis., to lay and construct an extension of its system of water mains into the subdivision recently annexed, known as Highland Park. It appears that the city is amply able to provide the necessary funds for the extensions in question. *Held*: The size of the pipes and the point of connection will be left to the parties directly involved. The city of Madison is ordered to proceed without unnecessary delay to extend its water mains substantially as indicated in the petition. Three months is deemed a sufficient time within which to comply with this order. *Madison Realty Co. et al. v. City of Madison*, 1912, 10 W. R. C. R. 447, 460.

MUNICIPAL ACQUISITION—TERMS AND CONDITIONS OF
SALE AND PURCHASE.

Compensation for property—Compensation determined by Commission in particular cases.

2. Application was made by the city of Whitewater, Wis., for a determination of the just compensation to be paid to the Whitewater Water Works Co. for its water plant. The matter was submitted upon an agreement or contract entered into by the city and the company. A valuation of the property used and useful for the convenience of the public was made by the Commission. *Held*: The terms and conditions of sale provided in the contract fairly and fully subserve all requirements of the public interest and of the city of Whitewater. It is ordered that the just compensation to be paid by the city for the taking of the property be fixed pursuant to the contract at the sum of \$75,000, and that the terms and conditions of the contract be approved. *In re Valuation of Whitewater W. Wks. Co.* 1912, 10 W. R. C. R. 524, 527.

Power of municipality to acquire public utility—Action by municipal council—Regularity.

3. Objection to the jurisdiction of the Commission was made by the Racine W. Co. in the proceeding instigated by the city of Racine, Wis., for the purpose of acquiring the water plant. The specific objections pertained to the regularity of the submission of the question to the voters; the adequacy of the provision for compensation; and the capacity of the city to incur the indebtedness on account of the constitutional inhibition. The objection of the company, by consent of the parties, is to be determined at this time before further expense is incurred in taking steps preliminary to the purchase of the plant. *Held*: The objection to the jurisdiction of the Commission is overruled, and the investigation of the matter will be taken up when the case is reached on the present calendar. *In re Racine W. Co.* 1912, 10 W. R. C. R. 543, 546, 555.

Power of municipality to acquire public utility—Action by municipal council—Regularity—Capacity of city to incur indebtedness.

4. In the instant case it was objected that the city is incapacitated from acquiring the water works for the reason that it will be impossible for it to incur the indebtedness which it proposes to incur, because of the inhibition contained in sec. 3 of art. XI of the Constitution of the state, which provides that, "no county, city, town, village, school district, or other municipal corporation shall be allowed to become indebted in any manner or for any purpose to any amount, including existing indebtedness, in the aggregate exceeding 5 per centum on the value of the taxable property therein, to be ascertained by the last assessment for state and county taxes previous to the incurring of such indebtedness." The argument on behalf of the company relative to the financial inability of the city to make the purchase is predicated on certain assumptions that are more or less speculative, and hence not sufficient grounds for objection at this stage of the proceeding. Until the just compensation is ascertained it is impossible to determine even approximately the ability of the city to pay the same. Such compensation may be more or less than the tentative valuation of the engineers, which merely forms the basis of the investigation. Furthermore, when the decision is made, it may be that the total assessed value of the property of the city for the year 1912 and the then outstanding indebtedness of the city will materially change the situation. What would be the effect of a want of capacity on the part of the city

to acquire the property when the just compensation is definitely established, is a question to be resolved when it is reached. *In re Racine W. Co.* 1912, 10 W. R. C. R. 543, 552-553.

Power of municipality to acquire public utility—Action by municipal council—Regularity—Provision for compensation.

5. In the present case certain objections of the company to the legality of the initial proceedings for the purchase of the plant raise the question whether the municipality has provided any fund out of which the required compensation may be made to the company. The law is well settled that when private property is appropriated by a municipality for public purposes such compensation must be actually made or the means provided whereby it can be certainly obtained. In the instant case the act authorizing the taking of the company's plant and providing the procedure by which the value of the property is to be ascertained, does not make provision for obtaining the required compensation which must be paid to the owner therefor, but the omission of any means for securing such compensation is not an infirmity of the act if such means otherwise exist and are sufficient for the purpose. At the time the statute in question was adopted there were in effect provisions of law authorizing cities, towns and villages to construct or purchase water works and prescribing methods of procedure by which the funds necessary for the purpose could be obtained. Thus, sec. 926—11 of ch. 40b contains such provisions available to cities organized under special charters. Likewise ch. 41 includes ample provision for the acquisition of water works by cities, whether incorporated under special acts or the general law. These statutes have not been modified by the Public Utilities Law in respect to the means provided for the securing of funds for the construction or purchase of property therein mentioned. (Sec. 1797m—108, and sec. 2 of ch. 499, Laws of 1907.) The objection that there is no provision for compensation cannot be sustained. *In re Racine W. Co.* 1912, 10 W. R. C. R. 543, 550-552.

