The geography and economic development of southeastern Wisconsin. 1921

WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY
W. O. HOTCHKISS, Director and State Geologist

BULLETIN NO. 58 EDUCATIONAL SERIES NO. 6

The Geography and Economic Development

OF

Southeastern Wisconsin

BY

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MADISON, WISCONSIN
PUBLISHED BY THE STATE
1921

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PREFACE

This bulletin is the third of a series dealing with the economic geography of Wisconsin. The first of the series, Bulletin XXVI, deals with the Geography and Industries of the state as a whole. It was issued in 1913 and is now out of print. Bulletin XLII (1915) is devoted to the Geography of the Fox-Winnebago Valley. The present bulletin discusses (1) the physical and climatic features of the extreme southeastern portion of the state, comprising five counties, Milwaukee, Waukesha, Racine, Kenosha, and Walworth; (2) the economic development of these counties from the time of their settlement to the present. This bulletin, like the earlier ones in the series, is designed for use in the schools, and for the general reader who may be interested.

The writer has gone somewhat into detail in discussing the industrial and commercial development of the larger cities of the region for the reason that the schools of these cities desire this information in their teaching of local geography and history.

The writer wishes to acknowledge the many courtesies which he received from manufacturers, city and county officials, secretaries of chambers of commerce, librarians, and many others who assisted him in gaining the information or photographs which he sought. Special mention is due the staff of the reference division of the Milwaukee Public Library and its official photographer.

Every effort to secure accuracy has been made, and so far as possible original and official sources of information have been used, but such sources were not always to be had. The writer cannot hope that complete accuracy has been achieved but he has endeavored to approach it as nearly as he could.

R. H. Whitbeck.

Madison, March 1, 1921.

Fig. 1—Relief map of Wisconsin.

THE GEOGRAPHY AND ECONOMIC DEVELOPMENT OF SOUTHEASTERN WISCONSIN

CHAPTER I

INTRODUCTION

The five counties* with which this bulletin deals can scarcely be regarded as forming a natural or geographic unit. The three counties, Milwaukee, Racine, and Kenosha, owe much of their industrial eminence to two geographical advantages which they possess in common, namely, their frontage on Lake Michigan and their nearness to Chicago. All five of the counties lie in the Chicago industrial district, and this gives them a degree of economic unity.

The most influential factor in the industrial development of Wisconsin has been its frontage on Lake Michigan. Along this water front the most important group of cities in the state has grown up. From these cities the chief lines of transportation have been built into the interior, and so the lake ports became the commercial gateways of the state.

During the first quarter century of Wisconsin's statehood, the region for 100 miles inland from the lake was very closely connected in a business way with these lake shore cities. Nearly all of the main highways and railways led to them; one road (C. & N. W.), in the Rock River Valley, led to Chicago, but the others terminated at Wisconsin ports. For many years, wheat, wool, lead, and other products were hauled by teams scores of miles from the interior to markets on the shore of Lake Michigan; and lumber, shingles, salt, machinery, and general merchandise were hauled back.

From the beginning, Waukesha County has been closely linked up with Milwaukee; and Walworth County, for a long time, was directly tributary to Milwaukee, Racine, and Kenosha. The only early railroad line traversing any consider-

* Milwaukee, Kenosha, Racine, Walworth and Waukesha.

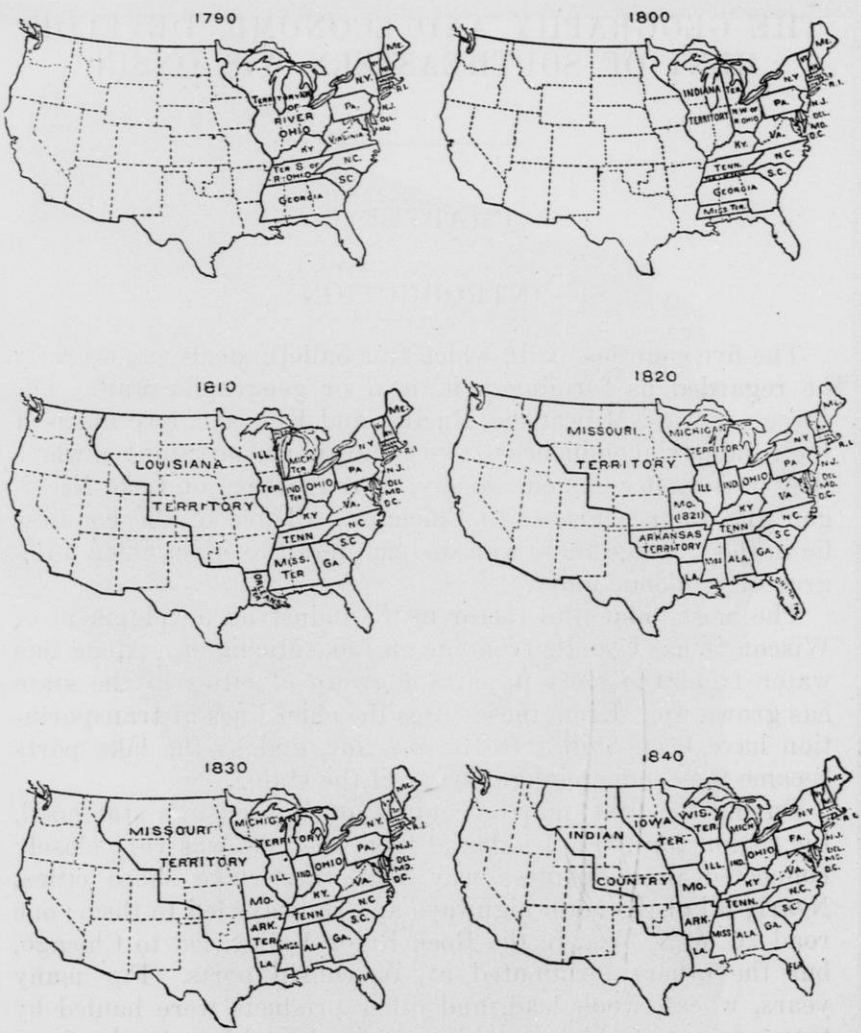

Fig. 2—The United States at different periods. In 1790 Wisconsin was in the Territory N. W. of the Ohio; in 1800 it was a part of Indiana Territory; in 1810 a part of Illinois Territory; in 1820 and 1830 a part of Michigan Territory; in 1836 Wisconsin Territory was organized and it then embraced Iowa and the Northwest Territory. In 1848 Wisconsin became a state with practically its present boundaries.

able part of Walworth County had its eastern terminus at Racine. It is true therefore that, although the five counties may not form a natural unit, they are all closely linked together and have been, from their first settlement, notably interdependent.

A second geographic factor making for economic unity has been the fact that the region is plain-like in character. No deep valleys, separated by steep divides, have interposed barriers. Therefore roads and railroads have been readily extended in any direction that their builders deemed expedient. The wide stretches of level or gently rolling land have made agriculture attractive and profitable. The dominantly clay

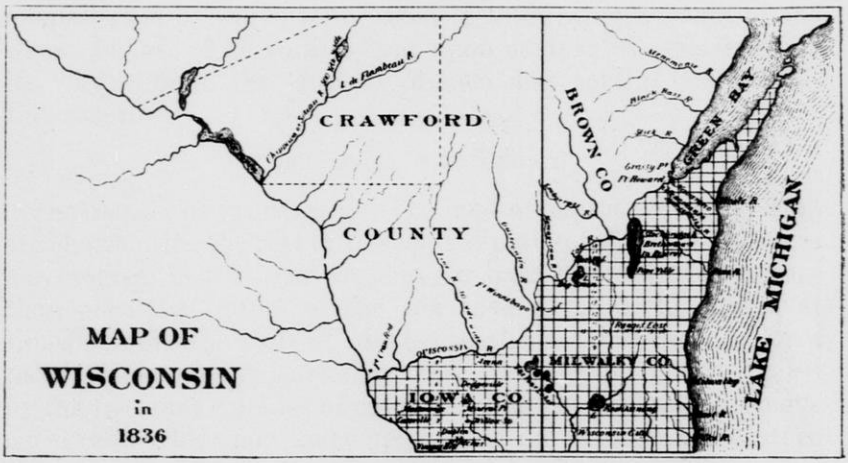

Fig. 3.

loam soils and the summer rainfall have combined to make dairy farming successful. The absence of any large amount of waterpower tended to limit manufacturing to steam-driven machinery; this limitation, in time, caused the notable concentration of industries on the lake shore, where coal is cheapest. Consequently manufacturing was handicapped in towns away from the lake. More than 90 per cent of the manufacturing done in the five counties is done in three lake shore cities—Milwaukee, Racine, and Kenosha.

Lake transportation is still of importance to Milwaukee because it gives the city cheaper coal. It is also a large factor in making Milwaukee an important grain market; yet the industries of the city have gained such a momentum that they would, in all probability, continue to grow with little if any abatement even without the advantage of lake transportation.

Racine still makes use of the lake to a certain extent, but lake transportation is a minor factor in the business life of the city. In the case of Kenosha it is a still smaller factor. Of the seven cities* which are not on the lake shore and are not immediate suburbs of Milwaukee, only Waukesha—which has excellent railway facilities—is having a noteworthy industrial growth. Many of the villages are smaller than they were a generation ago, and the rural population is scarcely holding its own.

* Burlington, Delavan, Elkhorn, Lake Geneva, Oconomowoc, Whitewater, and Waukesha.

CHAPTER II

PHYSICAL FEATURES AND CLIMATE OF SOUTHEASTERN WISCONSIN

The region with which this bulletin deals is a small part of the great central valley of the United States—an extensive plain most of which belongs to the basin of the Mississippi, but a small part of which is included in the drainage basin of the Great Lakes. The rain falling upon eastern Wisconsin finds its way both to the Gulf of Mexico and to the Gulf of St. Lawrence.

Geology of the Region

Deposition of sediments. The land of southeastern Wisconsin shares with the rest of the central plain of the United States a geological history that reaches far back into the past. More than once the waters of the sea have covered this plain, at times joining the Gulf of Mexico to the Arctic Ocean. For a part of the time at least they were warm waters, as revealed by the fact that colonies of coral-building polyps built extensive coral reefs which now make up parts of the limestone of eastern Wisconsin. The region was covered by the sea for an enormous length of time, as is indicated, for example, by a sandstone formation which is nearly a thousand feet thick; and a limestone formation which was probably built up very slowly, that is 300 or 400 feet thick. The evidence is conclusive that this corner of Wisconsin, like the region for hundreds of miles around, was under the sea and was receiving sediments brought from the land by streams for a very long period of time.

Uplift. Later, an uplift of this sea bottom occurred and the upper beds of sand and limy material—compacted into rock—were raised hundreds of feet above sea level and became part of the continent of North America. The great interior sea, which connected the Gulf with the Arctic Ocean, was forced to recede, and land took its place. But the uplift was relatively gentle, for the rocks still lie in nearly horizontal beds. This uplift took place a very long time ago, and a large proportion of the uppermost beds has been weathered and eroded away.

The history of the rocks underlying the region of southeastern Wisconsin, therefore, includes three principal events, each of long duration: (1) the deposition in the sea of the various kinds of sediments (sand, clay, limestone) which were slowly cemented into beds of solid rock; (2) the uplift of these above sea level, and (3) the prolonged weathering, erosion, and removal of the surface rocks, considerably reducing the general level of the land. This is the series of events through which practically all of the land surface of the earth has passed at one time or another, and, in many cases, several times.

In addition to these three processes, southeastern Wisconsin has passed through a fourth experience, namely, glaciation.

The Glacial Period

The most recent of the great geological events in North America was the glaciation of more than half of the continent. For some cause, yet unknown, the climate of northern North America became cold—probably as cold as southern Greenland is at present. The precipitation which now falls mainly as rain then fell in the form of snow, and even the summers were so cold that this snow did not all melt, but accumulated in enormous quantities. The piling up of the snow was particularly great in Canada, including Labrador and the region west of Hudson Bay, the centers from which the glaciers moved outward. Year after year and century after century the snow continued to accumulate here and in northern Europe, and also in the higher mountains all over the world. The snow on both sides of Hudson Bay is believed to have become several thousand feet deep. Its own weight, and possibly slight melting in summer, compressed the snow into ice, and under the tremendous weight of this ice the bottom layers were so pressed upon that they were forced to flow outward—especially southward where the temperature was milder and where melting along the margin of the glacier took place during the warmest months of the year. The movement of the glacial ice was very slow, possibly only a few yards or a few rods a year, as is now the case with the great glacier which covers Greenland.

Soil and loose rocks became frozen into the glacier and were slowly moved along with it. The glacier moved over hills and low mountains, through valleys and across plains, removing everything that was movable, scouring and grinding the rocks over which it passed, deepening some valleys, rounding off

hills and other eminences, and carrying along a prodigious amount of rock waste in the form of clay, sand, rock fragments and bowlders. Much of this debris was ground fine and forms the present soil. The hardest rocks resisted the grinding and are now found scattered over the surface of the ground as glacial bowlders, some of which weigh many tons.

In Canada the work of the glacier consisted mainly in the removal of all loose material. There large areas are almost entirely bare rock whose grooved and polished surfaces

Fig. 4—View of the surface of the Kettle Moraine which extends nearly north and south in eastern Wisconsin. It consists of hills of glacial drift attaining a height of 200 feet and more, and forming a range of hills from one mile to several miles wide. See Fig. 5.

show plainly the prolonged scouring action of the glacier. In the region now included in our northern states the ice did some eroding, but its most important work was that of *deposition.* The load of rock waste which the ice carried was spread unevenly over the surface of our northern states and now forms the soil and many of the hills of these states. As time is reckoned in geology the glacial period ended only yesterday. Many evidences suggest that the glacier melted away in southern Wisconsin not over 50,000 to 60,000 years ago, by no means a long time. The glacial period, as a whole, lasted hundreds of thousands of years. It was not a time of continuous cold, however, but rather an alternation of several cold periods—

during which the snow accumulated and the ice moved southward—and warmer, interglacial periods, during which the ice melted and the southern margin of the glacier receded toward the north—at least receded from the section of the continent including Wisconsin.*

The Origin of Lake Michigan

Lake Michigan and the other Great Lakes did not exist before the Glacial Period. The basin now occupied by the waters of Lake Michigan was a former river valley which was later deepened and broadened by glacial erosion. Before the Glacial Period a river of considerable size is believed to have flowed southward through this valley to join the Mississippi, and this valley offered an easy path of movement for the ice. There is complete evidence that one of the principal lobes of the great continental ice sheet occupied it, and that a great deal of glacial ice traversed the valley from north to south. A smaller lobe passed southward through the valley in which Green Bay and Lake Winnebago now lie. Other lobes of the glacier traversed the basins now occupied by the other Great Lakes, and deepened them by erosive action. (Figs. 6 and 7.)

Rivers do not erode their channels very much below sea level, but the bottom of Lake Michigan is, in the deepest place, nearly 300 feet below. The shape of the depression now occupied by the lake is exactly what we should expect of a basin deepened by ice erosion. There is good reason for believing that the glacier, by eroding the rock, deepened the old river valley to the extent of 500 to 900 feet† and thus made the rock basin in which Lake Michigan is now held.

Another phase of the work of the glacier also helped to make Lake Michigan. When the glacier melted, it released a large amount of clay, sand, and stones which it carried, and laid them down in the form of moraines. The most conspicuous of these are the terminal moraines which were built up along

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* For further discussion of this subject see the following:

Martin, Lawrence, The Physical Geography of Wisconsin, Wis. Geol. & Nat. Hist. Surv. Bull. XXXVI, pp. 221–254; also consult index.

Alden, W. C. The Quarternary Geology of Southeastern Wisconsin, U. S. Geol. Survey Professional Paper 106 (1918), Chaps. V–XI.

Alden, W. C. The Delavan Lobe of the Lake Michigan Glacier, U. S. Geol. Survey Professional Paper 34 (1904).

† For fuller details see Martin, Lawrence, Physical Geography of Wisconsin Wis. Geol. & Nat. Hist. Survey, Bull. XXXVI, pp. 222–238.

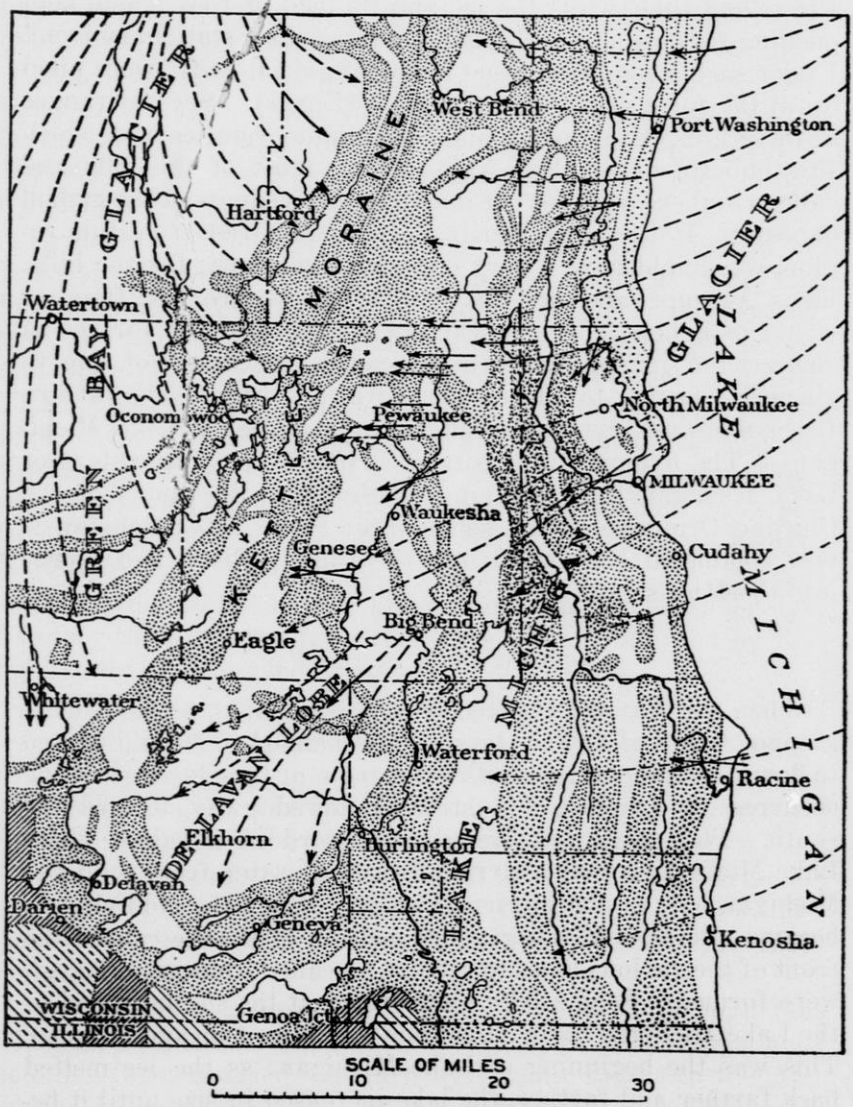

Fig. 5—Map showing the position of the glacial moraines in southeastern Wisconsin. Arrows indicate direction of ice movement and dotted arrows are the moraines. The Kettle moraine is the most conspicuous of these. (See also Figs. 4 and 47.)

the margin of the glacier when the ice front stood in one place for a long time, while the ice and its load of rock waste kept pushing forward and melting along this nearly stationary front. Under such a condition great heaps of glacial drift† were piled up in the form of mounds and hills (Fig. 4). Several ranges of these hills extend north and south in the counties with which this bulletin deals (Fig. 5). In fact, most of the hills and valleys in these counties are due to the unevenness of the glacial deposits. If the glacial drift were all removed from this region, we should have a very different landscape; for the hills, lakes, swamps, and prairies with which we are now familiar would be gone. There is scarcely a feature of the surface of the ground in southeastern Wisconsin which is not due to glaciers—mostly to glacial deposition. Fig. 5 shows how these moraines extend parallel to the shore of Lake Michigan. The extensive deposits of drift prevent the waters of Lake Michigan from draining southward. By means of the Chicago Drainage Canal, some water from Lake Michigan is now conducted southward into the Illinois River and thence into the Mississippi.

Lake Michigan in the Past

When the glacier advanced from the north, an arctic climate gripped this region, and the streams changed to ice and ceased to flow. Yet, along the southern margin of the glacier, melting occurred in summer, and streams flowed away toward the south. The river that flowed southward in a valley where Lake Michigan now is, carried away the water from the Lake Michigan lobe of the glacier (Fig. 6). When the cold climate became milder, and the gradual melting of the ice caused the front of the various lobes to retreat, so-called "marginal lakes" were formed. Such a lake was formed at the southern end of the Lake Michigan basin; it is known as Lake Chicago (Fig. 6). This was the beginning of Lake Michigan; as the ice melted back farther and farther, the lake increased in size until it became even larger than at present. During this period of enlargement, the lake had different outlets at different times. When the outlet was at Chicago, the lake surface stood at a somewhat higher level than the present surface of Lake Michigan, and low lands along the present margins of the lake were

† Glacial drift is the term applied to all kinds of rock waste deposited by glaciers when they melt. It is made up of clay, sand, gravel, bowlders, etc.

then covered by water.* The present sites of Chicago, Kenosha, and Racine, and the lowest ground in Milwaukee were all covered by the waters of Glacial Lake Chicago (Fig. 8).

At a later stage, the waters of Lake Michigan, along with those of the other Great Lakes, drained eastward to the Atlantic through New York State by way of the Mohawk and Hudson rivers. At other times other outlets were used (Figs. 6 and 7).

Evidences of the different levels at which the surface of Lake Michigan has stood are seen in the wave-cut cliffs, the long sand and gravel beaches, extending parallel to the present lake, and particularly in the shoreline of Glacial Lake Chicago still plainly visible in Kenosha and Racine counties (Fig. 8). This old shore line extends north and south through the western part of the city of Racine and is a little west of the city of Kenosha. On an average it is from one to two miles west of the present shore of Lake Michigan. The strip of land lying between the present lake and the old shore line of Lake Chicago is quite level.

This brief sketch of the history of Lake Michigan brings together the following facts that have been established by the field study of many geologists:

(1) Prior to the glacial period, there was a river which flowed southward to the Mississippi in a valley now occupied by Lake Michigan.

(2) This valley was further eroded to a depth of several hundred feet by a lobe of the great continental glacier.

(3) The gradual melting of this ice lobe at the southern end gave rise at first to a small lake near the present city of Chicago which increased in length as the ice lobe melted farther and farther back.

(4) This lake at one time drained southward through the Chicago, Desplaines, and Illinois rivers to the Mississippi; and at other times drained eastward by various routes to the Atlantic.

(5) This lake, at its highest stage, rose to a level 55 feet above the present surface of Lake Michigan, submerging the low land along its margin including the present sites of Chicago, Kenosha, Racine, and part of Milwaukee.

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* The surface of Lake Chicago was not at the same level at all times. At the highest (Glenwood) stage, it was 55 feet, and at the lowest, 23 feet above the present level of Lake Michigan.

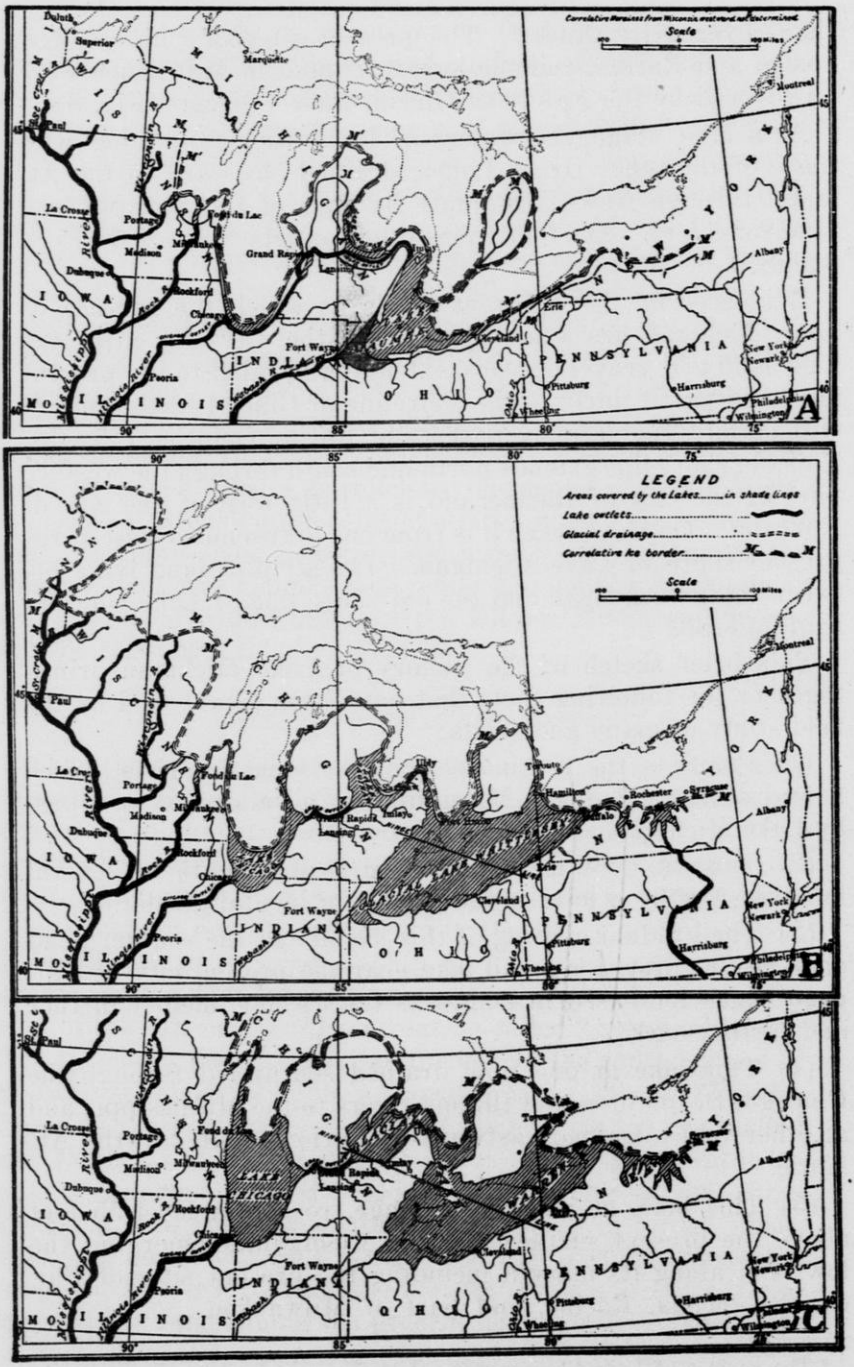

Fig. 6—Position of the glacial lakes at various stages in the development of the Great Lakes. Different outlets were used at different stages. Note the increase in the size of the lakes as the ice-front retreated northward. (Taylor and Leverett.)

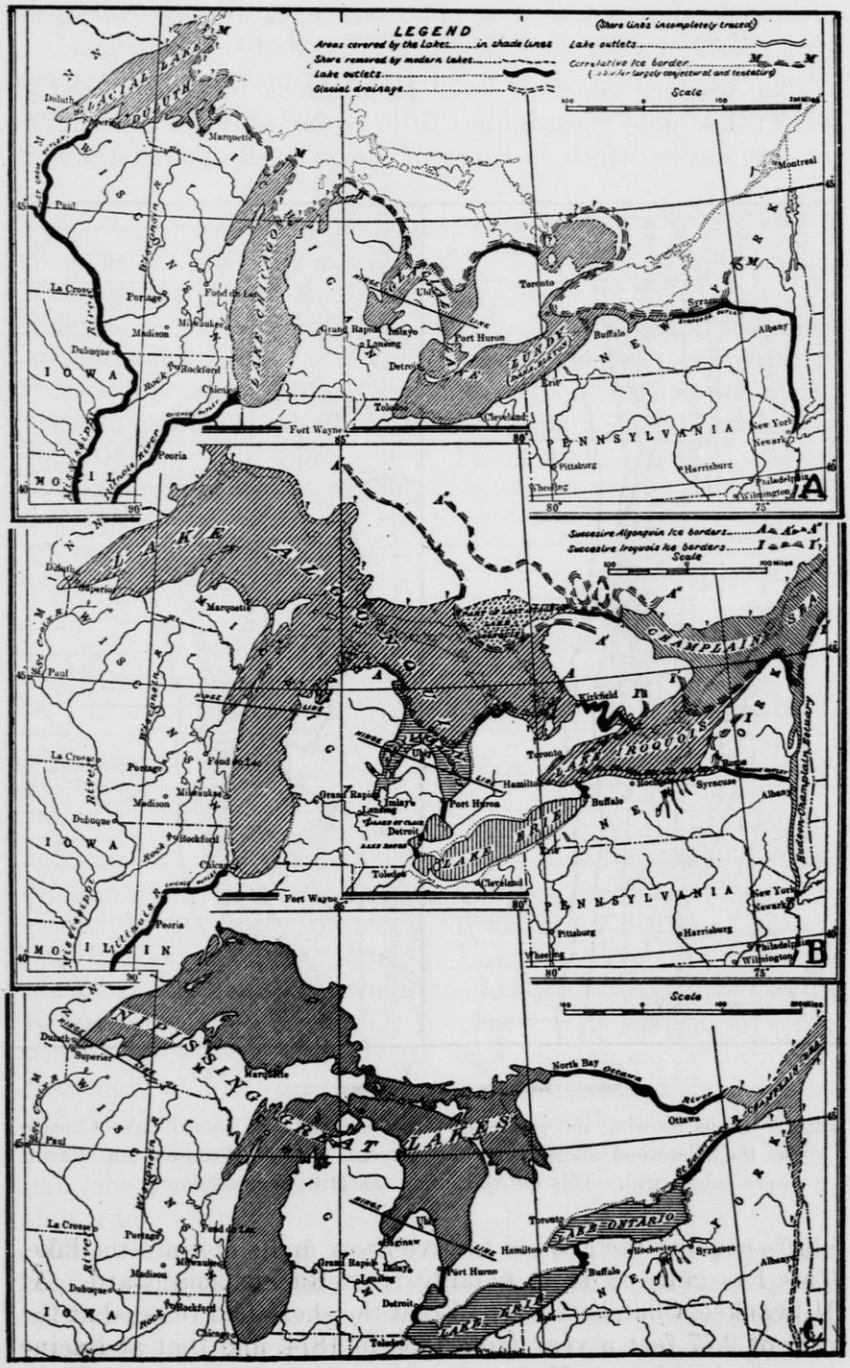

Fig. 7—The Great Lakes at later stages than those shown in Fig. 6. (Taylor and Leverett.)

Recession of the West Shore of Lake Michigan

The western shore of Lake Michigan is formed of glacial drift: this loose material has little power to resist the attacks of the waves, which in times of storm dash against the soft

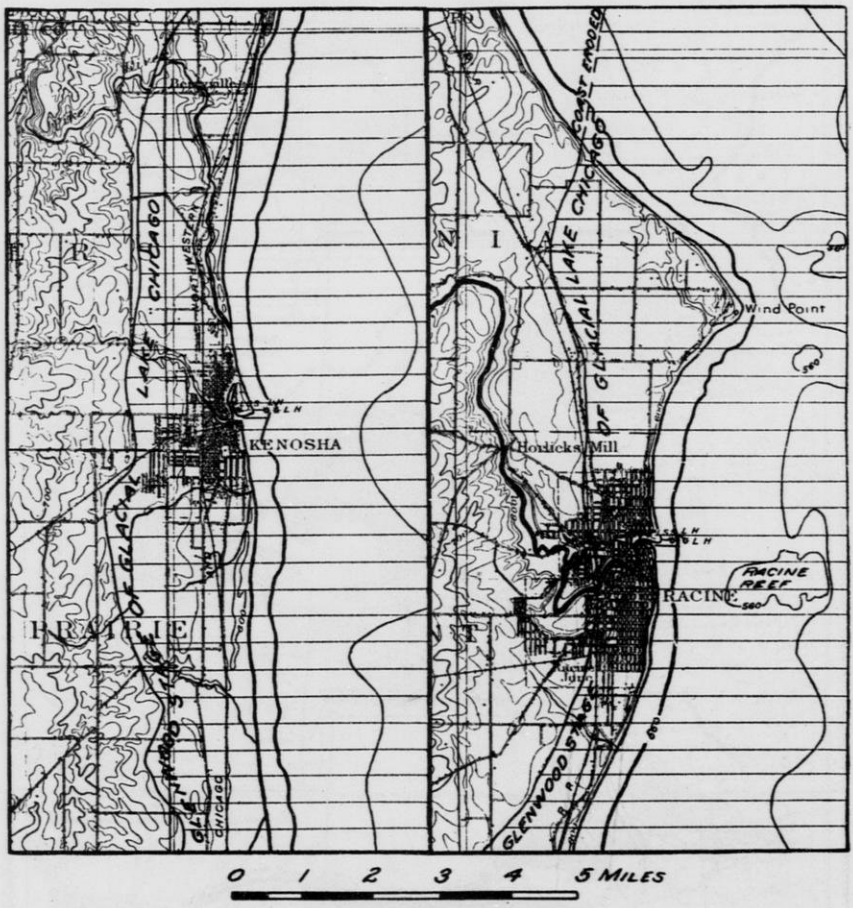

Fig. 8—Maps showing the position of the shore line of glacial Lake Chicago at the Glenwood stage when the present sites of Kenosha and Racine were submerged. This old shore line can still be seen plainly.

bluffs causing the ground to give away and slide into the lake. This has gone on most notably from Racine southward. At Milwaukee, Chamberlin found that the shore had receded at the rate of 2.77 feet a year from 1835 to 1874, and that at Racine the rate had been 9.73 feet for 24 years.* A report by U. S.

* Chamberlin, T. C., Geology of Wisconsin, Vol. II, p. 231.

engineers states that the recession of the coast at Racine was at times as much as 12 to 16 feet a year. At Racine efforts have been made to prevent further erosion of the shore line by building a concrete sea wall.†

Glacial Deposits

All of southeastern Wisconsin is covered with a variable thickness of glacial deposits of various sorts. Before glaciers invaded this region, the bed rock was covered with a layer of residual soil. Southwestern Wisconsin, which was not glaciated, has this kind of soil, called *residual* because it lies where it was originally formed by the decay of the bed rock. By observing surface conditions there, we get an idea of what the conditions were in southeastern Wisconsin before they were so completely changed by the glaciers.

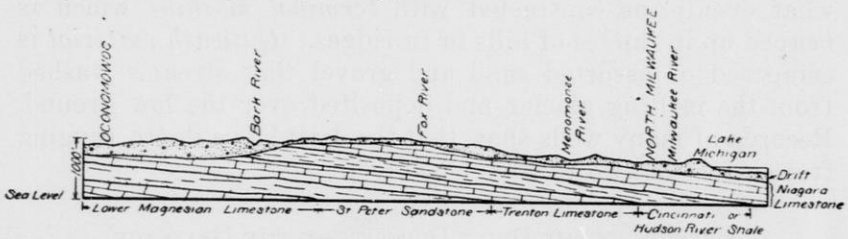

Fig. 9—The underlying rock-layers of eastern Wisconsin dip toward Lake Michigan.

Figure 5 shows that both the Green Bay lobe and the Lake Michigan lobe invaded this part of the state, but the area included in the five counties with which we are dealing was mostly covered by the ice of the Lake Michigan lobe. By far the most conspicuous moraine in this part of the state is the Kettle Moraine (Fig. 4). In places it is several miles in width; the glacial hills are, in many instances, 200 or more feet high, and among them are many undrained depressions, called kettle holes, whence came the name, the *Kettle Moraine*. This moraine is built of the deposits from both the Lake Michigan lobe and the Green Bay lobe where they came together as shown in Figure 5.

The Glacial Period was brought to an end by a gradual change of climate. The glaciers had pushed their way about as far south as the present Ohio and Missouri rivers, although

† See Alden, Wm. C., Professional Paper 106, U. S. Geological Survey (1918) pp. 338–340.

the last advance of the ice did not extend so far south as earlier advances had done. As the ice along the margins of the various lobes melted, terminal moraines were built up. As already explained, these moraines are ranges of hills of glacial drift extending for miles over the surface of the country; they mark the positions where the ice-front halted for a time, while ice from the rear advanced, melted, and dropped its load of drift. At least four ranges of these low, inconspicuous morainic hills extend in roughly parallel lines north and south across Kenosha and Racine counties (Fig. 5). Similar, but more confused, moraines exist in all of southeastern Wisconsin and cover nearly all of the five counties treated in this bulletin (Fig. 5). Between the terminal moraines are more or less level areas of *ground moraine* and of *outwash material.* The *ground moraine* is glacial drift that has been spread out somewhat evenly, as contrasted with *terminal moraine* which is heaped up in ranges of hills or in ridges. *Outwash material* is composed of assorted sand and gravel that streams washed from the melting glacier and deposited over the low ground. Records of many wells show that the drift has a depth ranging from a foot or two to 400 or 500 feet.

Effects of the Drift Deposits on the Drainage

The numerous lakes and swamps in southeastern Wisconsin are due to interference with the drainage caused by glacial deposits. In southwestern Wisconsin, which was not overspread by glaciers, there are no lakes and practically no swamps except small ones near streams. This same condition existed in southeastern Wisconsin before the Glacial Period; but after the glaciers had melted away, leaving the surface of the land covered with heaps and ridges of drift, the streams found their old channels, in some places, choked by moraines, and, in others, completely filled. In many localities the drift deposits formed dams across the valleys of the streams thus causing lakes. The deeper lakes still continue, but many of the shallow ones have been gradually filled by sediments and by vegetation, and have become swamps. However, not all of the present swamps were former lakes; probably the majority of them have been swamps from their beginnings. Between twelve and fifteen per cent of this area is covered with lakes, swamps, or land that has been swampy. Many of the lakes occupy depressions in the drift.

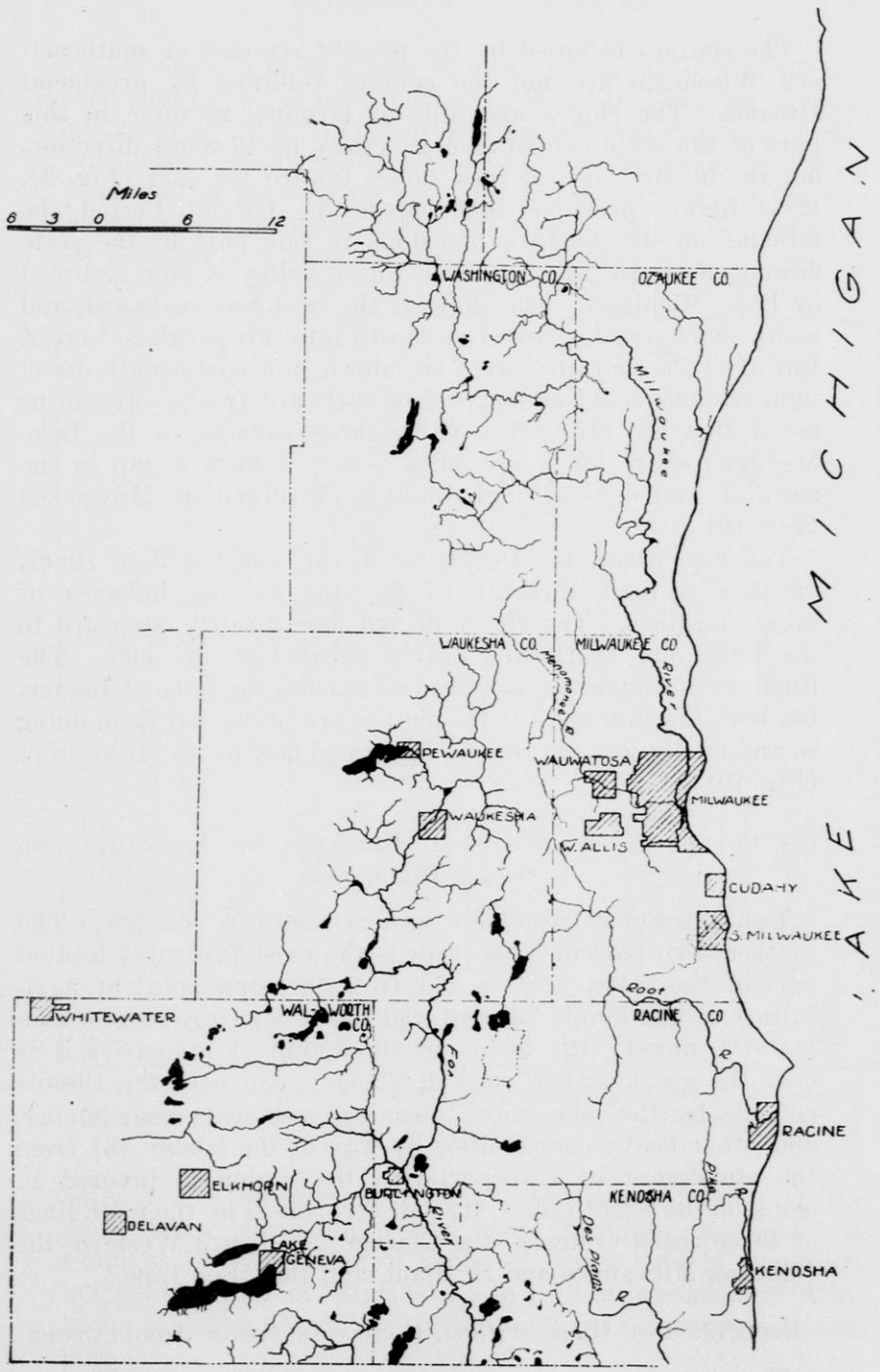

Fig. 10—Streams of southeastern Wisconsin which flow to Lake Michigan and to the Illinois River. Streams west of these flow to the Rock River and thence to the Mississippi. The divide between the two drainage systems consists of glacial moraines (see Fig. 5).

The courses followed by the present streams of southeastern Wisconsin are not the courses followed by preglacial streams. The ridges and hills of terminal moraine in this part of the state extend in a generally north-south direction, but the underlying bed rock slopes toward the east (Fig. 9). It is highly probable that before the Glacial Period the streams on the Niagara limestone in this part of the state flowed eastward into the river whose valley is now occupied by Lake Michigan. The slope of the land was eastward, and many short streams flowed eastward into this preglacial river. But after the moraines were laid down in a north-south direction, streams could no longer flow eastward freely. It will be noted that the Milwaukee River flows parallel to the Lake Michigan shore for many miles before it finds a gap in the moraine and cuts through to Lake Michigan at Milwaukee (Fig. 10).

The Fox River, the Desplaines River, and the Root River, all show in their direction of flow the guiding influence of these moraines. The rivers do not flow directly eastward to the Lake, but southward nearly parallel to the lake. The Root cuts through the moraine and reaches the Lake at Racine, but both the Fox and the Desplaines are prevented from doing so and finally join the Illinois River and flow to the Mississippi (Fig. 10).

Influence of the Physical Features on Economic and Social Conditions

The favorable influence of geographical position. The southeastern part of Wisconsin is the most favorably located part of the state, because (1) from the standpoint of agriculture it has ample rainfall and has a long growing season (150-160 days); (2) from the standpoint of industries it is near the great central market, Chicago, and near the Illinois coal fields; the lake shore towns can get coal, iron, lumber, and other heavy commodities by way of the lakes; (3) from the standpoint of transportation the region is favored in being on the Great Lakes; it is also traversed by the main lines of three trunk systems—the Chicago and North Western, the Chicago, Milwaukee and St. Paul, and the "Soo Line."

Influence of Geographical Conditions upon Agriculture

The favorable influence of surface features. The region has neither mountains nor high hills, and bare rock prac-

tically never appears; soil is everywhere deep and fertile. The many glacial moraines give the land a rolling surface, but most of the hills are not so steep but that they are readily cultivated. Small patches of woods are frequent, mainly on land that is unfavorable for cultivation. In four of the five counties, not including Milwaukee County, 90 per cent or more of the land is farm land. The cities of Milwaukee County oc-

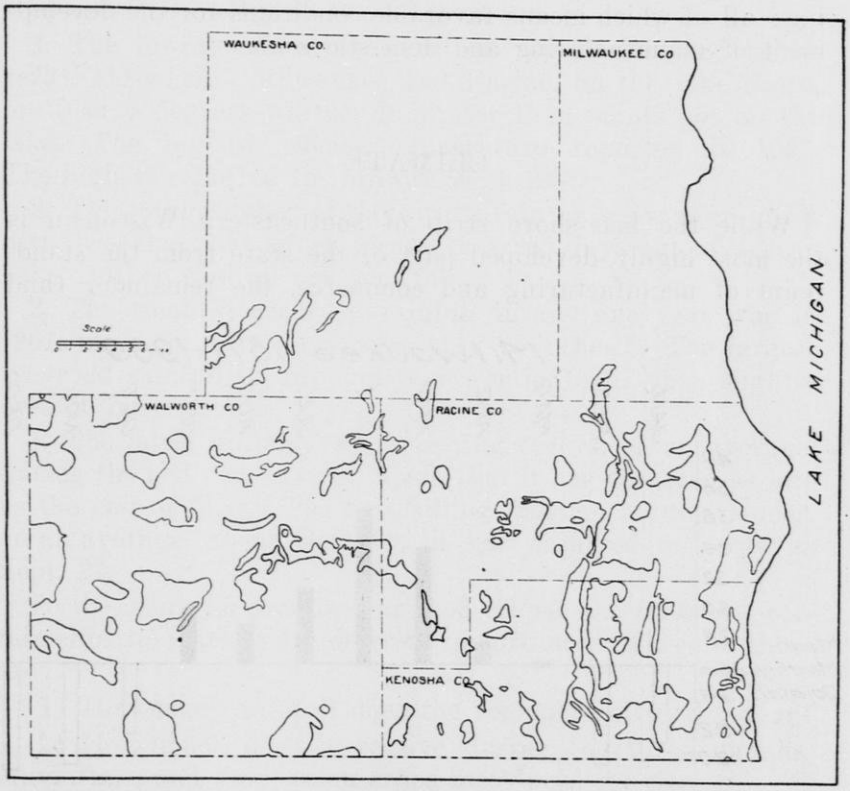

Fig. 11—The enclosed areas represent the principal "prairies" in southeastern Wisconsin as shown on a map published by the State Geological Survey in 1876.

cupy a very considerable area of the county. Owing to the many lakes and swamps and steep moraines in Waukesha County, the percentage of improved farm land is somewhat low for this part of Wisconsin. In both Milwaukee and Waukesha counties, 65 per cent of the total area is improved farm land.

Both the undulating surface and the rather high percentage of wet land encourage dairy farming, and these counties are among Wisconsin's leading dairying counties.

Railroads have found easy routes in all parts of the region, for there are no difficult grades or serious obstructions. Of the 59 townships in the five counties, 52 have railroads passing through them; four of the townships that have no railroads are in Walworth County. There is no township in either Waukesha or Milwaukee county without a railroad.

Taken as a whole, the region has a favorable topography for agriculture, for road construction, and for railway building; all of which means favorable conditions for the development of manufacturing and domestic commerce.

CLIMATE

While the lake-shore strip of southeastern Wisconsin is the most highly developed part of the state from the standpoint of manufacturing and commerce, the remainder (and

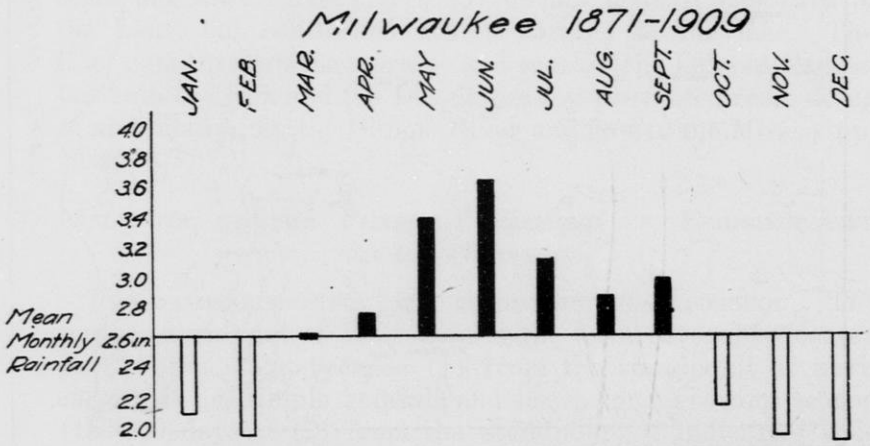

Fig. 12—Diagram showing the average monthly rainfall (in inches) at Milwaukee. Note that the spring and summer months have more than the mean, and the winter months less than the mean. This is highly favorable to agriculture.

the larger part) of the region is distinctly agricultural. The high degree of prosperity and the high level of wealth which characterize this section are the direct outgrowth of agriculture and dairying, which in turn, are intimately related to climate. If a region receives much less than 20 inches of rainfall a year, agriculture is seldom successful without artificial irrigation. Southeastern Wisconsin averages about 30

inches, and a complete crop failure on account of drought has never occurred. However, summers are sometimes too dry for the maximum production of crops, and it is probable that most summers have a period which is too dry for the highest welfare of crops. Occasionally the season or some part of it is too wet, as may be judged from Fig. 13.

SUMMARY OF CLIMATIC DATA covering the five southeastern counties of Wisconsin (Milwaukee, Waukesha, Racine, Kenosha, and Walworth).

1. The lowest official temperature reported is 28° below zero Fahrenheit. Milwaukee and Racine, on the lake shore, are 3 or 4 degrees warmer in winter than points not on the lake. The highest official temperature reported is 107°. The highest reported for Milwaukee is 100°.

2. The total number of days with rain or snow averages a little less than 100, which means that 265 days out of a year have neither rainfall nor snowfall.

3. The smallest recorded rainfall in any one year was in 1901, in which year there were only 17 inches.* The largest recorded rainfall in any one year was in 1876, when slightly over 50 inches fell†.

4. The latest killing frost in spring occurs, on an average, during the last few days of April; but it has occurred as late as the end of May. The first killing frost in autumn comes, on an average, about Oct. 12; it has occurred as early as Sept. 22.

To the men who produce our food crops—the farmers—certain climatic matters are of great importance. Three of these are:

(1) How much rainfall does the region receive in a year?

(2) How much does it receive during the three months, May, June, and July, when crops most need it?

(3) Is the rainfall during these months dependable, or does the amount fluctuate widely in different years?

Answer to No. 1. On an average, the farmer of southeastern Wisconsin can count upon 30 inches of rainfall a year. This is ample for crops if a sufficient proportion of it falls in the growing season (May, June, July).

Answer to No. 2. On an average southeastern Wisconsin receives slightly over 10 inches of rain during these three

* At Waukesha.
† At Milwaukee.

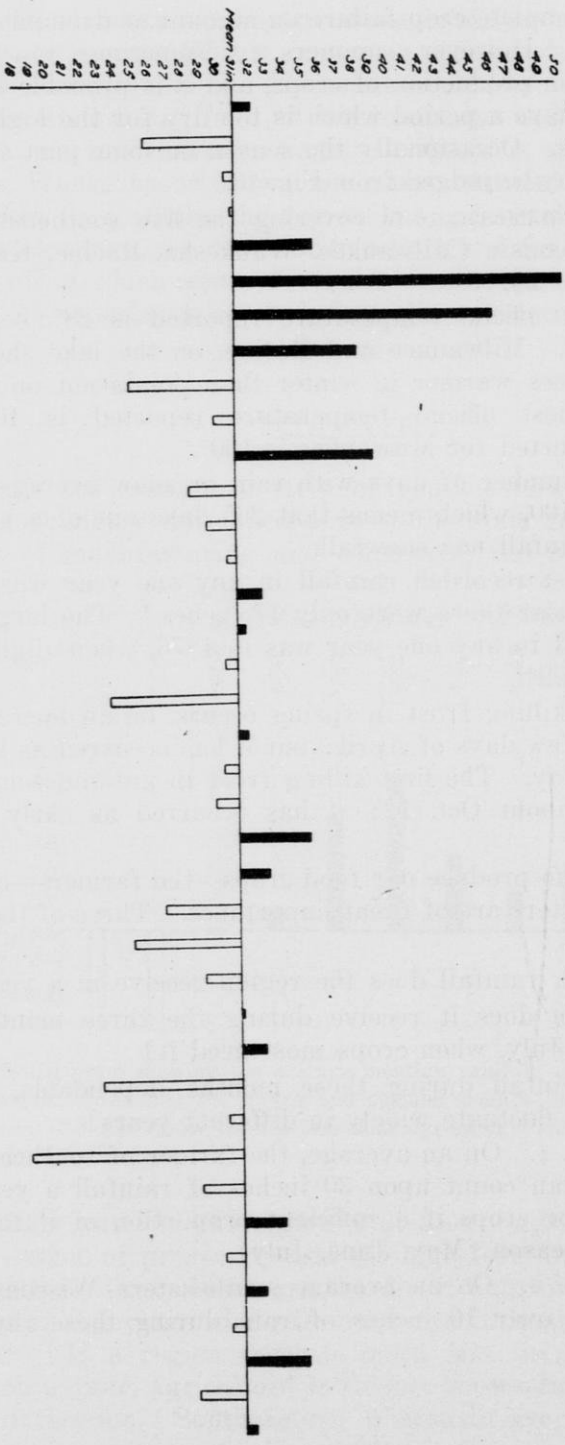

Fig. 13—Diagram showing the wide fluctuations in the annual rainfall of southeastern Wisconsin. Such a large rainfall as that of 1876 or 1877, and such a small rainfall as that of 1899 or 1901 are bad for agriculture.

months. If this is well distributed throughout the time, it is ample for crops, in fact nearly ideal.

Answer to question No. 3. The rainfall during these three months is *not* entirely dependable. Fortunately, May, June, and July are, on an average, the three rainiest months of the year, yet there is a very wide fluctuation in the amount of rainfall. Taking Waukesha County as an example, in July, 1902, nearly nine inches of rain fell; while in July, 1909, less than one-half of one inch fell.

If any of the three critical months (May, June, July) has less than 1 inch of rain, crops suffer seriously; or if the average for the three months is less than 6 inches, crops generally suffer. How often may either one of these two unfavorable conditions be expected to occur? The records of the U. S. weather bureau indicate that *on an average* about once in six years this serious deficiency of rainfall may be expected (Fig. 13). If the records are reliable, Racine County has suffered most frequently, and Walworth County least frequently from this deficiency of rainfall. However, the farmers of this section of Wisconsin have learned to diversify their crops so that anything like a complete crop failure is not known.

TABLE 1—CLIMATIC DATA

	Delavan	Milwaukee	Racine	Waukesha
Smallest annual rainfall recorded	26.87 in.	18.69 in.	20.00 in.	17.00 in.
Largest annual rainfall recorded	41.39 in.	50.36 in.	36.06 in.	38.30 in.
Mean annual rainfall	31.43 in.	31.19 in.	29.51 in.	28.96 in.
Number of years below the mean	6	23	6	9
Number of years above the mean	5	16	7	8
Lowest recorded temperature	—28°	—25°	—24°	—27°
Highest recorded temperature	101°	100°	107°	102°
Mean annual temperature	46°	45.6°	47.3°	45.9°
Average number of days with rain (.01 in. or more)	81	128	89	101
Average date of first killing frost in autumn	Oct. 16	Oct. 7	Oct. 13	Oct. 12
Earliest recorded killing frost in autumn	Sept. 22	Sept. 25	Sept. 30	Sept. 24
Average date of last killing frost in spring	April 20	April 28	April 28	April 28
Latest recorded killing frost in spring	May 31	May 29	May 31	May 31

CHAPTER III

MINERAL PRODUCTS

The rocks of southeastern Wisconsin do not yield any metallic products except iron ore, which is mined near Mayville in Dodge County and formerly in the Baraboo valley in Sauk County. The five counties covered by this bulletin yield only non-metallic minerals, the most important of which are limestone, clay, and mineral waters.

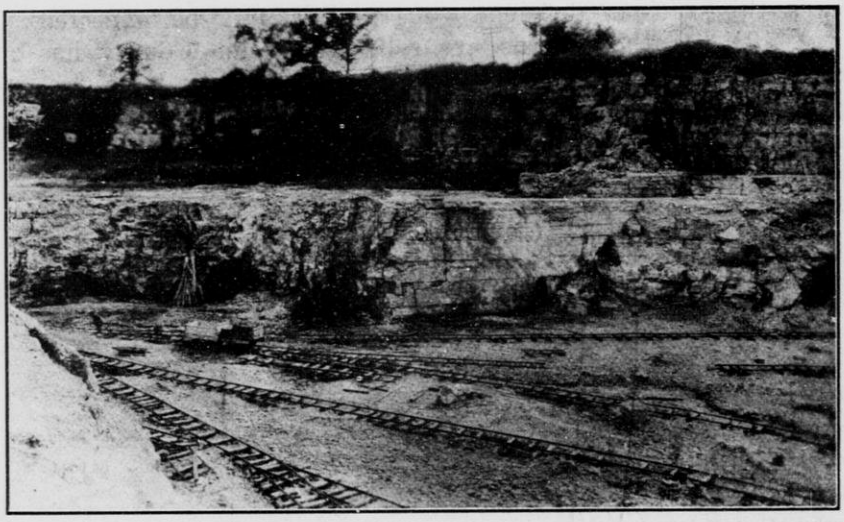

Fig. 14—Limestone quarry in Waukesha County; one of many in eastern Wisconsin. Great quantities are used for road construction and for concrete work. Many of the fine buildings in Waukesha and in other cities of eastern Wisconsin are built of this stone.

LIMESTONE. The greater part of the limestone is quarried from the Niagara formation which forms the bed rock of about 80 per cent of the area of the five counties. This limestone is firm and hard and nearly all of a light gray color (Fig. 14). A number of the finest buildings in Waukesha are constructed of this rock; these include the county buildings, Carroll College, the High School, and a number of churches and private residences. Many beautiful homes and

many public buildings and office buildings in Milwaukee are built of this stone, for example, the Benjamin and Plankinton residences and the Milwaukee Loan and Trust Building.

When this limestone is burned in kilns (Fig. 15), it becomes lime. In the pioneer days and immediately following, there were many of these lime kilns scattered throughout the region, and hundreds of thousands of barrels of lime were burned yearly for use in making plaster and mortar. More recently cement has displaced lime to a large extent, and most of the lime kilns have been abandoned.

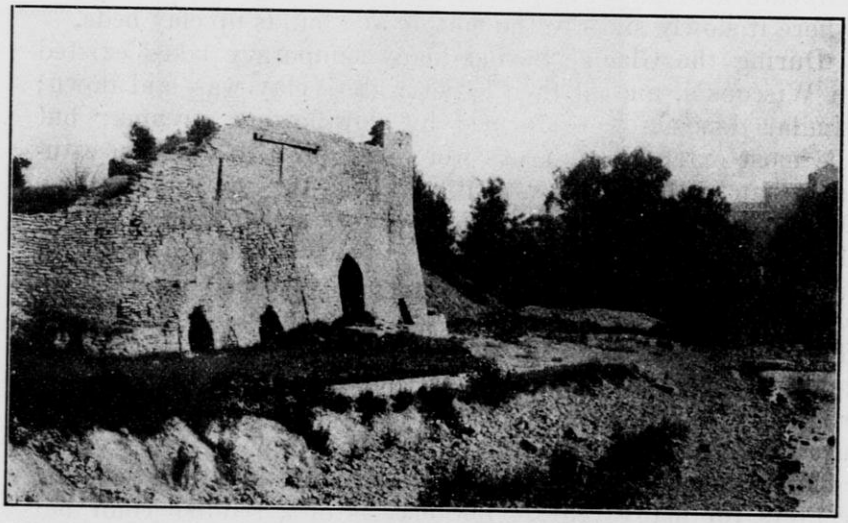

Fig. 15—Ruins of an old lime kiln at Horlick's Mill near Racine, where limestone was burned to make lime. Formerly such kilns were numerous, but nearly all are abandoned now.

A great deal of the limestone is reduced to crushed stone and used in road construction and in concrete work, the largest use to which the rock is now put. In 1920 there were about a dozen large quarries operating in Waukesha County, six or eight in Milwaukee County, and several in Racine County. Scores of other quarries have been worked in the past.

Sand and Gravel. The great interest now shown in good roads, especially in concrete roads and gravel roads, has given a new value to sand and gravel deposits, and is leading to an increasing use of these materials. Sand and gravel beds are very numerous throughout this region of glacial and fluvioglacial deposits. The ease with which crushed stone, sand,

and gravel can be secured in southeastern Wisconsin is one reason for the rapid extension of good roads—including concrete roads—in this part of the state.

CLAY. A large amount of glacial drift in Wisconsin is clay, mixed with sand, pebbles, and bowlders. Unless by some natural process the clay is separated from the coarser materials of the drift it can not be used for the making of clay products such as brick and tile. In nature, running water is the great assorter. Clay is exceedingly fine, so fine that it is carried in water a long time before settling and may be conveyed by currents into lagoons, ponds, lakes, and other quiet waters where it slowly sinks to the bottom and builds up clay beds.

During the Glacial Period many temporary lakes existed in Wisconsin, and in their quiet waters clay was laid down; similar deposits were formed by slow-flowing streams; but the most extensive deposits were laid down in lagoons, estuaries, and other shallow waters along the margin of Lake Michigan at a time when its surface was higher than it is now. The eastern half of Kenosha and Racine counties and nearly all of Milwaukee County contain numerous clay beds which vary in depth from a few inches to a dozen feet or more. Throughout the western half of Kenosha and Racine counties and in Walworth and Waukesha counties occur clay beds of a slightly different character. At various places these clays are used for making brick (Fig. 16).

Milwaukee and Racine have been important brick making centers for many years. The clay is of a reddish color but when burned, turns a light yellow, producing the cream colored bricks which were so generally used in Milwaukee buildings that the city is known as the Cream City. Solomon Juneau brought a Canadian brick maker to Milwaukee in 1835 and 25,000 bricks were made the first year. Hundreds of buildings in Wisconsin cities, and in others far and near are built of the cream colored brick made in eastern Wisconsin. Following is an excerpt from the first city directory of Milwaukee, 1847-8:

"The brick manufactured in and about this city, besides being equal in hardness, durability and uniformity of texture to the best brick made in the East, has the advantage of a very rich and beautiful color. Instead of the fiery red, the common and almost universal color elsewhere, the Milwaukee brick are of a soft and delicate cream color, exceeding grateful to the eye, and proof against all vicissitudes of weather."

"The number of brick made in this city during the past year (1847) was 8,788,000; which have been delivered in the city at prices ranging from $3.50 to $5.00; the average price being $4.00. The business gave constant employment to 125 men and 24 teams. . . . The clay from which the

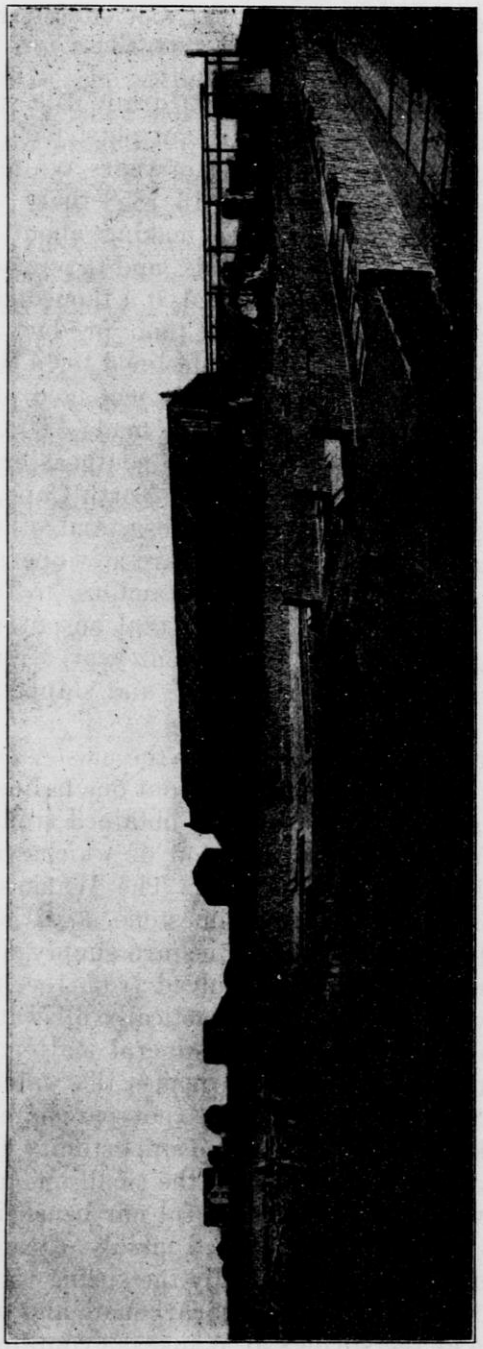

Fig. 16—Helker Brothers North Point (Racine) Brick Yard in 1900.

brick is made is remarkably pure and fine. It is found in thin, regular layers, indicating a deposit from still water. An admixture of one part of sand to two of clay, is necessary to give the proper temper to the brick."

Besides brick, large quantities of drain tile and small amounts of rough pottery such as plant pots, jugs, etc., were made from this clay. For a number of years Whitewater had potteries that made such articles. In 1858 there were eight brick yards in or near Milwaukee making about 35,000,000 bricks annually; in 1874 there were six, and they made 24,000,000 annually, worth from $10.00 to $25.00 a thousand. In 1900 there were five yards operating, and their product was about 20,000,000 a year, but the price had declined to $4.50 to $10.00 a thousand, and only the most skillfully managed plants were profitable. Four brick yards at Racine made 4,000,000 bricks in 1900. Many other places in the five southeastern counties (Union Grove, Wind Lake, Burlington, North Cape, Kenosha, Elkhorn, Springfield, Bristol, Wauwatosa, and others) made brick in the past, but only a few yards are now operating. Increased prices of late have given a stimulus to the 8 or 10 yards that are still working, yet the total output in the five counties is relatively small. In a recent year Milwaukee received 1638 cars of brick from outside and shipped only 432 cars.

Mineral Water. This is at present the most valuable mineral product of the region, reaching about one milion dollars a year. Nearly all of these waters are obtained from the 14 or 15 springs at Waukesha, a discussion of which will also be found in the chapter on Waukesha. The Waukesha spring waters rise from the underlying limestone, and the minerals which they contain in small quantities are simply those which the underground waters have dissolved from the rocks and drift through which they pass. Practically all waters in the earth and upon its surface contain mineral matter; the commonest is calcium carbonate which makes the water "hard". Rain water is "soft" because it has not percolated through the soil or rocks and so has had no opportunity to dissolve mineral matter. For the most part, the small amount of mineral matter in water is neither harmful nor beneficial.

The Niagara limestone is composed mainly of calcium magnesium carbonate, and quite naturally the spring waters which issue from this rock contain calcium carbonate and magnesium carbonate. One of the springs at Waukesha contains 64 parts of iron in each million parts of water, and others contain about

the same amount of compounds of sodium and potassium. According to published analyses, the waters from the fifteen springs at Waukesha contain dissolved solids ranging from 250 to 740 parts in each million parts of water*.

Only a very small portion of the various spring waters of Waukesha or other parts of the region are sold as medicinal waters; nearly all are sold as table waters, and large quantities are used in making soft drinks, especially ginger ale. Wisconsin ranks first among the states in the value of mineral waters bottled and sold.

While the total value of the mineral products of the five counties amounts to only a little over $2,000,000 a year, yet the limestone, sand, and gravel are exceedingly useful materials, needed in every community and especially needed for road material in this period of increasing demand for good roads. Owing to their weight these materials would become somewhat costly if they had to be transported far by rail.

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* Weidman, Samuel and Schultz, A. R., Water Supplies of Wisconsin, Wis. Geol. & Nat. Hist. Survey, Bul. XXXV, p. 615.

CHAPTER IV

THE INFLUENCE OF LAKE MICHIGAN

Cheaper Coal from the East

Along its whole eastern boundary Wisconsin faces on Lake Michigan, a link in the most important inland waterway in North America and perhaps in the world. To be situated upon such a waterway gives to any state or province important commercial advantages. As a rule, transportation on such a waterway is the least expensive of all forms of transportation except that on the sea. For example, lake boats bring coal from ports on Lake Erie to Milwaukee for 50 to 70 cents a ton, and at times in the past for 35 cents a ton. The distance is nearly a thousand miles; at 50 cents a ton the cost of thus transporting coal is only 1/20 of a cent per ton-mile, while the rail rate from Buffalo to Milwaukee is at least five times as much.

Each year Wisconsin uses hundreds of thousands of tons of coal which comes by way of the lakes, for the cost of bringing eastern coal to Wisconsin *by rail* is nearly prohibitive. Even with the great advantage of lake transportation, anthracite coal costs the consumers in Wisconsn from 16 to 20 dollars a ton. Few people in the state would feel that they could afford anthracite coal if it cost very much more than it now costs.

This is one illustration of the advantage which Wisconsin possesses in facing on the Great Lakes. This advantage of cheap transportation extends also to other commodities which enter and leave the state. Lake transportation was still more important in the past when great quantities of lumber and wheat were shipped by lake boats. Water transportation is best adapted to heavy and bulky commodities, which are transported overland only at high cost. Lake transportation was the most important factor in building up the early industries of the lake shore counties; and the growth of industries causes the growth of other forms of business, which in turn, increases population and wealth.

Eastern and Western Wisconsin

On the western boundary of Wisconsin is another waterway, once regarded as an important traffic route; but the usefulness of the Mississippi River to Wisconsin makes a poor showing when compared with that of the Great Lakes. Ten manufacturing cities have grown up along the shore of Lake Michigan (including Green Bay) but only two on the Mississippi River; and the larger of these two, La Crosse, ranks only sixth among the manufacturing cities of the state.

Population. The effect of Lake Michigan upon the growth of population shows in the fact that nearly 1,000,000 people live in the eleven counties bordering on Lake Michigan and only ¼ as many in the eleven counties on our western boundary. Nine out of the eleven counties on Lake Michigan gained in population between the decade 1900–1910, while six out of the eight on the Mississippi River lost population. Nor is this growth of population in the lake shore counties confined to the cities; in nine out of the eleven counties which touch Lake Michigan the *rural* population increased, but in all of our counties along the Mississippi it decreased.

Wealth. The favorable influence of the Lake Michigan waterway is even more striking when we compare the wealth of the lake shore counties with that of the eleven counties on the western boundary. The valuation* of the former is about $200,000 per square mile, while that of the latter is less than $50,000 per square mile. The valuation of the three lake shore counties treated in this bulletin is nearly $1,000,000 per square mile.

Lake Michigan and the Early Development of Wisconsin

The advantages enjoyed by the eastern counties on account of their position on Lake Michigan are now more largely indirect than direct. Before railroads became the chief arteries of transportaton, natural waterways were of utmost importance, and they benefited the regions which they served in a most direct way. In the case of Wisconsin, the Great Lakes were the only convenient means of connecting the region with the more highly developed East. From the East the early settlers must come, bringing with them furniture, tools, and implements. Such machinery as the early industries required

* State Tax Commission.

must come mainly from the East; and for a long time the pioneer settlements secured a large part of their supplies of clothing and other manufactured goods from that section of the country. During this stage, the Great Lakes constantly and directly assisted the development of the state and particularly the part near Lake Michigan.

It was precisely this advantage of water transportation that caused the location and growth of the early settlements on the shore of the lake. When railroads became numerous and their service speedy and reasonable in cost, they gradually took over an increasing amount of the former traffic and absorbed most of the new business; yet the momentum given to the growth of the early shore cities by lake transportation continued down to the present. These lake ports were the termini from which the early railroads pushed their way into the back country; consequently they became the gateways through which the products of farms and forests proceeded to markets, and through which goods from the East passed westward to Wisconsin, Iowa, and Minnesota.

Lake Transportation and Early Industries

The lake ports not only were points of transshipment between water routes and land routes, but their advantages for commerce were also advantages for all kinds of industries. The lake not only gave better shipping and receiving facilities but created competition which lowered rail rates.

Settlers from the East and from overseas poured into the new West, coming in large numbers by way of the Erie Canal and the Great Lakes. Many of these people landed in Milwaukee, Racine, Kenosha, and other lake ports and furnished a constant supply of labor which was a distinct advantage to manufacturers. The wave of German immigrants brought skilled workmen, notably in the tanning, brewing, and leather working trades; and this supply of skilled labor entering these cities gave them an advantage which cities situated away from the lakes did not possess.

Summary. Thus (a) in securing machinery and raw materials, (b) in facilities for shipping out their products, (c) in rail connections with other sections of the state and country, and (d) in securing labor, the lake ports occupied the most strategic points in the state for the development of manufacturing. Milwaukee, which had the best harbor, and became at an early date the focus of extensive railroad construction.

offered the best advantages, and so secured the lion's share of the manufacturing of the state. Now its manufactured products equal in value those of the next twenty cities of Wisconsin, while Racine and Kenosha rank second and third as manufacturing centers.

Contrasts in the Economic Development of the Michigan and Wisconsin Shores of Lake Michigan

A body of water three hundred miles in length and nearly one hundred miles wide projecting into the very heart of a rich territory must influence the economic development of that territory. Lake Michigan influences air temperatures for some twenty miles inland from its eastern shore in Michigan, but considerably less in Wisconsin. Land heats and cools more rapidly than water. The heat stored up in the waters of Lake Michigan in summer is given off in autumn and early winter to the prevailing westerly winds and is carried over the Michigan shore lands. During the winter the lake radiates its accumulated summer heat, and as spring advances, the water warms more slowly than the land; consequently the winds blowing across the lake are cooled and give the shore lands of Michigan a lower temperature than would prevail were the lake not present. This retards the spring and prevents vegetation—including fruit trees—from responding too promptly to the early warmth and thus becoming exposed to the danger of frosts. Herein lies one explanation of the high development of fruit growing on the Michigan side of the lake.

Grand Haven in Michigan lies directly opposite Milwaukee. Its average January temperature is four degrees warmer than that of Milwaukee, and six degrees warmer than that of interior cities of Wisconsin and Iowa in the same latitude. The lowest January temperature is ten degrees warmer at Grand Haven than at points in the interior of Wisconsin and Iowa in the same latitude. The extremely low winter temperatures which visit Wisconsin are seldom so severe on the Michigan shore of the lake.

Fruit growing

The accompanying map, Fig. 17, showing the number of orchard trees in the counties bordering on Lake Michigan in Wisconsin and in Michigan, brings out the lake influence impressively. The shore counties in Michigan make up one of the

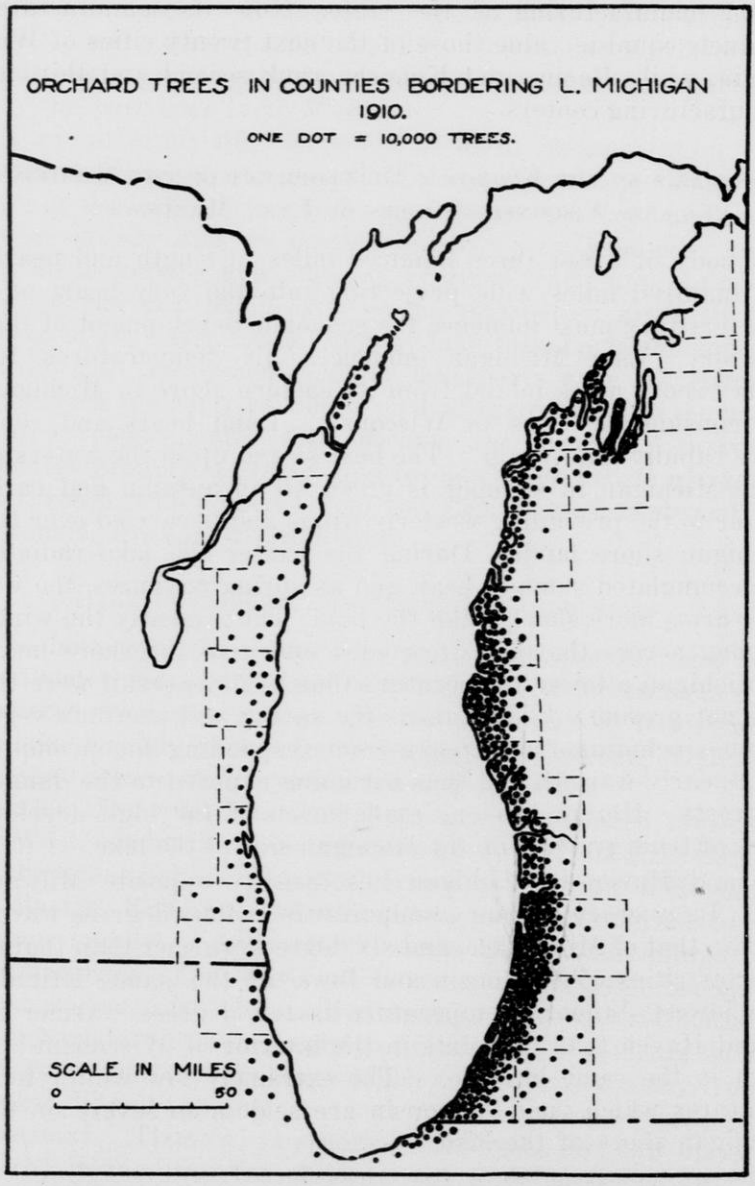

Fig. 17—Map showing the effect of Lake Michigan upon fruit growing on its east and west sides. The prevailing westerly winds cause the climatic influence of the lake to be greater on the Michigan side.

great fruit belts of the United States, while fruit growing on the Wisconsin side is only an incident. For example, Van Buren County in Michigan had* 550,000 orchard trees, Oceana 600,000, Allegan 800,000, and Berrien nearly 1,000,000; while the highest number of orchard trees in any shore county in Wisconsin is in Sheboygan with only 130,000. Berrien County, Michigan, produces 50,000,000 pounds of grapes in an average year, while no county on the Wisconsin side of the lake produces over 30,000 pounds. A single county on the Michigan side produces 8,000,000 quarts of small fruits, while the highest production on the Wisconsin side is less than 1/16 as much. The most striking difference is seen in peach growing. This has not maintained its former importance in Michigan, yet in 1910 many counties of Michigan produced from 100,000 to 200,000 bushels of peaches, while the whole Wisconsin shore produced only a few hundred bushels. In short, peach growing has been a large industry in Michigan, while just across the lake it has never attained even incidental importance.

Summer resorts

There are forty or fifty places along the Michigan shore of the lake in which summer hotels and a general development of summer resort activities have attained prominence. Several towns on the Michigan side have from five thousand to ten thousand additional summer residents, and some of these towns entertain from fifty thousand to one hundred thousand transient visitors during the summer. Fig. 18 shows the number of passengers (mostly tourists) taken by steamer to various cities along the shore of Lake Michigan on the Wisconsin side and on the Michigan side. On the Wisconsin side the only city receiving any considerable number of passengers by lake boat is Milwaukee, and scarcely any of these are summer tourists.

Population and industry

Of Michigan's ten largest cities only *one* is on the shore of Lake Michigan, and this one, Muskegon, is the smallest of the ten. Of Wisconsin's ten largest cities *five* are on Lake Michigan, and one of these has a larger population than all of the cities and towns in Michigan on the Lake Michigan shore (Fig. 19). In Wisconsin the most marked concentration of popula-

* U. S. census of 1910.

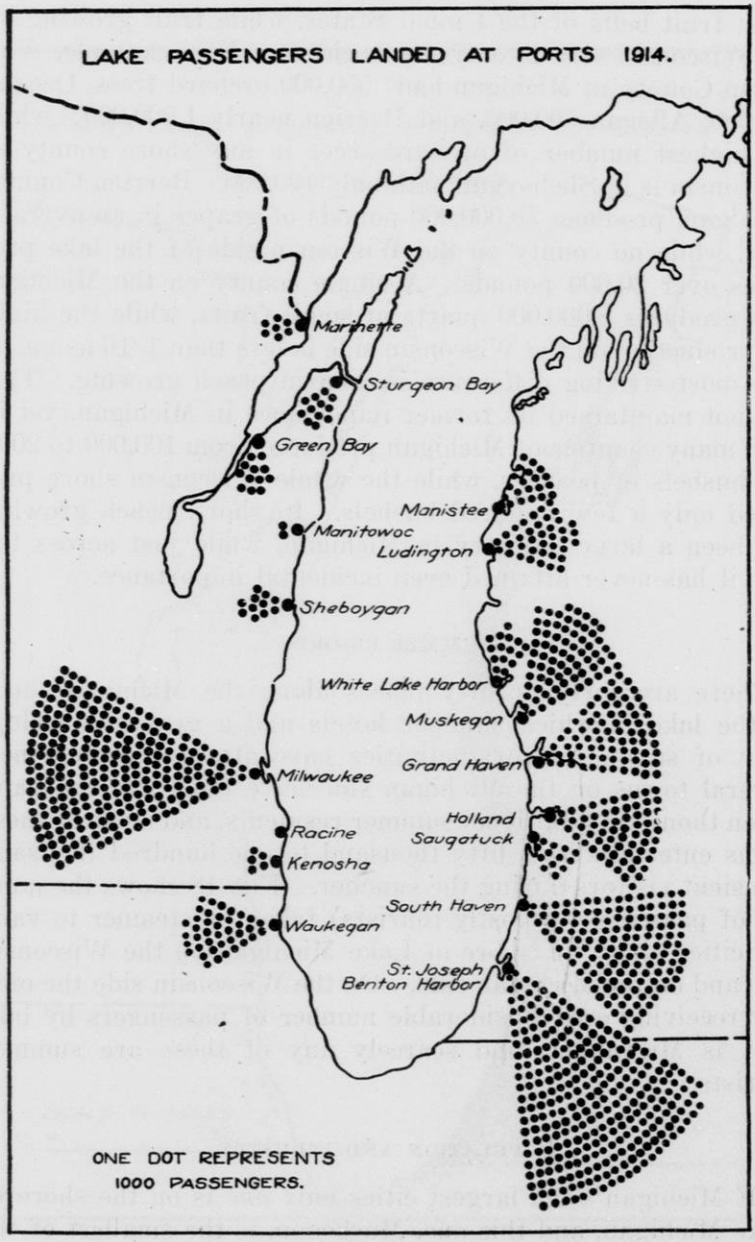

Fig. 18—The Michigan shore of Lake Michigan has many summer resorts to which tourists and excursionists are taken by lake steamers. The only city on the Wisconsin side receiving many excursionists is Milwaukee. A large proportion of the passengers landed at Milwaukee are regular passengers, not excursionists.

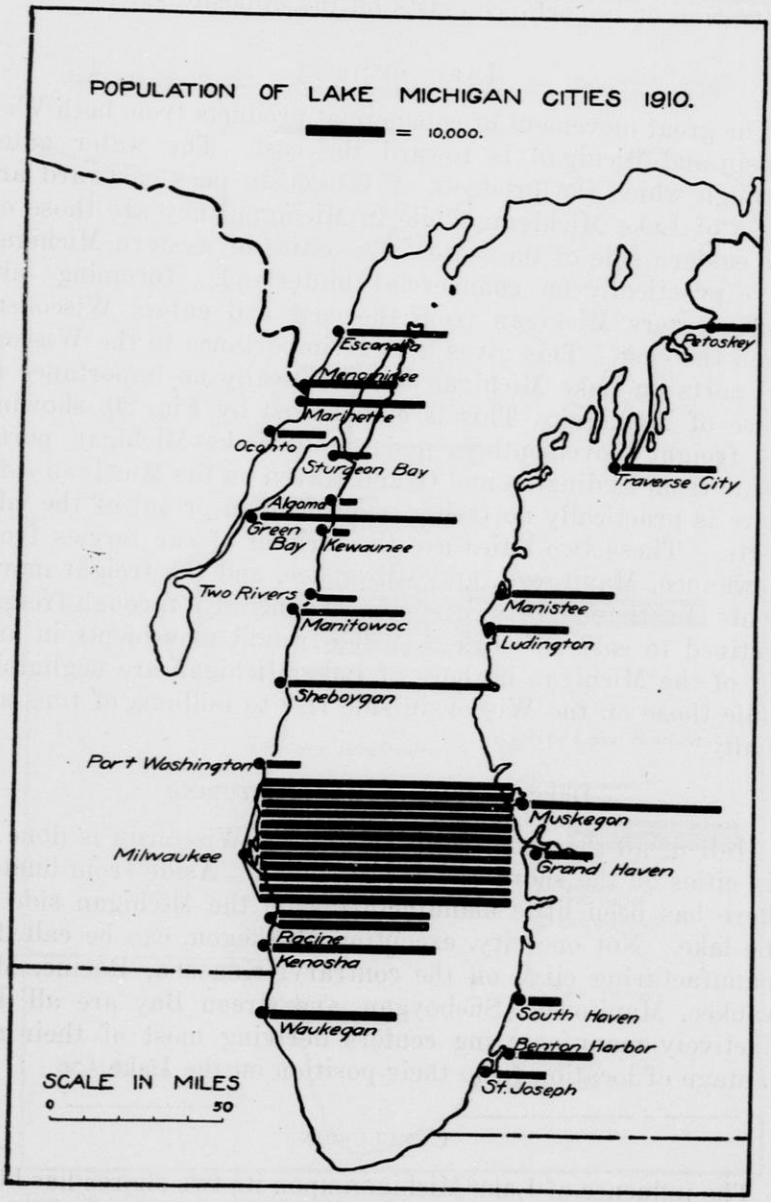

Fig. 19—Diagram showing the population of cities on the Wisconsin side and the Michigan side of Lake Michigan.

tion and industries is along the shore of the lake, while no concentration of importance exists on the opposite side.

Lake commerce

The great movement of commercial products from both Wisconsin and Michigan is toward the east. The water gates through which the products of Wisconsin pass eastward are those of Lake Michigan, while in Michigan they are those on the eastern side of the state. The cities of western Michigan have practically no commercial hinterland. Incoming lake traffic enters Michigan from the east and enters Wisconsin from the east. This gives a large importance to the Wisconsin ports on Lake Michigan but practically no importance to those of Michigan. This is emphasized by Fig. 20, showing the freight movements in and out of Lake Michigan ports. Aside from Ludington and Grand Haven on the Michigan side, there is practically no freight movement in or out of the lake ports. These two cities are the termini of car ferries from Kewaunee, Manitowoc, and Milwaukee, and the freight movements to these ports are almost entirely through-freight destined to eastern markets. The freight movements in and out of the Michigan harbors of Lake Michigan are negligible, while those on the Wisconsin side rise to millions of tons annually.

Development of manufacturing

Half of all the manufacturing done in Wisconsin is done in six cities on the shore of Lake Michigan. Aside from lumber there has been little manufacturing on the Michigan side of the lake. Not one city, excepting Muskegon, can be called a manufacturing city; on the contrary, Kenosha, Racine, Milwaukee, Manitowoc, Sheboygan, and Green Bay are all distinctively manufacturing centers deriving most of their advantage of location from their position on the Lake.

Conclusion

The influence of Lake Michigan upon its two shores has been very different indeed. On the Michigan side it is mainly a matter of climate, resulting in a high development of fruit growing and summer resorts. On the Wisconsin side neither of these developments has taken place, but the lake has induced a very marked concentration of population, wealth, industry,

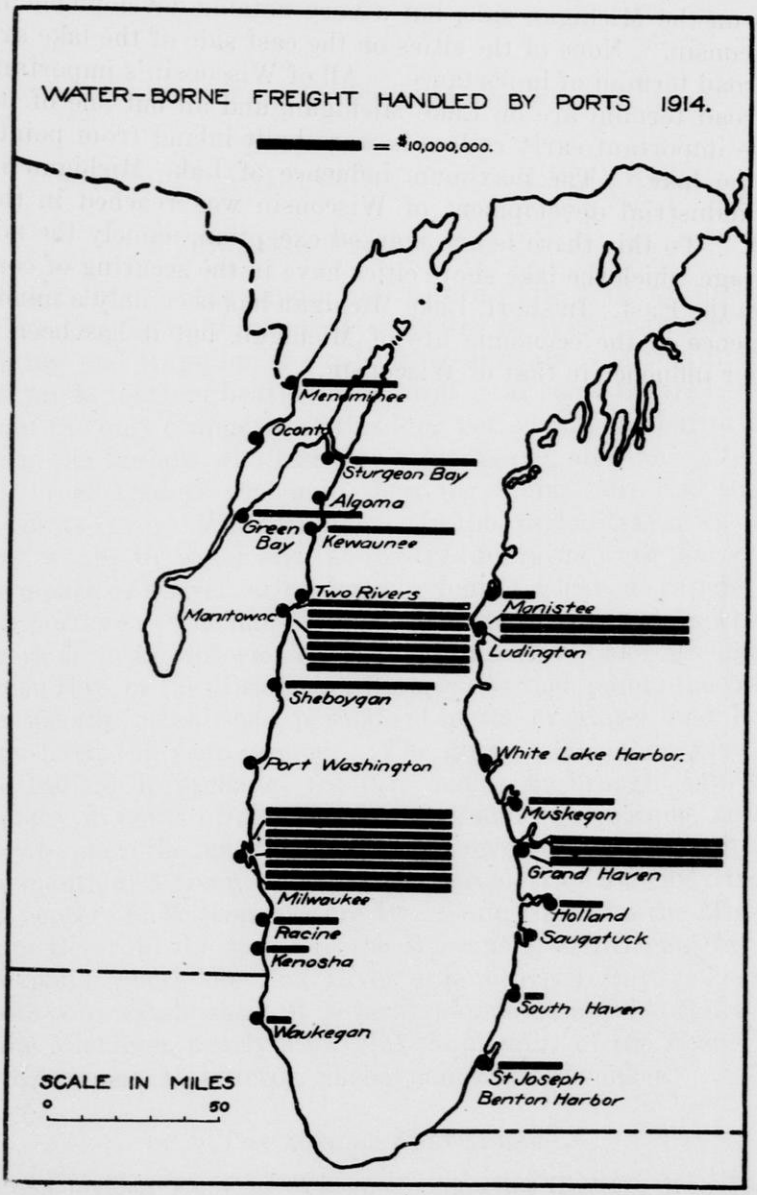

Fig. 20—Diagram showing the value of freight handled by Wisconsin ports on Lake Michigan and by Michigan ports.

and commerce. There has been no development of urban centers on the Michigan side, but a very notable development in Wisconsin. None of the cities on the east side of the lake are railroad termini of importance. All of Wisconsin's important railroad termini are on Lake Michigan, and all but one of its more important early railroads were built inland from points on the lake. The maximum influence of Lake Michigan in the industrial development of Wisconsin was reached in the past. To this there is one marked exception, namely the advantage which the lake shore cities have in the securing of coal from the East. In short, Lake Michigan has been only a minor influence in the economic life of Michigan, but it has been a major influence in that of Wisconsin.

CHAPTER V

THE CITY AND COUNTY OF MILWAUKEE

The Early Fur-Trading Posts

For fully a century and a half before white settlers came to Milwaukee the only important industry in Wisconsin was the hunting and trapping of fur-bearing animals (the fox, muskrat, mink, marten, beaver, bear, wolf, and some others); and about the only commerce of this long period was the barter between the Indians who had furs to exchange, and the white or half-breed traders who built their log cabins here and there at points favorable for trading. In this period travel was almost wholly by water and the fur-trading posts were placed at the mouth of a river, at the head or foot of a lake, at rapids, or at a portage. The more important posts were at points where rivers from the interior enter Lake Superior, Lake Michigan, Green Bay, or the Mississippi River. At such points the traders usually established permanent posts or stores and here they lived the year around. The goods which they gave to the Indians in exchange for furs had to be brought into the country in boats of considerable size, and so it became necessary to place the larger trading posts on deep water, usually at the mouth of a river. Two of the foremost of the early trading centers in Wisconsin were Prairie du Chien on the Mississippi River, at the mouth of the Wisconsin, and Green Bay at the point where the Fox River enters Green Bay. Lesser posts were established at several points along the shore of Lake Michigan, nearly always at the mouths of the rivers, as at Kewaunee, Manitowoc, Sheboygan, and Milwaukee.

The Site of Milwaukee

The largest river of Wisconsin, flowing directly into Lake Michigan, is the Milwaukee which is joined by the Menomonee and the Kinnickinnic just before it enters the lake (Fig. 23). The Milwaukee River, 75 miles in length, heads north and west of Milwaukee in Fond du Lac County. The Menomonee is about 20 miles long and also heads northwest of the city. The Kin-

nickinnic, coming in from the southwest, is only a creek, unimportant except for its wide mouth which forms one of the arms of Milwaukee harbor. The three streams, joining just before they enter the lake, form the inner, perfectly protected harbor. When white men first came to this spot the Indians had already selected it for two of their villages.

North of the river were Menominee Indians; a village of the Potawatomi occupied the south side; and Indians were numer-

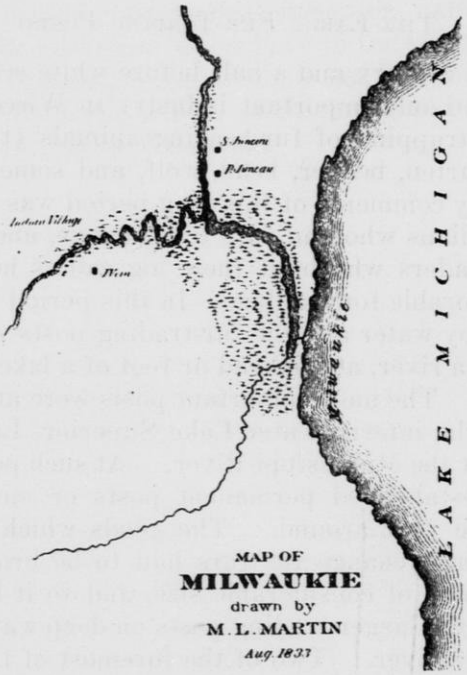

Fig. 21.

ous in all the outlying region until they were removed about 1836. Solomon Juneau is regarded as the first permanent white settler at Milwaukee (in 1818), but other traders had established temporary posts there at still earlier dates.

Milwaukee Bay

Milwaukee Bay is a crescent-shaped imbending of the shore. It scarcely warrants the name of bay; for on its open side it is 5½ miles across from north to south, while the inbending of the shore line is only 2 miles in depth (Fig. 21). Bluffs, rising from 60 to 80 feet above the lake, skirt the northern

shore of this "bay" and offer a slight protection from northwesterly winds. Without the artificial breakwater, however, the bay would be of little commercial use.