Power of municipality to acquire public utility—Action by municipal council—Regularity—Submission of question to voters.

6. It was contended by the company in the present case that the question of municipal acquisition submitted to a vote of the people is defective in that it fails to designate intelligibly the specific property intended to be acquired by the city. Pursuant to a resolution adopted by the common council the question "Shall the city of Racine purchase its water works?" was voted upon at the spring election. The contention that many of the voters may have been deceived because of the phraseology of the proposition referred to the electorate does not seem tenable. *In re Racine W. Co.* 1912, 10 W. R. C. R. 543, 546-547.

7. In the present case it was claimed that the question of municipal acquisition was not submitted as required by law, in that the property was not definitely described or indicated. Sec. 1797m—81, under which the common council undertook to act, provides that the determination to acquire the existing plant of a public utility operating under an indeterminate permit, obtained by a voluntary surrender of its franchise, shall be "by a vote of a majority of the electors voting thereon at any general, municipal or special election, at which the purchase of such plant shall have been submitted." The manner of the election is the same as that provided in sec. 1797m—80, which relates exclusively to the acquisition of public utility plants by municipalities by condemnation proceedings. This statute does not indicate the form of question to be submitted. It merely provides for the submission of

"the question of the purchase of such plant." The plant includes "the property of such public utility actually used and useful for the convenience of the public." All other property of the utility is excluded by implication. Questions often arise in respect to certain property which has ceased to be active or is only semi-active, as to whether the same is actually used and useful for the convenience of the public within the meaning of the statute, and until these questions are determined it is not possible to give anything more than a general description of the plant, and even then a definite description would contain so much detail as to be of no practical value to the voters. The term "water works" is as comprehensive a term as could be employed. *In re Racine W. Co.* 1912, 10 W. R. C. R. 543, 547-548.

8. In the case under consideration it was contended that the election for municipal acquisition was not held as required by law. It was urged that ch. 665 of the Laws of 1907, commonly known as the "Mortgage Certificate Law," is supplemental to ch. 499, Laws of 1907 (the Public Utilities Law), and must be construed in connection therewith in determining the validity of the election in controversy. Just what effect these statutes have upon previous legislation on the subject or upon each other is not entirely clear. From a reading of ch. 499 and ch. 665 of the Laws of 1907 it would appear that the legislative intent was to provide two distinct methods of acquiring public utility plants by municipalities, and that the two measures are not so related that they may be considered parts of each other. The election was held in compliance with the statute. *In re Racine W. Co.* 1912, 10 W. R. C. R. 543, 548-550.

OPERATION.

Requirements as to service and facilities—Adequacy of service.

9. Complaint was made that water service in Superior, Wis., was inadequate. It was alleged that the reservoir and water pumps are inadequate for fire protection. *Held:* The expenditures for improvements recently made in the plants have improved service conditions. At the present time the plant is economically operated and maintained. *Superior Commercial Club et al. v. Superior W. Lt. & P. Co.* 1912, 10 W. R. C. R. 704, 803.

Requirements as to service and facilities—Appliances for the measurement of product or service—Duty of utility to provide meters.

10. Complaint was made that the city of Manitowoc, a public utility furnishing water service in Manitowoc, Wis., refuses to furnish meters, or pay rent for meters furnished by the consumers. The law requires that meters be installed by the utility, except when exemption is made by the Commission. The policy of requiring consumers or property owners to bear the expense of putting in meters can be approved only in cases where the financial condition of the utility is such that the expense of installing meters would constitute a hardship. *Held:* The city of Manitowoc is to furnish meters for all consumers whose premises are connected with sewer or cess-pool, and the city is to acquire meters now in use or pay owners a reasonable rental. *Alter et al. v. City of Manitowoc*, 1912, 10 W. R. C. R. 387, 397-398.