The inner harbor is protected by a sand bar as shown in Fig. 22. Before improvements to the harbor were made, only boats

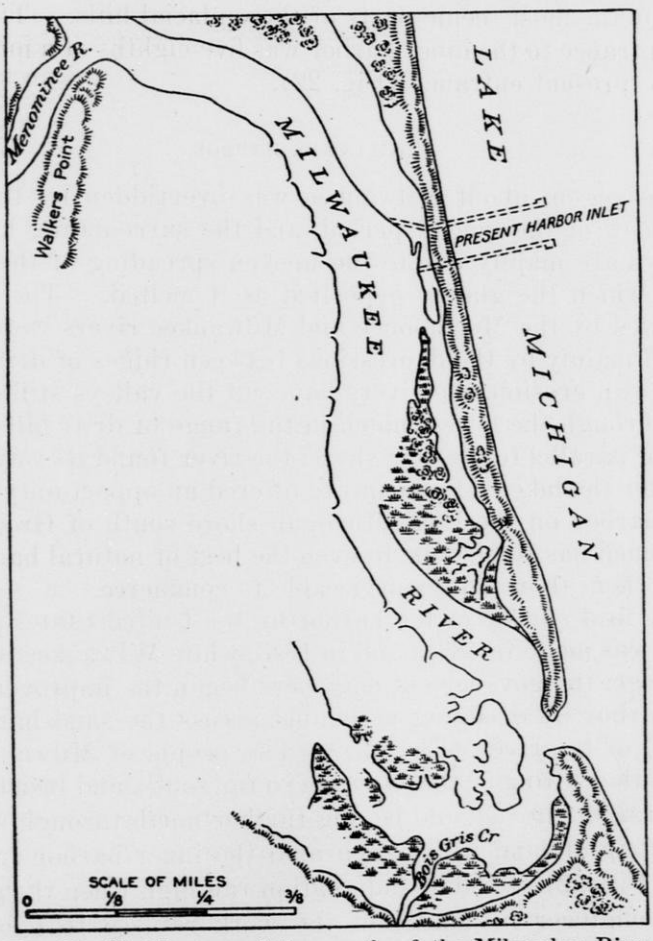

Fig. 22—Sketch map of the mouth of the Milwaukee River as it was at the time of the founding of the city.

drawing less than 4 feet of water could cross the submerged portion of the bar and enter the river. Until the first pier was built, in 1844, boats had to anchor out in the bay and transfer their cargoes and passengers to small boats which could cross the bar and enter the inner harbor. In the early forties three small steamboats drawing about 2 feet of water regularly performed this service.

The shore bluffs, above referred to, are a portion of the glacial moraine of which the hills in and around Milwaukee are made up (page 6). The waves, rolling against the bases of the glacial hills, have gradually cut them away and produced the bluffs. Juneau Park and Lake Park along the lake shore, occupy the most scenic parts of these glacial hills. The original entrance to the inner harbor was five-eighths of a mile south of the present entrance (Fig. 22).

The inner harbor

The region about Milwaukee was overridden by the great ice sheet of the glacial period, and the surrounding hills and valleys are mainly due to the uneven spreading of the glacial drift which the glacier deposited as it melted. The courses followed by the Menomonee and Milwaukee rivers were determined mainly by the depressions between ridges of drift. By their own erosion, the rivers have cut the valleys still deeper; and through the lowest notch in the range of drift hills, which extend parallel to the lake shore, the river found its way across to enter the lake. Here nature offered an opportunity for the best harbor on the Lake Michigan shore south of Green Bay. But much has to be done to even the best of natural harbors to make them thoroughly serviceable to commerce.

The first survey of the harbor by the United States government was made in 1836; and in 1843, while Milwaukee was still a village, the government engineers began the improvement of the harbor by dredging a channel across the sand bar at the mouth of the river (Fig. 23). The people of Milwaukee opposed the cutting of the entrance so far south, and insisted that a "straight cut" should be dug further north through the narrow strip of land which separated the inner harbor from the lake (Fig. 22). Public indignation ran high when the government engineer in charge of the work refused to adopt this "straight cut" plan of harbor improvement. Finally, in 1852, congress yielded and appropriated money for dredging the entrance to the harbor where it now is. This proved to be a long and expensive job, and most of the cost has been borne by the city. Step by step the harbor has been improved. The main channels are kept dredged to a depth of 20 feet, or more, permitting the large lake steamers to penetrate branches of the harbor for two miles, and affording a dock frontage nearly 20 miles in length.

Residence sections

On the west side of the river, called "Kilbourn's Side," high ground was reached a little way back from the river. South of the river, on Walker's side, dry ground extended close up to the river and gave rise to the name "Walker's Point."

Geographical elements in Milwaukee's situation

The site selected for the chief city of Wisconsin has proved a highly favorable one. The outer bay was of some advantage in its natural state, and has become of larger advantage through the building of the breakwater. The river mouths, sheltered from the waves by the bar, afforded perfect protection and gave a long water front and opportunities for wharves, warehouses, factories, railway terminals, and coal docks, all of which have become an important part of the economic life of the city. The higher land on all sides offered attractive residence districts and park sites. All of these geographical conditions have played their parts in the growth of the city.

Milwaukee's site deliberately selected

It is to be remembered that the site upon which Milwaukee was built was deliberately selected by experienced men. Solomon Juneau, 22 years agent for the American Fur Company at the mouth of the Milwaukee River, settled there because it was a favorable place for trading with the Indians: he originally had no idea of founding a city. But Morgan L. Martin, a prominent citizen of Green Bay, and Byron Kilbourn who came from Ohio, were experienced men. They selected the spot at the mouth of the Milwaukee deliberately because they believed the site was excellent for a commercial city of large size. In this particular, the city was somewhat unique; Milwaukee did not happen, it was designed. It was not, like Chicago, Green Bay, or Prairie du Chien, the site of an early fort. Nor was it the watergate of an important pioneer trade route. Green Bay, at the mouth of the Fox River, and Prairie du Chien, at the mouth of the Wisconsin River, were the termini of the most important waterway between the Great Lakes and the Mississippi, the Fox-Wisconsin Route. Chicago was at the eastern end of the second most important of these early canoe routes between the Lakes and the Mississippi, namely the route by the Chicago, Des Plaines, and Illinois rivers.


MAP OF
MILWAUKEE
AS IT APPEARED IN 1845 & 6
Made from U.S. Surveys and from Minutes
furnished by
Jno. S. Buck & Dr. C. Chase
MILWAUKEE
MICHIGAN
North St.
Division St.
Railroad St.
Lincoln Avenue
Bluff
Menomonee River

Fig. 23.

MILWAUKEE'S NATURAL ADVANTAGES

Milwaukee's natural advantages were thus set forth by a settler in 1858:

"The city itself has superior advantages for a town, which have not been without material influence upon our prosperity. The broad deep bay, the happy confluence of the two rivers, each with its valley running just in the right direction, and just of the right width for commercial business upon an extended scale; while at a suitable distance upon either hand, are the admirably formed highlands for residences, at whose base flow living springs and upon whose surfaces wells are easily obtained of pure water, and along whose sides cropped out here and there quarries of stone, and in whose banks, on every hand, is found the material from which the brick for our own use and for exportation are made; and which have gained us a reputation almost equal to the famous brick of Holland. The forest of heavy timber which surrounded Milwaukee and still does . . . has been a mine of wealth to the city."*

CHICAGO, MILWAUKEE, AND GREEN BAY CONTRASTED

Milwaukee has more than fulfilled the expectations of its founders; it has far surpassed Green Bay of which it was, in a way, an offshoot. On the other hand Chicago, a "mud hole" in the early '30's, starting at about the same time as Milwaukee, is now a city of over 2,000,000; the metropolis of the great Middle West. Why these differences? Green Bay has a finely protected harbor, a commanding position at the meeting of the Great Lakes with the Fox-Wisconsin waterway to the Mississippi, and an earlier start—why should that city be one of only 32,000 people while Milwaukee, with a seemingly less favored situation, has already become a city of nearly 500,000. And again, why has Milwaukee, while surpassing all other cities on Lake Michigan, save only Chicago, been so completely outclassed by that one? The cause does not lie in any accident—nor does it lie in any essential difference in the character of the men who dominated the growth of the respective cities. It lies in the geographical situation of the three places in question; the *location* of the three cities. With a few exceptions, the American cities which have had a vigorous and sustained growth during the past 75 years or less, are situated at points where *great railway arteries* touch deep water navigation. The advantages arising from these railway arteries, more than from water transportation, make the differences between Green Bay, Milwaukee, and Chicago.

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* Edward D. Holton, "Commercial History of Milwaukee", *Wisconsin Historical Collections*, V. 4, p. 279.

Milwaukee in 1840

Key to figure

A. East Side
B. Kilbourntown
C. Walkers Point
D. Milwaukee River
E. Menomonee River
F. Rothe Bridge
G. Menomonee Bridge
H. Spring St. Ferry
I. Walkers Point Ferry
N. Lighthouse
O. Court house
P. The Water Power Canal

1. East Water St.
2. Location of City Hall
3. Market St.
4. Division St.
5. Chestnut St.
6. West Water St.
7. Spring St.
8. Chicago Road
9. Prairieville Road
10. Green Bay Road
11. Washington House
12. Kilbourn's Lagerhaus
13. Leland's and American House
14. Krueger's Deutsches Haus
15. St. Peter's Church
16. Fountain House
17. Milwaukee House
18. Cottage Inn
19. Ludington's Corner
20. Wisconsin St.
21. Beam & Co.
22. Geo. Walker's Residence
23. Roger's Older Block
24. Market Place
25-28 Lager House
29. Barber's Dock
30. "Deutsche Little Tavern"
33, 34 Islands
35. Lake Brewery
36. Huron St.

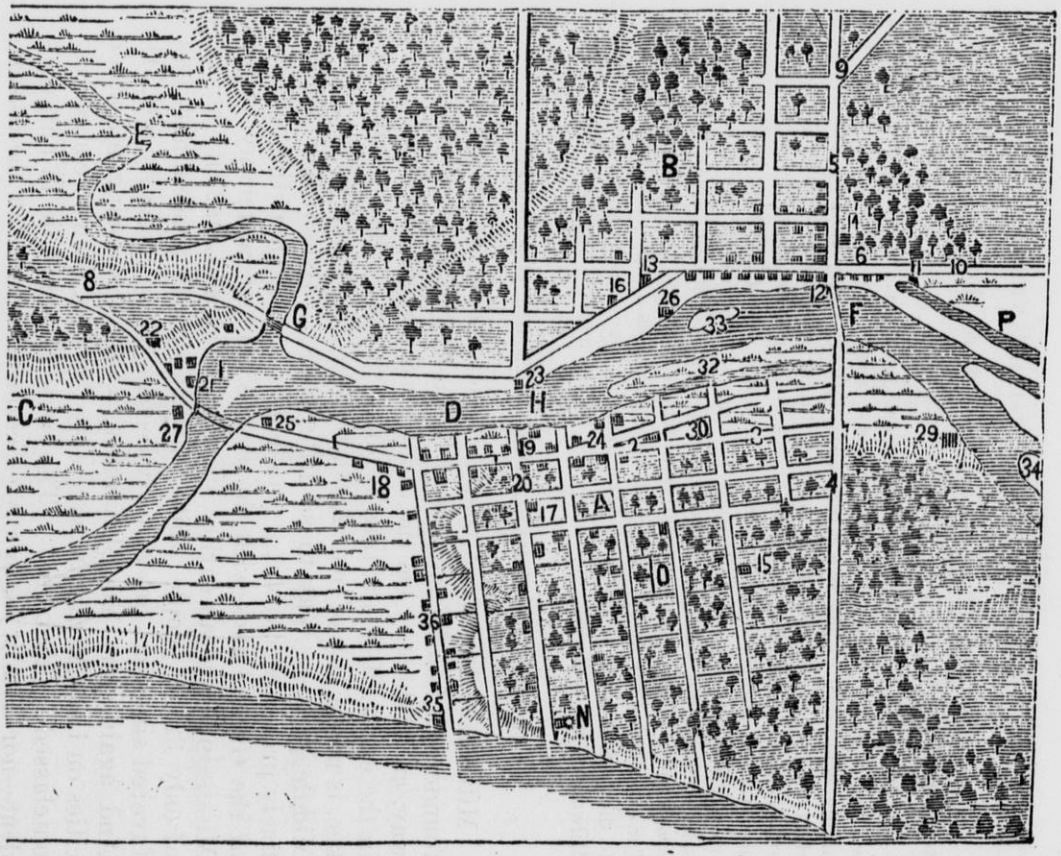

Fig. 24—Milwaukee in 1840. (From a German publication, "Milwaukee," by Rud. H. Koss, published in 1871.).

Prior to the development of American railways, great importance was attached to waterways, for they were the chief channels along which the movement of products and people must take place. Up to about 1860 the waterways of the Middle West were regarded as the all-important channels of transportation, and most of the early railroads were looked upon merely as connecting links between waterways. Prior to the railroad era, the Mississippi River carried an enormous traffic, but now most of the river is of scarcely any importance as a traffic route. The Great Lakes are naturally a far better waterway than any of our rivers and form one of the greatest inland waterways in the world. Although they carry a much greater tonnage of freight now than they did between 1840 and 1860, yet they are *relatively* less important than they were then. Railways have taken more and more of the freight and passenger traffic; and so it has come about that Chicago, the great focus of our railway systems, has left Green Bay and Milwaukee behind.

The Three Sections of the City

A glance at the map, Fig. 23, will show that the two rivers unite in such a way that three distinct sections of the city are produced; an eastern section lying between the Milwaukee River and Lake Michigan; a western section lying west of the Milwaukee River, and a southern section lying south of the Menomonee. This geographical division of the city into three parts, due to its rivers, has always been a more or less disturbing factor in the political life of the city.

Three pioneer leaders and their rivalries

Solomon Juneau had settled on the east side of the Milwaukee River, and later had purchased a considerable tract of land which he divided into lots and offered for sale. Byron Kilbourn, an energetic civil engineer, had purchased land on the west side of the river, and the settlement which grew up here was known as Kilbourntown. George H. Walker had settled south of the river, and this portion of the settlement passed under the name of Walker's Point. As the settlement grew, the rivalry between the various sections became very intense and at times reached the stage of physical conflict. One of Milwaukee's inheritances from that early rivalry may still be seen in the fact that the east-west streets which now cross the

Milwaukee River have one name on one side of the river and a different one on the other side. Moreover, it will be noted that in many cases the corresponding streets on opposite sides of the river are not in line with each other, compelling the present bridges to span the river slightly on the diagonal. This may be noted at the bridge connecting Wisconsin Street and Grand Avenue, and at the one connecting Martin Street on the east side with State Street on the west side.

A similar condition may be seen in connection with the streets on the west side and on the south side. In the old Kilbourntown section, west of the Milwaukee River and north of the Menomonee, the north-south streets are numbered: Second St., Third St., Fourth St., etc., but on the south side in the old Walker's Point section, the north-south streets are called avenues, and are numbered First, Second, Third, etc. But First Avenue on the south side is a continuation of Sixth Street on the north side of the Menomonee.

For several years after Milwaukee was founded, it was impossible to get a bridge built from Kilbourntown to Juneau's side, due to the opposition of the former.

"Previous to the year 1840 there was no bridge across the Milwaukee River from its source to its mouth. Ferry scows were stationed between the foot of Water street and Wisconsin and Spring streets, and served as substitutes for bridges. Each of these floating vehicles was furnished with a rope, which was attached to each side of the river, and by means of this simple machinery each passenger was permitted to cross the river free of toll provided he acted as his own ferryman by turning the windlass."*

The early history of Milwaukee, and to a lesser degree all of its history, shows this rivalry between sections, though it does not seem to have actually prevented united action on matters vitally concerning the welfare of the city at large.

Early Spellings of the Name

The name is variously spelled in old manuscripts, records, and maps: Minwaki, Minewaki, Maunawaukee, Meloaki, Melleoki, Milwalky, Milwaukee. Like so many Indian names, this one represents the white man's effort to reproduce the word as it sounded to him when the Indian spoke it, or, more likely, grunted it. Its actual meaning is a matter of doubt. Ernest Ingersoll, in an article on "Milwaukee" says:* "There is

* Directory for the City of Milwaukee, 1847–48, p. 60.
* *Harper's Magazine*, April 1881, Vol. 62, p. 703.

still great doubt as to the meaning and correct orthography of the name. The first time it occurs is in Lieutenant James Gorrett's journal, Sept. 1, 1761, where he states that the party of Indians came from *Milwacky*. Colonel Peyster writes it *Milwakie*. In 1820 Dr. Morse records that *Milwahkie* was settled by the Sacs and Foxes and that the name was derived from the word *manawakie*, meaning "good land," which recalls Peyster's assertion that the name of the river was *Mahuawaukie*. A Chippewa interpreter spelled it with fewer letters, but confirms the rendering "good" or "beautiful land." The French seem to have written it Milouaqui in their early dispatches."

The Boom of 1836 and the Collapse

In 1835 Milwaukee consisted of five log houses, including Solomon Juneau's store, and had about thirty residents. The Erie Canal—that most famous and most useful of all American canals—was opened between the Great Lakes and the Atlantic in 1825. Several years more were required to build steamboats and establish routes on the Great Lakes. But by the middle thirties well-established boat lines from Buffalo to the West by way of the Lakes were provided. Up to this period the difficulties and expense of getting from our eastern seaboard to points in the Northwest were so great that immigrants were slow to seek homes in this section. But the improvement of means of travel to the West by the Erie Canal and the Lakes and the removal of the Indians in 1836 turned the attention of home seekers to Wisconsin where government land could be had for about $1.25 an acre. Soon the flow of settlers and speculators set in strongly.

"1836 was a memorable year for Milwaukee. The tide of immigration had now commenced to flow into the embryo city like a river; speculation was rife; every man's pocket was full of money; lots were selling with a rapidity and for prices that made those who bought or sold them feel like a Vanderbilt. Buildings went up like magic, three days being all that was wanted, if the occupant was in a hurry, in which to erect one. Stocks of goods would be sold out in many instances before they were fairly opened and at enormous profit. Everyone was sure his fortune was made, and a stiffer-necked people, as far as prospective wealth was concerned, could not be found in America. Nothing like it was ever seen before; no western city ever had such a birth. People were dazed at the rapidity of its growth; all felt good. The wonderful go-aheadativeness of the American people was in full blast; neither was it checked for the entire season. Some 60 buildings were erected, many of them of goodly dimensions. Streets were graded; ferries established, officers of the

law appointed, medical and agricultural societies formed, a court house and jail erected, and all in five short months."*

The frenzied land speculation which boomed Milwaukee in 1836 was widespread and was followed by the disastrous panic of 1837 which swept the entire country. Milwaukee had looked forward to a year of great prosperity in 1837, but instead there came a complete and crushing collapse. The financial crash of 1837 prostrated the city.

"Lots and lands for which fabulous prices had been paid in 1836 were now of no commercial value whatever. The greatest desideratum that year was bread and clothing and the man who could procure these was lucky. Many a lot for which the owner had paid $500 or even $1000 in 1836 was in 1837 and 1838 given in exchange for a barrel of pork and flour or a suit of clothes."†

During this year (1837) two towns were organized, one on the east side and one on the west side of the river. But the intense rivalry of the two villages was softened by the financial depression and the general gloom of the period; and in 1839 the opposing factions got together and formed a new town corporation with an east ward and a west ward, each, however, nearly self-governing. The population of the two towns in 1838 was about 700, which grew to 1751 in 1840.

Great Influx of Immigrants

The great influx of German and Norwegian immigrants began in 1839 and continued for many years. The *Milwaukee Sentinel* of Sept. 10, 1838, says:

"One hundred families of Germans and Norwegians landed in our harbor and are now seeking farms and occupations in our vicinity . . . The people are hardy and intelligent and will be a great acquisition to the wealth and industry of our community."

The immigration increased rapidly year by year. Boats carrying several hundred settlers arrived weekly or oftener. The *Milwaukee Courier* claims the following for one week in October, 1843: The *Great Western* brought 300 immigrants on Saturday, the *Constitution* one hundred on the same day, the *Emmigrant* one hundred on Monday, the *Illinois* 300 on Wednesday, the *General Wayne* 250 on Thursday, and the *James Madison* 125 on Friday.

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* Buck, James S., Pioneer History of Milwaukee, Revised Ed. 1890, p. 81.
† *I bid,* p. 163.

While the majority of the newcomers bought land for farms and settled upon it, many remained in town increasing its population of 1,751 in 1840 to 9,655 in 1846, to 20,061 in 1850, and 45,286 in 1860. The south ward was added to the village in 1845, and in 1846 Milwaukee had grown to a city of nearly 10,000 people. The city directory for 1856–7 mentions only one foreign consul in Milwaukee, C. H. H. Papendick, consul for Hanover, Oldenburg, Mecklenburg, Schwerin, etc. The city directory for 1860–1861 lists four consuls in Milwaukee representing 12 different German states. In 1856 there were in Milwaukee two German papers issuing daily, tri-weekly, and weekly editions. In 1860 four German papers were published daily. There were six English papers, five with daily, tri-weekly, and weekly editions, and one issued weekly. Milwaukee had almost one half of the Teutonic population of Wisconsin in 1860, yet this was only a little over one-third of the city's population.

Synopsis of Events

The city's early progress may be traced in the following synopsis of events, going back to the first settlement:

1795—Jacques Vieau establishes trading post.
1818—Solomon Juneau (and Jacques Vieau) make a permanent settlement, near the mouth of the Milwaukee River.
1823—First vessel, *The Chicago Packet,* lands goods at Milwaukee.
1834—Milwaukee County set off from Brown County.
1835—Purchase of tracts of land by Solomon Juneau, Byron Kilbourn, and George H. Walker at the government land sale in Green Bay.
1835—First brick made (by Nelson Olin).
1835—First steamboat—*The United States*—arrives.
1836—Wisconsin Territory separated from Michigan.
1836—First government survey of the harbor.
1836—Population of Milwaukee County 2893 (federal census).
1836—First Newspaper, *The Advertiser,* established July 14.
1836—Weekly stage-coach to Chicago.
1837—Milwaukee and Rock River Canal Company incorporated.
1837—Village of Milwaukee ("East Side") organized.
1838—First lighthouse built.
1839—Important government land sale at Milwaukee.
1839—Kilbourntown united with Milwaukee.
1840—Population 1751; one brick building.
1841—Wagon "track" opened to Fond du Lac.
1841—First important shipment of grain.
1842—First pier built.
1842—First iron foundry begins operations.
1842—One mile of the Milwaukee and Rock River Canal completed, including a dam and the development of water power.

1843—First flour and grist mill, first saw mill and first woolen mill. (An earlier saw mill, 1835, existed above the dam on the Milwaukee River.)
1843—Congress appropriates $30,000 for the improvement of Milwaukee harbor.
1843—250 steamship arrivals besides schooners, propellers, and brigs.
1845—First *daily* mail to Chicago.
1846—Milwaukee incorporated as a city, pop. 9,655, 5 wards, Solomon Juneau, mayor.
1846—Lake boats land nearly 20,000 passengers.
1847—Charter for Milwaukee and Waukesha R. R. granted.
1848—Wisconsin becomes a state. (May 29).
1848—Pfister and Vogel tannery started.
1851—Completion of the first railroad in Wisconsin, from Milwaukee to Waukesha, July 4; great celebration.

The Milwaukee and Rock River Canal Project

Up to about 1850 people in the states between the Great Lakes and the Mississippi believed that the development of these states required water routes connecting the Lakes and the great river which, during the '40's and '50's, carried an enormous traffic to St. Louis and New Orleans.

Two canal projects in Wisconsin. The great success of the Erie Canal in New York inspired an unwarranted degree of faith in canals generally. The legislatures of the states touching the Great Lakes were deluged with proposals for the construction of canals. Wisconsin, while still a territory, seriously considered two canal projects both of which received some public support as well as a great deal of opposition. The Fox-Wisconsin Improvement was actually carried to a certain stage of completion, and a continuous waterway was opened between Green Bay and the Mississippi River. For some years the Fox River portion of the waterway was of real advantage to the part of the state which it served, and the waterpower of the lower Fox remains a valuable asset; but the waterway itself is little used, though still maintained at government expense.

Relation to the lead trade. One of the earliest important products was lead, mined in the southwestern part of the state and for many years shipped by the Mississippi River to St. Louis and New Orleans whence the larger part of it was carried by water to New York. Getting control of this lead trade, so that the metal should come to Lake Michigan for shipment eastward, was one of the chief ambitions of the promoters of both Green Bay and Milwaukee. A much greater importance was attached to this than was warranted.

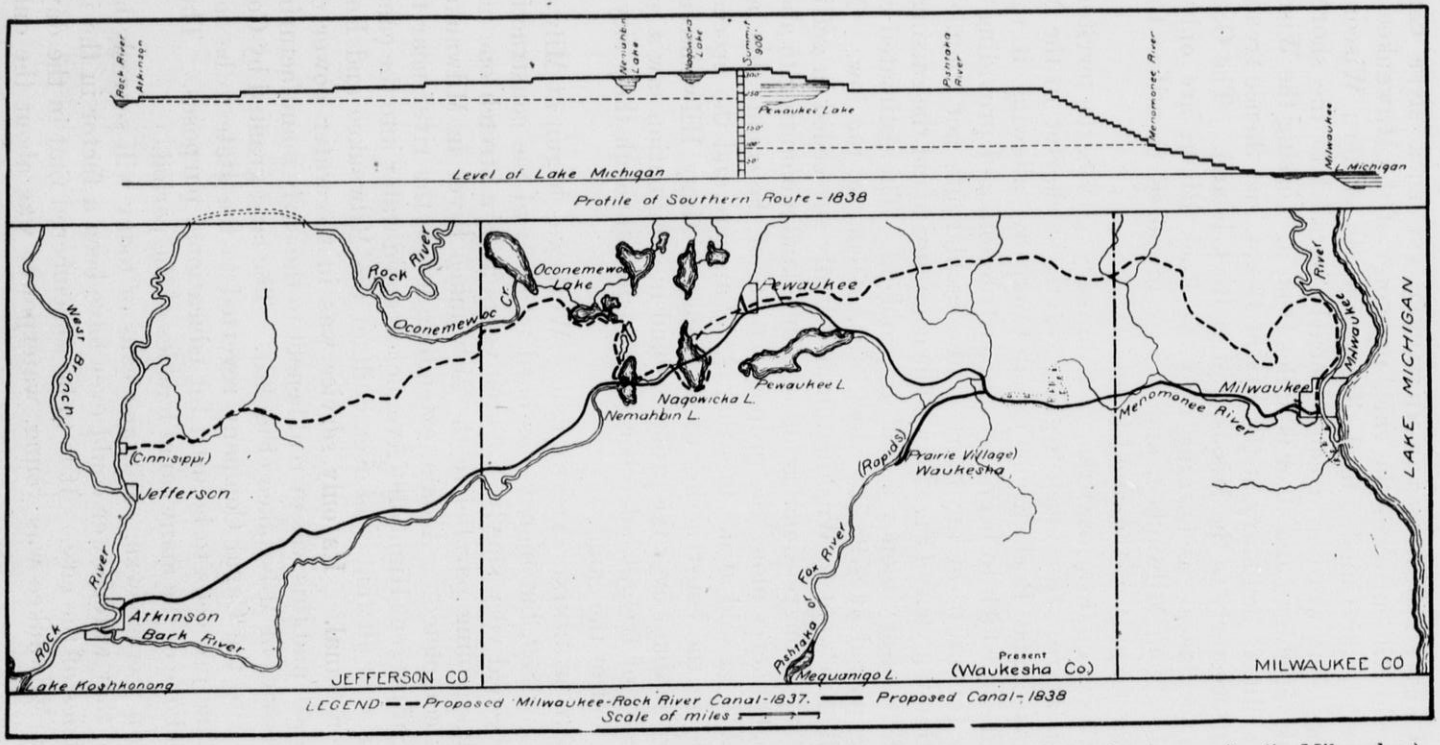


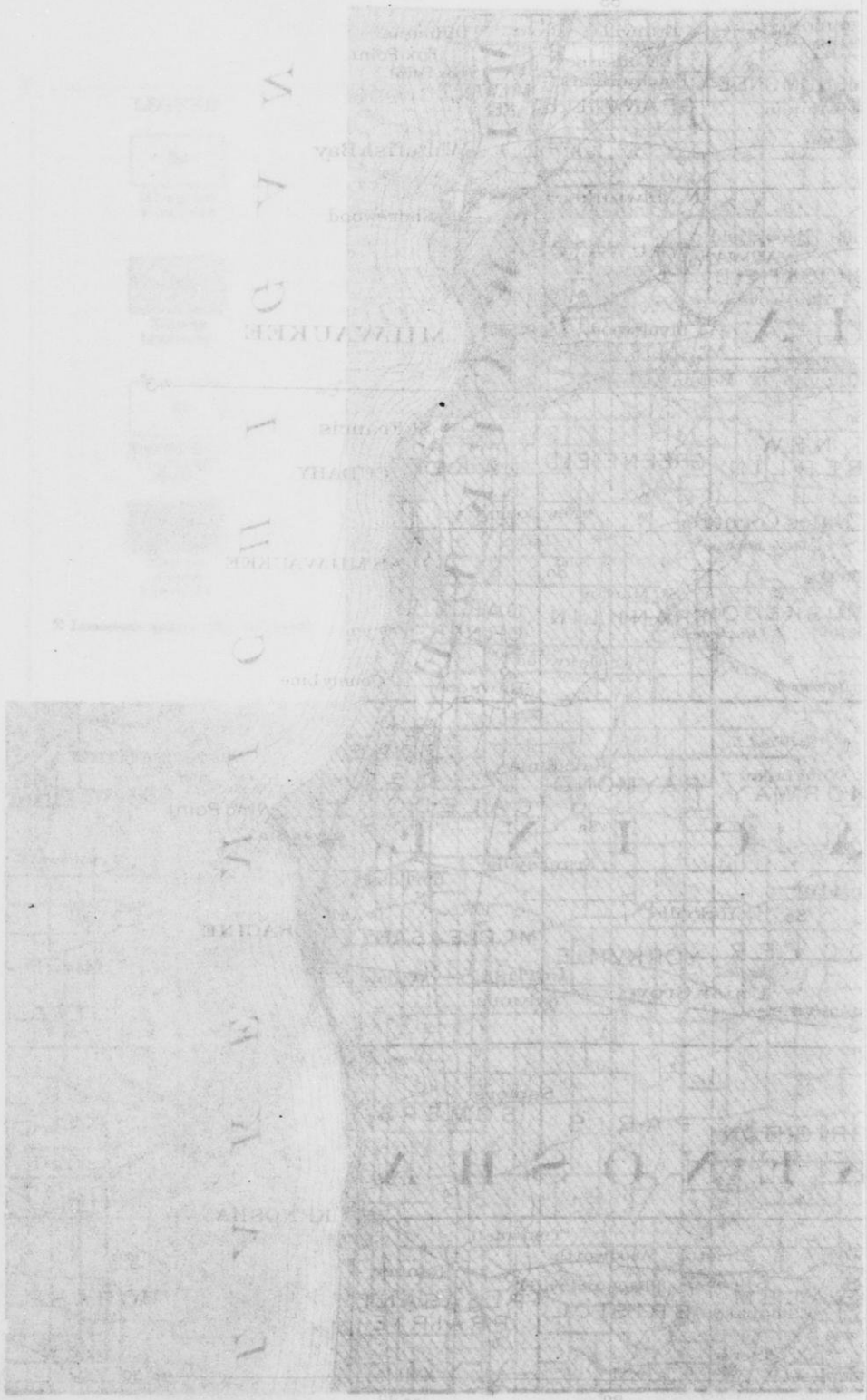
Fig. 25—Map showing profile and proposed routes of the Milwaukee and Rock River Canal. Only about one mile (in Milwaukee) was ever built. (From I. A. Lapham's maps, original spellings retained.)

PROPOSED ROUTE OF THE MILWAUKEE AND ROCK RIVER CANAL. Byron Kilbourn was the chief promoter of the Milwaukee and Rock River Canal. Rock River rises in eastern Wisconsin, flows southward in a course nearly parallel to the shore of Lake Michigan and 50 or 60 miles from it, crossing the Wisconsin-Illinois boundary at the city of Beloit, and thence trending southwesterly to the Mississippi at Rock Island. The Oconomowoc lakes, discharging into the Rock River, are only 30 miles from Milwaukee, and it was proposed to utilize these lakes as part of the canal (Plate III).

CANAL CHARTER GRANTED. On January 5, 1838, the territorial legislature, after much urging, granted a charter to the Milwaukee and Rock River Canal Company, allowing it three years in which to begin actual construction, and providing for the forfeiture of any part of the canal route not completed within ten years (Fig. 25). The company found the raising of the necessary money a baffling problem. The estimated cost was placed at $798,715 which was, of course, too low. Mr. Kilbourn went to Washington and finally succeeded in getting (1838) a congressional grant of public land amounting to about 166,000 acres along the proposed route of the canal; this land was to be sold at not less than $2.50 an acre and the proceeds used in the construction of the canal. Many Milwaukeeans were jubilant over the prospects and in imagination saw a procession of freight-laden boats proceeding through their city in and out of the canal.

THE BEGINNING AND THE END. Work was begun at Milwaukee in 1839, but money was hard to get, and the construction proceeded very slowly. Three years later a stretch one mile long, running parallel to the Milwaukee River in Milwaukee, was completed. A dam, extending across the river near the end of present Humboldt Avenue, diverted water into the canal. This was all that was ever built of the Milwaukee and Rock River Canal. Its only service was in the water power developed, and this was of real benefit to the early manufacturing industries of Milwaukee (Fig. 26). The land granted by Congress to the Canal Company reverted to the state to be sold and the proceeds to be used for educational purposes. Thus ended one of the many canal bubbles of the period.

THE WATERPOWER. Milwaukeeans of today will scarcely believe that waterpower could ever have been a factor in the industries of the city. It is to be remembered that in the days when Milwaukee was young, waterpower was about the only



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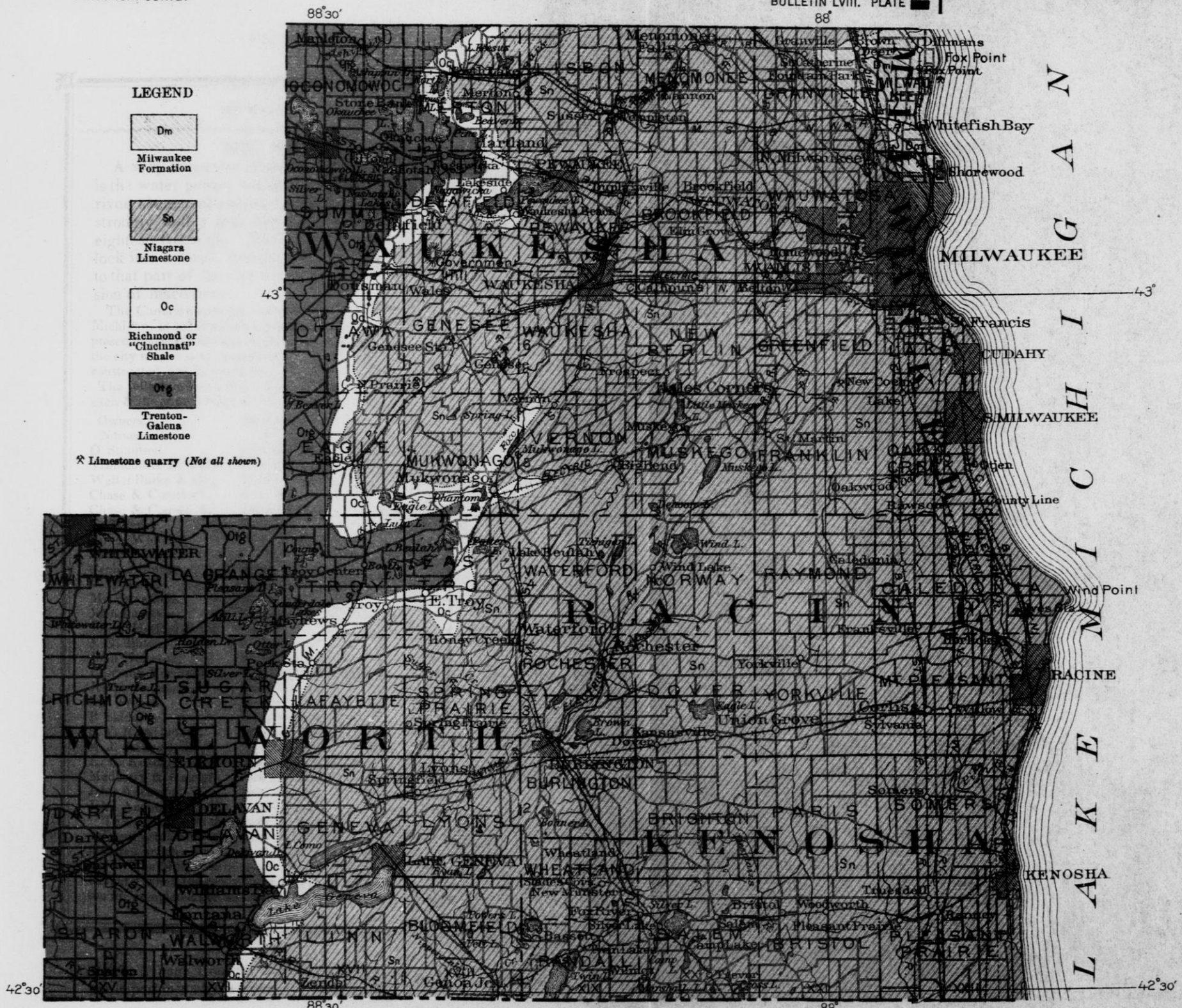
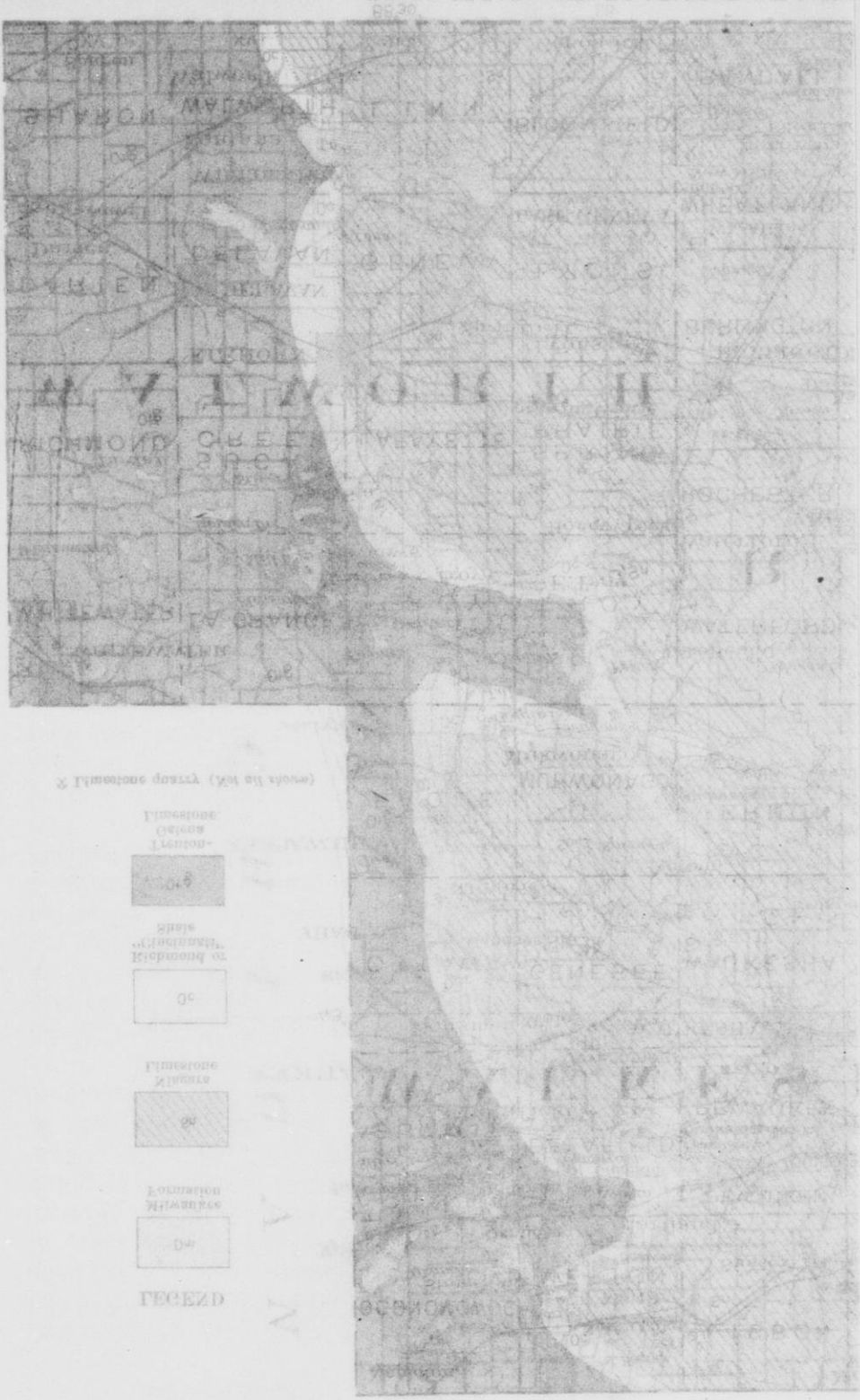


GEOLOGICAL AND ROAD MAP OF SOUTHEASTERN WISCONSIN

Scale: 1 inch—6 miles.

A. Hoen & Co. Baltimore.



THE WATER POWER.

A very important element in the prosperity of Milwaukee, is the water power, which has been obtained by damming the river, about a mile above the city. The dam is a very fine one; strongly built; four hundred and eighty feet in length, and eighteen feet high. The water is conveyed through a guard lock into a canal, running parallel with the river, and thence to that part of the city where the power is used for the propulsion of machinery.

The Canal is part of the work designed to connect Rock River with Lake Michigan, in aid of which a grant of land was made by Congress; but the prosecution of the main enterprise was abandoned several years since, though the city reaps a very important benefit from the small portion which was constructed, and by which the water power is made available.

The following list of Mills, Factories &c; the number of hands employed in each & the annual value of the manufactured articles will be found interesting.

Owners' Names.	Description of Factory.	Hands employed.	Value Manfactured.
O Stimpson,	Edge tool & scythe maker,	10 to 15,	$15 to 20,000
Trumbull & Hotchkiss,	Custom mill and tannery,	6 to 8	8 to 10,000
Walter Burke & Co.,	Woolen Factory,	12	31,500
Chase & Comstock,	Saw Mill,	10 to 15	12 to 15,000
Chase & Comstock,	Flouring Mill,	2 run of stone,	200 bbls daily.
E Moseley,	Foundry,	6 to 8	8 to 10,000
James Walters,	Wood turner,	3 to 4	2 to 3,000
Julius Philip,	do	2 to 3	1 to 2,000
Cephas Buttles,	Wood bowl turner,	2 to 3	1 to 2,000
W. Palmer,	Carriage maker,	8 to 10	8 to 10,000
Mr. Bemering,	Wood turner,	3 to 4	2 to 3,000
John Lapointe,	Sash, door & blind maker,	12 to 15	12 to 15,000
Joseph Hesford & Co.,	do do	8 to 10	8 to 10,000
J. G. Bliton,	Scale maker,	2 to 3	3 to 4,000
John Norwood,	Wood turner,	3 to 4	3 to 4,000
Luscomb Hewitt & Co,	Pail, tub & churn factory,	15 to 20	25 to 30,000
Joseph Reynolds,	Wood turner,	2 to 3	2 to 3,000
Joel French,	Turner,	2 to 3	2 to 3,000
B. Skidmore,	Wood turner,	5 to 6	5 to 6,000
S. V. R. Ableman,	Planing machine,	6 to 8	15 to 20,000
A. J. Langworthy,	Machine shop,	5 to 7	8 to 10,000
E. C. Kellogg,	Flouring mill, 2 run of stones, 2 to be added,		150 bbls. daily.
Medberry & Hoover,	Flouring mill,	5 run of stone	500 bbls. daily.
John Anderson,	Flouring mill,	2 run of stone	150 bbls. daily.
John Anderson,	Flouring mill,	2 run of stone, now building.	

This table shews that there are from 190 to 250 persons employed at the different establishments on the Water Power, and that the value of manufactured articles, exclusive of Flour, is from $195,000 to $250,000 annually. The Mills now in operation can turn out 800 barrels of Flour per day, and when the new ones of Messrs. Chase & Comstock and J. Anderson are completed the amount will be increased to 1200 barrels per day.

Fig. 26—A page from the Milwaukee city directory of 1848-49, indicating the importance of the water power of the Milwaukee River at that time.

power widely used in manufacturing, and that a town which could not develop such power was handicapped. The optimistic promoters of Milwaukee—particularly Byron Kilbourn—recognized the benefit to the town which would come from the development of waterpower. About a mile and a half above the mouth of the Milwaukee River the stream flows in a relatively narrow valley of considerable depth. Here a dam was constructed and a storage reservoir, or pond, created.

The Milwaukee City directory of 1848–9 gives a list of 25 mills and "factories" which lined the canal and were run by water power. All of these were small establishments, yet in their day they contributed materially to the upbuilding of the city. A few of them turned out products valued at from $20,000 to $25,000 a year and employed as high as 20 persons each (Fig. 26).

In his *Chronicles of Milwaukee* Wheeler says: "The water power was looked upon as the most important element of the present and future prosperity of Milwaukee. The dam was 430 feet in length and 18 feet high." This dam stood for many years but was eventually washed out, as more recent ones on the same site have been. A substantial masonry dam now occupies the site. The mile of canal has long since been abandoned and filled and its place taken by a street, but the water power gave rise to many industries which afterwards grew to large size, among them the large flour mills.

Early Lake Commerce of Milwaukee

The lead trade. The mining of lead in southwestern Wisconsin began before Milwaukee was founded. Most of the lead was taken to the Mississippi River and thence to St. Louis and New Orleans. There was no other practicable way of marketing the lead, which amounted to 20,000,000 pounds in 1841. The cost of shipping lead to New York by this long route was from $30.00 to $40.00 a ton. A tower for making shot was erected near the Wisconsin River at Helena in 1836. Though the distance from the lead mines to Milwaukee was but little less than 200 miles and such roads as existed were wretched, lead was hauled by ox-teams to Milwaukee as early as 1836. In 1843, 2,200,000 pounds of lead and 250,000 pounds of shot were shipped from that port. Between 1840 and 1850 practically all of the shot was shipped to eastern markets by way of Milwaukee (Fig. 27).

Teams of 6 or 8 oxen made trips from southwestern Wisconsin over to Military road along Military Ridge, through Madison to Milwaukee. By sleeping on the ground and feeding their oxen on the grass along the way, and by taking loads of merchandise back, the teamsters were able to haul the lead for as little as 50 cents a hundred pounds, or $10.00 a ton. It was shipped eastward by way of the Lakes and the Erie Canal to New York for $9.00 a ton or even less; this route was thus a quicker and cheaper one than that by the Mississippi.

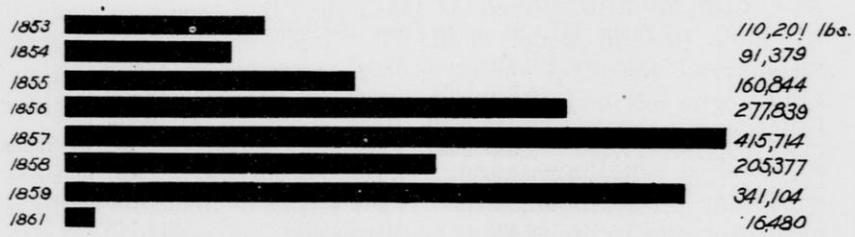


Fig. 27—Diagram showing the number of pounds of shot shipped to Milwaukee by railroad from 1853 to 1861. The shot came from the shot tower at Helena, near the Wisconsin River in Iowa Co. Operations ceased in May, 1861.

A greatly exaggerated importance was attached to the lead trade, and Milwaukee and other cities on Lake Michigan were very desirous of getting the largest possible share of it. In all of the early agitation for roads, plank roads, railroads, and the Milwaukee and Rock River Canal, the lead trade was constantly held up as the prize to be attained. It was never of such importance to Milwaukee as the publicity given to it would indicate.

Imports and Exports

The total value of imports and exports in the years 1835–1841 are reported as follows*.

Table II. *Imports and Exports of Milwaukee, 1835–41*

	Imports	*Exports*
1835–6	$588,950	$26,145
1837	641,235	47,745
1838	783,458	47,960
1839	866,740	43,568
1840	1,147,803	53,828
1841	1,805,277	286,777

* I. A. Lapham, quoted in Conrad's History of Milwaukee, Vol. 1, p. 282.

The City Directory of 1848–9 gives the following report of the deputy collector of the port of Milwaukee for the season ending Dec. 12, 1847:

Arrivals and Clearances	2,030
Tons of merchandise landed	8,886
Passengers arrived	32,875
Barrels of fruit landed	4,000
Barrels of whiskey landed	2,500
Stoves and iron, tons	1,400
Kegs of powder	2,700

TABLE III. *Exports from Milwaukee, 1846**

Wheat	213,448 bush.	Wool	10,562 lbs.
Flour	15,756 bbls.	Ashes	16,250 lbs.
Barley	5,384 bush.	Hides	5,513 lbs.
Corn	1,635 bush.	Furs	198 packages
Lead	1,770,650 lbs.	Rags	140 tons
Broom corn	107,545 lbs.	Pails	295 dozen
Brooms	50,425	Merchandise	314,143 lbs.

MILWAUKEE AS A WHEAT MARKET

There were few farms producing crops in Wisconsin prior to 1840, and the U. S. census of that year reports only 212,116 bushels of wheat produced in the state. The first shipments of wheat were made in 1841. By 1849 shipments had risen to 4,286,131 bushels. Half of it was produced in the four counties of Rock, Walworth, Dane, and Dodge. The surplus wheat was taken to lake ports for shipment eastward, Milwaukee receiving the major part. Milwaukee's total exports in 1849 amounted to $2,098,469, and flour and wheat made up $1,950,000 of this. Until the fifties, this grain had to be hauled in wagons —some of it 80 or 100 miles—over the worst of roads. The production of wheat in Wisconsin continued to increase until the years around 1870 when the total yield for the state exceeded 25,000,000 bushels (estimated at 26,322,000 in 1873.) During this period Wisconsin was one of the foremost of wheat-growing states. The production reported in ten year periods by the U. S. census was as follows:

TABLE IV. *Wheat Production in Wisconsin in Bushels*

1839	212,116	1879	24,884,689
1849	4,286,131	1889	11,698,922
1859	15,657,458	1899	9,005,170
1869	25,606,344	1919 (estimate)	7,365,000

* Milwaukee City Directory, 1847, p. 71.

THE CITY BECOMES A GREAT WHEAT MARKET. Throughout the decade following 1850 Milwaukee received the major part of the wheat shipped from the state. The Annual Report of the Commerce, Manufactures, etc., of Milwaukee, for 1856, says—"Probably nine-tenths of the surplus wheat produced in Wisconsin is marketed at Milwaukee." In 1862 Milwaukee passed Chicago as a wheat market and became for a time the greatest primary wheat market in the country. The high-water mark was reached in 1875 when Milwaukee shipped 22,600,000 bushels of wheat and over 2,000,000 barrels of flour, mainly by boat (over 1000 cargoes). In the shipment of flour alone the year 1886 marks the highest point—5,000,000 barrels—of which about 1,000,000 barrels were ground in the city. The Annual Report of the Chamber of Commerce for 1876 (p. 10) says: "As a wheat market Milwaukee continues to hold the leading position, both as regards the extent of its actual receipts consigned here for sale and the amount of business daily transacted, * * * giving Milwaukee the prestige of being the foremost wheat market of the continent if not in the world." After 1886 Milwaukee declined as a wheat market, but its receipts and shipments of other grains have grown enormously. Milwaukee's prominence as a wheat market was chiefly due to two factors—: it was the terminus of the most important railroads which penetrated the wheat-growing area of Wisconsin, Iowa, and Minnesota; it had good harbor facilities on the great water route to the East.

SIZE OF GRAIN-CARRYING BOATS. By 1873 a few iron ships were carrying grain on the Lakes; some of them had a capacity of 50,000 to 60,000 bushels, and seemed to the people of that period to be veritable monsters. Now steel steamers are carrying 400,000 bushels or more.

MILWAUKEE AS A GENERAL GRAIN MARKET. Wisconsin—particularly the southern half—is a part of the great cereal belt of the Middle West. The southern counties raise large quantities of corn, the sandy central counties raise rye, and the entire state raises oats. Wheat is now a minor crop. All of the cereals except wheat are raised in excess of the local needs, and enormous quantities reach Milwaukee where they are either used in the manufacturing industries of the city or shipped to other sections of the country. As a general grain market Milwaukee has grown rapidly in recent years, as the accompaning table indicates. By deducting the shipments of grain from the receipts in any given year, the consumption of grains in the various industries of the city will appear.

TABLE V. *Receipts and shipments of grain from 1858–1919**

Receipts	Shipments
1858— 5,800,000 bu.	4,700,000 bu.
1870—20,700,000 bu.	17,000,000 bu.
1880—18,000,000 bu.	17,000,000 bu.
1890—25,000,000 bu.	10,000,000 bu.
1900—42,500,000 bu.	24,000,000 bu.
1910—48,350,000 bu.	20,000,000 bu.
1916—86,500,000 bu.	59,000,000 bu.
1918—76,900,000 bu.	49,500,000 bu.
1919—69,000,000 bu.	41,800,000 bu.

TABLE VI. *Wheat and Flour Shipments from Lake Michigan ports, 1861*†

	Bushels
Milwaukee	16,672,865
Racine	910,767
Green Bay	448,722
Kenosha	384,000
Sheboygan	219,262
Port Washington	69,610
Other ports	51,310
Total	18,756,536

TABLE VII. *Shipments from Milwaukee*

	Wheat bus	*Flour* bbls.
1845	95,510	7,550
1850	297,578	100,017
1855	2,641,746	181,569
1860	7,568,608	457,543
1865	10,479,777	567,576
1870	16,127,838	1,225,941
1875	22,681,020	2,163,346
1880	9,952,629	2,805,878
1885	8,235,977	4,354,144
1890	1,952,122	3,201,613
1895	2,752,705	3,375,553
1900	2,166,431	3,788,658
1905	2,766,073	3,560.905
1910	5,971,362	3,710,086
1918	8,681,188	3,060,134
1919	5,656,772	2,787,698
1920	899,695	684,154

* Annual Report Milwaukee Chamber of Commerce, 1918–19, pp. 82, 83.

† Annual Statement of Trade and Commerce of Milwaukee in report of the Milwaukee Chamber of Commerce for 1861.

Flour reduced to wheat.

Magnitude of the coal trade

Neither Wisconsin nor Minnesota produce any coal; their entire supply must be brought in. With the exception of a trifling amount mined in Colorado, all of our anthracite coal comes from eastern Pennsylvania. The railroad freight charges on coal from the East are so much higher than the charges by lake steamers that nearly all of this coal, which is used in Wisconsin, is brought by boat to lake ports whence it is distributed by rail to inland points.*

Under normal conditions coal is brought from Lake Erie ports to Lake Michigan ports for about 30—35 cents a ton. After the great world war, the rates were much higher. Millions of tons of eastern coal are used annually in Wisconsin and the saving in freight charges, made possible by lake transportation, amounts to a large sum. The relatively low cost of coal at Milwaukee and other lake ports has been highly favorable to the growth of manufacturing in these cities.

Soft coal is also received from Indiana and Illinois by rail. However, the coal received in Milwaukee by way of the lakes is 4 times as great in amount as that received by rail. Up to 1890 the receipts of coal at Milwaukee did not reach a million tons a year; in 1900 they were nearly two million tons; and in 1910, they reached five millions tons, involving over 600 cargoes of an average of 8,000 tons each.

The long water frontage afforded by the inner harbor at Milwaukee is ideal for the great coal docks. More wharfage is used for this purpose than for any other. There are 28 coal docks in the city, and the great steel trestles with their power-driven clam-shell buckets for unloading the coal are among the most conspicuous sights along the water front (Fig. 28). The receipts of coal for certain years since 1862 are shown in the following table.

Table VIII. *Coal Receipts at Milwaukee by lake and rail, 1862–1919*†

1862—	21,860 T.	
1870—	123,000 T.	
1880—	368,000 T.	
1890—	997,000 T.	
1900—	1,808,000 T.	
1910—	5,061,000 T.	4,940,000 T. came by lake

* The freight rate on coal from Buffalo to Milwaukee is usually about five times as high by rail as by boat.

† Ann. Reports Milwaukee Chamber of Commerce.

Fig. 28—One of many coal docks at Milwaukee. Lake steamers carrying from 10,000 to 12,000 tons of coal enter the inner harbor and their cargoes are rapidly unloaded by powerful machinery.

1913—5,860,000 T.	5,228,000 T. came by lake
1916—5,196,000 T.	4,950,000 T. came by lake
1918—5,188,000 T.	4,459,000 T. came by lake
1919—5,002,000 T.	4,160,000 T. came by lake
1920	3,637,068 T. came by lake

Milwaukee is the greatest of the Lake Michigan ports in the handling of coal brought by boat. The ports from which the coal is shipped and the amount shipped from each is shown in the following table.

TABLE IX. *Receipts of coal at Milwaukee in 1918*

By lake from Buffalo, N. Y.	839,092
By lake from Erie, Penn.	99,442
By lake from Cleveland, O.	528,394
By lake from Ashtabula, O.	194,445
By lake from Lorain, O.	169,878
By lake from Sandusky, O.	150,773
By lake from Toledo, O.	2,109,446
By lake from Fairport, O.	9,500
By lake from Huron, O.	83,698
By lake from Conneaut, O.	100,485
Total by cargo vessels	4,285,153
Total by rail and car ferry	903,014
Total receipts	5,188,167

The receipts in 1919 and 1920 were less than in 1918. Of the 5,188,167 tons received in 1918, 1,218,347 tons were shipped out of Milwaukee by rail. The amount of coal received by lake has declined since 1914, while the amount received by rail has increased.

RECEIPTS OF SALT, HIDES, LUMBER, AND FISH

SALT. Owing to its nearness to the Michigan salt-producing district and to the requirements of its packing houses, Milwaukee has become a very large receiver of salt, mainly by lake boats. Over half a million barrels are received annually from Ludington, Mich., and an additional three hundred thousand barrels from other points.

HIDES. Wisconsin and the adjoining states are leading producers of cattle, and large numbers are slaughtered in the packing houses of Milwaukee, including Cudahy. Milwaukee is the second city in America in the tanning of leather. Out of these conditions a large traffic in hides has naturally devel-

oped. In 1860, Milwaukee received 85,000 hides: in 1900, the receipts had grown to a million and a quarter; and they have since passed the two million mark. About one-fourth of these are shipped away, and the remainder are used in the tanneries of the city.

LUMBER. Thirty years ago and earlier, when northern Michigan and northern Wisconsin were producing enormous quantities of lumber, Milwaukee received nearly all of its lumber, lath, and shingles by water. Michigan and Wisconsin have ceased to be great producers of lumber, and any that is produced now is cut so far inland that little of it is shipped away by water. Of 150 to 200 million feet of lumber received annually at Milwaukee, only about 10 million feet comes by way of the lake; the remainder coming by rail.

FISH. The Great Lakes fisheries were at one time of large importance, and they are still carried on to a limited extent. During the decade between 1860 and 1870 about ten thousand half-barrels of fish were received annually and inspected at Milwaukee, as shown by the following table:

TABLE X. *Fish Inspected at Milwaukee, 1863–1872*

	half-barrels		*half-barrels*
1863	10,840	1868	12,037
1864	13,479	1869	10,573
1865	12,395	1870	10,687
1866	8,301	1871	13,042
1867	10,050	1872	8,078

MILWAUKEE AND ITS TRANSPORTATION FACILITIES

IMPORTANCE OF THE LAKE TO EARLY MILWAUKEE. For nearly a quarter of a century following 1840, the vast majority of Milwaukee's goods came by lake. Taking the year 1858 as an example; of general merchandise, 53 million pounds came by lake against 18 million by rail. Practically all of the 45 million feet of lumber came by lake; the iron, salt, machinery, shingles, and scores of other commodities came by water. Only farm products from the interior came by rail. Shipments out of the city were more nearly balanced between rail and water, —rail leading somewhat.

In 1875, out of about 84,000 cords of wood received by Milwaukee, 79,000 came by the lake. Of 16,255 cords of tan bark received, 15,389 came by lake. Of 132,000,000 b. f. of lumber, 106,000,000 came by lake, a large part of that received by rail coming in the winter months when the lake was closed.

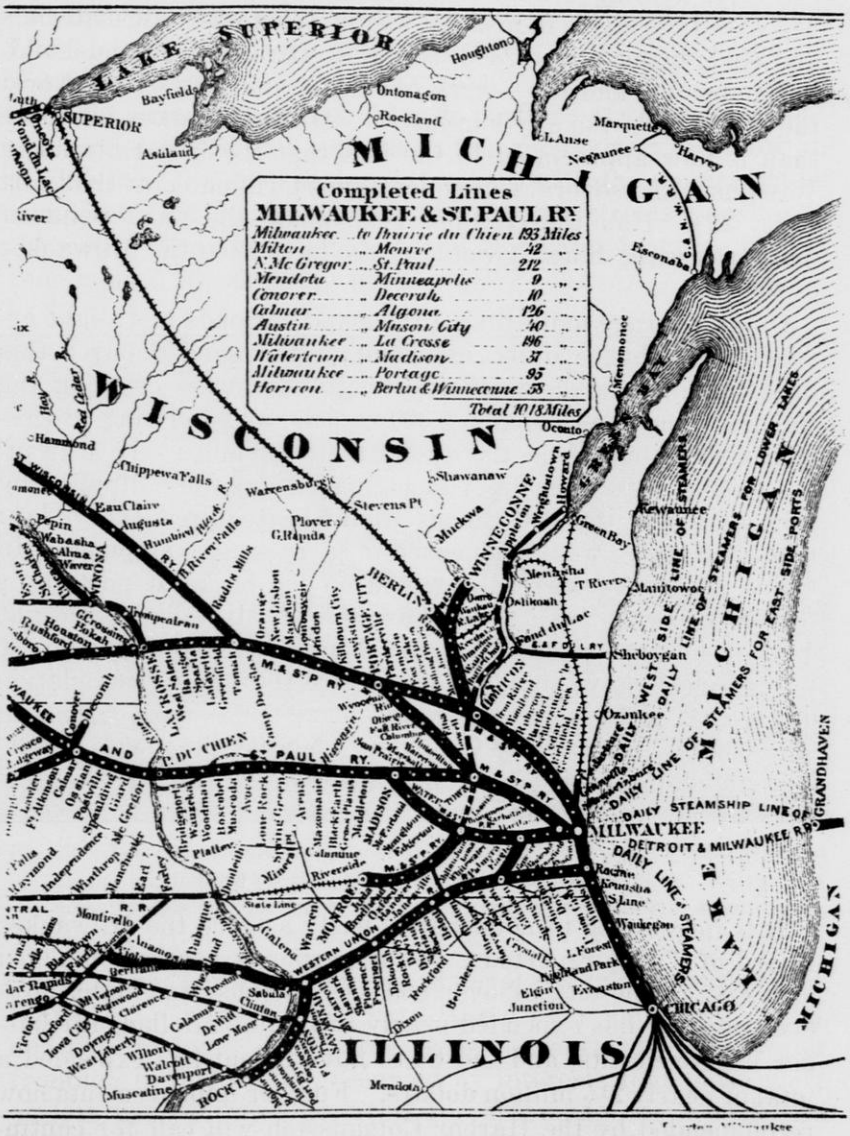


Fig. 29—A railroad map of 1870. Milwaukee was a rival of Chicago as a shipping point for the Northwest. To these railroads Milwaukee owes much of its rapid growth.

MILWAUKEE'S RAILROAD TRAFFIC. In the upbuilding of a modern city, nothing counts more than transportation facilities. They feed the city's industries, supply them with raw materials and coal; bring in the food, supplies, merchandise, and building materials, and they carry out to the markets of the world the products of the city's industry. Milwaukee owes far more than is now appreciated to the fact that the first railroad in Wisconsin and several subsequent lines terminated at that port (Fig. 29). Had the city not been made the focal point of many radiating lines, it would never have been the Milwaukee of today.

On an average more than a thousand carloads of freight arrive in Milwaukee daily, and another thousand depart; this does not include the traffic by boat. Caravans crossing the Sahara sometimes number 5,000 camels, and the long procession strings out along the desert trail for miles. If Milwaukee's daily requirements of incoming freight were supplied by such caravans, 140,000 camels would be required every day; and 140,00 more would be needed to carry out the shipments. In China goods are carried overland on the backs of porters or pushed along on clumsy wheelbarrows. If Milwaukee's freight were thus transported, nearly a million porters would be needed every day—or more than twice the present population of the city. If Milwaukee's water-borne traffic were carried in ships of the size used by Columbus when he discovered America, 260 ships would enter the harbor every day of the open season; this takes no account of the outbound freight.

THE PRESENT AND FUTURE HARBOR

It is interesting to note that as early as 1855 the Milwaukee Board of Trade reported: "Our harbor is nearly completed at a cost to the city of over $60,000". Since that date, however, the city has expended nearly two million dollars for harbor improvements, and the U. S. government has expended a total of nearly 2½ million dollars. Further improvements now recommended by the Harbor Commission will call for continued expenditures as the city's commerce grows.

The Inner Harbor consists of three principal portions, determined by the three streams which come together within the city; these may be termed: (1) the Milwaukee River arm, (2) the Menomonee Valley arm, and (3) the Kinnickinnic arm.

THE MILWAUKEE RIVER ARM OF THE HARBOR. The navigable portion extends from the mouth of the river to the dam, two and three-fourths miles, and affords over five miles of water frontage. The average width is 200 feet; near the mouth it is 350 to 400 feet. It can be navigated by boats 500 feet long. Only the extreme upper and lower portions of the water front are used for shipping purposes; the middle portion, lying in the heart of the city, is closely built up with the mercantile or manufacturing establishments fronting on streets parallel to the river. Only twelve per cent of the water frontage in this zone is used for shipping purposes.

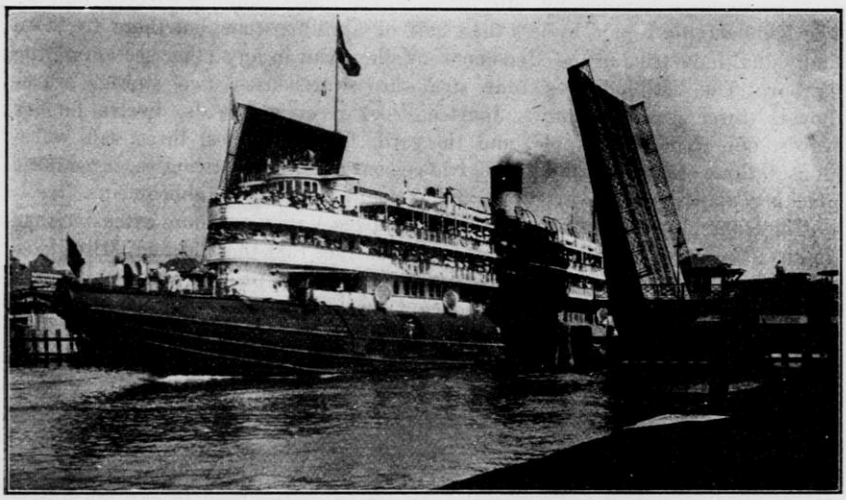


Fig. 30—The *Christopher Columbus*, about the only surviving passenger boat of the whale-back type, in the inner harbor of Milwaukee. Raising the many bridges to allow boats to pass seriously interferes with street traffic.

The upper shipping zone has six coal receiving plants, seven tanneries, a large lumber yard, three flour and cereal mills, and two sand and stone yards. About two-thirds of the water frontage in this zone is occupied by interests that make more or less use of water facilities for shipping. Very little tan bark now comes by water; in fact, little is used. This portion of the river carries about 650,000 tons of freight annually, coal forming over two-thirds of the total.

The lower portion of the Milwaukee River (south of Wisconsin-Grand Avenue bridge) is known as the harbor zone; the chief use of the water frontage here is for the docks of the steamship companies and tug lines, and for elevators and

freight houses. This portion of the water-front is mainly given over to the shipping interests, but, unlike most parts of the harbor, it does not handle coal to any extent. The fourteen bridges which span the river are of the bascule and swinging type (Fig. 30).

THE MENOMONEE VALLEY PORTION OF THE HARBOR. The Menomonee Valley was marsh land up to 1868. Now it is Milwaukee's greatest industrial district. By filling the low lands, by dredging the main channel of the Menomonee, and by constructing several artificial canals, a water frontage of over eight miles has been secured. (Plate II).

"The tonnage handled by enterprises along these channels exceeds that of the Kinnickinnic region by less than half of a million tons, but there are more individual industries in the Menomonee Valley than in any other section of the harbor. The list embraces four steamship warehouses, two storage warehouses, three grain elevators, fourteen coal receiving yards, twelve lumber yards, one wood, post, pole, and tie yard, four tanneries, three salt warehouses, three stone and sand yards, two cement and lime warehouses, three meat packing plants and a variety of minor manufacturing establishments.

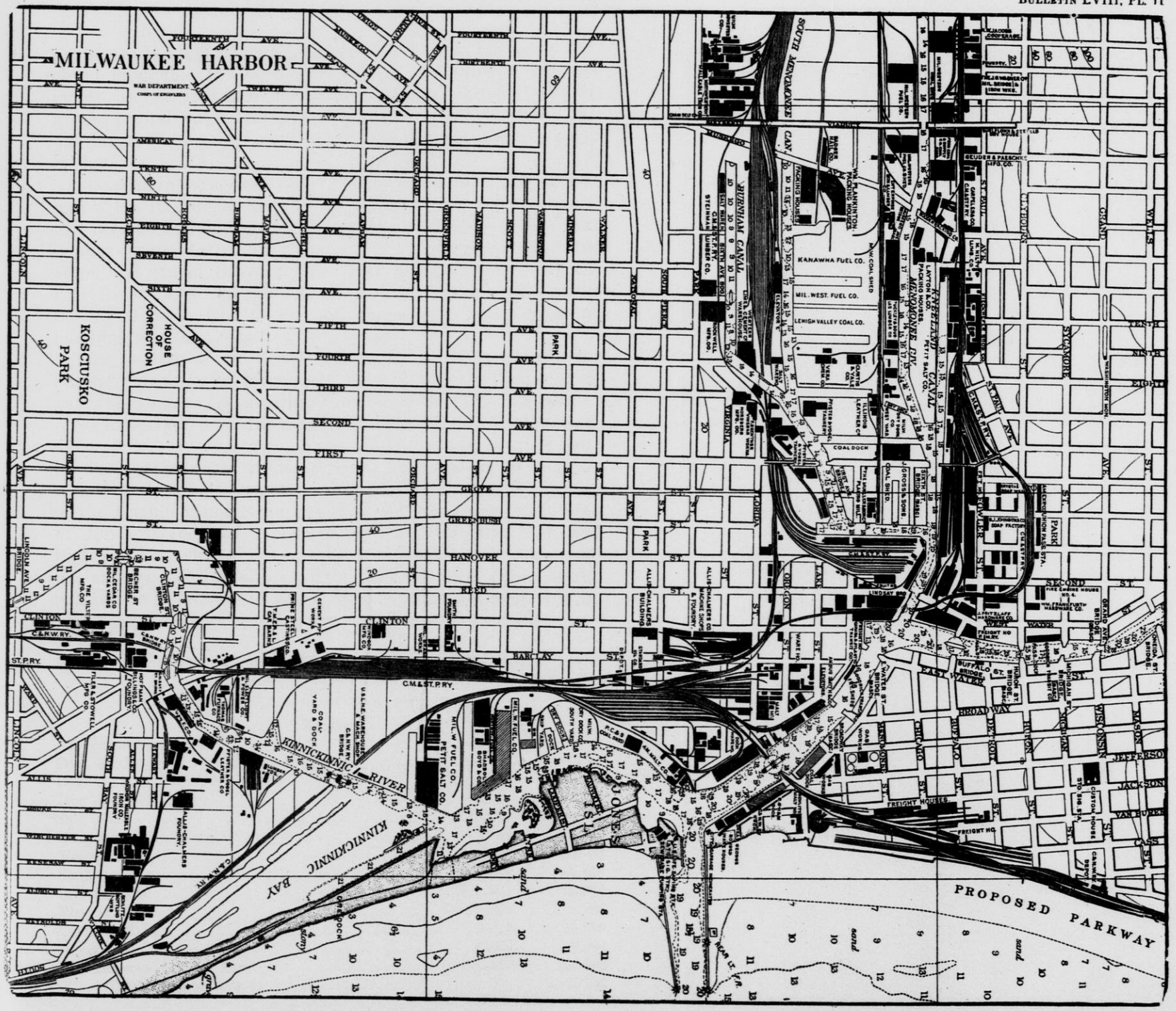
The transshipping facilities in the Menomonee Valley are more extensive than in any other part of the harbor, owing to the fact that the Chicago, Milwaukee & St. Paul Railway Company owns a large area of property along the Menomonee River and South Menomonee Canal. The total frontage possessed by this road along the two streams named is 11,705 feet, or a trifle over 27 per cent of the entire water frontage in the valley. All the steamship and transfer warehouses and grain elevators in this district are owned by the railway company, as are also the sites occupied by two large coal companies. Private parties lease two of the elevators.

The water-front of the Menomonee Valley is now being utilized to its limit, the amount of vacant dockage in the district being less than in any other part of the harbor. Some of the lumber establishments in the valley now receive their entire stocks by rail, however. These yards continue to occupy river frontage and will probably continue to do so until dock property becomes in such demand that it will be more economical for them to seek other locations."*

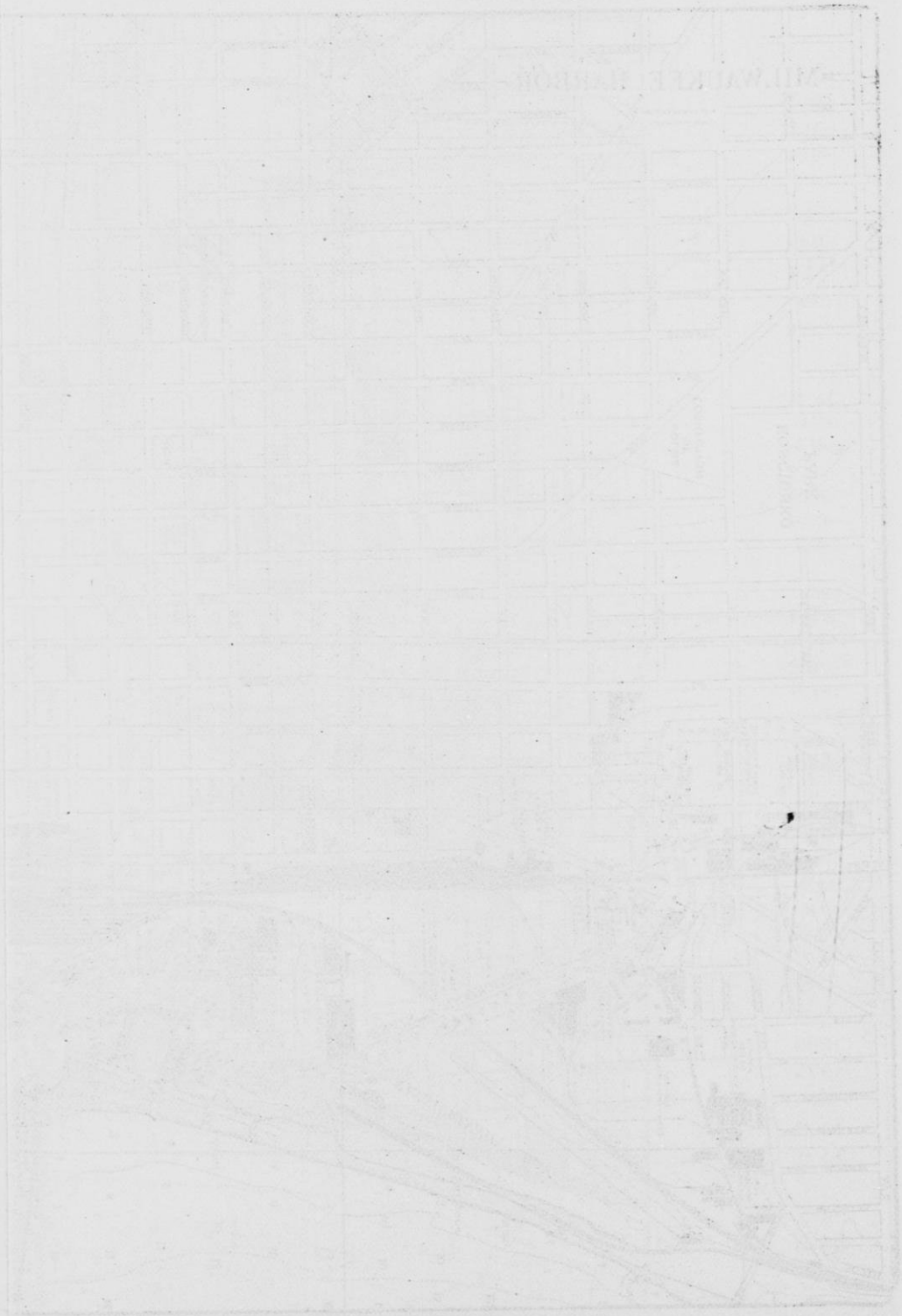
The Menomonee River is 125 to 150 feet wide and is navigated by the largest lake vessels as far west as 26th street, about two miles. The Menomonee Valley portion of the harbor is much less obstructed by bridges than is the Milwaukee River portion and has most excellent railroad connections. It is the greatest coal handling section of the city, about 70 per cent of the entire tonnage of this section of the harbor consisting of coal.

THE KINNICKINNIC ARM OF THE HARBOR. This arm of the harbor includes the shallow Kinnickinnic Bay and the improved

* Annual Report Milwaukee Harbor Commission, 1913.



Map of a part of Milwaukee. Numbers in the rivers and lake indicate depth of the water in feet. Note that the railways and their freight yards, the warehouses, and coal yards are all near the waterways. (Map from U. S. Dept. of Commerce, Miscel. Series No. 33. 1916)



portion of the Kinnickinnic Creek. This part has been rendered navigable for about one and one-half miles from its mouth, and several short canals or slips have been constructed, giving a total water frontage of nearly six miles. (Plate II). The largest lake vessels can ascend to the Kinnickinnic Avenue bridge.

This arm is the second most important branch of the harbor; and if the improvements now contemplated are carried out it will become the chief one. It now has seven coal docks, four lumber yards, three wood yards, two iron ore docks, three stone and gravel yards, a ship yard, a tannery, and two car ferry lines. Over 60 per cent of the traffic in this part of the harbor is coal. One of the coal docks is of great capacity, handling a million tons of coal annually.

This portion of the harbor offers the only opportunity for harbor extension in Milwaukee, and it will be improved in years to come as the growing demands of the city require.

So important has Milwaukee's harbor been in the development of the city, that a conviction exists that the harbor must be further enlarged if the city is to maintain its rank as one of the leading lake ports. The principal recommendations of the Harbor Commission are that the city secure possession of Jones Island and a clear title to Kinnickinnic Bay, and that the inner side of Jones Island be fitted for use by dredging and by building docks. The outer shore of Jones Island will not be improved for a long time to come, although it is involved in the comprehensive plans that have been made.

TABLE XI. *Character of Tonnage Received and Shipped by Lake at Milwaukee During the Year 1918*

(Report of Harbor Commission, 1919)

Receipts

Principal Products	*Quantity*	*Short tons*
Coal, hard, tons	900,201	900,201
Coal, soft, tons	3,559,115	3,559,115
Iron ore, tons	188,161	188,161
Salt, bbls	849,230	121,319
Manufactured iron, tons	71,107	71,107
Stone, tons	153,032	153,032
Sand, tons	36,819	36,819
Cement, bbls	136,421	25,920
Pig iron, tons	6,298	6,298
Lumber, M feet	9,726	14,590
Sugar, bbls	35,420	7,084
Miscellaneous freight, tons	382,802	382,802
Total receipts, tons		5,475,340

Shipments

Principal Products	*Quantity*	*Short tons*
Flour, bbls	2,318,594	231,859
Wheat, bus	6,730,688	201,921
Corn, bus	1,488,847	41,688
Oats, bus	16,675,415	266,807
Barley, bus	1,207,158	28,972
Rye, bus	140,824	3,943
Manufactured iron, tons	55,106	55,106
Lumber, M feet	95,000	142,500
Wool, lbs	8,276,546	4,138
Pig iron, tons	5,720	5,720
Malt, bus	226,266	3,847
Meat, lbs	2,943,357	1,472
Peas, bus	55,577	1,667
Copper, tons	19,932	19,932
Machinery, tons	4,004	4,004
Miscellaneous, freight, tons	534,928	534,928
Total shipments, tons		1,611,210

Early Land Transportation in and out of Milwaukee

Following is an early account of the trails leading out of Milwaukee:

"When the first Anglo-Saxons arrived, there were four principal Indian trails centering in Milwaukee:* two diverging from the south side, one of which led to Chicago, the other to the Fox River: one leading from the west side to Green Bay, and one proceeding up the peninsula to Pt. Washington. The wagons of the pioneer usually followed these trails, and as they were bound to be the best routes, the principal roads to the interior were established on very nearly the same courses. Thus, in 1835, these were all the roads that led into Milwaukee."†

A quotation from the Milwaukee *Commercial Herald* of Nov. 13, 1843, indicates the attitude of the public mind toward the improvement of roads into Milwaukee:

"In view of the extent to which this town is dependent upon interior trade for the support and promotion of its different interests, and the importance, consequently, of an increase in the facilities of communication with the interior, it is a source of surprise that our business men exhibit so little interest in matters upon which the welfare and success of Milwaukee in a business point of view are so greatly dependent. Too much reliance should not be placed on our natural position."

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* There are said to have been three other Indian trails of importance, to Muskego Lake, to Janesville, and to Waukesha and Watertown.

† Western Hist. Society's Hist. of Milw. 1881, vol. 2, p. 1318.

In 1844, $20,000 was raised by popular subscription for the purpose of improving the road leading southwest to Muskego.

A track from Green Bay southward through Milwaukee to Chicago was cut through in 1836–7. It was superseded in 1841 by a government "military" road for which Congress appropriated $15,000: over it the mail was carried between Chicago and Green Bay.

The first Territorial Legislature (1836) authorized a road from Milwaukee to Madison, and in 1836 Congress appropriated $10,000 for the cutting of a path through the 80 miles of forests and swamps between Milwaukee and Madison. Referring to the roads of 1842 leading out of Milwaukee, Mr. A. C. Wheeler says:

"The roads leading to the town were not much to boast of. There was the Green Bay road winding away to the north: the Waukesha and Mukwonago Roads, running west: the Kilbourn Road leading to the southwest, and the Racine Road passing south. In 1841, Mr. Hesk opened a wagon track northwest to Fond du Lac. These roads were mere openings through the timber, with logs laid across some of the streams, and varied occasionally by stumps and hollows. Still the tide of immigration passed through these channels with unceasing flow, spreading out over the rich country to the west."*

The principal roads out of Milwaukee established by the Territorial Government prior to the admission of Wisconsin to statehood were as follows:

1835—Milwaukee to Lake Winnebago, at Calumet Village.
1836—Milwaukee to Blue Mound by way of Madison.
1837—Milwaukee to Janesville.
1838—Milwaukee to Beloit by way of Troy and Elkhorn.
1839—Milwaukee to Geneva by way of Rochester.
1843—Milwaukee to Mineral Point by way of Whitewater.
1844—Milwaukee to Wind Lake.
1845—Milwaukee to Fox Lake.
1845—Milwaukee to Fort Winnebago.
1846—Milwaukee to Ft. Atkinson.
1846—Milwaukee to Fond du Lac.

The Plank Road Period

Such roads as existed in the territorial days were exceedingly bad. Loads of any size could not be hauled except by using two, three, and even four teams of oxen; horses were but little used in those pioneer days. The settlers a few miles inland found it a discouraging task to get their crops to market. Rail-

* The Chronicles of Milwaukee, p. 123.

18  47.

WISCONSIN STAGE LINES.

Hutchins, Howe & Co.

ARRANGEMENTS FOR THE SEASON,

From Milwaukee to Galena, Daily

Leaves their general Stage Office, Milwaukee, via Prairieville, Palmyra, Whitewater, Ft. Atkinson's, Aztalon, Lake Mills, Cottage Grove, Madison, Blue Mounds, Dodgevill, Mineral Point, Plattville & Hazel Green to Galena, on Tuesdays, Thursdays and Saturdays, through in two and a half days, stopping over night at Mineral Point.

Leaves Mondays, Wednesdays and Fridays via Prairieville, Delafield, Summit, Union, Centre, Watertown, Aztalon, Lake Mills, Madison, Mineral Point and Galena, making a daily line from Milwaukee to Galena, connecting at Plattville with a line of stages running to Prairie du Chien. Connecting at Galena with a DAILY line running through Dubuque to Iowa city.

Leaves Milwaukee daily for Whitewater and Janesville, via Prairieville, Palmyra, Whitewater and Milton.

Leaves daily for Watertown, via Prairieville and Summit.

Leaves Mondays, Wednesdays and Fridays, for Fond du Lac, via Watertown, Beaver, Dane and Fox lake.

Leaves Fond du Lac three times a week for Janesville, via Fox lake, Beaver dam, Watertown, Lake Mills and Whitewater, connecting at Janesville with a line to Rockford, Dixon and Peru, on Illinois river, making a direct line of Stages from Green Bay to the head of navigation on Illinois river, passing through the centre of Wisconsin and Illinois, connecting with all the principal stage routes across the territory and state.

HUTCHINS & HOWE, Galena.
A. B. CONDIT, Milwaukee.

FOND DU LAC & GREEN BAY.—Stage leaves Milwaukee for Fond du Lac and Green Bay, every Monday and Thursday, through in three days.

FINNY & DARLING, Fon du Lac.
MORROW & WHITE, Green Bay.
A. B. CONDIT, Milwaukee.

Fig. 31—Reproduction of an advertisement of 1847, when stages were the principal public conveyances.

roads were still an experiment and their monopolistic features did not appeal to the people; nor was the capital necessary to build railroads available in this new country. Timber, however, was abundant, and the plan of constructing plank roads was received with considerable favor. These roads were built and owned by private companies under specific charters from the state; they were public roads in the sense that anyone could use them, but only on condition that he pay toll at the frequent toll gates. Receipts from tolls were expected to keep the roads in repair, pay a profit to the company that built the road, and eventually to pay off the cost of construction. Most of the improved roads of the early days (and some even down to a generation ago) had toll gates at each of which a small fee was charged.

The first plank road into Milwaukee (the Watertown road) was so successful and so profitable to its owners that the building of plank roads received a decided impetus, and a half dozen others were built or partly built during the years 1848 to 1850. Concerning this road Mr. E. D. Holton says:

"In 1847, Elisha Eldred, Hans Crocker, Joshua Hathaway, Eliphalet Crammer, and their associaties entered upon the construction of the Milwaukee and Watertown Plank Road, and pushed it with great zeal and success. Mr. Elisha Eldred was the President, and he gave personal attention to the work. It was about four years in construction. It was an admirably built road in all particulars. Its cost in cash was $119,000 or there-abouts. It was a most splendid success. Its effect on the prosperity of the town was magical. As an evidence of the amount of business, its net receipts for tolls were at times equal to $1,300 per week. This road continued to do a very large business until the completion of the Watertown railroad in 1855."*

By 1850 the following plank roads led out of Milwaukee:

1. Milwaukee to Watertown, 45 miles, started in 1848 and completed in 1854. Highly successful.

2. Milwaukee and Janesville road begun in 1848, but completed only to Mukwonago, 25 miles, with a 12-mile branch from Muskego Center to Waterford. Successful for a few years.

3. Milwaukee and Lisbon road, chartered in 1850 and completed for about 22 miles out of Milwaukee, with a branch of 4 miles to Hartland.

4. The Milwaukee and Fond du Lac road, chartered in 1850 and planked as far as Cedarburg, 20 miles.

* Wis. Hist. Collections, V. 4, p. 274.

5. The Milwaukee and Waukesha road, organized in 1850. Very successful.

6. The Milwaukee and Wauwatosa road, six miles long, completed in 1854.

7. The Milwaukee and Green Bay road (1854) was planked for only five miles.

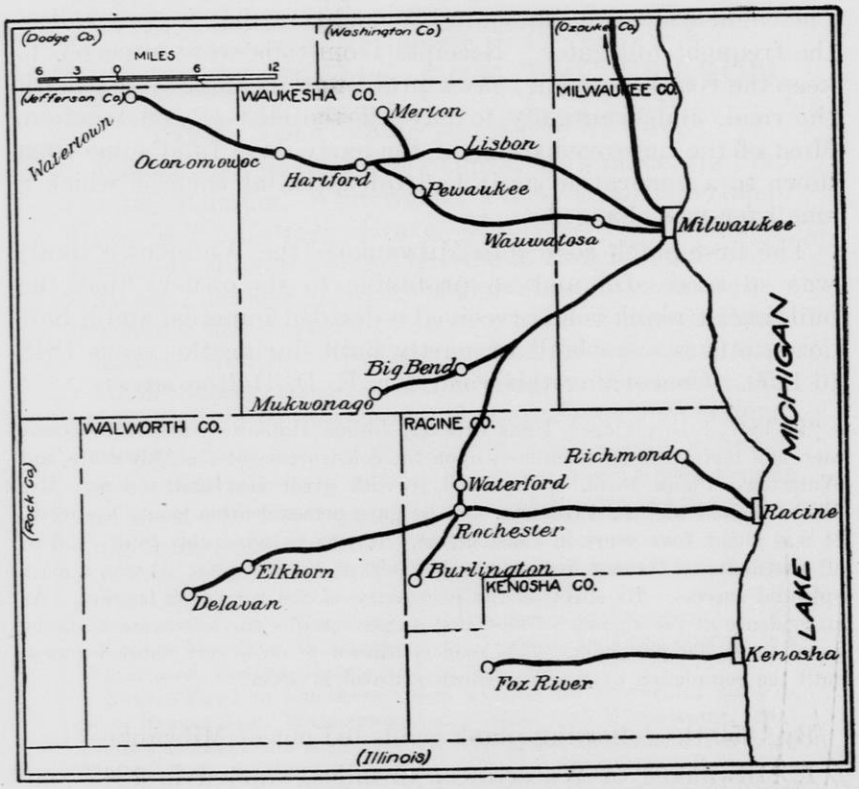

Fig. 32—Plank Roads of southeastern Wisconsin. Most of these were built and used in the years following 1850. All of them connected interior points with lake ports.

The total length of the seven plank roads leading out of Milwaukee was about 150 miles. After the opening of the Milwaukee and Mississippi Railroad as far as Madison in 1854, interest in plank roads declined, but these roads served a useful purpose for a number of years (Fig. 32).

Milwaukee's early railroads

The growth of railroads. Several short lines of railroad were built in the East as early as 1830. Chicago was reached by railroad from the East in 1852, and the first railroad built westward from Chicago—The Galena and Chicago Union R. R. —was begun in 1850 and reached the Mississippi River in 1854. The agitation for railroads in the territory tributary to Lake Michigan was vigorous throughout the decade 1840–50.

The first railroad. The first step toward a railroad for Milwaukee was taken on Sept. 17, 1836, while Wisconsin was still part of the Territory of Michigan, and Milwaukee was still a village, in fact before the East Side and West Side settlements had joined into one village. On this date a group of men met in a hotel and decided that Milwaukee ought to have a railroad. It is to be remembered that one of the most energetic and resourceful men of early Milwaukee—Byron Kilbourn—was by profession an engineer. Milwaukee owes much to this fact, for Mr. Kilbourn's training as an engineer, and his interest in internal improvements made him a power for progress in the community. His Milwaukee and Rock River Canal project was a failure, as it deserved to be, but his persistent fight for railroads to connect Milwaukee with the Mississippi River resulted in making Milwaukee a great railroad terminus. It has been said and with undoubted truth: "To that pioneer railroad, more than to any other thing except her location on Lake Michigan, Milwaukee is indebted for her steady growth and commercial prominence".*

Early plans and struggles. One of the principal arguments for a railroad from Milwaukee to the Mississippi was the supposed importance of the lead trade from southwestern Wisconsin. The promoters of the railroad laid great stress upon the benefits to the city to be gained by diverting this trade eastward to Milwaukee. As a matter of fact, the transportation of lead proved to be only a minor item.

Conflicting interests. During these early years Milwaukee was in keen competition with Racine and Southport (Kenosha). Chicago, too, was seeking to divert the lead shipments from the Galena district eastward to Chicago, and was building a railroad from Chicago to Galena. This road was the beginning of the Chicago and North Western, the great rival of the

* Barton, Elmer E., Industrial History of Milwaukee, p. 26.

Chicago, Milwaukee, & St. Paul, whose original line was the 20-mile track from Milwaukee to Waukesha. Southport desired a railroad to Beloit, with a line thence to connect with the road already building from Chicago to Galena. The farmers of the Rock River Valley of southern Wisconsin favored a railroad to Chicago, rather than to Milwaukee.

THE RAILROAD ACTUALLY BEGUN. With such conflicting interests at work in southeastern Wisconsin, Milwaukee had no easy task in securing its railroad; but it was secured, the charter be-

road to Chicago, rather than to Milwaukee.