11. Complaint was made that the Beaver Dam W. Co., Beaver Dam, Wis., refuses to install meters. Domestic and industrial service is now unmetered. *Held:* The installation of meters is regarded as a necessary improvement. All services, public and private, with the exception of hydrants, are to be metered. One year is considered sufficient time for the installation of meters. *Civic League et al. v. Beaver Dam W. Co.* 1912, 10 W. R. C. R. 661, 689-691.

Requirements as to service and facilities—Appliances for the measurement of product or service—Location of meters.

12. Petitioner alleges that the only practicable way to install meters for certain services in Oconto, Wis., is to place them in the street, and prays that the order of the city council for the removal of such meters as have been placed outside of the curb line, be set aside as unreasonable. Some of the buildings are without basements or suitable places for meters. *Held:* The meter boxes already set in the street gutters should be removed, as ordered by the city council, and placed under the sidewalk, and future installations of the kind should be made under the sidewalk, except perhaps in special cases in which the city authorizes the installation in the street. Petition is dismissed. Six months is deemed a reasonable time within which to install the meters. *Oconto City W. Supply Co. v. City of Oconto*, 1912, 10 W. R. C. R. 584, 589.

Requirements as to service and facilities—Services—Duty of utility to provide services.

13. Complaint was made that the city of Manitowoc, a public utility furnishing water service in Manitowoc, Wis., attempts to compel consumers, and property owners who are not consumers, to furnish service pipes from the water mains to the curb lines at their own expense. Complaint was further made that the mains and services already installed by property owners were made useless by an order of the city compelling connection to a permanent main to be laid in one of the streets. In the present case all services have been installed at the expense of property owners. Where this practice has been consistently followed it may be best to continue this policy. As long as it has been the general rule that property owners should install services, it would seem that if they installed pipes which were not suitable for use as a permanent part of the system, they must install permanent services when conditions arise which necessitate such installation. It may have been an injustice to require property owners to lay a temporary main but the justice of the city's requirement that permanent services be installed by property owners does not seem to be affected thereby. *Held:* The city of Manitowoc, until otherwise ordered, may continue the present policy of requiring property owners to pay for the installation of services. *Alter et al. v. City of Manitowoc*, 1912, 10 W. R. C. R. 387, 396-398.

Standards of service—Pressure.

14. Complaint was made that the Beaver Dam W. Co., Beaver Dam, Wis., does not furnish water pressure adequate for fire protection. A fire test was made and it is evident that extensive improvements in the plant are necessary. A serious fire of long duration occurring simultaneously with heavy domestic use would exhaust the water supply within a comparatively short time. In certain sections hydrants are not as conveniently placed as might reasonably be desired. *Held:* The present service is inadequate and it is ordered that the utility make improvements in its plant and equipment as outlined by the Commission, so that it will be in a position to furnish adequate fire protection. Six months is deemed sufficient time to comply with this portion of the order. *Civic League et al. v. Beaver Dam W. Co.* 1912, 10 W. R. C. R. 661, 689-691.

RATES.

See RATES.

VALUATION.

See VALUATION.

WAY AND STRUCTURES.

Apportionment of maintenance of way and structures expenses in the determination of unit costs for street railways, *see* ACCOUNTING, 19-20.

WEIGHT OF ARTICLES CARRIED.

As matter considered in determining reasonableness of railway rates, *see* RATES, 12-14.

WEIGHTS.**MINIMUM CARLOAD WEIGHTS.**

Carload minimum on excelsior, *see* RATES, 15.

WITHDRAWAL OF SERVICE.

Regulation for withdrawal of telephone service, *see* RULES AND REGULATIONS, 2-3.

WOOD.

Rates, joint rates, establishment of, Wis. points on the Marathon Co. Ry. and the C. & N. W. line, *see* RATES, 13.

WOOD BOLTS.

See BOLTS.

WORKING CAPITAL.

An element in the valuation of public utilities, *see* VALUATION, 23-24.

YARDAGE FACILITIES.

See STATION FACILITIES; SWITCH CONNECTIONS.

ZONE SYSTEM RATES.

For street railways, *see* RATES, 33.