"The work was commenced in the fall of 1849, and for one entire year the grading was prosecuted and paid for by orders drawn on the merchants, payable in goods, by carts from wagon makers, by harnesses from harness-makers, by cattle, horses, beef, pork, oats, corn, potatoes, and flour from the farmers, all received on account of the stock subscriptions, and turned over to the contractor in payment of work done upon the road."*

Much of the country was still covered with virgin forests. Settlers were scattered; money was scarce; many people had no faith in the success of railroads, and others were opposed to them because of their monopolistic character. When it came to purchasing rails and rolling stock for the railroad, actual money must be obtained, and money was difficult to get. Finally, a large number of farmers along the route, mortgaged their farms to raise the needed money. The mortgages were unsalable, but they were taken over by the city of Milwaukee, and its bonds were issued in exchange: these were salable, and thus the money was obtained.

COMPLETION OF THE RAILROAD TO THE MISSISSIPPI. The building of this first railroad westward from Milwaukee was a great achievement. The line was completed to Waukesha, 20 miles, and was opened with much ceremony and banqueting on February 25, 1851. In the same year, the name was changed from the Milwaukee and Waukesha Railroad to the Milwaukee and Mississippi Railroad. This was the first railway built in Wisconsin and was the beginning of the Chicago, Milwaukee, and St. Paul system. The road was continued and

reached Milton, 62 miles from Milwaukee, in 1852;
reached Stoughton, 70 miles from Milwaukee, in 1853;
reached Madison, 85 miles from Milwaukee, in 1854;
reached Mazomanie, 108 miles from Milwaukee, in 1856;
reached Prairie du Chien on the Mississippi River, 181 miles from Milwaukee, in 1857.

* Holton, E. D., Wis. Historical Collections, Vol. 4, p. 276.

A line 42 miles long from Milton to Monroe was also completed in 1857.

In 1867, the road was completed from Prairie du Chien to St. Paul and Minneapolis, giving the Twin Cities their first rail connection with Milwaukee, Chicago and the East, for a railroad had been opened between Milwaukee and Chicago in

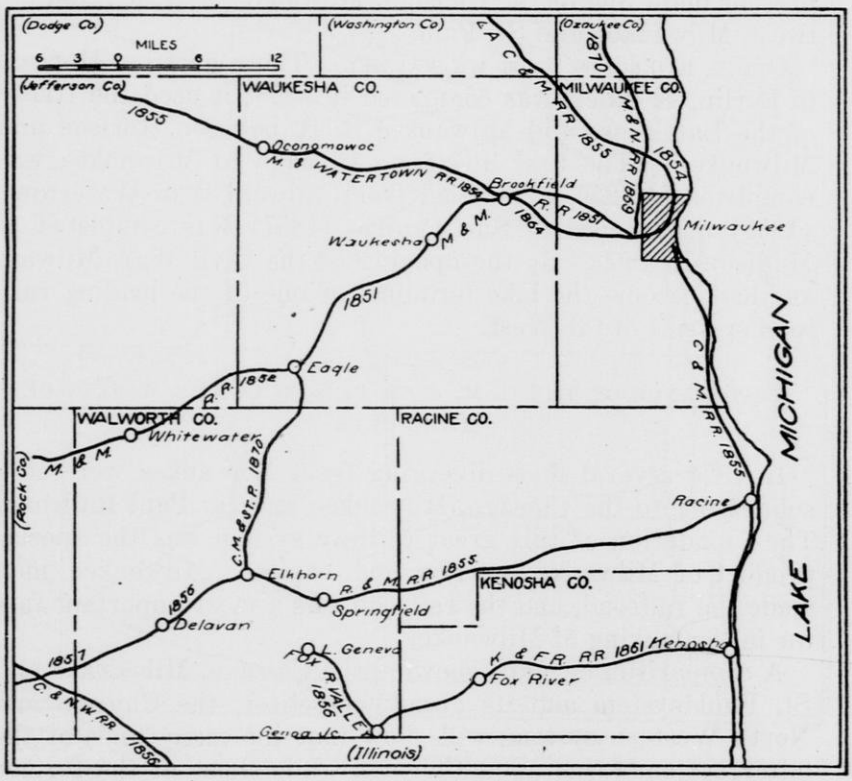

Fig. 33—Map showing dates of building of early railroads in southeastern Wisconsin.

1855. The Chicago, Milwaukee, and St. Paul completed its own tracks from Chicago to Milwaukee in 1873. Between 1855 and 1873, it had used the track of the Chicago and Milwaukee Railway, which later became a part of the Chicago and North Western system.

THE LA CROSSE AND MILWAUKEE RAILROAD. This road was incorporated in 1852, with Byron Kilbourn as president. It was built much more rapidly than the Milwaukee and Mississippi. Its tracks reached Horicon, 54 miles from Milwaukee,

in 1855. In 1856 it had reached Fox Lake; in 1857 Kilbourn; and by 1858 it was at La Crosse, on the Mississippi River. La Crosse was a great lumber market, the outlet of one of the foremost lumbering regions of the Northwest. This road has proved to be even more important to Milwaukee than the earlier line—the Milwaukee and Mississippi; it is, in fact, the present main line of the Chicago, Milwaukee and St. Paul between Milwaukee and St. Paul.

Other railroads from Milwaukee. The road from Horicon to Berlin, 42 miles, was completed in 1858; it used the tracks of the La Crosse and Milwaukee R. R. between Horicon and Milwaukee. The first line from Chicago to Milwaukee was completed in 1855. The road from Milwaukee to Watertown (1855) and thence to Sun Prairie (1857) was completed to Madison in 1869. By the opening of the Civil War, Milwaukee had become the lake terminus of one of the leading railroad systems of the West.

Importance of the C. M. & St. P. R. R. in the making of Milwaukee

In 1874 several lines diverging from Milwaukee were consolidated into the Chicago, Milwaukee and St. Paul Railroad. The foundation of this great railway system was the special product of Milwaukee energy and capital. Milwaukee men made the railroad, and the railroad was a most important factor in the making of Milwaukee.

A comparison of maps showing the Chicago, Milwaukee and St. Paul system and its great competitor, the Chicago and North Western system, will show that the many lines of the latter system focus upon Chicago, while those of the former focus upon Milwaukee. The two great systems parallel each other almost everywhere, yet one was built primarily as an enterprise to aid Chicago, and the other primarily to aid Milwaukee. Latterly this distinction has disappeared for both systems have outgrown their earlier aims.

Had the earliest important railroad system of Wisconsin focused upon Chicago, Kenosha, Racine, Sheboygan, or any other lake port than Milwaukee, it is probable that Milwaukee would not have been much, if any, larger than the other lake ports of Wisconsin. In fact, it might easily have taken a subordinate position if another port within the state had been made the main eastern terminal of the pioneer railroad system. True, it had a better harbor than Racine, Kenosha, or

Sheboygan; yet, in their natural states, all of these harbors, including Chicago's, were only the mouths of small rivers, useful in a very small way until artificially improved. Had any one of the other harbors been made the focus of the first rail-

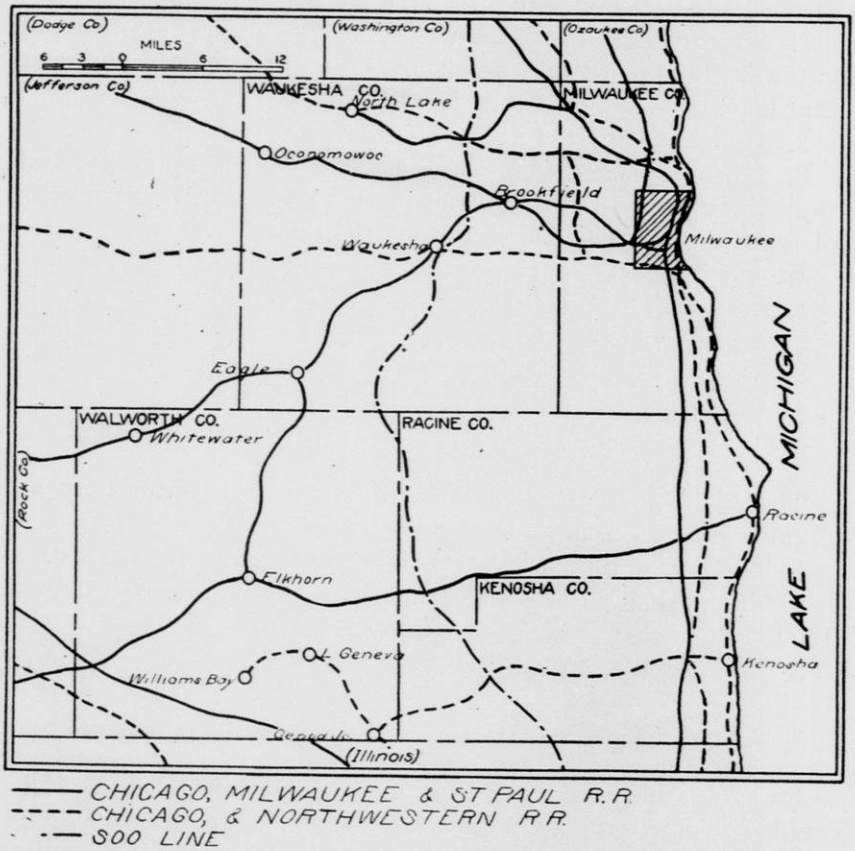

Fig. 34—Railroad map of southeastern Wisconsin in 1902. Note the importance of Milwaukee as a railroad center.

road system, it probably could have been dredged and improved to meet the growing needs. This focusing of lines of shipment upon the port of Milwaukee gave it the lead over its neighbors, excepting, of course, Chicago. Alex. Mitchell, one of Milwaukee's greatest financiers and railroad men, has given as his belief that if Milwaukee had remained passive in the early days of railroad building in the West, and had done nothing to gain the trade of the Northwest, the city would have been relegated to a quiet country village.

AN EXAMPLE OF A GEOGRAPHICAL PRINCIPLE. The growth of Milwaukee into an industrial and commercial city of large size is an example of an important principle in the field of Economic Geography. Had any one of three factors been absent, the Milwaukee of today could not have been. Those factors were:

1. A rich back-country west of Lake Michigan, the principal gateway to which would be a port somewhere on the shore of that lake.
2. A harbor, situated at the mouth of a river.
3. A group of men who possessed the vision, the energy, and the ability to penetrate that productive back-country with lines of transportation converging upon their port.

In short,—

1. A rich hinterland,
2. A good harbor, and
3. Railways connecting the two.

MILWAUKEE AS A MANUFACTURING CENTER

The history of Milwaukee as an industrial center may be divided into three periods:

1. The period of small enterprises, reaching to about 1880.
2. The period of the development of large enterprises, 1880–1900.
3. The present.

I. THE PERIOD OF SMALL MANUFACTURING ENTERPRISES

PIONEER MILWAUKEE. In a pioneer settlement, such as Milwaukee was in the decade following 1830, manufacturing is confined to the hand trades, supplemented by primitive mills for cutting lumber, for grinding flour and feed, possibly for weaving cloth, and tanneries for tanning leather. Providing the absolute necessities of frontier life was the first step in manufacturing. The earliest houses were built of logs because the pioneer's family could build such a home from trees cut on the spot with no other tools than an axe. Often the furniture was made by the pioneer himself, and his wife made nearly everything that the family wore.

The second step in the evolution of manufacturing in a new country is the division of labor among the various hand trades; tailor shops, cabinet shops, shoe shops, blacksmith shops, and others spring up as the village grows.

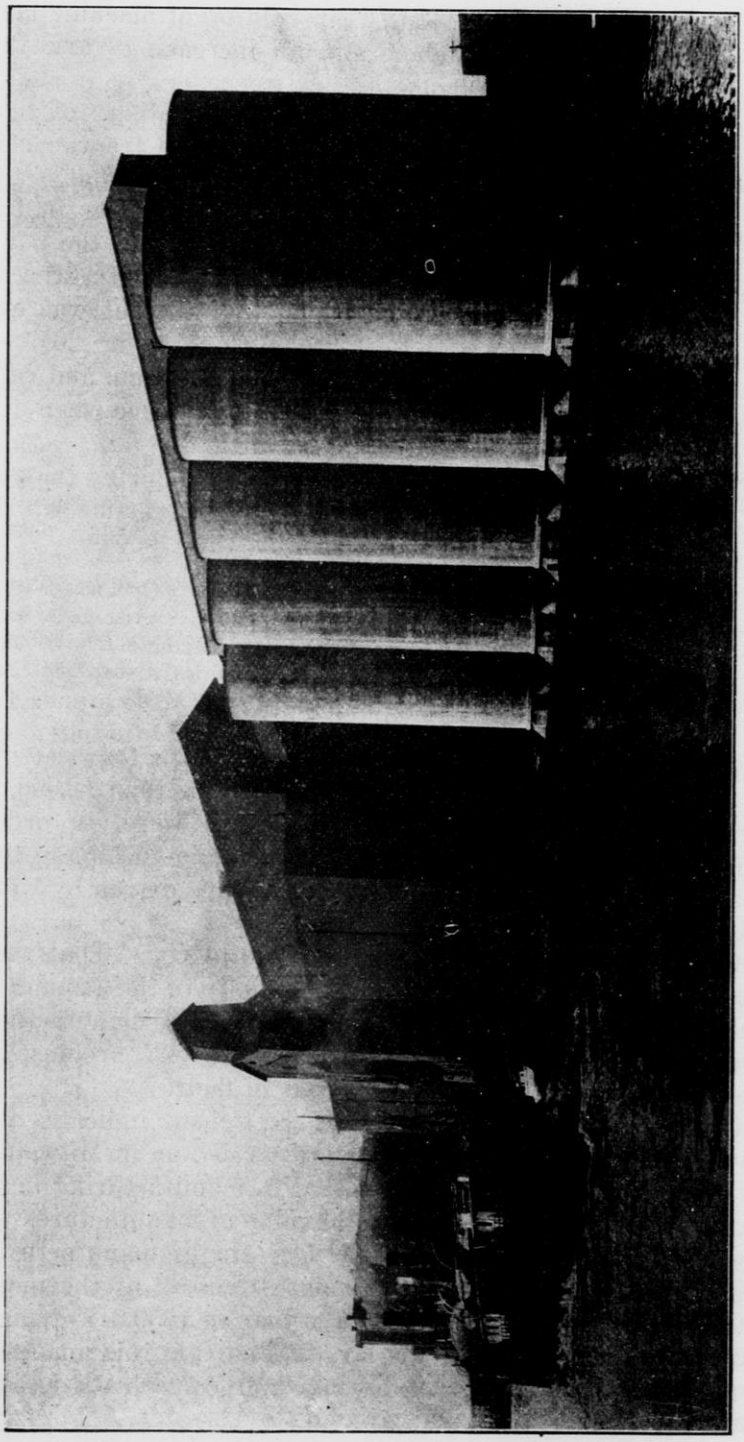

Fig. 35—One of the great grain elevators on Milwaukee harbor.

The third step comes with the substitution of machine labor for a part of the hand labor, and an increasing variety of small mills and factories come into existence.

IMPORTANCE OF THE WATER POWER. The machinery of these mills must be driven by power of some sort. In frontier communities this was nearly always water power, and that is why the building of the dam across the Milwaukee River in 1842 meant so much to early Milwaukee. On account of the power thus developed, small manufacturing establishments grew up quickly along the mile of canal which was all that was ever built of the Milwaukee and Rock River Canal (Fig. 26). At present the amount of power developed by this dam and canal would seem small, but it helped Milwaukee at a time when even a small source of power meant a great deal.

The first city directory of Milwaukee, issued during the year 1847–8 says that there were several extensive manufactories which were kept in constant operation by water power.

> "They included a woolen factory, 2 iron foundries, an edge tool manufactory, a sash factory, a planing mill, a tub and pail factory, 2 grist mills, a saw mill, a tannery, and several turning shops. Besides these establishments situated on the water power, there were: 2 iron foundries, a soap and candle factory, and a starch factory."

Most of these factories employed only three or four persons. The U. S. Census credits Milwaukee with less than $2,000,000 of manufactured products in 1849. These were, in order: foundry products, cabinet ware, and leather; malt liquors then ranked ninth; there were six flour mills,—five driven by water and one by steam.

MANUFACTURES ALMOST WHOLLY FOR HOME USE. That these early manufactures were used almost wholly in the community is revealed by the fact that in 1846 the only manufactured products shipped out of Milwaukee were 50,425 brooms, 295 dozen wooden pails, and 17,576 barrels of flour.

MANUFACTURING IN 1850. The U. S. Census indicates that about 40 lines of manufacturing were carried on in Milwaukee in 1849, yet the total capital invested in manufacturing in the city was only $546,720, and the total value of manufactures was only $1,801,123. Milwaukee now has single manufacturing plants that turn out more in a month than all of the manufactories of the city turned out in a year in 1850. For many years afterward, flour was the largest item, yet this amounted to only $324,000 in 1850; following flour came leather, beer, brick, and iron.

1850–1860. Up to the Civil War all of Milwaukee's manufacturing establishments were relatively small. The local Board of Trade gave the following estimate of products for 1856, which was evidently too high, as shown by the U. S. Census report of 1860.

TABLE XII. *Board of Trade's Estimates of the Value of Manufactures in Milwaukee in 1856*

	Value
Ale and beer	$750,000
Brick	350,000
Boots and shoes	350,000
Clothing	600,000
Flour	696,000
Iron—all kinds	1,500,000
Lumber planing	250,000
Pork and beef packing	400,000
Rectified whiskey spirits	500,000
Sheet metal	250,000
Tanning and wool pulling	280,000

EXPORTS OF MANUFACTURES IN 1856. While most of Milwaukee's manufactures were still for local use, the list of articles shipped out of the city in 1856 indicates a considerable increase over 1846.

TABLE XIII. *Manufactured Goods shipped out of Milwaukee in 1856**

8,000 brick	75 bbls. lard
2,635 bbls. flour	100 doz. brooms
359 bbls. pork	50 tons ship knees
246 boxes soap	17 casks potash
96 bbls. whiskey	20 cases boots and shoes
3,245 bu. malt	40 boxes saleratus

When the U. S. Census report covering the year 1859 appeared, it gave Milwaukee County the following:

Number of manufacturing establishments	558
Average number of employees	3,400
Capital employed	2,990,000
Total value of products	6,300,000
Value of flour manufactured	$1,883,000

MANUFACTURES IN 1859. Most of the city's manufactories at the opening of the Civil War were shops rather than factories. Very few plants employed as many as ten persons.

* City directory, 1856–7, p. 463.

TABLE XIV. *Leading Manufactures of Milwaukee County, U. S. Census 1860*

Industry	No. of establishments	No. of employees	Annual cost of labor	Annual value of products
Flour and meal	19	96	$39,048	$1,883,545
Meat products	8	60	5,933	513,820
Men's clothing	27	556	117,552	515,380
Boots and shoes	50	321	67,428	369,932
Malt liquors	26	112	33,636	310,130
Machinery	10	121	39,800	250,000
Distilled liquors	15	42	12,600	235,431
Leather	9	95	32,592	217,509
Iron castings	4	105	41,280	161,000
Cooperage	47	161	42,012	149,521
Soap and candles	9	30	8,760	145,970
Furniture	50	95	29,772	130,705
Brick	9	268	30,144	129,500
Sash, doors, and blinds	11	79	.....	101,550
Total, All Industries	558	3,406	$900,085	$6,259,070

The 10 plants engaged in manufacturing machinery, employed together an average of 121 persons.

The four foundries together employed on an average 105 persons.

The two ship building plants employed between them 65 men.

One match factory employed 30 people.

The 558 manufacturing establishments reported by the U. S. Census employed on an average 6 persons each. Even in Massachusetts, the manufacturing establishments of 1859 employed an average of only 26 persons each. Factory manufacturing was still on a small scale in the East and in its infancy in the West.

In his "*Chronicles of Milwaukee*" Wheeler says of Milwaukee in 1861:

"There are no less than eight large iron foundries, and six brass foundries in operation . . . There are eleven large flouring mills in constant operation, seven furniture factories employing in the aggregate about 200 hands. Six planing mills, one paper mill, one type foundry, and eight tanneries."

The German population contributed a great deal to the early household and shop manufactures of the city. Wheeler says:*

"The Northwestern part of the town is occupied almost exclusively by Germans. It is a hive of industry throughout . . . Cigars, boots and shoes, furniture, baskets, toys, jewelry, wearing apparel, . . . are here fabri-

* Chronicles of Milwaukee," p. 279.

cated in small factories, and either sold to larger houses or peddled through the state."

GROWTH OF MANUFACTURING 1860–70. During this decade, the Civil War was fought. The army and its operations created an extraordinary demand for manufactured products. The shortage of labor forced manufacturers to the increased use of machinery, and by 1870 the United States was well embarked upon its course as an industrial nation. In this great progress Milwaukee shared. During the decade, the annual value of her manufactures climbed rapidly, and in 1869 the city produced more than three times as great a value of manufactured goods as it produced in 1859. The general movement was away from the little shops toward real factories. For example, there were 50 "shoe-manufacturing establishments" in the city in 1859: they employed on an average only six people each. Ten years later there were 11 shoe factories, but they employed, on an average, 38 people each, and the 11 factories made fifty per cent more shoes than the 50 shops made ten years earlier. The number of people engaged in manufacturing increased nearly 300 per cent and the value of products increased more than 300 per cent. Flour milling was still the largest industry in the city, followed in order by (2) iron working, (3) leather tanning and currying, (4) brewing, and (5) the making of boots and shoes.

TABLE XV. *Manufactures in Milwaukee County, 1869**

Industry	No. of establishments	No. of employees	Value of products
Boots and shoes	11	392	$560,579
Brick	8	314	213,160
Men's clothing	56	959	1,417,962
Flour milling	14	182	3,914,035
Furniture	20	310	428,020
Iron (cast, rolled, forged, etc.)	14	1,063	2,007,381
Leather tanned	15	238	799,539
curried	14	122	934,588
Malt liquors	16	233	706,070
Sash, doors, blinds	8	357	449,422
Cigars	66	361	392,201
Total of All Industries	828	8,433	$18,798,122

* Establishments producing at least $500,000 worth of goods or employing at least 300 persons according to U. S. census of 1870.

For some reason the census of 1870 excludes slaughtering and meat packing from the list of manufactures in Milwaukee. In 1860 there were eight such plants and in 1880 seven. In the latter year the value of products was $6,000,000, ranking first among the industries.

The census figures for both 1859 and 1869 are for Milwaukee County, but nearly all of the manufacturing was done in the city.

As compared with the present huge development of manufacturing, the industries of 1869 were small. One iron working plant employed over 600 persons and manufactured products valued at $1,129,000 in a year. This was the largest plant in the county.

Already the lines of manufacturing which have since become the big ones in Milwaukee's industrial life, were forging to the front. In 1869, as later, iron working, tanning, brewing, and meat-packing were the leading industries. The manufacture of flour necessarily declined when Wisconsin ceased to grow wheat on a large scale (after 1880), and the manufacture of shoes, while a prominent industry in the city, is not one of the largest.

It is a matter of interest to see what Milwaukee had to say of itself at this period, and probably no better authority could be quoted than the Report of the Chamber of Commerce (for 1871). As Milwaukee desired to attract manufacturing industries, the Chamber of Commerce published a list of the advantages offered by the city. The following are given special prominence:

Milwaukee's Advantages for Manufacturing—1871

"The city is situated on the finest bay of the entire chain of lakes.

Possesses 15 miles of splendid dockage.

Has a very considerable water power.

Excellently situated for a distributing point.

Railroad facilities nearly equal to those of Chicago.

Cheap land along the water front; the city has miles on miles of unoccupied water front.

Real estate is at its lowest notch, and the cost of material and of labor in building is proportionally low.

Low taxes, and a city almost out of debt.

Cheap labor, 15 per cent cheaper than in Chicago.

A large proportion of the population of Milwaukee is composed of thrifty, frugal, industrious productive Germans, each of whom owns a little land about his house, and sports a pig or two, and sends his troop of children to school, and lays up money on nine dollars a week."

The same report further says:

"There is a home market for more than four times the quantity of articles manufactured here, with the possible exception of one or two commodities."

It quotes with approval an article in the *Milwaukee Journal of Commerce.*

"That Milwaukee did not long ago assume a position among the leading manufacturing centers of the country has been a cause of reasonable surprise to any one at all acquainted with its geographical position and other extraordinary natural advantages."

The same report enumerates as the conspicuous industries of the city:

"A rolling mill which compares with the largest in the country and which within a period of three or four years has built up a village about itself; a foundry that supplies Japan with agricultural machinery; sash and blind manufactories, tanneries, furniture factories, and carriage factories."

1870–1880. This was a decade of substantial, but not rapid, growth in manufacturing. The city's output of manufactured goods in 1879 was more than double that of 1869 (actual increase, 130%). In no two census years do the reports on manufactures include just the same things under the term "manufactures" hence the figures for one census are not accurately comparable with those of another.

In 1869, Milwaukee had only one line of manufacturing, namely, iron, whose total products reached $2,000,000 a year,* while in 1879, there were seven different lines of manufacturing, each of which produced goods valued at over $2,000,000. Two of these, flour and malt liquors, exceeded $4,000,000 each; and one other, slaughtering and meat packing, exceeded $6,000,000. At this time Milwaukee was the fourth largest meat packing city in the United States.

Manufacturing in Milwaukee was growing nearly twice as rapidly as it was in Wisconsin as a whole, and more than twice as rapidly as in the United States as a whole.†

The most notable change in the character of the manufacturing in the city was the decline of small-scale production and the increase of large-scale production. While the number of establishments listed by the census of 1879 was only 16 greater

* Probably meat packing should be added, making two.

† Increase for Wisconsin 1869–1879, 66%; increase for United States 1869–1879, 59%; increase for Milwaukee 1869–1879, 130%.

than it was ten years earlier, the total production increased over 24 million dollars. The average output for each manufacturing establishment increased from $2,260 in 1869 to $5,175 in 1879. Yet, even the latter amount indicates that the great majority of the manufactures were small. Only the meat packing plants, tanneries, flour mills, breweries and a few of iron-working plants were really large establishments, even for that period. Milwaukee's rise to big things was yet to come. It began in the following decade.

TABLE XVI. *Leading Manufactures of Milwaukee in 1879 (U. S. Census of 1880)*

Industry	No. of establishments	No. of employees	Annual value of products
Slaughtering and meat packing*	7	953	$6,099,486
Iron and steel	.....	.....	(5,000,000)†
Flour and feed	11	265	4,204,319
Malt liquors	13	1,040	4,034,319
Men's clothing	52	4,302	3,763,987
Foundry and machine shop products	30	1,467	2,252,784
Leather tanning	17	407	2,101,195
All Industries	844	20,886	$43,473,812

II. THE PERIOD OF LARGE INDUSTRIES, 1880–1920

Milwaukee has had three periods of notable growth in manufacturing: one of them was the decade between 1879 and 1889, another between 1899 and 1909, and the last was between 1915 and 1920. During the decade of 1889–1899 the country passed through an extremely severe financial depression and progress was temporarily checked.

CONDITIONS IN 1889. The census tables were still very liberal in the use of the term "manufacturing establishment:" carpenter shops, dress-maker's and milliner's shops, and many others of similar character were classed as manufacturing establishments. Upon this basis, Milwaukee was credited with 2,879 establishments, fully one-half of which would not now be included in statistics of manufactures.

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* Not including retail butchering.

† The census does not give statistics of industries in which the output is confined to less than three establishments. Since iron and steel ranked second in Milwaukee the output must have been about $5,000,000.

The value of manufactures increased 125% over the value ten years before (1879). The absolute increase was about $54,000,000. It took Milwaukee 40 years (to 1880) to build up her manufactures to an annual value of $43,000,000. In a single 10-year period (1880-1889) she added $54,000,000 to the annual value of her industrial products, reaching a total of $97,503,951 in 1889. In this year her wage earners were receiving more in wages alone than the entire value of manufactures in 1869, only 20 years before. The same lines of manufacturing continued to lead.

TABLE XVII. *Lines of Manufacturing in Milwaukee having an annual output of more than $3,000,000 in 1889 (U. S. Census)**

Industry	No. of establishments	Value of products
Malt liquors	9	$10,810,695
Leather (tanned and curried)	14	8,429,814
Slaughtering and meat packing	4	7,429,814
Foundry and machine shop products	44	5,568,445
Flour and feed	10	4,438,983
Men's clothing	20	3,581,904
All Industries	2,879	$97,503,951

THE DECADE OF 1890–1899. It has already been indicated that this decade included the panic of 1893 and the severe financial depression which followed. For nearly half of this decade, the country's industries were almost at a standstill; business failures occurred on a scale never before known; and Milwaukee, in common with the nation at large, slowed down notably in its industrial growth.

The total value of manufactures in 1899 showed an increase of about 26 million dollars, while the increase in the preceding decade had been 54 million dollars. Conditions had been abnormal, but by the end of the ten year period Milwaukee resumed the rapid growth that had begun between 1870 and 1880, and the following decade brought the largest growth the city had ever experienced.

* This table does not include any of the manufacturing plants located outside of the city limits of Milwaukee, among which was the big steel plant at Bayview.

TABLE XVIII. *Lines of Manufacturing in Milwaukee having an output of over $5,000,000 in 1899 (U. S. Census)**

Industry	No. of establishments	No. of employees	Value of products
Foundry and machine shop products	101	8,468	$16,776,000
Malt liquors	9	2,827	13,899,000
Leather	1	2,862	10,268,000
Iron and steel	8	1,590	7,410,000
Flour and mill products	7	267	6,358,000
Slaughtering and meat packing	5	623	5,980,000
*All Manufacturing Industries	3,342	48,328	$123,786,449
Factory Industries only	1,419	41,220	110,854,000

A DECADE OF RAPID GROWTH, 1900–1909. Although the United States passed through a severe panic during this decade, the set-back was only temporary, and the 10-year period as a whole witnessed the most remarkable industrial growth in the history of the nation up to that date. The gross value of the manufactured products of the year 1909 rose to the fabulous sum of 20 billions of dollars for the United States as a whole, an increase of over 80 per cent in ten years. The per cent of increase in Milwaukee was even larger, reaching 88 per cent. This growth becomes all the more notable when it is realized that in the sixty years from 1839 to 1899, the city's manufacturing industries had reached an output of 110 million dollars a year, but that in the single decade following 1899, these industries reached an output of 208 million dollars a year, or nearly as great an increase as that of the entire 60 years preceding.

In 1879, Milwaukee produced about 165 dollars' worth of manufactures per capita; in 1909, thirty years later, the product was over $550 for each person in the city's population. Not only did the old and established lines of manufacturing continue to grow at a remarkable rate, but new industries sprang up, and small industries grew large in a single decade. The manufacture of boots and shoes increased twice as much in ten years as it had in all the previous history of the city. The making of leather gloves and mittens increased 50 per cent. Hosiery and knit goods increased 175 per cent. In fact, nearly

* The census figures still included mere shop work under the head of manufactures. If only factory industries were included, as has been the practice beginning with the census of 1904, the figures would be as shown in the bottom line of the above table.

every line of manufacturing increased remarkably. The following table shows the magnitude and growth of some of the industries:

TABLE XIX. *Growth of Leading Manufactures of Milwaukee 1899–1909*

	1899	1909	Approximate Increase	Approximate Per cent
Boots and shoes	$2,593,000	$7,800,000	$5,207,000	200
Confectionery	989,000	3,063,000	2,074,000	200
Sheet metal products	1,225,000	5,330,000	4,005,000	300
Electrical machinery and supplies	502,000	2,749,000	2,247,000	440
Leather gloves and mittens	252,000	1,503,000	1,250,000	500
Hosiery and knit goods	1,240,000	3,417,000	2,177,000	175
Leather goods	1,484,000	3,169,000	1,685,000	100
Leather (tanned, curried and finished)	10,268,000	27,484,000	17,216,000	170
Lumber and timber products	2,915,000	6,053,000	3,138,000	100
Stoves and furnaces	1,289,000	2,740,000	1,450,000	110
All Industries*	$110,854,000	$208,324,000	$97,000,000	90

There are four cities on the Great Lakes which belong in the same class: Buffalo, Cleveland, Detroit, and Milwaukee. A comparison of the growth of manufacturing in these cities is shown in table XX.

TABLE XX. *Value of Manufactures in four cities on the Great Lakes 1879–1914*

		Millions of Dollars				
	Population in 1910	1879	1889	1899†	1909	1914
Buffalo	423,715	42.9	100	122.2 105.6	218.8	247.5
Cleveland	560,663	48	113.2	139.8 139.3	272	352.4
Detroit	465,766	30	77.3	100.9 88.4	253	400.3
Milwaukee	373,857	43.5	97.5	123.8 110.8	208.3	223.5

* Industries conducted by less than three establishments are not reported separately by the U. S. Census, as such data would reveal the operations of individual concerns.

† Owing to a change in the use of the term "manufactures" as employed in the census of 1909 and earlier ones, two totals are given for the year 1899 the larger is to be used in making comparisons with previous censuses and the smaller in making comparisons with later censuses.

1910–1919. During the first of this decade, the rapid advance of the previous decade was not maintained. The middle of the period (about 1914) experienced a notable slowing down of manufacturing in Milwaukee as it did elsewhere in the United States. The number of manufacturing plants in 1914

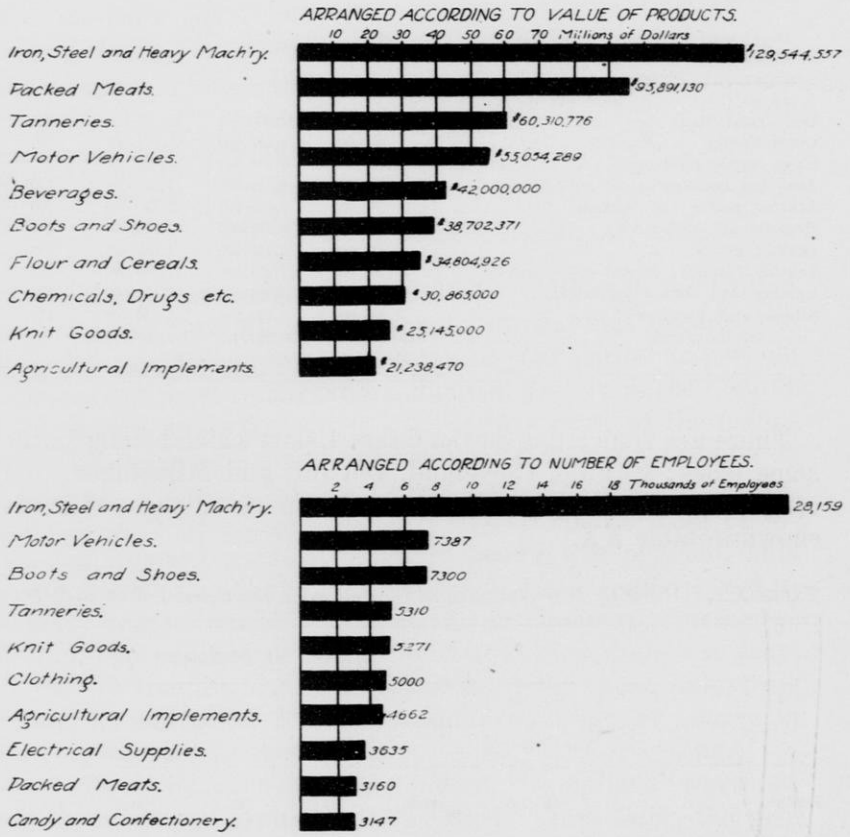

Fig. 36—Diagrams showing the principal manufactures of the Milwaukee District in 1919. Data collected by the *Milwaukee Sentinel*.

was actually smaller than in 1909; but the value of the products rose from 208 million dollars in 1909 to 223 millions in 1914, only a small gain.

The outbreak of the war in Europe in August, 1914, was soon followed by an increased demand for most kinds of manufactures, and prices rose rapidly. This increase in demand and the increase in prices continued throughout the war and afterward. The manufacturing establishments of Milwaukee shared in enormous war contracts. Every mill and factory

was speeded up to its utmost, and in 1917 the value of manufactured products of the city and its suburbs was reported to be between $500,000,000 and $600,000,000. The year 1920 marked an advance to over $800,000,000. This figure is in part the result of estimates and can not be regarded as entirely accurate.* This increase of more than 200 per cent from 1914 to 1920 was due more largely to increased prices than to increased output, although the latter was very large (Fig. 36).

The U. S. Census figures for 1919 are not available as this bulletin goes to press. They may not be as large as the

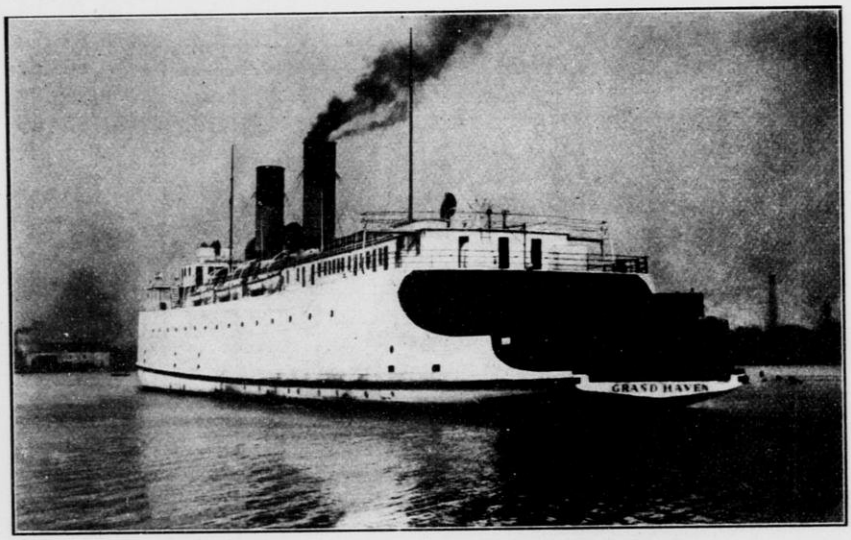

Fig. 37—Car ferry running between Milwaukee and Grand Haven, Mich. By this means trains of freight cars are transferred across the lake.

above figures because they will include only the manufacturing actually done within the corporate limits of the city of Milwaukee.

Some of the newer lines of manufacturing—especially motor vehicles and parts—are rapidly overtaking the old, long established industries like tanning and meat packing. The manufacture of shoes and hosiery has gained by leaps and bounds, while the making of malt and malt liquor has greatly declined. It is notable that the manufacture of metal products—particularly iron and steel—has become the dominant line in the Milwaukee district as it has in practically all of the cities on the Great Lakes.

* *Milwaukee Sentinel's* Annual Trade Review for 1920.

Milwaukee has the same freight rates to and from the East as Chicago has; it has equally low or lower water rates, a better harbor, excellent railway connections and less expensive land; all of these advantages are sure to attract to the city an ever growing proportion of the enormous industrial activity of this favored section of the country.

Growth of the Receipts of the Post Office at Milwaukee 1870–1920
Each • = $100,000

1870 *	$90,348.75
1880 **	186,771.00
1890 ****	368,882.79
1900 *******	666,863.51
1910 **********	1,630,288.96
1920 **********	3,187,570.66

Receipts of Corn at Milwaukee, 1890–1920
Each • = 500,000 bushels

	Bushels
1890 **	844,000
1900 **********	5,780,000
1910 **********	8,151,000
1914 **********	18,338,000
1920 **********	15,000,000

Receipts of Oats at Milwaukee, 1870–1920
Each • = 1,000,000 bushels

	Bushels
1870 *	638,000
1880 **	1,781,000
1890 ****	3,902,000
1900 *********	8,506,000
1910 **********	13,204,000
1920 **********	24,000,000

THE EVOLUTION OF FIVE OF MILWAUKEE'S GREAT INDUSTRIES

The reader will not have failed to note that throughout the history of Milwaukee, certain industries have always been prominent. In 1850, foundry products, cabinet ware, and leather were the leading manufactures; in 1860, flour, packed meat, men's clothing, and leather goods; in 1870, flour, iron, clothing and leather; in 1880, meat, iron and steel, flour, and malt liquors; in 1890, malt liquors, leather, meat, iron and steel;

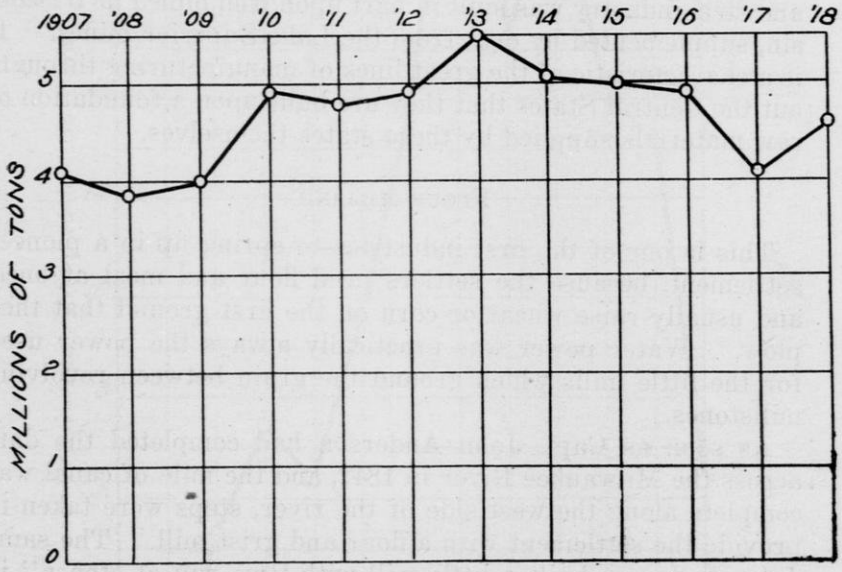

Fig. 38—Graph showing the receipts of coal by lake boats at Milwaukee, 1907 to 1918. Figures from report of Milwaukee Harbor Commission, 1919.

in 1900 iron and steel, malt liquors, leather, flour and meat; in 1910, leather, malt liquors, iron and steel, and meat; and in 1920 iron and steel products, meat, leather, motor vehicles, and boots and shoes. Clothing, which was prominent in the earlier years, and flour, which continued to be a leader down to 1900, have dropped back; but iron and steel, leather, meat, and malt liquors continued to be the great lines of manufacturing in Milwaukee down to 1919 after which date beer ceased to be listed. Because of the leadership of these industries—including flour—we shall trace the development of each from its beginnings down to the present. It is worthy of note that, with

the single exception of iron and steel products, the leading industries of the city are based upon raw materials produced on the farms:—wheat for flour, barley for malt, cattle and hogs for meat packing; cattle hides, calf skins, and sheep skins for leather tanning. Originally Milwaukee was merely a local center where the raw materials of the surrounding region were worked up into manufactured goods and sold back to the people nearby. Although the city has long since outgrown that condition and now gets its raw material from everywhere and sends its manufactures everywhere, the great industries originally depended upon the products of the farms of Wisconsin and the neighboring states. It will be seen later that the iron and steel industry was built in part upon iron mined in Wisconsin, supplemented by ores from the Lake Superior mines. It is a characteristic of the great lines of manufacturing throughout the Central States that they are built upon a foundation of raw materials supplied by these states themselves.

Flour milling

This is one of the first industries to spring up in a pioneer settlement, because the settlers need flour and meal at once, and usually raise wheat or corn on the first ground that they plow. Water power was practically always the power used for the little mills which ground the grain between revolving millstones.

As soon as Capt. John Anderson had completed the dam across the Milwaukee River in 1842, and the mile of canal was complete along the west side of the river, steps were taken to provide the settlement with a flour and grist mill. The same John Anderson built a little mill with 'two run of stones'' in 1844. This was the beginning of the Eagle Mills which grew to large size in later years. The City Mill was opened the same year; other mills were built until, in 1860, there were no less than fourteen in the city. The water power was a large factor in giving the industry its start. As nearly as can be ascertained the various mills were opened in the years specified, although the names of the mills were changed from time to time.

City Mill, 1844
Eagle Mills, 1844
The Empire Mills, 1846 (possibly 1844)
The Phoenix Mills, 1848 (possibly 1853)
Upper Mills, 1855
Standard Mills, 1861

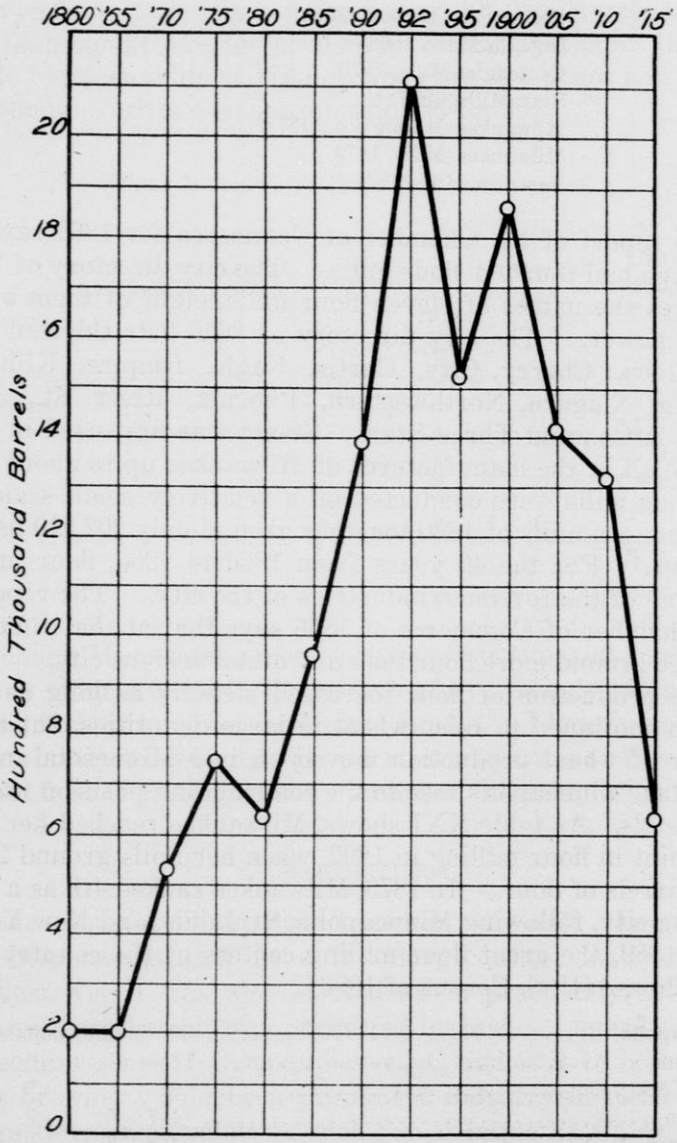

Fig. 39—Graph showing the rise and decline of flour milling in Milwaukee from 1860 to 1915. In 1919 it had dropped to 584,883 bbls.

Reliance Mills, 1866
Cream City Mills, 1867
Ontario Mills, 1868
Centennial Mills, 1876
Star Mills, 1877
Milwaukee Milling Co., 1878
Milwaukee Mills, 1879
New Era Mills, 1879

The report of the Chamber of Commerce for 1860 says the city then had fourteen flour mills. The city directory of 1860–61 gives the names of eleven flour mills, eight of them on the water power. The city directory of 1866 lists thirteen mills as follows: Cherry, City, Curtis, Eagle, Empire, Kilbourn, Kruger, Niagara, Northwestern, Phoenix, River St., J. B. Smith & Co., and Three Star. Steam was first used in 1856.

Like all of the manufactures of Milwaukee up to about 1870, the flour mills were conducted on a relatively small scale, for the fourteen mills of 1860 together ground only 202,810 barrels of flour. For the 40 years from 1860 to 1900, flour milling was one of the foremost industries of the city. The report of the Chamber of Commerce of 1866 says that at that time Milwaukee ground more flour than any other western city.

The production of flour increased steadily as long as Wisconsin continued to raise wheat in large quantities, but as the center of wheat production moved on into Minnesota and the Dakotas, Minneapolis rose to the commanding position which it still holds. As table XXI shows, Milwaukee reached her highest point in flour milling in 1892, when her mills ground 2,117,009 barrels of flour. In 1879, Milwaukee ranked 4th as a flour-milling city, following Minneapolis, St. Louis, and New York.

In 1889, the great flour milling centers of the country were as follows: (U. S. Census of 1890).

Minneapolis	30	million	dollars'	worth
St. Louis	12	"	"	"
New York	8	"	"	"
Chicago	4.7	"	"	"
Rochester, N. Y.	4.6	"	"	"
Milwaukee	4.4	"	"	"
Brooklyn	4	"	"	"

In 1909 Milwaukee ranked as the third city of the Union in the value of flour manufactured, only Minneapolis and Buffalo having a larger output.

In 1919 Milwaukee had four mills in operation; two of these made oatmeal, one made corn products, and one was strictly a

flour mill, although three of them ground more or less wheat and rye flour. The flour mills ground 405,985 barrels of flour, less than one-fifth of the production of 1892, yet more than the whole fourteen mills of 1860 ground; the city is not now grinding enough for its own consumption (Fig. 39).

TABLE XXI. *Flour Production in Milwaukee**

1860	202,810	bbls.
1865	212,829	"
1870	530,049	"
1875	746,126	"
1880	637,157	"
1885	961,152	"
1890	1,397,039	"
1892	2,117,009	"
1895	1,532,510	"
1900	1,866,501	"
1905	1,418,140	"
1910	1,318,565	"
1915	640,425	"
1919	584,883	"

Though Minneapolis manufactures four times as much flour as any other American city, it manufactures only ten per cent of the flour ground in the United States. Flour is needed in every home and wheat is grown in every state, and the result is that flour is ground in every state and in nearly every city.

MALT LIQUORS

Like flour milling, the brewing of malt liquors was notably concentrated in a few large cities, including Milwaukee, yet it was also carried on in practically every city of any size where it was permitted by law. Lager beer is, in a peculiar sense, a German beverage, and it is to be expected that brewing would be a prominent industry in cities with a large German population, such for example as Chicago, New York, St. Louis, Milwaukee, and Cincinnati.

Wisconsin became one of the leading producers of barley, but this was rather a result than a cause of Milwaukee's brewing industry. Most of the successful brewers of the city were Germans (or of German descent), as they have also been in

* Annual Reports of Chamber of Commerce.

the country at large*. It is reported, however, that the first small brewery opened in Milwaukee (in 1840) was started by a Welshman to brew ale. The early breweries in Milwaukee were small but numerous. A report by the Chamber of Commerce for 1856 says the city had 26 breweries in that year; yet all of them together produced less than the smallest brewery in the city brewed in 1916. The number of breweries declined, while the product increased remarkably up to 1912, after which

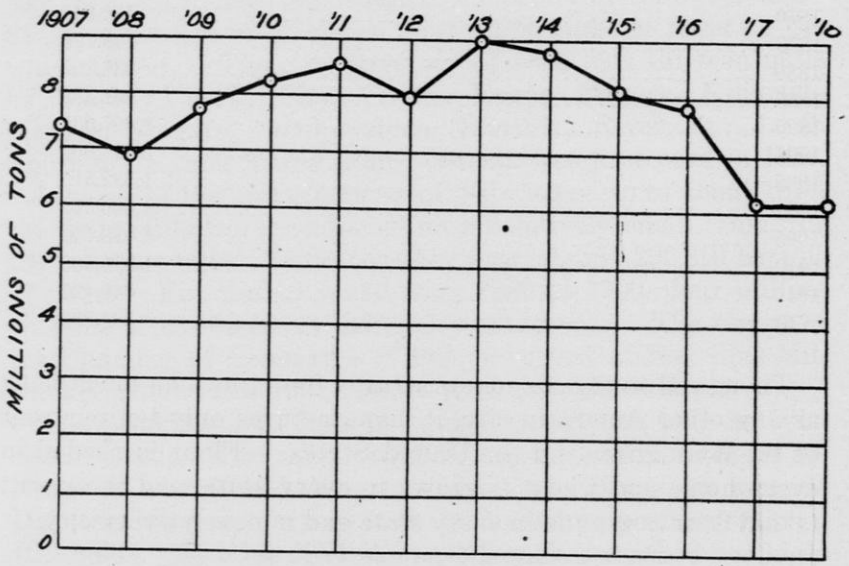

Fig. 40—Graph showing the total tonnage of lake boats arriving annually at Milwaukee between 1907 and 1918. Figures from Report of Milwaukee Harbor Commission, 1919.

date it declined. In 1862 there were 22 breweries; in 1866, there were 19; in 1879, there were 13; in 1899, there were 9; in 1909, the number had increased to 10; and in 1919 there were 9.

The growth of brewing in Milwaukee is shown by the following table†.

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* In his chapter on the history of the Brewing industry, in Conrad's History of Milwaukee, A. C. Morrison says, "19/20 of the breweries of the Union are owned and operated by Germans. Nine cities represent 5/8 of the entire production of the country" (1895).

† Ann. Repts. Milwaukee Chamber of Commerce.

TABLE XXII. *Beer Manufactured in Milwaukee, 1866–1918*

Date	Number of barrels
1866	69,000
1880	762,000
1890	1,928,000
1900	2,500,000
1910	3,700,000
1912	4,182,000
1916	4,029,000
1918	2,217,000

In only one census year has brewing been the largest industry of Milwaukee; that was in 1889. Although the output increased greatly after that date, other industries grew still more rapidly. In 1899, malt liquors ranked 2nd, and in 1918 ranked 4th. The plants which were built up by the three largest brewing companies were of immense size, and the total capital represented was very large, but the amount paid in 1918 in wages was less than one-seventh that paid by the iron and steel industries.

MALT. The maufacture of malt may be, and often is, entirely separated from the manufacture of beer. Three of the big Milwaukee breweries had their own malting plants, but there were in addition eight commercial malting plants in the city. The making and shipping of malt was in itself a large industry; in 1916 about 13,000,000 bushels were shipped from the city; in 1918 less than half as much. Milwaukee used (1916) about 16,000,000 bushels of barley annually, which was nearly equal to the entire barley crop of Wisconsin.

SLAUGHTERING AND MEAT PACKING

All of the large cities and some of the smaller ones in the corn-growing belt of the Central States include the preparation of meat products among their largest industries. Measured by the value of products, this is the country's greatest manufacturing industry, and Chicago is the giant of the meat packing centers. Only the southern third of Wisconsin is in the corn belt, and the state does not hold high rank in the raising of hogs and beef cattle. Milwaukee (including Cudahy) is the only important meat packing center in Wisconsin. In 1914 two per cent of the wholesale slaughtering and meat packing of the country was done in Wisconsin; Illinois did 29 per cent, and Kansas 9 per cent. Among Milwaukee's industries, meat packing has been prominent almost from the beginning.

With it has long been associated the name of the pioneer packer of the city, one of the city's builders, John Plankinton, who began business as a retail butcher in 1844 while Milwaukee was still a village. For eleven years (1850–1861) he was associated with Fred Layton, who later formed the meat packing concern of Layton & Co., one of the firms still located in the city. In 1849, the firm of Plankinton and Armour was formed, and grew into the leading packing plant of Milwaukee, and one of the leading plants of the country at that time. Mr. Armour later severed his connection with this company and became the founder of the great packing house of Armour & Co. of Chicago.

Tracing the growth of the industry in Milwaukee: In 1857 there were two packing houses in the city, doing, for that period, a large business. Hogs were about the only animals slaughtered as Milwaukee has never been an important beef-packing city. Salt pork, bacon, hams, lard, and sausage have been the principal products. By 1861, there were six packing establishments of fair size, three of them also packing a limited quantity of beef. In 1862, there were eight, but none of them was yet large. By 1871 Milwaukee had risen to fourth rank among the packing cities of the country, following Chicago, Cincinnati, and St. Louis. In 1874 Louisville and Indianapolis passed Milwaukee; although, in 1877, Milwaukee again assumed fourth place for a little while.

Milwaukee has always done most of the wholesale meat packing of the state. In 1874, for example, about 330,000 hogs were packed in Wisconsin, and Milwaukee slaughtered 294,000 of these, or 90 per cent. In 1878 there were four good-sized plants in the city, as follows:*

Name of Firm	*Number of Hogs Packed*
Plankinton & Armour	366,472
Layton & Co	83,056
P. McGeoch	68,893
Oliver & Co	23,743

Several smaller concerns were also engaged in the business.

The U. S. Census of 1880 gives Milwaukee seven packing establishments, with a total output of a little over six million dollars annually. At this time slaughtering and meat packing was the leading industry of the city from the standpoint of value, and constituted 14 per cent of the total value of all

* Ann. Report Chamber of Commerce for 1878, p. 97.

manufactured products. The old Plankinton Company sold out to the Cudahy Brothers, formerly employees, in 1888. In the years around 1890, only the Cudahy Brothers and the Layton Company were engaged in the packing business on a large scale. In 1893 the Cudahy Brothers left the old Plankinton plant and entered their new quarters in Cudahy a few miles south of the city. They made a specialty of the fresh meat trade.

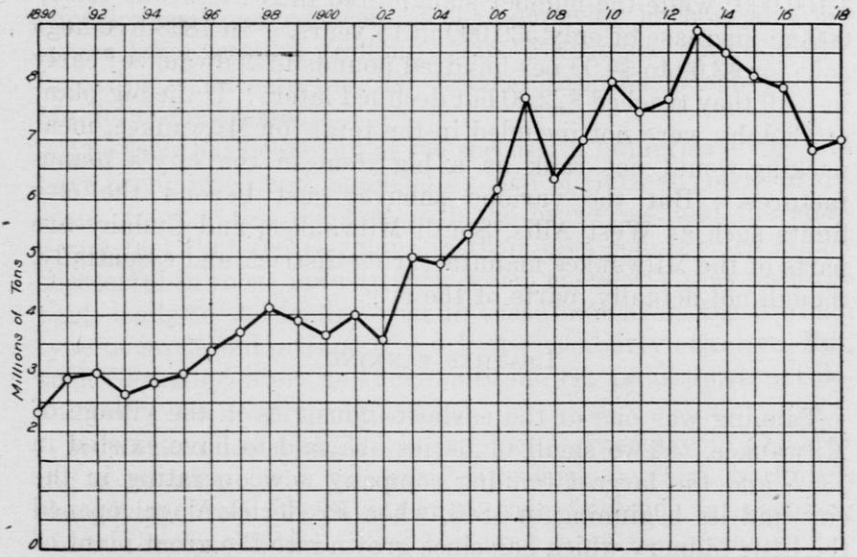

Fig. 41—Graph showing tonnage of freight carried into and out of the Port of Milwaukee 1890–1918. Figures from report of Milwaukee Harbor Commission, 1919.

In 1894 the new Plankinton Packing Company began operations in the renovated plant vacated by Cudahy Brothers. At the same time the Bodden Packing Co. commenced business in Milwaukee, making in all four plants, including the new one at Cudahy. Between 1895 and 1910, there were five different years in each of which a total of a million hogs were slaughtered in the four packing houses, the one at Cudahy being the largest, and the Plankinton next largest. The other two companies together handled less than 10,000 hogs.

In 1920 there were five plants engaged in meat packing, the Cudahy Company being much the largest. The five plants employed 2,500 persons; their total product was valued at $75,000,000, and was ranked as the city's second largest indus-

try*. Only a comparatively small number of sheep and cattle are slaughtered in Milwaukee; hogs form 90 per cent of the total animals slaughtered. Two-thirds of the meat packing here credited to Milwaukee is done at Cudahy, where approximately 1,000,000 animals are slaughtered annually.

A goodly part of the increase in the value of the packing products of the past ten years is due to the increase in the price of meat. The number of hogs slaughtered in 1897–8 was over 1,100,000; while the number slaughtered in 1918–19 was 1,633,000, an increase of only 530,000 in 18 years. In 1898 live hogs sold for $3.00 to $4.00 per hundred pounds in Milwaukee; early in 1919 they reached $22.00 but declined later. If the big plant at Cudahy were not included in the total for Milwaukee, meat packing would not rank as a big item in the city's manufactures. But the various suburbs just beyond the city limits such as West Allis, South Milwaukee, and Cudahy are parts of the Milwaukee manufacturing district, and essentially, though not actually, parts of the city.

Leather tanning

Tanning was one of the earliest industries in the village of Milwaukee. Two small tanneries are said to have existed in 1842, and the largest tanning company now operating in the city had its beginning in 1848, when Frederick Vogel opened the little tannery which has since grown into the great plant of the Pfister and Vogel Leather Co. (Fig. 42). Guido Pfister opened a small leather store in Milwaukee in 1847, and ten years later he and Frederick Vogel united, forming the firm of Pfister and Vogel. Since this company has become one of Milwaukee's largest, it is of interest to know that Mr. Vogel, who was already interested in a tannery in Buffalo, N. Y., went to Chicago with the intention of starting a tannery there, but found malarial fever so prevalent that he sought a more healthful location nearby, and came to Milwaukee. Since the majority of the Milwaukee tanners of more recent years were originally employed in the Pfister and Vogel tanneries, from which they withdrew to establish plants of their own, we may regard the Pfister & Vogel Company as the parent of the great industry in which Milwaukee leads all of the cities of the United States save Philadelphia.

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* Milwaukee Sentinel, Annual Trade Review, Jan. 1, 1921.

If we could know the facts concerning the starting of most of our great industries, we should find that in many cases some unimportant incident or accident determined the place where the industry took root, as it did in the case of the tanning industry of Milwaukee. Any one of several towns on the western shore of Lake Michigan offered in 1850 almost the same natural advantages for the tanning industry that Milwaukee offered; in fact, tanneries existed in all of these cities, and still exist in several of them. Yet the development of Milwaukee's superior railroad connections, her superior harbor, and her larger labor supply, gradually gave Milwaukee better advantages for manufacturing than Racine, Kenosha, Sheboygan, or Manitowoc possessed.

The fact that nearly all of the successful tanneries of the city have been owned and managed by men of German birth or descent, as was also the case with the breweries, and the additional fact that the Germans in their own country are highly successful in those industries in which chemistry plays a large part, leads to the feeling that in these industries the German type of mind and method of work are peculiarly effective. But, such German centers as Cincinnati and St. Louis have not developed great tanning industries.

Milwaukee had a slight geographical advantage in (1) having a position on a waterway by which hemlock bark was cheaply secured, (2) having increasing facilities for securing hides, for the Middle West has long been the great source of such hides.

INDUSTRY IN THE EARLY YEARS. It has already been pointed out that all of Milwaukee's early industries were local in character,—using the raw materials that the immediate region furnished and selling the products at home and in nearby places. In the early years most of the shoes, boots, harness, and other leather products used in a village were made in the little shops of the village, or often in the homes by journeymen workers who went from house to house. Many an old man or woman can tell of the days when the journeyman shoemaker came once or twice a year to the farm homes, and stayed several days or perhaps two or three weeks, and made up the year's supply of shoes for the family. Later these workmen ceased going from home to home and established shops in the towns and made shoes only as ordered by their customers. In those days, people supposed it was necessary to have shoes or boots made to their measure. Under these conditions every village and city

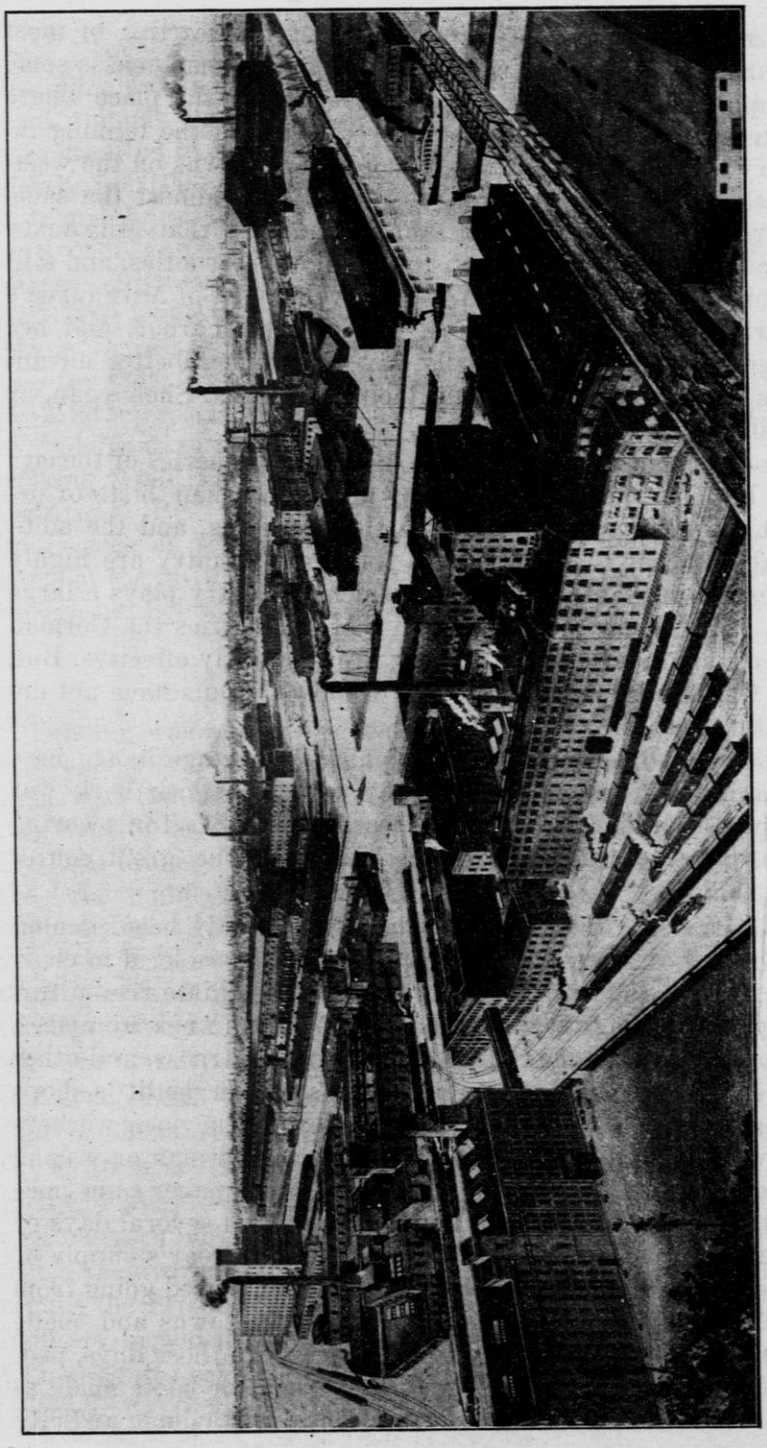

Fig. 42—The various plants of the Pfisler and Vogel Leather Company brought together in one picture. This is one of the largest tanning companies in the world.

furnished a market for leather, and tanneries were numerous in those regions where tan bark and hides were readily obtainable.

THE TANNING INDUSTRY AFTER 1860. By 1860, Milwaukee had 9 tanneries, but all of them together tanned only $217,000 worth of leather a year—about two day's work for the Milwaukee tanneries of today. At that date, tanning ranked eighth among the city's industries.

A notable growth took place during the Civil War when the needs of the army made an unusual demand for leather. In 1870 there were 15 tanneries, producing a total of nearly a million dollars' worth of leather ($934,000 in 1869). At this time tanning ranked as the fourth industry in the city. The Annual Report of the Chamber of Commerce for 1871 says:

"Prominent among the manufacturing interests of Milwaukee is the tanning business, and the great success that has attended the numerous establishments that have grown up here within the past few years is a palpable demonstration of the advantages of this location for the successful prosecution of manufactures of this kind. The particular inducements which Milwaukee offers for this branch of manufactures are: proximity to the sources of an abundant supply of tan bark, cheap ground and labor, and excellent facilities for the collection of the raw materials and the distribution of the products. There are now upwards of thirty establishments in the city engaged in the manufacture of leather of various descriptions, employing between 600 and 700 men."

These industries used about 170,000 hides and 100,000 sheep skins. The high water mark, so far as number of tanneries was concerned, was reached between 1870 and 1880 when about thirty tanneries large and small were operating: in 1879 they produced over two million dollars' worth of leather ($2,101,195). But other industries had grown still more rapidly and tanning ranked only 7th among the city's manufactures.

The decade between 1880 and 1890 marks the beginning of the great rise of tanning in Milwaukee. In 1889 there were 14 tanneries in the city, but they tanned in that year four times as much leather as the 27 tanneries had done in 1879. This was a 400 per cent growth in a decade. Tanning now ranked second among the city's industries, and Milwaukee ranked second only to Philadelphia as a tanning center.

The following ten-year period included the great financial depression which followed the panic of 1893; and leather tanning made only a small gain, rising from a product of $8,430,000 in 1889 to $10,268,000 in 1899. The number of tanneries declined from 14 to 11 during this decade, and the industry ranked third in the city.

Since 1900 the growth of the industry has been exceedingly rapid; the value of the product rose to $27,484,000 in 1909 and to $60,000,000 in 1919. The latter high figure is due in part to the great increase in prices that came with the World War. In 1909 the tanning industry (with 12 tanneries) had risen to the first rank in Milwaukee, and Milwaukee stood at that date,

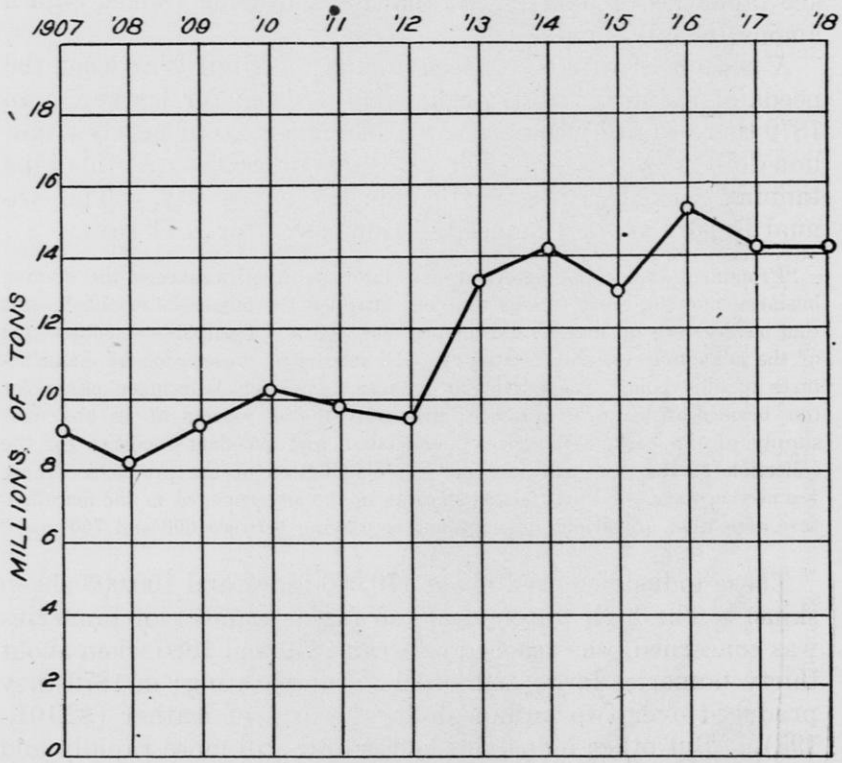

Fig. 43—Graph showing the total freight tonnage by rail in and out of Milwaukee from 1907 to 1918. Compare with Fig. 41. Figures from report of Milwaukee Harbor Commission, 1919.

as the foremost tanning center in the United States, but was again passed by Philadelphia in 1914.

The rank of different states and cities in the tanning industry in 1909 was as follows:

States:—1. Pennsylvania; 2. Wisconsin; 3. Massachusetts; 4. New Jersey; 5. New York; 6. Michigan; 7. Illinois.

Cities:—1. Milwaukee; 2. Philadelphia; 3. Newark; 4. Chicago.

In 1914 the rank was:—

States:—1. Pennsylvania; 2. Massachusetts; 3. Wisconsin; 4. New York; 5. New Jersey; 6. Michigan; 7. Illinois.

Cities:—1. Philadelphia; 2. Milwaukee; 3. Newark; 4. Chicago.

Nearly sixty per cent of all the leather tanned in Wisconsin is tanned in Milwaukee. There are ten different companies engaged in the industry; the largest concern, the Pfister & Vogel Co., operates 4 tanneries.

THE MANUFACTURE OF LEATHER GOODS. A city which produced so much leather would naturally acquire related industries which use leather as a raw material, and such is the case in Milwaukee. In 1918 there were 31 factories, large and small, engaged in making boots and shoes, 12 engaged in making leather gloves and mittens, and 25 others in making other leather goods; these do not include industries which use leather only as a part of their material, such as furniture, carriages, trunks, automobile parts, etc. The recent growth of these leather-using industries has been remarkable, ranging from 200 to 600 per cent in ten years. Milwaukee is the leading western center for the manufacture of leather gloves and mittens, and is second only to the twin cities of Gloversville and Johnstown, N. Y.

IRON AND STEEL PRODUCTS

INTRODUCTORY NOTE. This industry includes (1) the foundation industry of smelting iron ore in blast furnaces to produce pig iron or steel; (2) the working of this into various standard shapes such as sheets, rods, bars, plates, etc. in rolling mills, or remelting the pig iron and running it into molds to form castings; (3) the further use of the rolled or cast iron and steel in the making of an endless variety of articles. The U. S. census report groups these products in three large classes.

1. Iron and steel; blast furnace products
2. Iron and steel; steel works and rolling mill products
3. Foundry and machine shop products

There are scores of subdivisions, such as steel nails, wire, sheets, plates, rails, machinery, stoves, etc. So completely are these processes interwoven, and so many are the different manufacturing processes involved, that accurate figures are not easy to secure; and accurate comparisons of one period with another are not readily possible.

EARLY DAYS OF THE INDUSTRY. Milwaukee had an iron foundry as early as 1840, at least two in 1847, and four in 1859. The list of manufactures of the city in 1849* includes edge tools, foundry machinery, sheet iron, boilers, plows, fanning mills, and threshing machinery.

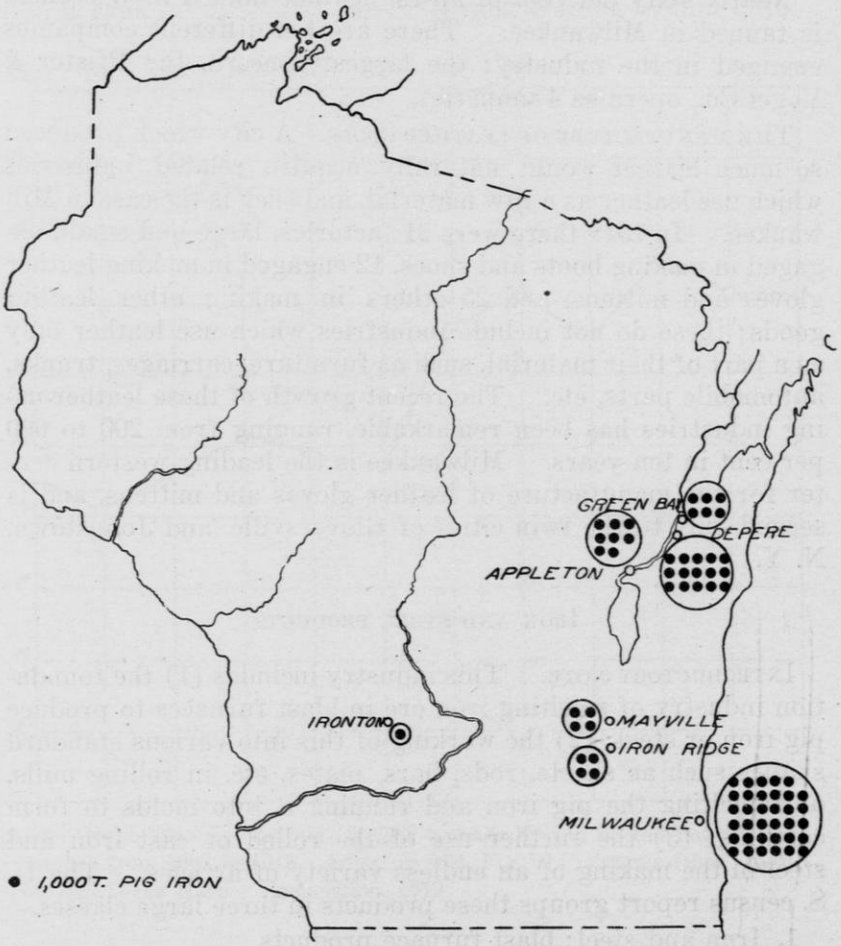

Fig. 44—Map showing centers of pig iron production in 1873. Most of the blast furnaces at this time used charcoal (made from wood). This was not true of all the furnaces in Milwaukee.

The beginning of the great Allis establishment was made in 1847 under the name of the Reliance Works, although Edward P. Allis did not come into possession of the plant until 1860, when it was still a small concern.

* History of Milwaukee issued by the Western Hist. Soc. 1881, p. 1117.

In 1869 the various branches of the iron industry in Milwaukee included 14 establishments, employing 1,063 men and producing articles valued at over $2,000,000. Iron products were then exceeded in value only by flour.

GROWTH OF THE BAY VIEW WORKS. These iron works began in 1866 under the name of the Milwaukee Iron Company. Up to 1870 the plant merely re-rolled iron rails for railroads; that is, took worn-out rails and worked them over into usable ones. This plant was one of several which together constituted the Wisconsin Iron Company. The other constituent companies were the Wyandott Iron Company (Ohio) and the Chicago Rolling Mill Company. The Wisconsin Iron Company also owned iron mines at Iron Ridge, in Dodge County, some 45 miles west and north of Milwaukee. In 1870 and 1871 the company built two blast furnaces at its Bay View works and for many years thereafter smelted ore brought from its mines at Iron Ridge, Wis., and from mines in the northern peninsula of Michigan.

In 1872 the plant reached considerable size, as is shown by the following facts. It re-rolled 17,000 tons of old rails; produced 32,000 tons of pig iron; made 35,000 tons of railroad iron. It used 55,000 tons of soft coal, 25,000 tons of hard coal, and 20,000 tons of coke. It used 40,000 tons of its own ore from Iron Ridge, and 22,000 tons of Lake Superior ore and employed 800 to 1,000 men. The Wisconsin Iron Company also smelted 3,500 tons of charcoal iron at Iron Ridge. The company had its own docks on the lake shore; coal came from the East in returning grain boats and coke came in returning cattle cars. Limestone came by boat from near Racine. How largely the supply of local ores from Iron Ridge contributed to the upbuilding of this industry may be seen from the following table:

TABLE XXIII. *Receipts of Iron Ore at Milwaukee*

	From Iron Ridge	*From Lake Superior*	*Total*
1868	2,590 tons	....	2,590 tons
1869	4,695 "	2,329 tons	7,024 "
1870	78,587 "	17,060 "	95,647 "
1871	75,842 "	28,094 "	103,936 "
1872	85,245 "	26,244 "	111,489 "
1873	69,418 "	34,009 "	103,427 "

How large a proportion of the pig iron smelted in Wisconsin was smelted at Milwaukee is seen from the following:

TABLE XXIV. *Pig-iron Production in Wisconsin 1873*

Milwaukee Iron Co.	29,326 tons	Mixture of Wisconsin and Lake Superior ores.
Minerva Furnace (Mil.)	5,822 "	
Wisconsin Iron Co. (Iron Ridge)	4,155 "	Wisconsin ore smelted with charcoal.
Northwestern Iron Co. (Mayville)	4,137 "	
Appleton Iron Co.	8,044 "	Lake Superior ore smelted with charcoal mainly.
Green Bay Iron Co	6,141 "	
National Iron Co. (De Pere)	7,999 "	
Fox River Iron Co. (De Pere)	6,832 "	
J. F. Smith (Ironton, Sauk Co.)	1,528 "	

NAME CHANGED TO NORTH CHICAGO ROLLING MILL COMPANY. This company was caught in the financial depression of the seventies, went into bankruptcy, and its Bay View plant was leased by the North Chicago Rolling Mill company in 1878. Another furnace in Milwaukee, known then as the Minerva furnace, was also leased by this company. Under the new management the works had a checkered career, sometimes prospering and sometimes hanging on the verge of bankruptcy.

By 1883 steel was rapidly replacing iron in the making of railroad rails, and the production of railroad iron at Milwaukee was discontinued, and a nail mill was installed, but did not succeed.

THE ILLINOIS STEEL COMPANY. In 1889 the works became known as the Illinois Steel Company which name they still bear. In 1887 Bay View became part of Milwaukee. The Illinois Steel Company has had a healthy growth and today is one of the city's big industries.

EXPANSION OF THE IRON AND STEEL INDUSTRIES

The manufacture of iron and steel products is the foremost industry in the cities on the Great Lakes all the way from Buffalo to Gary and Duluth. The reason is clear; the world's greatest source of iron ore is the region around Lake Superior; the source of the coke necessary for smelting this ore is the eastern soft coal fields, especially those of Pennsylvania. The bringing together of the iron ore and coke is most cheaply accomplished at points on the shores of these lakes which afford remarkably cheap transportation. Under pre-war conditions ore was taken from upper lake ports to lower lake ports, nearly a thousand miles, for about 50 cents a ton, and coal was brought back for even less. These rates advanced after 1915. Points on the shore of the lakes are most favorably situated for carrying on the iron and steel industries.

In Buffalo, Cleveland, Toledo, Detroit, Gary, South Chicago, and Milwaukee the manufacture of iron and steel products is the dominant industry.

IRON AND STEEL INDUSTRIES OF MILWAUKEE IN 1920. Iron and steel working has become by far the largest of the city's industries. In its various branches it includes more than 200 plants; some of these are of great size. For example, the Allis-Chalmers Company employs over 6,000 persons, and has a monthly pay roll of more than half a million dollars. The shops of the Chicago, Milwaukee and St. Paul Railway employ more than 5000 persons, making and repairing cars and locomotives. The International Harvester Company employs about 4,000 persons, and there are nearly a dozen plants engaged in making iron and steel products, which employ from 1,000 to 2,000 persons each. Almost every phase of iron and steel working is represented. The Bucyrus Company at South Milwaukee employs 1,500 people in the making of the powerful steam shovels, dredges, excavators, etc. used in such operations as the digging of the Panama Canal and in the great open-pit iron mines of Minnesota. The National Enameling & Stamping Company—makers of enameled ware—is one of the largest in the world. The Harley-Davidson motor cycle company has grown into a great plant in a few years, employing 2,500 persons. There are several malleable iron plants of large size, a stove making plant employing 1,200 persons, several large bridge and structural iron concerns, boiler and engine builders, tool makers, agricultural implement makers, sheet metal, tube and wire manufactures, vehicle and automobile makers, and makers of machiery in endless variety.

The total value of the iron and steel products of Milwaukee and its suburbs reaches the enormous sum of $180,000,000*. Contrast this with the figures of 1860, when the value of all the manufactured products of the city reached only $6,000,000. In fact the value of iron and steel products alone in 1920 exceeded the value of all manufactured products in any year up to 1905.

The great majority of Milwaukee's largest manufacturing plants have been built up by Milwaukee men and Milwaukee capital. Many of them date nearly, if not quite, back to the village days: they have grown up with the city and with the Northwest. Many of the older companies are now directed by the sons and grandsons of the men who founded them; and nearly every one of the founders began as a worker in overalls.

* Milwaukee Sentinel, Annual Trade Review, Jan. 1, 1921.

INDUSTRIES OF THE MILWAUKEE DISTRICT, 1920. The annual trade Reviews, issued by the Milwaukee Sentinel, Jan. 1, 1920 and Jan. 1, 1921, give the following summary of the major lines of industry in Milwaukee and its immediate suburbs:

TABLE XXV. *Industrial Statistics, Milwaukee District, 1919*

	No. of firms	No. of employees	Wages paid	Capital employed	Value of product
Metal trades industry	302	51,046	$69,127,256	$167,778,387	$249,341,006
Leather industry	48	13,300	14,743,158	58,689,959	104,630,168
Food and allied industries	148	12,562	14,730,667	79,390,855	210,186,111
Textile industry	108	13,960	10,128,026	19,312,222	51,787,695
Wood products and allied indust.	76	6,909	8,079,630	18,249,381	34,187,876
Chemical, drug and allied indust..	41	5,830	4,177,633	31,524,550	73,445,000
Various industries	118	7,272	8,204,521	17,986,234	25,674,399
Totals	841	110,879	$128,710,891	$392,931,588	$749,252,249

Industrial Statistics, Milwaukee District, 1920

	Number of Firms	Number of Employees	Wages Paid	Capital Employed	Value of Products
Metal trades	371	62,027	$96,460,340	$222,222,083	$330,482,270
Leather industry	61	12,181	16,247,353	63,465,728	93,454,491
Textile industry	109	13,753	14,404,313	26,265,201	76,814,387
Wood products and allied industries	101	8,968	11,975,253	29,098,237	58,022,847
Food and allied industries	115	10,969	15,131,915	47,959,374	165,990,764
Chemical, drug and allied industrl's	45	4,532	6,793,021	25,162,425	56,496,731
Various industries	123	6,773	11,270,638	23,476,862	44,261,988
Totals	925	119,203	$172,282,733	$437,649,910	$825,522,478

INSTITUTIONS OF HIGHER EDUCATION IN MILWAUKEE

Milwaukee is, next to Madison, the chief educational center of the state. Marquette University, incorporated in 1864 has an enrollment of over 2,000 students (1920). The institution includes schools of Journalism, Medicine, Dentistry, and Pharmacy; a College of Law, a College of Applied Science and Engineering, College of Economics, a Conservatory of Music, a College of Arts and Sciences and a Training School for Nurses. The preparatory school is known as Marquette Academy.

Milwaukee-Downer College is an institution for young women. The present college was formed by the union in 1895 of Milwaukee College (chartered in 1851) and Downer College (chartered in 1855) which was located at Fox Lake. Associated

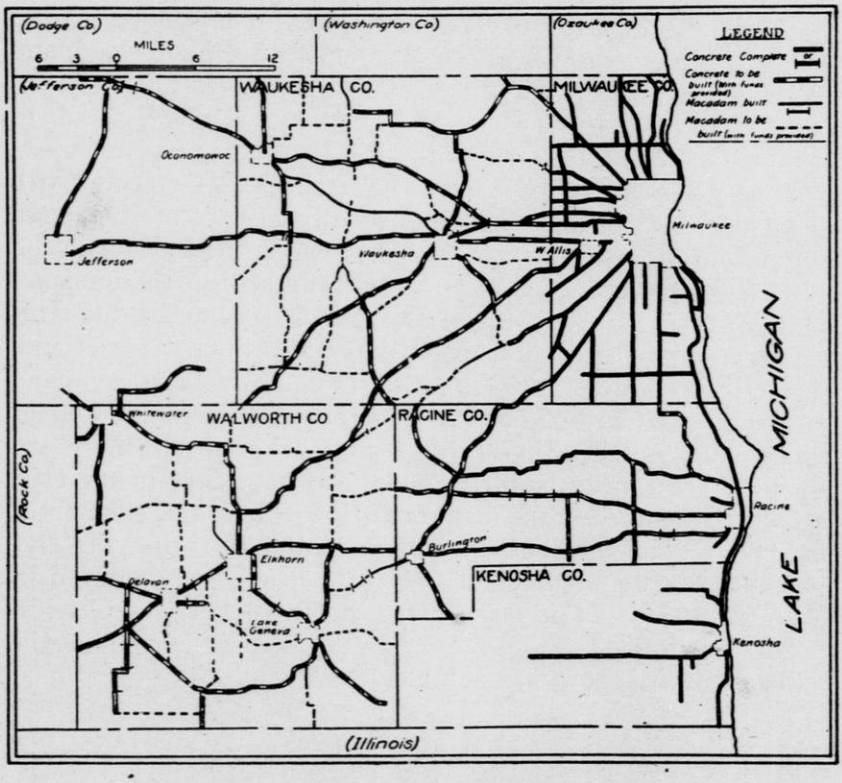

Fig. 45—Map showing the development of good roads in southeastern Wisconsin (1920). Note the number of concrete roads in Milwaukee County. Map prepared in office of State Highway Commission.

with the college is Milwaukee-Downer seminary. The college enrolls from 300 to 400 students.

The State Normal School at Milwaukee has the largest enrollment of students of any of the normal schools of the state.

SUBURBS OF MILWAUKEE

Milwaukee has five suburbs of importance, four of which are small cities. Of these, West Allis is the largest, followed in order by South Milwaukee, Cudahy, and Wauwatosa. Other suburbs are North Milwaukee, Whitefish Bay, Shorewood, and West Mlwaukee.

West Allis

West Allis, immediately west of Milwaukee, is connected with it by various car lines, and industrially is part of it, though organized under a separate city charter. It had a population of 13,575 in 1920. The city has grown up around the immense plant of the Allis-Chalmers Manufacturing Company, the largest manufacturing establishment in the Milwaukee district and, in fact, the largest in Wisconsin (Fig. 46). The company makes a great variety of kinds of heavy machinery, and at times employs 6,000 to 7,000 persons. In addition, there are some 25 other manufacturing plants of good size in the city, nearly all engaged in the manufacturing of iron and steel products including machinery, for it is in this line that the city specializes. In 1920, about 12,000 persons were employed in manufacturing in this one suburb, but many of them live in Milwaukee. West Allis has become the leading suburb of Milwaukee and its growth is notable.

South Milwaukee

South Milwaukee, a few miles south of the city, is closely connected with it by trolley and railroad lines. It began its existence in 1891, and has reached a population in 1920 of 7598. There are a half score of manufacturing plants in the city, the largest of which is the Bucyrus Company employing from 1,000 to 1,500 persons, and making the most powerful steam shovels in the world. They are used in such gigantic operations as open-pit iron mining in the Lake Superior region and the excavation of the Panama Canal, as well as in a great variety of other operations of similar character.

Cudahy

Cudahy was founded in 1892 by the meat-packing firm of Cudahy Brothers whose plant was formerly in Milwaukee. It

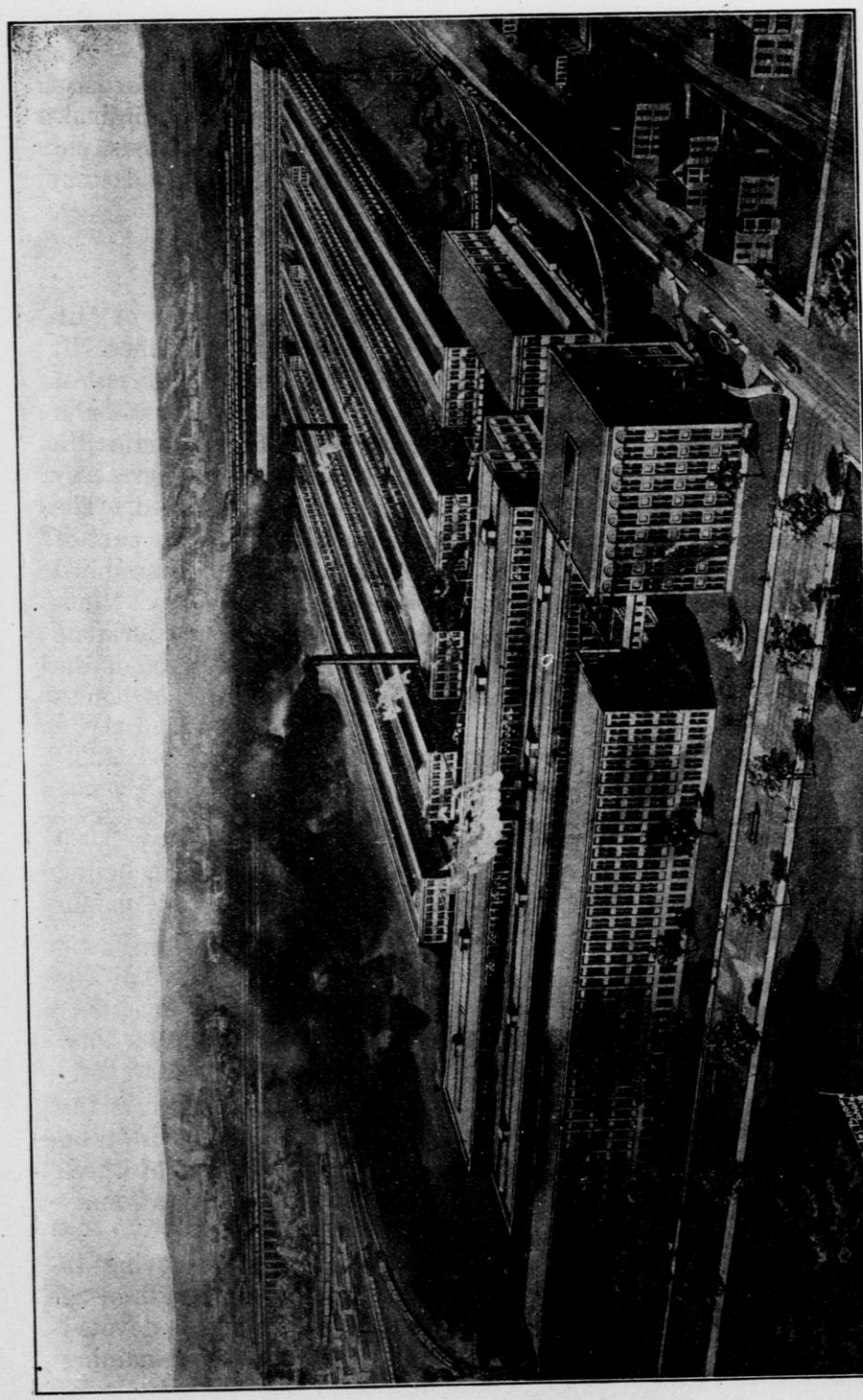

Fig. 46—The Allis-Chalmers Manufacturing Company's plant at West Allis, where 6,000 to 7,000 persons are employed.

is a city of 6725 population, lying two miles south of Milwaukee. Besides the meat-packing plant, it has one of the largest rubber factories in the state, employing upwards of 1,500 persons. There are also large concerns engaged in making mining machinery, drop forgings, gloves and mittens, etc. Near the city, in the suburb of Carrollville, is a glue factory employing 400 persons.

Wauwatosa

Wauwatosa is a residence suburb a few miles west of Milwaukee and connected with it by trolley and railroad lines. It has a population of about 6000 and has five industries of moderate size, including a tannery which employs about 150 persons. The village began in the early forties; a flour mill was built there in 1843 and continued to operate by water power until 1876, when steam power was installed. The earliest quarrying and lime-burning operations in this part of the state began here in 1835. These quarries long supplied limestone used for flux in the iron smelters at Bay View. Wauwatosa township has some of the most important limestone quarries in the state and also for a long time several of the leading brick yards. However, it is rather a place of homes than a place of factories.

North Milwaukee

North Milwaukee is a manufacturing suburb of over 3,000 population with several plants of considerable size, including two bridge companies, a tannery, and factories for the manufacture of automobile bodies, stoves and machinery.

AGRICULTURE IN MILWAUKEE COUNTY

The present Milwaukee County of 241 square miles is the remnant of a much larger county which has been cut down on several occasions. Nine entire counties and parts of three others have been made from the original Milwaukee County (Fig 3).

It is now one of the small counties of the state having an average width of only 10 miles, and a north-south length of 24 miles. About 75 per cent of the land of the county is devoted to farms; cities, towns, roads, etc., occupying the remaining

25 per cent. The 2,500 farms in the county are small, averaging only 47 acres each, but fully 85 per cent of the farm land is improved land. In a region surrounding a large city like Milwaukee, farming tends more and more to become intensive, and land tends to advance to high values. The demand for fresh vegetables, poultry, eggs, and fruit leads to garden farming. This is to considerable extent true in Milwaukee County, and vegetables form the largest item among its farm products.

Farm Products

The black soil of the old swamps is ideal for celery. The sand and gravel land of the glacial outwash is particularly suited to potatoes which form the largest crop of the county (a million bushels in a good year). Every variety of table vegetable is raised for the city; 20,000 wagon loads of such products are delivered every season to the public markets of Milwaukee. Sugar beets are raised for the sugar mill at Menomonee Falls. While vegetables form the most valuable item of farm produce in the county, they are all grown on one-tenth of the farm land. The other nine-tenths is devoted mainly to pasturage, to meadows, and to the grains—oats, corn, barley, rye, and wheat; the last two are relatively unimportant in this part of Wisconsin.

The city demands a daily supply of fresh milk and the dairy products of the county have a greater value than all the grains combined. There are seven creameries in the county, five cheese factories and two condensaries.

Garden farming requires a great deal of hand labor, and some of the most successful of these farmers are European immigrants who were accustomed—both men and women—to such work in the old country. Families having children old enough to work in the gardens during the summer vacation make good use of them. Good soil can be made to produce such a quantity of vegetables that choice garden land, well located with reference to improved roads or interurban trolley lines, sells as high as $1,000 an acre. This condition gives Milwaukee County the highest average value of farm land in the state.

The demand for rich, clean milk has lead to the development of herds of choice cattle, carefully selected and cared for. Large barns with silos characterize the dairy farms especially in the northern half of the county.

CHAPTER VI

THE COUNTY AND CITY OF WAUKESHA

This county was included in Milwaukee County until 1846 when an area four townships square, or sixteen in all, was set off and called Waukesha County; the county seat was placed at Prairieville, whose name was changed to Waukesha. At this time, twelve years after the arrival of the first white settler, the county had about 15,000 people, the majority of whom

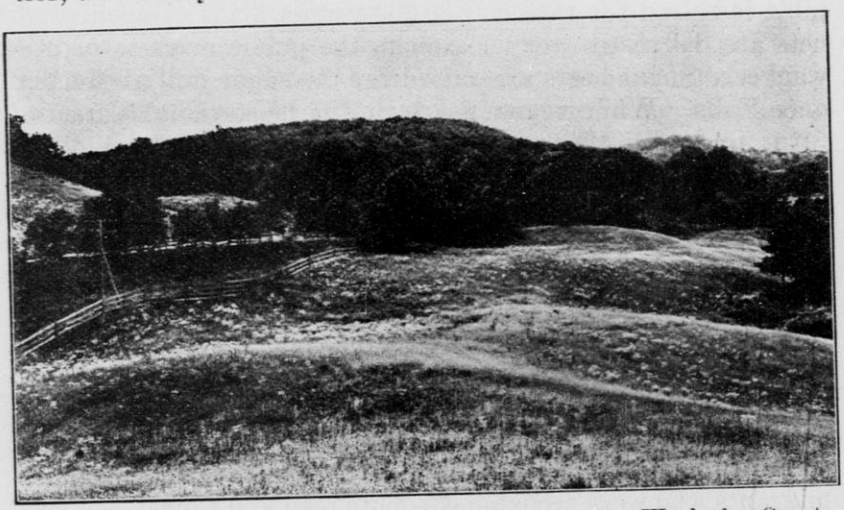

Fig. 47—View of one of the many glacial moraines in Waukesha County.

had come from the eastern states, especially from New York. An important Potawatomi village existed at the present site of Waukesha when the white man came, and several of the main trails used by the Indians met at this village. Some of the mineral springs of the vicinity were known to the Indians, and their waters were used for medicinal purposes.

A small fur-trading post, kept by a French Canadian named Vieau, existed at the Indian village. Many of the cities and towns of Wisconsin are at places which the Indians had previously selected for their villages, and which were afterwards selected for trading posts. Many of the principal highways and

even railways of today follow the lines of old trails. Indian and white man alike sought the lines of easiest movement. Indian villages were numerous in southeastern Wisconsin, due, perhaps to the many lakes, streams, and openings in the forest, making a region ideally suited to the sort of life the Indian loved. The red men were supposed to be removed west of the Mississippi by 1836, but some remained and others returned, so that they were more or less numerous after the white settlers came.

Geographical Reason for Selecting the Site of Waukesha

The first permanent white settlers of Waukesha were two brothers named Cutler who located their claim of 160 acres at the rapids of the Fox River. They foresaw the opportunity for untilizing the waterpower at this point where the river has a descent of 10 feet in half a mile.

A great majority of the inland villages and cities in Wisconsin, as elsewhere, began with settlements around water-driven grist mills or saw mills. Settlers must have flour, meal, feed, and lumber; and so the trails and pioneer roads commonly led to points where water-power gave rise to little mills; and these points became the logical places for a store, a blacksmith shop, a cabinet shop, a wagon shop, a church, a schoolhouse, and other establishments which make up a village. The water-power at the rapids of the Fox River was one of the best in this part of the state. Its value is shown by the fact that the "mill-quarter" as the Cutler's quarter-section was called, sold in 1837 for over $6,000, a very large sum in those days. At this time Solomon Juneau, the founder of Milwaukee, had a trading post at Prairie Village, as the settlement was called until 1839. In 1840 the place, then called Prairieville, consisted of a few scattered log cabins among the brush. Two saw mills were built in 1838. The first flour mill was built in 1839 and was known as the Saratoga Mills; these Mills had superior facilities for making white flour, and they attracted farmers for 20 to 30 miles around.

Other Settlements in the County

Next to Prairieville, Mukwonago, in the southern part of the county, was the leading village. Here also a number of Indian trails met at an important Indian village, and here too was a waterpower which gave rise to a grist mill.

At almost every place where water power could be utilized, a saw mill or grist mill was built, and a settlement grew up. These points included Pewaukee, Delafield, Genesee, Hartland, Muskego, Mukwonago, Oconomowoc, and Eagle. The grist mill at Eagle was the first in the county; it was very primitive indeed; the mill stones had been shaped by the miller himself and were scarcely larger than water pails.

The first saw mill in the county was built at Muskego in 1836. It was a crude, primitive affair with a rickety up-and-down saw; but it was better than none, and settlers came long distances to buy lumber or to have logs cut into lumber.

The Growth of Waukesha

The flour mill at Prairieville had become so important in 1841 that 7,000 barrels of flour were exported from the village. The settlers had begun to produce a surplus of a few things, and in this same year 250 barrels of pork and several hundred hides were shipped out.

In 1841 an academy was organized, which in 1846 became Carroll College. Its campus occupies the site of the old Indian Village. In 1849 Blair's iron works were started, giving the village the advantage of a foundry and small machine shop where iron could be cast, and where iron articles could be made and repaired.

Development of Transportation Routes

The period around 1850 was one of great public interest in plank roads. Such public roads as existed were in wretched condition most of the time, and settlers found that one of the greatest drawbacks to profitable farming was the difficulty and cost of hauling their products along the almost impassable dirt roads. Oak forests were common and could supply the lumber for plank roads, and these became rather numerous in the years around 1850. Several were built outward from Milwaukee, the most important and most profitable of which ran from Milwaukee through Waukesha, Pewaukee, and Oconomowoc to Watertown. One ran from Milwaukee to Lisbon in the northern part of the county, and another to Mukwonago and Muskego in the southern part.

The government road—not a plank road—from Milwaukee to Madison passed through Waukesha. More important still, the first railroad in Wisconsin reached Waukesha from Milwaukee

in 1851. This was the greatest event in the early history of the place. The following year, 1852, the village was incorporated, with a population of about 2,000. It had developed a number of industries of local importance, including a saw mill, one of the leading flour mills of the region, two small iron foundries, a factory for building railway cars, a shop where a few threshing machines were made, two small breweries, and a carriage and wagon factory.

Following the building of this first railroad, came an epidemic of ill-considered railroad projects. Farmers were persuaded to mortgage their farms in order to raise money to assist proposed railroads; and villages, towns, and counties pledged their credit as security for railroad bonds. Many of the proposed roads were never built, and those that were built went into bankruptcy. Many farmers lost their farms entirely; others were financially crippled, and a period of gloom and bitter indignation followed. Some of the resentment toward railway corporations which still exists dates from these shameful swindles perpetrated by early railway companies.

Influence of the Location of Waukesha County upon its Development

Soon after its founding, Milwaukee established itself as the leading commercial and industrial city of the region. The greatest activity in the building of roads and railroads centered in Milwaukee. It was the chief port of entry in the state, had the best harbor, the most capital, and received the most immigrants.

Waukesha County lay immediately west of Milwaukee, and most of the lines of communication with the interior had to pass through Waukesha County; this placed it on the main lines of travel. However, such a condition does not necessarily build up the industries of a place. So great was the drawing power of the port of Milwaukee, that the manufacturing industries of this section of Wisconsin were inevitably drawn there at the expense of nearby towns. So much greater were Milwaukee's advantages for trade and for manufacturing, that Waukesha and the other places in the region had only limited opportunities for growth.

The immediate suburbs of a large city often acquire important industries, as West Allis, South Milwaukee, and Cudahy have done; but Waukesha is a little too far away to be in-

cluded in this class; it is undoubtedly true that Waukesha has profited by its nearness to Milwaukee and that it will profit increasingly, just as Racine and Kenosha are profiting by their nearness to Chicago and Milwaukee.

Growth of Waukesha after 1860

In 1865 Waukesha had but few industries in addition to the shops in which the various hand trades were carried on. There were two flour mills, a saw mill, three steam planing mills, an iron foundry and machine shop, and two small breweries. In 1866 the woolen mill was erected and became an industry of more than local importance.

Mineral springs. Though the mineral springs of the vicinity had been known from the days of the Indians, they did not play an important part in the history of Waukesha until 1868, when Colonel Dunbar either discovered, or believed he discovered, unusual medicinal properties in a spring which he afterward named the Bethesda. The publicity which he gave to the curative properties of this spring water attracted widespread interest, and about 1870 Waukesha entered upon its career as a health resort—long referred to as the "Saratoga of the West". Caring for visitors who were in search of health and pleasure became the city's one dominant industry. Hotels and sanitariums were built, and visitors came by the thousands. Other springs were discovered and their curative properties were widely advertised.

Despite the influx of visitors, the permanent population of the village did not gain rapidly; it was only 2,807 in 1875. By 1887, 15 hotels were operating in Waukesha; the largest one —the Fountain Spring Hotel—had accommodations for 800 guests.

Development of the County as a Whole

While Waukesha village grew rather slowly, the county as a whole filled rapidly with settlers. The wave of German immigration which came to Wisconsin between 1840 and 1860 poured large numbers of Germans into Waukesha County. The farm lands were nearly all occupied, and by 1860 the county had 26,831 people, which was more than the combined population of Racine and Kenosha counties. It gained only a little over 2,000 during the next 20 years. This was a period (1845–1870) of enormous wheat production, and Waukesha county was one of the leaders (Fig. 91).

Wheat Production in Waukesha County, 1849–1920

1849	312,658 bu.	1880	253,920 bu.		
1859	582,012 "	1899	39,410 "		
1869	651,605 "	1909	22,706 "		
1879	711,839 "	1919	200,000 "		(estimate)
1920	145,000 bu. (estimate)				

As early as 1860, the county had 18 flour and feed mills, most of them driven by water. All of these were small, and the quantity of flour and feed which they ground amounted to only $363,000 worth.

All of the manufacturing industries were small, as may be gathered from the fact that in 1860, the 95 manufacturing establishments in the county employed in all only 271 persons and made only $544,000 worth of products. Flour made up two-thirds of the total, yet the 18 flour mills employed only 38 persons, an average of about two to each mill.

Twenty years later (1880) these figures had scarcely doubled, and the 181 manufacturing establishments in Waukesha County employed a total of 472 persons and made a little over a million dollars' worth of products. Flour and feed constituted half of the total. Agriculture was the dominant industry of the county, and manufacturing received little attention. Outside of Waukesha city none of the towns of the county with one exception have ever built up manufacturing of much more than local importance; the beet sugar factory at Menomonee Falls is the exception.

Waukesha from 1890–1920

In 1885 Waukesha had a population of 4,225, which increased to 7,222 in 1895. In 1887 the only plant of any size in the city was the railroad shops of the Wisconsin Central Railroad, which employed over 200 men. The Blair factory employed a dozen men in making threshing machines; a little brewery employed seven or eight men; the Dodd planing mill employed ten, and the Chase and Allen flour mill employed about seven. The flour mill, still of considerable importance, had a water-power rated at 110 horsepower.

In 1890 there were employed in manufacturing in the entire county about 600 persons, and the output was about the same as it had been twenty years before,—a little below a million dollars. Waukesha's part of this probably was not far from one half.

1890–1900. Considerable progress was made during this decade, the village becoming a city in 1896. The bottling of mineral waters and the making of carbonated drinks, such as ginger ale, had become a distinctive industry. The following bottling works with the date of their establishment are listed

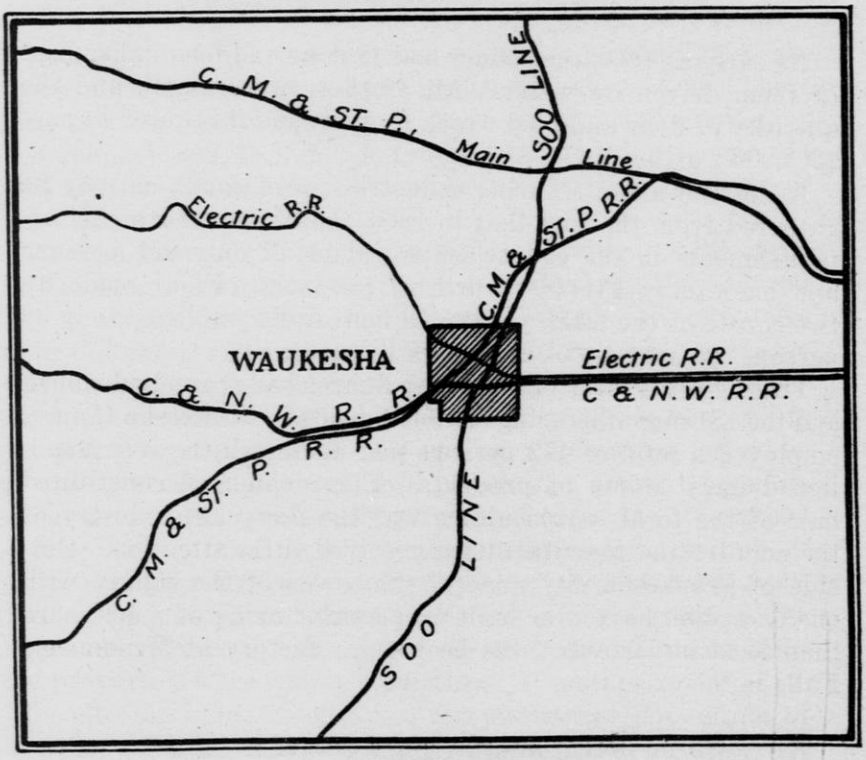

Fig. 48—Map showing the excellent railway facilities possessed by Waukesha.

in the report of the Wisconsin Bureau of Labor Statistics for 1897–8.

Name	*Date of Establishment*
Bethesda brewery	1864
Bethesda Mineral Spring Co.	1878
Silurian Mineral Spring Co.	1879
Henk Mineral Spring and Bottling Co.	1881
White Rock Mineral Spring Co.	1884
Waukesha Arcadia Co.	1885
Waukesha Water Co.	1890
Almanaris Co.	1892
Waukesha Lithia Spring Co.	1892
Imperial Spring Brewing Co.	1893
Waukesha Hazel Pure Water Co.	1897

While the number of springs and their names change somewhat, the following list is typical:

Bethesda Spring	Hygiea Spring
Clysmic Spring	Lethean Spring
Crescent Spring	Minnewoc Spring
Excelsior Spring	Mineral Rock Spring
Eocene Spring	Silurian Spring
Glenn Spring	Waukesha Spring
Horeb Spring	White Rock Spring

By 1900 there were five manufacturing plants of considerable size located in the city:

The Modern Steel Structural Co. (Bridges)	150	employees
Wisconsin Central Railway shops	150	"
Waukesha Malleable Iron Co	170	"
Waukesha Sheet Steel Co	230	"
Waukesha Canning Co	250	"

All of the industries of the city employed somewhat over 1200 persons.

During the decade 1890 to 1900 the county increased its manufacturing 131 per cent, rising to a total value of $2,300,000; the major part of the increase was made in Waukesha. During this decade the manufactured products of Racine County had risen to over 15 million dollars and those of Milwaukee County to 140 million.

1900–1910. In 1905 there were ten establishments in the city engaged in bottling mineral waters and soft drinks. Most of them employed from five to ten persons each, but one (the National Water Co.) employed sixty-six. At this date there were in Waukesha about 15 manufacturing plants which employed more than ten persons each; five of these employed from 100 to 240 persons each. In 1910 the following were the principal manufactures of the city:

A vegetable dehydrating plant	60	employees
National Water Co. (bottlers)	70	"
A planing and wood working mill	75	"
A brewery	80	"
Arcadia Mineral Spring Co	120	"
A pea-canning factory	135	"
A lime and stone company	200	"
A bridge company	220	"

1910–1920. With the decline of the city's prominence as a summer resort came new interest in manufacturing, and the

most notable progress of its entire history was made between 1910 and 1920. Ten of the larger industries of the city were established during this decade, and the largest of them (the Waukesha Motor Co.) was established in 1909 (Fig. 49). In 1919 there were in the city seventeen manufacturing concerns of considerable size. Seven of them employed over 100 persons each, while one employed 900, and during the war employed as many as 1400. The total number of employees engaged in manufacturing in the city was between 2000 and 2500 in the autumn of 1919.

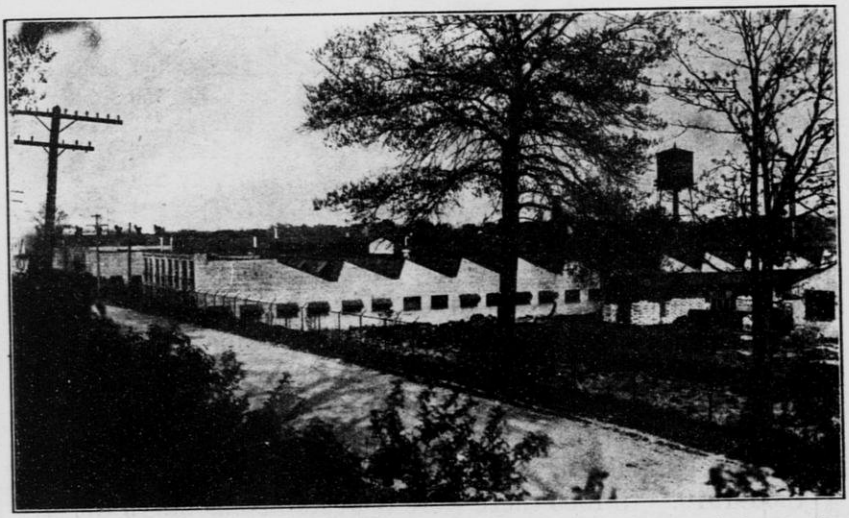

Fig. 49—Plant of the Waukesha Motor Company, the largest industry in the city.

The principal establishments were:

Waukesha Motor Co.	900	employees
Werra Aluminum Foundry Co.	300	"
Waukesha Malleable Iron Co.	225	"
The Kenyon Co. (Reed Chairs)	140	"
Federal Bridge and Structural Co.	125	"
Spring City Foundry Co.	125	"
Waukesha Pure Food Co. (Jiffy Jell)	125	"
I. B. Rowell Co. (Agr. Machinery)	90	"
Thompson Malted Food Co.	60	"
Wilbur Lumber Co. (Sash and doors)	60	"
Church Furniture Co.	40	"
American Dehydrating Co.	35	"

The bottling and shipping of spring water and soft drinks—mainly ginger ale—is still a large industry. At least ten com-

panies are engaged in this; about 40 car-loads a week are shipped, one company alone shipping half of this. As an outgrowth of its mineral springs, Waukesha has acquired a number of sanitariums and private hospitals, and the largest hotel has been taken over by the U. S. Government to be used as a hospital for disabled soldiers. The population of the city was 12,588 in 1920.

Oconomowoc

Like most of the early villages, Oconomowoc grew into a local center of trade because of the water power which gave rise to the first saw mill and grist mill (1838–1843). It was a meeting point of Indian trails before the white man came, as it was of roads afterward. It was a swampy and none-too-attractive place at first. In 1845 the village plat was surveyed, and in 1850 Oconomowoc was reached by the Milwaukee and Watertown plank road. This important road—one of the most important in Wisconsin at the time—gave something of a boom to the village.

While Oconomowoc owed its beginning to waterpower, it owes its growth and its charm to the lakes by which it is encircled. One of the most important routes of travel from Milwaukee into the interior led into the lake region of northwestern Waukesha County. Not only was this a region of lakes, but it was also a region of many swamps, and the selection of a route was difficult. An Indian trail passed along the route now followed by the Chicago, Milwaukee & St. Paul, through Pewaukee and Oconomowoc, on through the present city of Watertown. The first homeseekers used this trail, and it became one of the early roads; later it was selected for the route of the plank road, and still later of the railroad. Thus the lakes directed the lines of travel in this region and placed Oconomowoc on the chief of these lines. This made it a trade center.

A flour mill was built in 1857 and did a large business for many years. The village was incorporated in 1865. Two years later a factory for the manufacture of plows and cultivators was established; this employed 10 to 15 persons and did an annual business of $25,000. In 1879 a foundry and machine shop was established, but Oconomowoc has never been a manufacturing center. It now has a large condensed milk plant employing approximately 200 persons.

Its activities center largely in caring for summer visitors who come to the lake region in search of rest and pleasure. In 1887 it had a half dozen hotels, two of them of large size. In the vicinity of Oconomowoc, Pewaukee, and other lake-side resorts, are hundreds of cottages and summer homes and the lakes are visited annually by thousands of people, especially from Milwaukee and Chicago (Plate III).

Incorporated Villages of Waukesha County

There are 8 incorporated villages in the county: Menomonee Falls, Hartland, Pewaukee, Mukwonago, Dousman, New Butler, North Prairie and Eagle. Menomonee Falls, with a population estimated at 1200 to 1400 in 1920, is the largest. One of the four beet sugar factories operating in Wisconsin is located here. Pewaukee and Hartland are in the beautiful lake district; the former is on Pewaukee Lake and is one of the favorite summer resorts of this region; its resident population is estimated at about 1000, and Hartland's at 800. Mukwonago has a population of about 700. It was one of the earliest settlements made in the county and was an Indian village before the white settlers came. It was a focal point of Indian trails and of early roads and is now on a trolley line running into Milwaukee, and on the Soo Line railway.

Eagle and North Prairie are in the southwestern part of the county on the Prairie du Chien division of the C. M. & St. Paul railroad. Dousman is on the Madison division of the Chicago & North Western railroad in the western part of the county, and New Butler is in the northeastern part. All are villages of a few hundred people.

AGRICULTURE IN WAUKESHA COUNTY

The county has a land area of 351,360 acres, divided into 3600 separate farms. About two-thirds of the farms include less than 100 acres each, and only ten or eleven exceed 500 acres. A very high proportion (94%) of the land of the county is included in farms, and 70% of the farm land is improved, as compared with less than 60% in the state at large. The value of farm property has advanced greatly during recent years. Taking all of the farm land in the county, good and poor, the value in 1900 was $54.00 an acre. In 1910 it had

Topography by
U. S. Geological Survey

OCONOMOWOC-WAUKESHA LAKES

Scale: 1 inch=1 mile

A. Hoen & Co. Baltimore.

risen to $66.00, and in 1920 it is probably not far from $150.00; while choice farms are selling for double that price.

SURFACE CONDITIONS. The entire country is covered with glacial drift of many varieties (Figs. 47, 51). The eastern part of the county was originally forested, but the central and western parts had patches of forest interspersed with oak openings, prairies, and marshes. The Kettle Moraine (Fig. 5) traverses the county and gives it its most hilly portions. This conspicuous moraine is from 1 to 5 miles wide and its highest point—Lapham Peak—reaches an altitude of 1361 feet, which is

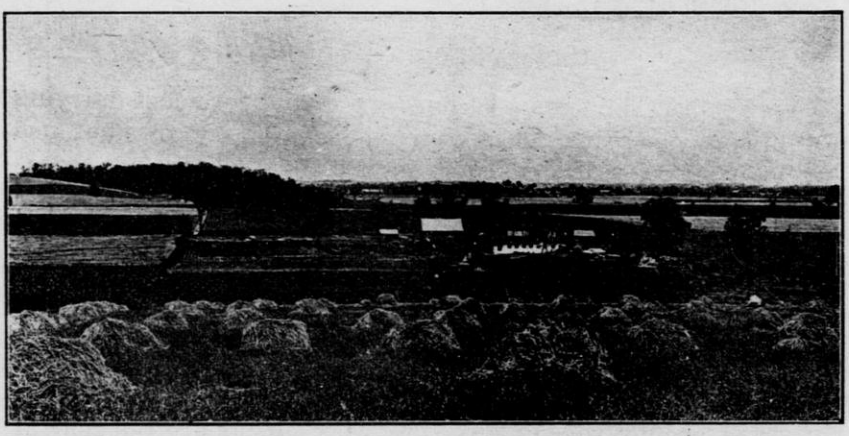

Fig. 50—Farm scene in Waukesha County.

several hundred feet above the lowlands around it. The Kettle Moraine is easily distinguished at a distance by the almost continuous forest covering of its higher portions.

While the glacial drift is sometimes deep (300 feet or more), there are other areas where the bed rock lies at the surface. Limestone is quarried in many of these places. The northern half of the county is largely covered with ground moraine having a moderately rolling surface. The most hilly portion of the Kettle Moraine is in the southwestern quarter of the county, and the glacial lakes are most numerous in the northwestern quarter around Pewaukee and Oconomowoc.

THE SOIL

The soil of the county is derived from rock waste ground up by the glacier and distributed unevenly over the surface by the melting ice. Much of the glacial drift is derived from limestone,

which gives a better soil than that derived from sandstone. However, much of the carbonate of lime which was originally in the soil has been leached out by the ground water, and now the soil is quite generally in need of lime to offset its present acid condition.*

From the standpoint of general fertility, the land of the county ranks high (Fig. 51). The glacial deposits have seriously interfered with drainage and many marshes and lakes are the result. About 16 per cent of the surface of the county is peat and muck, due to the swamp deposits; about 8 per cent is sand and gravel.

General farm conditions

Waukesha County has become one of the foremost dairying counties of the state, not only in number of dairy cows but also in the proportion of blooded stock (Fig. 52). There are scores of dairies of the finest Jerseys, Guernseys, and Holsteins, the last named being most abundant. A large part of the milk is shipped into Milwaukee for direct consumption. There are 13 cheese factories, 11 creameries and 4 condensaries in the county. Transportation conditions are excellent; every township has at least one line of railroad traversing it, and most townships have two or more lines. The southern townships, however, are not so well served by railroads as are the central and northern. Interurban electric lines, running out from Milwaukee, also serve the county (Fig. 48).

The chief crops

For the first 30 years wheat was the great crop of this part of Wisconsin; its production reached the highest point about 1879 when Waukesha County harvested 712,000 bushels (Fig. 91). In succeeding years wheat growing declined rapidly and nearly disappeared, but it was revived by the high prices during the late war.

During the decade 1850–1860 hop-raising became a very large industry, stimulated by the brewery interests of Milwaukee. Later, prices declined, and the raising of hops had practically ceased by 1880. Then the raising of barley became predominant, and in 1889 some 33,000 acres were sown to barley, and a crop of 1,174,000 bushels was harvested.

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* See report of the Soil Survey of Waukesha Co. issued both by the U. S. Dept. of Agr. and the Wis. Geol. and Nat. Hist. Survey.

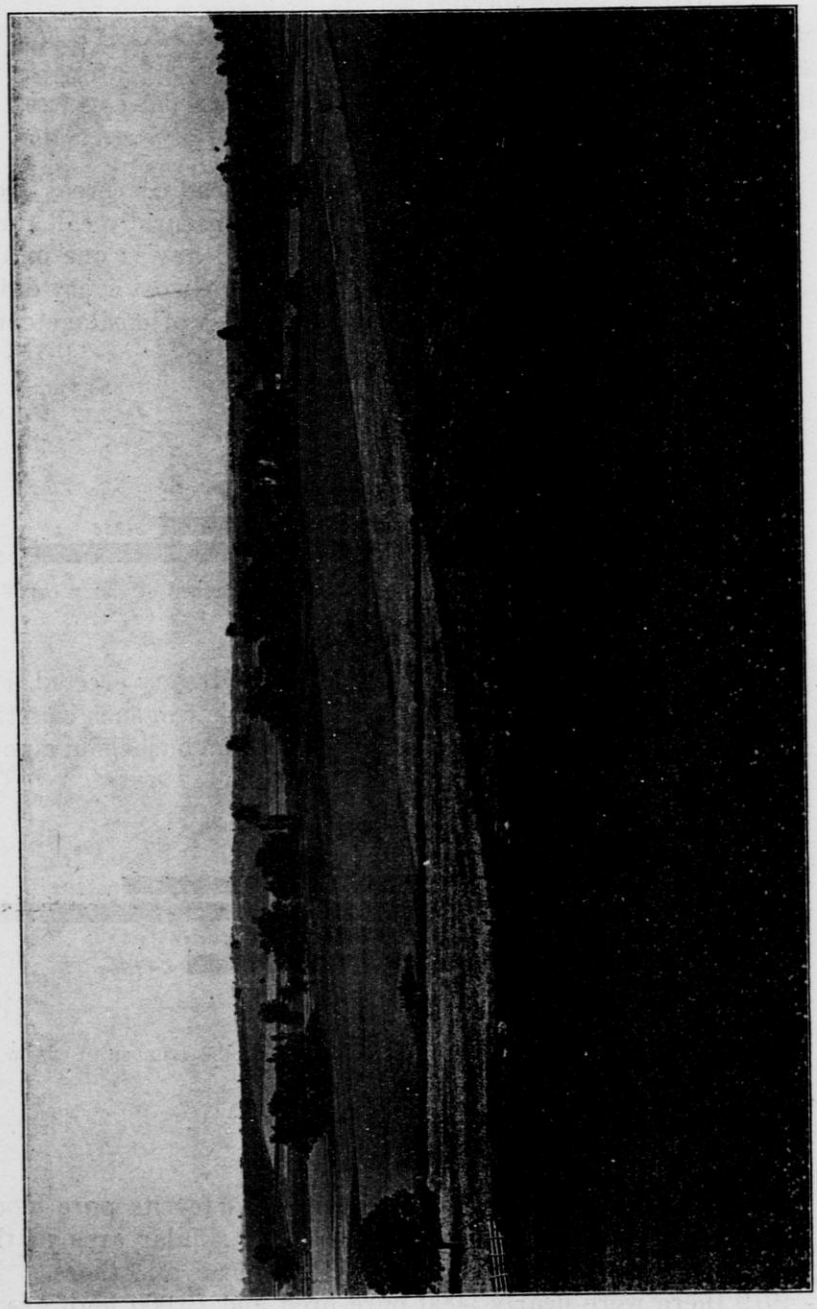

Fig. 51—View of the fine farm lands of Waukesha County, in the vicinity of Pewaukee.

TABLE XXVI. *Barley Production in Waukesha County*

1849	52,369 bu.	1889	1,174,100 bu.
1859	17,187 "	1899	722,180 "
1869	58,034 "	1909	332,065 "
1879	308,977 "	1919	(est.) 175,000 "
1920	205,618 bu. (est.)		

In recent years oats have become the leading cereal crop, followed by corn. The dairying interests naturally call for a large acreage of meadow and pasture, and hay is one of the most valuable crops grown in the county. Almost every dairy farm has a silo, each requiring several acres of ensilage corn.

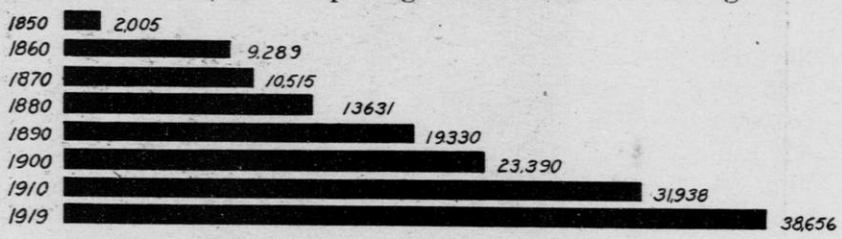

Fig. 52—Diagram showing steady increase in the number of dairy cattle in Waukesha County.

In 1919 there were upwards of 1,500 silos already erected. Potato production, while falling much below that in such counties as Waupaca and Waushara, reaches a million bushels in a good year.

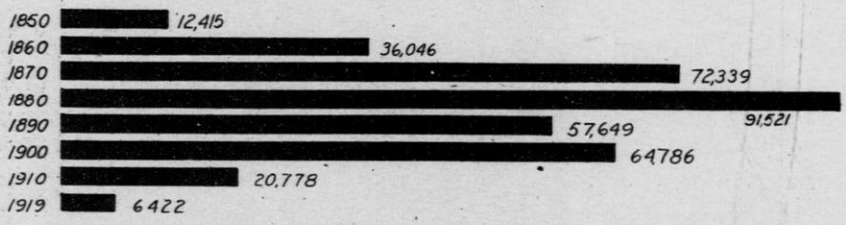

Fig. 53—Diagram showing the rise and decline in the number of sheep in Waukesha County.

LIVE STOCK RAISING

Waukesha County has become renowned for its pure blood dairy cattle. It is claimed that no other similar area in the United States has so many. Holsteins lead all others. In 1919 there were nearly 5000 pure bred and 10,000 high grade Holstein-Friesians in the county, while there were only 14,000 dairy cattle without a pedigree. Guernseys followed next in

order with about 1,100 pure bloods and nearly 6,000 grades. Jerseys and Ayershires are considerably less numerous. Pure blood Holstein sires have sold for $35,000 in recent years. There are 185 Holstein breeders in the county, one of whom has a herd of 258 cattle. Seventy-five car loads of high grade Holsteins were shipped from the county to various parts of the United States in 1919.*

* Report County Agricultural Agent.

CHAPTER VII

THE CITY AND COUNTY OF RACINE

Racine County

Racine is one of the small counties of Wisconsin, having a total area of 323 square miles, or a little over 200,000 acres (207,360). When it was set off from Milwaukee County in 1836 it was about four times its present size. Half of its

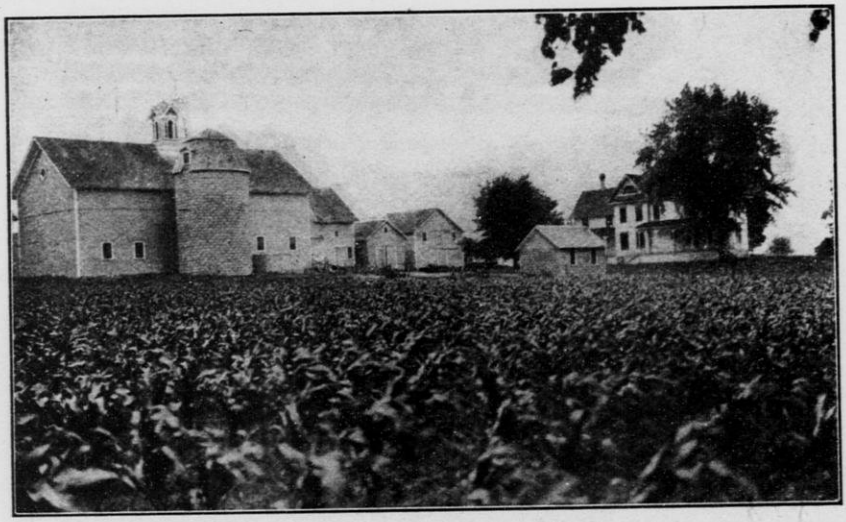

Fig. 54—Racine County has a high proportion of choice land and many fine farm buildings.

original area went to make Walworth County in 1839, and a half of the remainder was set off to form Kenosha County in 1850. The county has nine townships, four incorporated villages—Corliss, Rochester, Union Grove, and Waterford—and two cities—Racine and Burlington.

Surface. The entire county is covered somewhat deeply with glacial deposits, and fully 85 per cent of the total surface is made up of terminal moraines; these are low, broad hills with wide depressions between. The highest points in the county reach only about 300 feet above the level of Lake

Michigan. Most of the surface rises and falls in gentle swells, and very little is too steep to cultivate. This general levelness is brought out in the fact that the railroad running west from Racine (C. M. & St. Paul) is as straight as an arrow practically the entire distance across the county. Only one township (Norway) has any large amount of waste land; this is the large swamp area around Wind Lake and it is capable of drainage.

A strip of land near Lake Michigan originally was heavily forested, but this gave way toward the west to extensive stretches of open prairie (Fig. 11). The area included in the county had relatively little heavy timber. Groves of oak, maple, and other hard woods mingled with the prairies. Writing in 1845, Lapham said: "The county is almost destitute of timber. Burr oaks, hickory, etc. are found in occasional groves, but the rest is prairie".

SETTLEMENT. The Indian title to the land was extinguished by treaty in 1833; a survey by the government followed, but clear title to the land was not obtainable until 1836. However, many settlers "squatted" upon the land before that date. There were Indian trails winding over the country, but roads were slow in developing. Within a year after white settlement began, the county had over 1000 people; in 1838 there were 2000, and seven post offices had been established. In 1838 the township of Rochester had nearly as many people as Kenosha, and two-thirds as many as Racine.

The earliest settlers were mainly from New York and New England. Burlington was settled by Vermonters, as the name might suggest. Rochester and Waterford were named by New Yorkers from those two places. The town of Norway was settled by a colony of Norwegians and is still largely occupied by their descendants. A great many Danes settled in Racine and vicinity, and people of that nationality still constitute an important part of the population.

GAME. Game was very abundant when the first settlers came. The Racine Advocate (Jan. 23, 1844) says: "Black and gray squirrels are so abundant that it has not been uncommon for a person to kill 20 of them in an afternoon". "Flocks of pigeon cover the grain fields in the fall; in the spring for several days they are seen flying towards the south, flock after flock, in numbers incalculable. The largest and best game is the deer. These are so plentiful that they were sold in our market last winter at 75c apiece".

TRANSPORTATION. The eastern townships are abundantly supplied with railways: four tracks of the Chicago and North Western, two tracks of the Chicago, Milwaukee and St. Paul, and two interurban electric lines. The western townships are crossed by the Soo Line, and by an electric line to Milwaukee. Only two townships, Norway and Raymond, are without steam railroads, and one of these has an electric line. An important plank road ran westward from Racine across the county until 1855.

Fig. 55—Threshing scene on one of the fine stock farms near Racine.

AGRICULTURE

The soil of the county is entirely of glacial origin except a strip from one to two miles wide along the lake shore, which was formerly covered by the waters of Lake Michigan and is mainly sand; this is less productive than the glacial deposits which cover the remainder of the county. Of the nine townships in the county, only Norway has much unproductive land. Ninety-six per cent of the land is in farms, and 72 per cent is improved farm land. About one-tenth is woodland. The county includes some of the most valuable farm lands in the state. During 1919 good land sold above $250 an acre. Corn is the leading field crop, closely followed by oats. Wheat—once the main crop—had declined to a nominal production until the war prices of 1917–19 again stimulated its production;

in 1918 over 7000 acres were sown to that crop. This, however, was only one-fourth the area planted to corn.

Like all of southeastern Wisconsin, Racine County is distinctly a dairy county. It has about 22,000 dairy cows and scores of the herds are pure blood or high grade cattle. Good

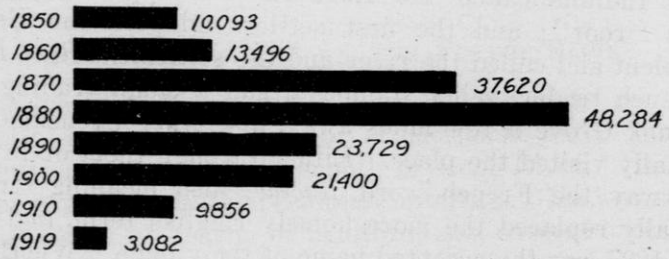

Fig. 56—Diagram showing the rise and decline in the number of sheep in Racine County.

buildings are the rule; in fact, the farm buildings are worth a third as much as the land itself (Fig. 54). There were five active cheese factories in 1920, but there were about a dozen creameries, one large milk condensary at Burlington, and the Horlick Malted Milk plant at Racine. An increasing amount of milk goes to Chicago on daily milk trains.

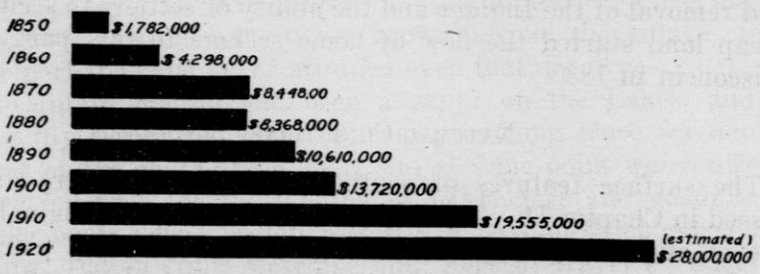

Fig. 57—Diagram showing the increase in the total value of farms in Racine County. The estimated value for 1920 is probably too low.

A distinctive feature of farming in the county is the truck farming in the eastern part. Near Racine are 10 or 12 large truck farms and many smaller ones. Two farms devote about 100 acres each to onions and many farms raise large quantities of cabbages. This is the leading cabbage growing section of the state; over 3000 acres are devoted to this crop annually. The rich black soil of former swamps makes ideal truck land and sells for as high as $1000 an acre.

CITY OF RACINE

Origin of the Name

The Indians called the Root River *Chippecotton,* which means "root"; and the first settlers adopted the English equivalent and called the river and the settlement *Root River.* A French trader, called Jambeau, had a small trading post at Skunk Grove a few miles away, and other Frenchmen occasionally visited the place. Either through them or in some other way the French word *Racine,* also meaning "root", gradually replaced the more homely English term, and after about 1837 was the accepted name of the village. Whether or not the adoption of the name had any connection with the famous French dramatist, Racine, is not clear.*

Indian Occupancy

The Indians of Wisconsin belonged to the great Algonquian group. At the time of the first white settlement, the Potawatomi had a small village of wigwams on the Chippecotton. The Indians had ceded this region to the United States in 1833, but they were allowed to remain until 1836. The promised removal of the Indians and the ability of settlers to secure cheap land started the flow of home seekers to this part of Wisconsin in 1835.

Natural Conditions

The surface features of southeastern Wisconsin are discussed in Chapter II. The region about Racine was originally one of alternating woodlands and prairies. In many places the forests were somewhat thin, and were referred to as "oak openings," because oak trees predominated. There were also many other kinds of trees, mainly hardwoods. The "prairies" were grass lands, ranging in size from a few acres to several thousand acres; their deep black soil was especially fertile. The fact that the pioneers could raise a crop on these prairie soils the first year without the laborious task of clearing the forest, was an important consideration to the settlers. The

* For a condensed account of early Racine, see E. W. Leach's "The Methodist Church and Early Racine"; it contains many interesting cuts of the town a half century or more ago. A few of these are reproduced in this bulletin.

further advantage that timber for building, for fencing, and for fire wood was near at hand was an added attraction. Settlers frequently declined to take up land on the prairies of Illinois because there was no timber on them; one of the very first needs of the settlers was logs or lumber for his house and stable.

Selecting the Site for the Future Racine

In November, 1834, Capt. Gilbert Knapp came northward from Chicago seeking land for a settlement and after some exploration he selected the mouth of Root River. He was a man of experience with speculative interests. He was seeking a place which, by reason of healthfulness, ease of access, fertility of soil, and other natural advantages, would prove attractive to home seekers, for he wished his settlement and its land values to grow. His purpose was to lay out a town, sell the lots, and help to develop the place. Like most of the early platting of towns the venture was speculative, the success depending largely upon the good judgment and shrewdness shown by the person who selected the site. Many such ventures failed because the site did not possess permanent natural advantages of location. Because such points as Racine, Kenosha, and Milwaukee did possess those natural advantages, they grew into cities; while points having a less advantageous location have never grown beyond the village stage, or perhaps have never attained even that dignity.

Captain Knapp had been a sailor on the Lakes, and he readily recognized that the most promising place for a town was on the shore of the lake, and at some point which offered conveniences for the landing of passengers and goods from lake boats. The region was still a part of Michigan Territory; Indian trails were the only lines of travel by land. A point on the shore of Lake Michigan, however, could be reached from the East with perfect ease. By way of the Erie Canal and the Chain of Lakes, settlers with their household goods and farm implements could reach a place like the mouth of Root River more easily than they could traverse a score of miles of trackless wilderness.

About the only points on the shore of the lake at which landings could be made were at the mouths of the rivers or creeks, and every one of Wisconsin's lake shore cities has grown up at such a point. Captain Knapp's original claim included 74 acres on the north side of the river and 67 acres on the south

side. The region at the mouth of the river was thickly covered with large oaks. Here the first cabin was built by Mr. Knapp and his associates who called the place Port Gilbert, in his honor.

Early Conditions

One of the early settlers, who reached Racine in May 1836, says: "When I came to Racine, there were but 5 or 6 small cottages, nestling in the timber at the mouth of Root River."*

Four years later (1840) a traveler named Buckingham journeyed northward from Chicago along the shore of the lake. He wrote: "Beyond Southport, a distance of 10 miles only, we came to another small town, called Racine, so named, it is said, by a French settler, after the celebrated dramatist, but the American settlers who followed persisted in having a literal translation for the stream which flows by their town, and which they accordingly call Root River. The town has at present about 300 inhabitants. It is better situated than Southport, has a higher level, with a landing place within the river and a stiff clay base along in front of the town on which wharves and piers can be easily constructed. In the rear of the town and to the south of it, the land is a level prairie".

Mr. N. T. Kelley, who came to Racine in 1841, says that there were only ten buildings there at that time. (Fig. 58.) He states that there were at the rapids a grist mill, a saw mill, and a lime kiln, also a mill and lime kiln a little south of the rapids. "On Hoods Creek was an Indian trading post kept by a Frenchman by the name of Jambo".

The Boom and the Collapse

Racine shared alike in the land boom of 1835–36 and in its total collapse which came with the panic of 1837. For several years the little settlement had a life-and-death struggle to maintain its existence. Lots on Maine Street sold as low as two dollars each. The difficulties with which the village had to contend may be gathered from the following:

1. There was no adequate harbor; passengers and goods had to be unloaded from the lake boats to small boats which brought them ashore.
2. Settlers could not get a clear title to land until 1839.

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* Whitman, L. O., Union Grove Enterprise, July 5, 1906.

Fig. 58—Racine in 1841.

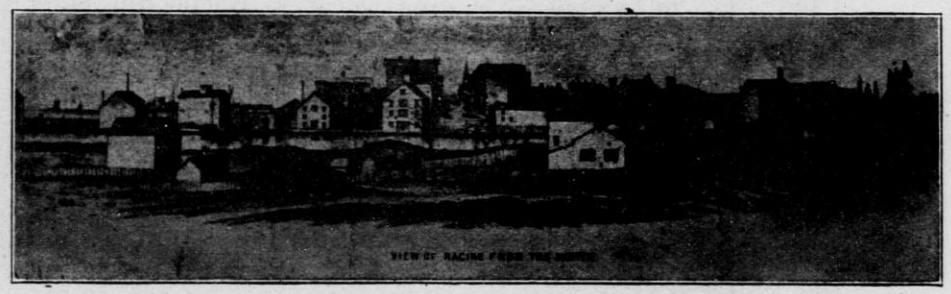

Fig. 59—Racine in 1857.

Fig. 60—City Square of Racine in 1860.

The above views and the Harbor view shown in Fig. 61 are from plates obtained from E. W. Leach of Racine.

3. The real estate was quite largely held by non-resident owners, not directly interested in the community.

4. There was no decent public house until the Racine House was built in 1838.

5. There was no passable bridge across the river until 1840. In grading Main Street at this time 120 oak stumps were removed from the street.

6. There was no regular road into the interior until the government road to Janesville was constructed in 1839.

7. For many years the local officials had no power to levy and collect taxes.

The place was incorporated as a village in 1841, but it was still a pioneer settlement scarcely beyond the stage of a fur trading post (Fig. 58). Stumps obstructed the straggling tracks used for streets. In this year farmers from the back county first succeeded in hauling wheat to Racine for shipment eastward by lake. Five or six thousand bushels were loaded on small scows and with difficulty transferred from these to a lake schooner anchored at some distance off shore. Financial conditions were very discouraging. The Racine Advocate of November 23, 1842, quotes the following prices for farm products:

Beef per hundred lbs	$2.00 to $2.50
Pork per hundred lbs	2.00 to 2.50
Venison per hundred lbs	2.00 to 2.50
Lard per pound	.05
Butter per pound	.12½
Cheese per pound	.06
Flour per bbl	3.50
Wheat per bushel	.42
Oats per bushel	.12½
Corn per bushel	.31
Chickens, each	.12
Geese, each	.25
Potatoes per bushel	.12 to .15
Wood per cord	1.50 to 1.75

The editor says: "Farmers should not be discouraged at the present low prices for their products. If our agricultural staples are low, all our commodities are low or will be low in proportion". Still lower prices followed in 1843. The depression was reflected in the inability to collect taxes and the county Treasurer advertised for sale so many pieces of land

* Racine Advocate, March 14, 1843.

on account of unpaid taxes that the list filled five full columns of the newspaper. However, a similar condition existed throughout the country; Wisconsin was as prosperous as her neighbors, and better times gradually returned.

Three Stages in the Growth of Racine

The first stage. Like the other ports on the shore of Lake Michigan, Racine has passed through two stages of progress and is now in the third. In the first stage, the life of the place centered in the activities connected with the port which may be compared to the neck of a double funnel; on the one hand, it was a point of convergence for boats coming from various directions; on the other hand, it was the natural point of convergence for roads from the back country; here products passed out and imports came in. The back country served by a port is referred to as its *hinterland*. To a certain degree the natural hinterland of Racine was overlapped by both that of Milwaukee and that of Kenosha or Southport as it was formerly called. The direction in which the best roads led, and later the railroads, determined to a large extent the port to which the farmers of the back country hauled their products and at which they purchased supplies. The ports lived upon this trade between the inland farmer and villages on the one side and the eastern markets on the other; for nearly all manufactured articles came from the East and came by boat.

Moreover, settlers were coming in very rapidly all through the period from 1835 to 1850. Almost every day a steamer load of passengers was landed at some one of these ports. Furnishing food and lodging for the new comers and providing them with the things which they must have in order to begin life in this new country, was the most important part of the business of the port. During the first 25 years of its life Racine was more interested in these activities than in anything else. A little manufacturing was done, but it was on a small scale and consisted mainly in making the simpler articles needed by the people of the immediate region.

The early opportunities to do business and to make money lay more in the realm of trade than in that of industry, and so during this period Racine devoted her energies to trade.

The second stage. The second stage in the growth of the city was one of readjustment (after 1880). The period of manufacturing in a large way was beginning. Trade through the port continued to be important, but it was no longer the

all-important thing. Railroads had become the principal carriers; Chicago and Milwaukee were growing into railroad centers of national importance, and Racine's hinterland was penetrated by lines leading to these two ports. Racine, with only one railway line connecting with the back country, found it ever more difficult to hold her grip on trade with the interior. The business men of Racine may not have been fully conscious of the change that was in progress, but the capital and energy of the city were being liberated from purely commercial activities and were seeking employment in other lines. Toward the end of this period which came about 1880—1900 Racine had gone over to manufacturing as her dominant interest.

THE THIRD STAGE. The third stage, the present one, is almost completely dominated by manufacturing. The port is no longer particularly important in the life of the city.

Having thus surveyed the three periods of the city's history, let us go back to 1835 and note how all-important to the people of that period the port seemed.

EARLY DIFFICULTIES DUE TO THE LACK OF A HARBOR

It already has been pointed out that the site of Racine was selected because the mouth of Root River offered an opportunity for a harbor. The sand bar across the entrance, however, prevented lake boats from entering, and goods or passengers had to be taken ashore on lighters, as the row boats and small scows used for the purpose were called.

Mr. B. B. Jones advertised his Temperance Hotel in the local paper thus (1842): "Boats and Lighters belonging to the house, always in readiness to convey passengers and freight to and from steamboats and vessels".

In 1843 the Racine House advertised that "Boats and Lighters are always in readiness to carry passengers to and from steamboats and vessels *free of charge.*"

The conditions which sometimes attended one of these landings is described by a Mr. Barray in the *Racine Advocate* of Nov. 28, 1843 as follows:

> "There were three of us; a heavy, dead sea, was running in shore; the *Illinois* lay off three-quarters of a mile, pitching and rolling, from which we tumbled with our baggage into a small boat manned by four oarsmen. And away we went, now mounting on the top of a huge swell, and then sinking down into darkness. Approaching the shore, we could see the white crested breakers lashing the beach and making everything but grateful music. But into them our frail bark dashed; we clung instinctively to its sides and held

our breath, when a returning swell lifting us up and holding us for a moment, a beachward sea rolled completely over us, drenching us thoroughly from head to toe. However, we reached the landing in safety, and a good warm bed at the Temperance Hotel, soon put everything 'to rights.'"

Captain James Easson gave the writer the following account of the method by which schooners "jumped the bar" and got into the mouth of Root River. "We waited until there was a strong inshore wind, then we spread all sails and headed straight for the bar. Of course we ran aground, but every wave lifted the schooner and the wind drove her forward a few feet farther each time, and, if we had good luck, we were over in a few minutes. This was called 'jumping the bar' ".

Mr. Jones had a scow some 40 feet long, drawing about five feet of water and capable of carrying nearly a hundred passengers. Even this scow, when loaded could not cross the bar without grounding. Mr. Jones had two oxen and a scraper with which he scraped away some of the sand from the bar and opened a passage for his scow. When it came in with a load of passengers from a ship, the oxen were hitched to two lines and helped get the scow over the bar. The passengers often helped also.

In 1838 at least three steamships, running between Buffalo and Chicago, called regularly at Racine. They were the De-Witte Clinton and the Thomas Jefferson of 500 tons burden, and the James Madison of 700 tons. The "Marine List" of June, 1838, includes the arrival of six steamboats, eight schooners, and one brig during the previous two weeks. The fare by steamboat or propeller from Buffalo to Racine was about $15.00.

Agitation for a Harbor

During 1842 and 1843 there was constant agitation for harbor improvement, for the citizens regarded this as the one thing above all else most necessary to promote the prosperity of the place. The editor of the *Advocate* quotes the following from the Rochester, N. Y., *Democrat*:

"The recent disasters upon the lakes, have as usual, directed the attention of the western public to the necessity of some prompt action on the part of the General Government to secure the construction of harbors on lakes Michigan, St. Clair, and Huron. For ten years the navigators of those lakes and the millions interested in the prosperity of the Great West have petitioned Congress for appropriations for this purpose. Three or four harbors have been improved and one or two piers have been erected, but the deficiency is yet

fearfully great. In twenty years the business of those lakes has increased a thousand fold."

During the congressional session of 1842–43 a vigorous effort was made to secure an appropriation for the improvement of harbors on Lake Michigan. Racine's failure to secure the appropriation was followed by a public indignation meeting (March 16, 1843). Defiance was hurled at Congress and the meeting "unanimously resolved to raise $10,000 by tax or by public subscription or both, to build a harbor at the mouth of Root River". It was further resolved that a tax of two days labor on the project be levied upon each citizen. Sub-

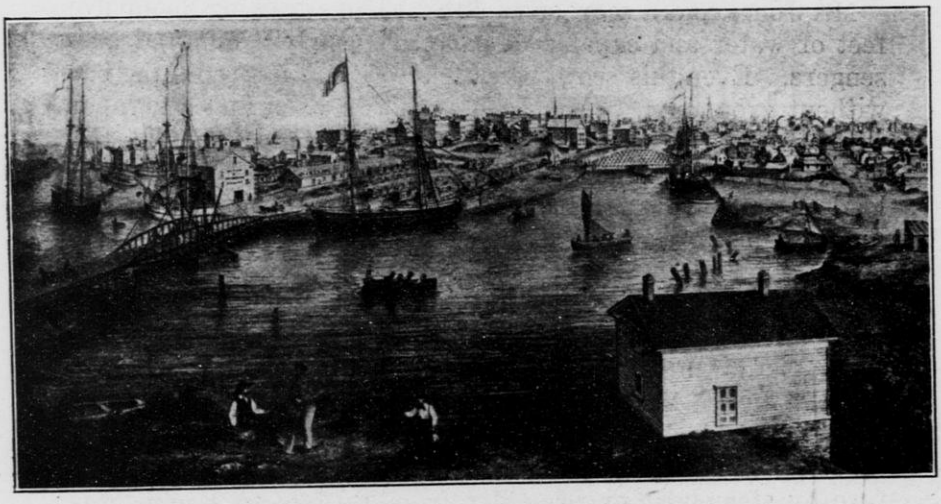

Fig. 61—Racine Harbor in 1860.

scriptions amounting to $8,000 were secured the first day. The zealous editor of the *Advocate* adds: "Our citizens have put by all other business and gone manfully to work, determined that the interests of our thriving village shall not in the least flag for want of a permanent work that shall protect our commerce; to the meritorious undertaking of our own citizens alone shall we be indebted for our ultimate prosperity".

A harbor meeting was also held in Burlington at which Congress was condemned for appropriating money for harbor improvements at Milwaukee alone and giving none to Racine; the people of Racine, Walworth, and Rock counties were urged to aid Racine in its determination to build a harbor at private expense. For the first survey in 1836 by U. S. government engineers the people paid $100. The legislature passed a bill

authorizing Racine to levy a tax of $5000 a year for three years for a harbor. For years the harbor was universally considered the most desirable improvement for the growth of the village, and no efforts were left untried to obtain it. Numerous petitions were sent to Congress each winter from every place in the vicinity; several hundred of them were on file in Washington. Three or four mass meetings were held from which memorials were sent to Congress. Scores of personal letters were written to congressmen; an agent was sent to Washington expressly for Racine every year for several years at an expense of $400 annually. During 1843 and 1844 the people of Racine and vicinity raised by subscription, tax, and loan the sum of $20,000 for harbor improvements.

A correspondent in the *Advocate* (Feb. 27, 1844) says, after lamenting the poor roads out of Racine; "But I care not for all this, provided the harbor enterprise is properly pushed. That completed, all evils of this kind will be remedied".

A Harbor Provided by Local Efforts

In 1840 and 1841, $2400 was expended in building a pier reaching out into the lake, and $6000 had been expended in temporary makeshifts before a serious attempt to secure an inner harbor was made. Before Congress could be induced to appropriate money for the Racine harbor, the people had carried the work to such a stage of advancement that on July 16, 1844, the *Advocate* appeared with a big rooster at the head of its editorial column, announcing the entrance of the first steamboat, the *Chesapeake,* into the new harbor. In a satirical article the editor says, "Be it ever remembered that this harbor has been built entirely by individual enterprise; not one cent of government money having thus far been expended upon it". He predicted that the advantages "will be greater and more various than the most sanguine have anticipated".

Shortly after the opening of the harbor the *Advocate* says:

"From 5 to 10 vessels can be seen at almost any time in our harbor, loading and unloading and there is scarcely an hour in the day but what there is to be seen one or more arrivals or departures at Racine." "On Wednesday afternoon last we counted eleven sails of vessels all lying in our harbor at the same time—one propeller, two brigs, seven schooners, and one sloop, besides several others that arrived and departed during the day."†

† In "Recollections of Early Racine," Wis. Mag. of Hist., Vol. 2, p. 438, June, 1919, Mr. Appleton Morgan says: "It was not until the outbreak of the Civil War or the year before, that Racine had a real harbor, when the

The great importance attached to lake transportation is brought out in a newspaper article of the time*, in which the writer refers to the lake steamer *Wisconsin* of 1200 tons burden which carried 600 tons of freight and 500 passengers 200 miles a day. He points out that a span of horses can draw one ton or 10 passengers 30 miles a day; but that the *Wisconsin* carries as much freight and as many passengers as a train of two-horse wagons 42 miles long could carry.

Character of Early Lake Traffic

The foregoing details are presented in order that the people of today may in some degree appreciate the extent to which Racine once relied upon the lake for its very life. There were no railroads in Wisconsin until after 1850 and scarcely a good road of any kind. Such roads as existed were well nigh impassable in wet weather and very bad at their best. Racine, like Milwaukee and Kenosha, was a child of the lake, and by the lake traffic it was nourished throughout its early life.

Table XXVII. *Value of Imports and Exports at the Port of Racine 1836–1851**

Date	*Imports*	*Exports*
1836	$52,835	$225
1837	49,895	1,000
1838	28,340	1,400
1839	52,920	2,000
1840	59,944	5,750
1841	108,898	25,041
1847	546,599	496,490
1849	757,000	630,950
1851	979,558	579,704

In 1842 the trade of the port was as follows†

Exports	*Imports*
800 bbls. flour	350 tons machinery, etc.
350 bbls. pork	850 tons household furniture
100 bbls. beef	175 tons merchandise
5,000 bu. oats	1,405 thousand shingles
20,000 lbs. dry hides	2,000 bbls. salt
20,000 lbs. lead	2,423,000 feet lumber
10,000 lbs. shot	
38,000 lbs. wheat	

government dredged the mouth of Root River and ran long jetties on either side out into the lake."

* Racine Advocate, March 28, 1844.

* Senate Doc. Serial No. 431; 28th Cong. 1st sess. 1843; Vol. 1, p. 156. (Trans. Wis. State Agr. Soc. 1851, p. 205).

† Racine Advocate, Dec. 28, 1842.

The following list of arrivals and departures is typical of the period around 1845.

TABLE XXVIII

	Week ending Oct. 7, 1845		Week ending Oct. 14,1845	
	Arrived	*Cleared*	*Arrived*	*Cleared*
Steamboats	10	11	11	10
Propellers	5	2	6	5
Schooners	3	4	3	1
Brigs	1	0	7	6
Total	19	17	27	22

The mouth of the river was opened to form a harbor in 1845, and soon warehouses sprang up along the water front. During the decade following 1850 there were eight such warehouses that handled wheat; a large and excellent grain elevator was erected, but it burned during one of the disastrous fires that have occurred at Racine. Imports greatly exceeded exports, for the settlers were clearing and breaking up the land and there was little surplus for export except wheat.

THE IMPORTANCE OF WHEAT SHIPMENTS

The high price of this grain ($2.10 a bushel) during the Crimean war in 1844–5 greatly stimulated production, and wheat pored into Racine and the other lake ports from the farms in an almost continuous stream during the autumns of those years.

The dependence of eastern Wisconsin upon lake transportation is reflected in the drop in the price of wheat locally when a shortage of schooners occurred in 1845. Prior to that, wheat was carried from Racine to Buffalo for 4 cents to 7 cents a bushel. In the fall of 1845 schooners at Racine were scarce; captains took advantage of the shortage and raised the rate to 15 cents a bushel and immediately wheat buyers in Racine reduced the price paid to farmers 7 cents a bushel, causing losses to individual farmers of several hundred dollars each.

In the period of 1850–70, Racine was an important port for the shipment of wheat. Writing of this period, Captain William Vance says: "I have seen from the river up Main St. and in other directions, for blocks, long strings of wagon loads of wheat—so many that some had to stand 15 hours to get unloaded"*. The wheat was brought in wagons drawn by horses

* Racine Journal, June 18, 1910.

and oxen, sometimes 100 miles. It is said that after the Racine and Mississippi Railroad was built, 100 cars of grain sometimes arrived at Racine in a single night.

Captain Easson, previously referred to, tells of seeing as many as 85 vessels of all kinds tied up in Root River for the winter, and of seeing as many as thirty vessels loading and unloading at one time.

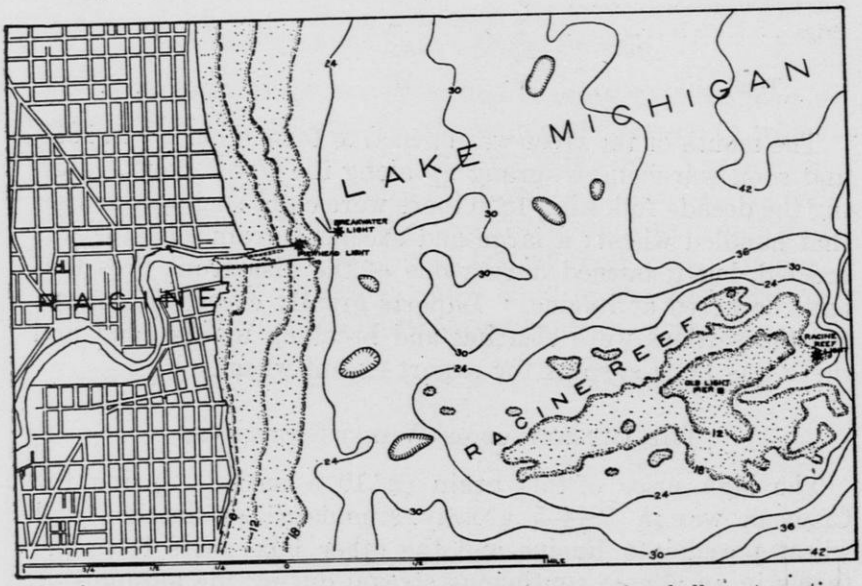

Fig. 62—Mouth of Root River and Racine Reef. On the shallowest portion of the reef, the water is only about 7 feet deep; figures indicate depth of water in feet. The origin of the reef has not been determined. (Based upon chart by U. S. Lake Survey.)

Progress After 1850

Up to 1854 the channel from the lake into the river seldom exceeded 6½ feet in depth. During that year it was dredged to a depth of 8 feet, adding materially to the value of the river mouth as a harbor; but it was impossible to keep the sand from drifting in, and the bar at the mouth re-formed about as fast as it was dredged away. Nevertheless, the commerce of the port grew rapidly. In 1855 imports reached $3,348,000, and exports $686,496, a total commerce of over $4,000,000; ten years before it was only $53,000. Imports still greatly exceeded exports. During this period 26 sailing vessels were enrolled at Racine as their home port; they consisted of 18 schooners, 5 brigs, and 3 sloops. The river mouth was a busy

place; during the 306 days of open navigation in 1855, 2768 vessels arrived at Racine, an average of nine a day.

The shipments from the port consisted almost wholly of farm products*; the leading items in 1855 being:†

Threshing Machines, 128, valued at	$41,600
Brick, 4,401 M, valued at	22,005
Wood, 6,208 cords, valued at	21,728
Beef, 2,231 barrels, valued at	30,303
Butter, 3,122 firkins, valued at	36,247
Barley, 34,571 bushels, valued at	38,138
Oats, 73,714 bushels, valued at	29,485
Flour, 20,708 barrels, valued at	165,664
Wool, 281,255 lbs., valued at	140,627

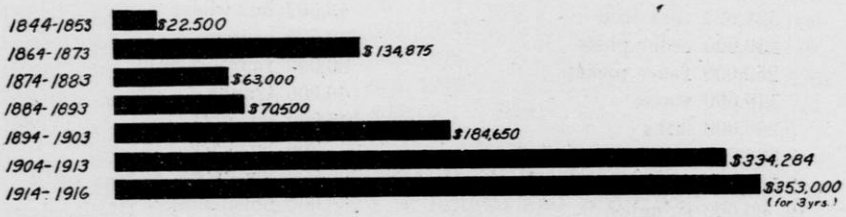

Fig. 63—Diagram showing U. S. appropriations for the improvement of Racine harbor. Note that appropriations for 1914–16 were more than the total for the 50 years 1844–93.

The Port of Racine From 1860 to 1880

In 1855 Racine was connected with Chicago by railroad. From this time on to the close of the Civil War the traffic of the port continued to rise, but the railroads absorbed an ever increasing proportion. From 1866 to 1870 the government appropriations for the improvement of the harbor were especially generous, totalling about $100,000. Both of the piers were lengthened to over 1000 feet and were largely rebuilt; extensive dredging was done, giving the channel a depth of 10 feet or more. Wheat, corn, flour, and oats were the main items of export. In 1868 the imports and exports had a combined value of $6,700,000. The number of vessels arriving and departing was gradually decreasing as larger steamships re-

* The official report from which the list of exports is taken does not include wheat; this was probably the largest item of all. In 1855 Kenosha shipped over $1,000,000 worth of wheat, and the shipments from Racine must have been still larger.

† Exec. Doc. No. 16, 3rd sess. 34th Cong. Vol. 5, p. 197, Serial No. 878.

placed sailing vessels, but the commerce of the port continued to increase. Large quantities of general merchandise continued to come by boat, but the tonnage was most largely made up of lumber, shingles, and other forest products from Michigan and northern Wisconsin.

TABLE XXIX. *Principal Imports and Exports at Racine, 1873 (Partial List)*

Receipts by Lake	*Shipments by Lake*
2,000 telegraph poles	3,000 pumps
2,000 cords tan bark	1,200 threshing machines
15,000 bbls. salt	1,000 tons ground feed
20,000 wagon hubs	1,000 bbls. flour
60,000 railroad ties	1,000 bbls. beef
24,251 tons coal	2,000 bbls. pork
120,624 tons iron	43,507 bu. wheat
250,000 cedar posts	12,500 wagons
250,000 fence pickets	20,000 fanning mills
149,000 staves	40,000 trunks
5,200,000 laths	148,590 bu. oats
2,300,000 ft. square timber	207,200 bu. corn
2,500,000 ft. hard wood lumber	400,000 lbs. wool
12,000,000 shingles	280,000 bbls. lime
38,800,000 ft. lumber.	200,000 shawls and woolen pads
$216,000 hardware	100,000 doz. eggs
$804,000 groceries	10,000,000 brick
$150,000 boots and shoes	
$776,000 dry goods	
Total estimated value, $7,694,159.00	

In addition to the arrival of nearly 1000 steam and sailing vessels during 1873, two or three regular steamers stopped each day; these were passenger and freight boats plying between Chicago and Milwaukee or Chicago and some eastern city.

THE PORT SINCE 1880

In 1881 arrivals were 618 sailing vessels and 552 steamboats. Coal, which later became the principal import, had not yet risen to importance, and manufacturing on a large scale in Racine had not begun.

In 1888 the 13-foot channel was deepened to 17 feet in order to accommodate the ever-increasing size of lake steamers; but the channel soon filled with sand and was again and again dredged. In 1893 it was still only 16 feet deep. From 1890 to 1910 the government appropriated large sums for harbor improvement at Racine.

TABLE XXX. *U. S. Appropriations for Racine Harbor 1844–1916**

1844	$12,500	1886	$10,000
1852	10,000	1888	10,000
1864	3,600	1890	17,500
1866	23,910	1892	25,000
1867	45,000	1894	20,000
1869	22,275	1896	27,000
1870	10,000	1899	50,000
1871	10,000	1900	67,650
1873	20,000	1902	20,000
1874	10,000	1905	36,284
1875	10,000	1907	50,000
1876	8,000	1909	5,000
1878	10,000	1910	243,000
1879	6,000	1914	3,000
1880	6,000	1915	150,000
1881	6,000	1916	200,000
1882	7,000	1919	8,022
1884	7,000	Total	$1,169,741

The outer harbor is enclosed by two breakwaters, respectively 2840 feet and 3410 feet in length and affording 50 acres of water surface. The government channel is 2300 feet long and leads from deep water in the lake to the mouth of the river. This is dredged to a depth of 21 feet at government expense, but the commercial harbor within the mouth of Root River is dredged at private or municipal expense.

In later years the character of the receipts and shipments has undergone a radical change. Wisconsin and Michigan are no longer important producers of lumber, and the forest products, which made up the bulk of the receipts at Racine in the years from 1870–1900, have practically ceased to come. The two daily steamboats between Chicago and Milwaukee bring package freight to Racine, but this is only a small fraction of what arrives by railroad. In the seventies great numbers of threshing machines, wagons, fanning mills, trunks, and other products of the city's factories were shipped by lake. Such shipments are now exceptional; in 1915 the only reported items shipped by lake from Racine were grouped together and called "miscellaneous merchandise" or "package freight," the total weight of which was only 20,585 short tons, valued at $2,717,000; this was less than the shipments 50 years before. Receipts by lake have always exceeded shipments, mainly because heavy products like lumber and coal can be brought

* Index to Reports, Chief of Engineers, U. S. Army.

in cheaply in full cargoes. In 1915 the commodities received by lake were ten times as great in weight as were the shipments, but coal made up 8/9 of the total; coal receipts amounted to over 200,000 tons, while all other commodities received amounted to only 23,421 tons.

The records of the present deputy collector of the port are complete since 1898. Taking June as a sample month arrivals have been as follows:

TABLE XXXI

	Steamers	Schooners		Steamers	Schooners
June 1898.....	153	43	June 1909.....	121	14
1899.....	122	66	1910.....	127	11
1900.....	140	4	1911.....	147	7
1901.....	140	29	1912.....	126	5
1902.....	139	21	1913.....	130	6
1903.....	130	33	1914.....	163	7
1904.....	125	25	1915.....	155	3
1905.....	166	12	1916.....	182	1
1906.....	211	6	1917.....	127	0
1906.....	211	6	1918.....	55	0
1907.....	126	11	1919.....	70	0
1908.....	147	16			

In June 1898, boats bringing cargoes to Racine were as follows:

Loaded with lumber	20
Loaded with wood	23
Loaded with cedar posts	1
Loaded with coal	10
Loaded with salt	1
Light	4
	59

These were mostly schooners. The total arrivals amounted to 196; 137 were steamers that carried package freight and passengers and stopped regularly at Racine.

In June, 1908, the arrivals totalled 147; of these

7 boats carried wood	5 boats carried lumber
3 boats carried stone	16 boats carried coal

PRESENT IMPORTANCE OF THE HARBOR

By 1917, schooners had practically ceased to arrive; and in June, 1919, only 70 steamers, nearly all being either cargo steamers bringing coal or the daily boats between Milwaukee and Chicago bringing package freight. The largest cargo brought into the harbor in 1919 was 6000 tons of coal; most of

the coal boats bring 1000 to 3500 tons. The self-unloaders unload 5000 tons in four hours, and charge $50 an hour demurrage for delays.

During the European war receipts by Lake declined somewhat, but shipments increased. In 1917 the port shipped out 36,853 tons of freight, which was double the amount shipped in 1913. The shortage of railroad cars and the higher railway rates caused Racine manufacturers again to use the lake as they had done a generation earlier; in 1917 the lake shipments from the city included 2212 tons of machinery and 1685 tons of iron castings. During the following two years, however, conditions gradually returned to a peace-time basis and shipments from the port again declined.

It seems evident that receipts by lake are likely to be confined to two groups of commodities; package freight which comes daily from Chicago or Milwaukee, and coal which comes from ports on Lake Erie. The package freight comes by boat chiefly because the latter gives quicker service than the railroads give. A manufacturer or dealer in Racine can order articles from Chicago and can get them the following day, or possibly the same day, by lake steamer, while the railroad is likely to require two or three times as long. This comes about from the fact that the steamboat does a very small business as compared with a railroad and can give prompt attention to this small business. The rates on package freight from Chicago are practically the same by water as by rail. It is not a saving in cost but a saving in time that is secured by using the lake boats.

In spite of the continued improvement of the harbor by the U. S. Government and in spite of the fact that the government appropriated nearly as much for the harbor in 1916 alone as it appropriated during the first 40 years (1844–1884), the harbor traffic, except for coal, has become a small item in the city's business life. Nearly half of all the money expended on the harbor by the U. S. Government has been expended in the last ten years, yet with the exception of an increase during the European war, the harbor traffic has formed a diminishing proportion of the city's receipts and shipments.

Hard coal is produced only in Pennsylvania, and the saving in freight on this coal is nearly two dollars a ton as compared with railroad charges. Soft coal, however, is mined in many of the states near Wisconsin and can be obtained more cheaply from Illinois or Indiana by rail than from Pennsylvania or West Virginia by combined rail and lake. As an illustration,

the main plant of the J. I. Case Threshing Machine Company is on the Root River near its mouth, yet the coal-carrying steamers cannot actually tie up at a suitable place for unloading coal directly at the Case plant; the coal would have to be hauled a short distance in wagons. This added cost of hauling makes it more expensive to get coal by boat than to get it by rail from Illinois, and the J. I. Case Company, though located on the water front, is getting all its coal by rail (1919).

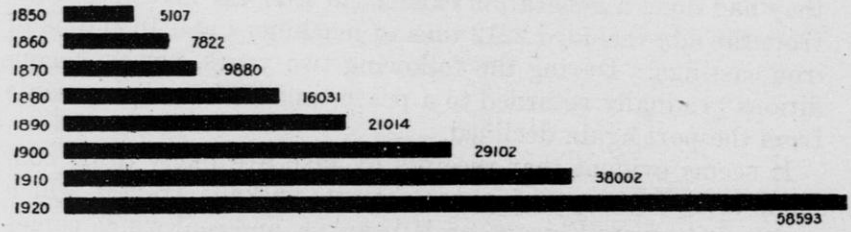

Fig. 64—Growth of population in the City of Racine, 1850 to 1920. The growth in the decade 1910–1920 nearly equaled the total population of 1890.

The Company's new south plant is on the lake shore, yet coal cannot be unloaded there from boats because there are no docks and all of the coal for this plant is also obtained by rail. While coal is the only item received in large quantities at Racine by lake, the amount is diminishing, while the amount received by rail is increasing. There is no doubt that the city still derives benefit from its harbor and its water connections, but that benefit is a smaller and smaller factor in the business life of the city. For many years the harbor was without question the most important advantage possessed by Racine, just as it was in the case of Chicago. But Chicago long since passed the point where its water connections were a significant factor in its business life. The same change is in progress in Racine.

TABLE XXXII. *Traffic Movements at the Harbor of Racine 1913–1917**

Shipments	Tons	Value	Receipts	Tons	Value
1913. Package frt.	18,584	$2,300,000	Package frt.	28,951	$4,500,000
			Coal	185,000	740,000
1914. Package frt.	13,147	1,643,375	Package frt.	25,191	3,778,650
			Coal	179,000	727,000
1915. Package frt.	20,585	2,717,600	Package frt.	23,421	3,513,150
			Coal	200,000	700,000
1916. Package frt.		1,725,000	Misc. mdse.		4,131,000
Iron castings		1,300,000	Coal	198,000	805,000
Machinery		875,000	Man'f'd iron	72,000	727,000
Butter		237,000			
1917. Misc. mdse.		3,249,000	Misc. mdse.		4,540,000
Machinery		2,212,000	Brass bars		3,868,000
Iron castings		1,685,000	Coal	164,000	976,000
			Man'f'd iron		698,000

* From Ann. Reports, Chief of Engineers, U. S. Army.

TABLE XXXIII. *Vessel Movements at Racine Harbor 1913–1917**

	No. of Vessels arriving	*Net reg. tonnage of vessels*	*Passengers brought†*
1913	1,427	1,108,687	957
1914	1,617	1,167,214	1,422
1915	1,850	1,269,498	6,261
1916	1,855	1,506,315	7,950
1917	1,288	1,228,327	8,065
1918	1,299	1,242,361	3,111
1919	759	994,239	2,269
1920	715	840,887	2,269

	Shipments		Receipts	
Year	*Short Tons*	*Value*	*Short Tons*	*Value*
1913	18,584	$2,300,000	229,153	$5,339,000
1914	13,147	1,643,000	207,978	4,554,000
1915	20,585	2,717,000	226,856	4,284,000
1916	26,416	4,275,000	241,245	5,780,000
1917	36,853	7,595,000	210,300	10,251,000
1918	37,240	8,074,096	228,424	9,470,118
1919	13,038	3,196,300	220,766	7,474,560

MANUFACTURING INDUSTRIES OF RACINE

EARLY INDUSTRIES. During the first quarter century Racine's interests centered in trade rather than in manufacturing. The vigorous industrial life which now characterizes the city scarcely began until 1880, though some of its largest manufacturing concerns date further back. Manufacturing develops slowly in a pioneer community, for such a community cannot supply the capital, the skilled labor, or the managers needed for large enterprises. Furthermore, the purchasing power of the pioneers is small and transportation is lacking. All of these conditions retard the growth of manufacturing, and only the small-scale industries, which are carried on in a simple way and supply the needs of the immediately surrounding country, are practicable.

* From Ann. Reports, Chief of Engineers, U. S. Army.

† Mostly excursionists.

Even the pioneer settlement, such as Racine was in the years from 1840 to 1850, quickly demands a few simple manufactures which must be made near at hand. The saw mill and the flour and grist mill are the first to spring up. In the winter of 1834–5, the year of Racine's beginning, a little saw mill driven by a water wheel was built at the rapids of Root River where water power was available. Small as it was, this water power was regarded as a great boon by the early settlers on Root River. The editor of the village paper, boasting of the advantages of the place in 1838 says: "The River, a short distance from the village, affords an immense water power. Five saw mills and one grist mill have already been erected on it"*.

The "immense waterpower" proved a disappointment, for in 1851 the citizens made an offer of $2000 to any person or persons who would build and put into successful operation a steam flouring mill within one year.

A little iron foundry was started in 1844. Thus the village had the three most needed industries—saw mills, grist mill, and iron foundry. Other small industries were started from time to time, but the life of the place centered more in its port and in trade than in manufacturing.

The back country was rapidly filling with settlers who required farming tools, lumber, furniture, groceries, drygoods, salt and other supplies, most of which had to come from the East by boat. The settlers for miles around had to journey to Racine or the other ports to make their purchases. Merchants in the inland settlements such as Rochester, Burlington, and as far west as Elkhorn, Delavan, and Janesville, secured their goods through Racine, Kenosha, or Milwaukee. Moreover, the surplus wheat, pork, hides, and other products of the farms came to the lake ports for shipment eastward. It was perfectly natural that early Racine should throw her energies into trade rather than into manufacturing.

The beginnings of large industries

The greatest of Racine's manufacturing plants dates from 1844, when Jerome I. Case built his first threshing machine in Racine. He had been experimenting with improvements on these machines in the village of Rochester, Wis., from which place he came. A few years later (1855) another of the city's great industries began—the Mitchell and Lewis wagon factory

* The Racine Argus, March 10, 1838.

which grew from a small shop to a vast establishment, and finally became the Mitchell Motors Co., manufacturers of automobiles. Another wagon-making establishment started in 1862 and gradually grew into one of Racine's greatest plants,—the Fish Brothers' wagon factory.

Manufacturing, 1850 to 1860

In 1855 the Racine "Board of Trade" prepared a list of the city's manufacturing industries from which the following partial list is made up:*

Articles	*Value*
Flour and meal	$159,575
Steam engines and boilers	113,200
Barrels	89,972
Threshing machines and horse powers	83,490
Iron castings	68,200
Boots and shoes	63,093
Tanneries	62,500
Clothing	46,047
Doors, sash and blinds	45,675
Carriages and wagons	45,116
Ship building	33,285
Soap and candles	32,855

The Racine Directory of 1858–9 gives the following list of manufacturing plants in the city. Most of these were small; even the larger ones employed only 10 or 12 men.

Table XXXIV

Industry	*Number of establishments*	*Industry*	*Number of establishments*
Agricultural implements	1	Lightning rod makers	3
Blank books	2	Lard oil maker	1
Boat builder	1	Pail maker	1
Boiler maker	1	Planing mills	2
Boot and shoe shops	10	Plow maker	1
Breweries	10	Reapers and mowers	2
Brick makers	2	Saw maker	1
Churn makers	2	Segar maker	1
Carriage and wagon makers	3	Ship builder	1
Fanning mill maker	1	Tanners and curriers	2
Flour mill	1	Threshing machine makers	2
Iron foundries	4	Trunk makers	2

* Wisconsin and the City of Racine, by Witbeck and Rowley, Racine, August, 1856.

The flour mill had a capacity of 200 barrels a day, and the larger of the planing mills employed as high as 20 men and did a business of some $20,000 a year.

Growth of manufacturing between 1860 and 1870

The U. S. Census of 1860 reports only 132 manufacturing establishments in Racine County, employing in all 807 people, or an average of 6 for each establishment. The total value of manufactured products in the entire county was in 1859 only $1,312,763. It is probable that at least $1,000,000 of this belongs to the city of Racine. At the outbreak of the Civil War the value of all the products manufactured in the city did not equal the value of one week's production at present (1920).

The population of the city grew but little during the Civil War decade, rising from 7822 in 1860 to 9880 in 1870. Racine had been 35 years in attaining a population of 10,000.

The J. I. Case Company was growing rapidly, in 1860 producing 300 threshing machines; in 1865, 500; and in 1870, 1300. In 1879 the capacity of the plant reached 2500 separators and horse powers and 300 heading machines. The capital stock was $2,000,000, and 500 men were steadily employed. This company gradually took on the manufacture of other kinds of machinery as well as threshers.

Next in importance to the manufacture of threshing machines was the manufacture of wagons and carriages. At about the same time, the manufacture of fanning mills became an industry of importance, and Racine grew into one of the chief centers of this industry in the entire United States. At various times there were from six to ten firms engaged in this line of manufacturing, and as high as 10,000 fanning mills a year were made.

It will be seen that the lines of manufacturing which prospered most were articles designed for farm use. Wood was the chief material used. Both of these facts are the logical outgrowth of Racine's position in the region of hardwood forests —oak, hickory, ash and maple—and of her position in a rapidly developing agricultural region.

In these particulars, Racine's manufacturing followed the course which early manufacturing nearly always follows: namely, making things of the raw materials which the region furnishes and making them into articles which the surrounding region demands. As time goes on and transportation facilities

improve, an ever greater diversity of products follows and the city gathers its raw materials from many parts of the country and from foreign countries, and sells its products widely; but this is a more advanced stage, the stage which Racine has now achieved.

Besides the foregoing lines of manufacturing which were the largest, several other lines had a noteworthy growth, among these were tanneries. While Racine never approached Milwaukee as a tanning center, it has had large tanning interests even down to the present. The city directory of 1872 enumer-

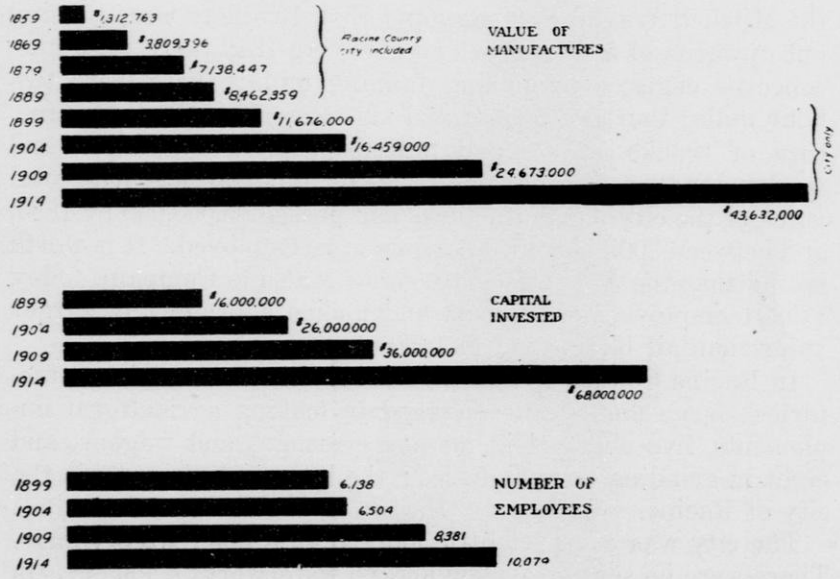

Fig. 65—Diagram showing value of manufactured goods, capital invested in manufacturing, and number of employees in Racine in various census years.

ates eleven tanneries, but they were practically all small ones. In 1888, the number had declined to four; in 1901 to three; and since 1904 there has been but one, although that one now does a larger business than the eleven did in 1872. Woolen goods also formed one of the important products of the city for many years.

In 1870 the manufacturing industries had doubled as compared with 1860, yet the total number of persons employed in manufacturing was between 1200 and 1500, and the value of manufactured products was somewhat over $3,000,000. The city now has several plants each of which manufactures more than the whole city did in 1870.

Growth between 1870 and 1880

The J. I. Case Threshing Machine Company has always been the largest plant in the city. In 1870 it employed about 300 persons and made 1300 machines. In 1872 its business reached a million dollars.

During the decade of 1870–1880 many new plants were established: among them the Horlick's Malted Milk Company, makers of Racine's most widely known product; a cotton batting factory; two sash, door, and blind mills, a planing mill, two plow works, and two wagon and carriage factories. Both the Mitchell Wagon Company and Fish Brothers were turning out upwards of 5000 wagons a year. In 1879 there were nine concerns engaged in making fanning mills; there were two flour mills; four breweries; and six tanneries. The manufacture of trunks, gloves and mittens, soap and candles, and woolen goods were other industries of importance. The total value of the city's manufactures had passed $5,000,000 by 1880, and between 3000 and 4000 persons were employed. It is worth noting that the J. I. Case Threshing Machine Company today (1920) employs more people and makes a product of larger value than all Racine did in 1880.

In Racine County at this time (1880) there were eleven factories—large and small—engaged in making agricultural implements, five engaged in making carriages and wagons, and eight in grinding flour and feed; the latter mostly outside the city of Racine.

The city was even yet little more than a good sized village. There were no sewage system and no waterworks. The streets were cleaned twice a year, usually by tramps, and the job was poorly done. Ashes were deposited on the streets, and public sanitary conditions were neglected. The police force consisted of a chief and six patrolmen, each paid $50.00 a month. The total cost of the police force in 1880 was $4,200.

The decade between 1870 and 1880 marked the beginning of the city's more rapid expansion in population and industry; 6000 people were added to the population during the ten year period.

Rapid expansion between 1880 and 1900

During the ten-year period (1880–1890) 5000 more were added to the population, bringing it to 21,014. In 1890 the city had 190 manufacturing establishments (though many of them

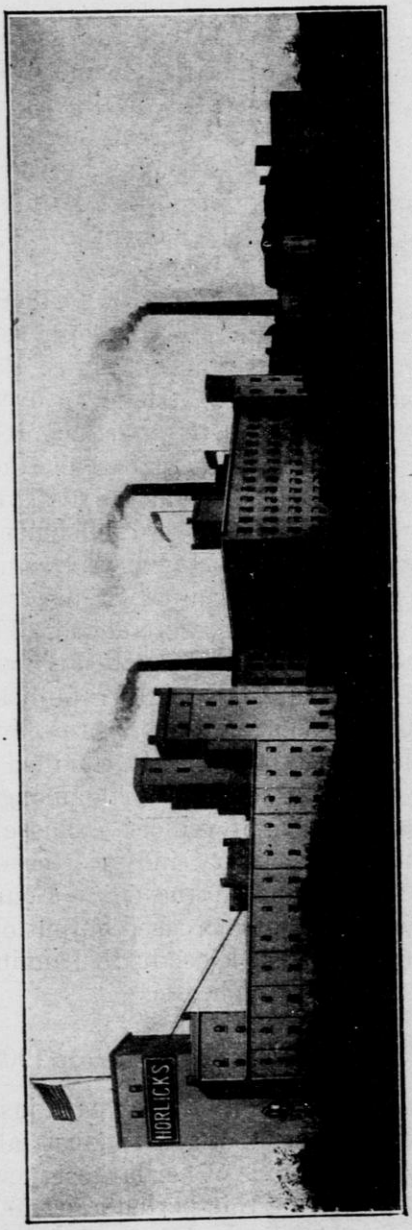

Fig. 66—Plant of the Horlicks Malted Milk Co., Racine.

were only small shops) which employed 5000 people and turned out products valued at $8,500,000. The manufacture of agricultural machinery, wagons, and carriages, was still the dominant industry; eleven establishments were engaged in making agricultural machinery. Racine was still engaged mainly in supplying the needs of the farms of Wisconsin and adjoining states. There were four tanneries employing in all 99 hands. Tan bark was still coming by lake schooners from the forests of northern Wisconsin and Michigan. Racine had reached the position which she has since held, that of the second manufacturing city of Wisconsin.

The growth in population from 1890 to 1900 was the largest of any decade up to that time; 8000 people were added, bringing the city up to 29,102. The output of Racine's factories and mills increased nearly 50%, rising to over 11 million dollars in 1899. Nearly one-fourth of the people of the city were engaged in some sort of manufacturing, and the yearly pay-roll had reached $3,000,000—as much as the total value of all manufactured products in 1870. Nine establishments were engaged in making farm machinery, including threshing machines, and Racine ranked third in the United States in this field; only Chicago and Springfield, Ohio, were ahead. The value of agricultural machinery made in 1900 equalled the value of all manufactures thirty years earlier. Eight establishments were engaged in making carriages and wagons of every description and their total value ($2,750,000) nearly equalled that of agricultural machinery. Racine ranked fourth among the cities of the Union in the manufacture of vehicles. These two lines of industry—agricultural machinery and vehicles—made up nearly half of the manufacturing of the city. Four tanneries still continued with a somewhat increased output of leather. During this period (in 1897) the Eisendrath Tanning Company, the only tannery now in the city, began.

Manufacturing in the years from 1900 to 1920

Throughout the United States, the years just preceding and following 1900 were a period of great industrial expansion. In this Racine shared, and some of her largest new industries date from these years. During this period a greater diversification of manufacturing took place. Up to about 1900 Racine was notably engaged in making articles for the agricultural Middle West. Following this date many entirely new lines of industry were added, some coming to the city from elsewhere, but still

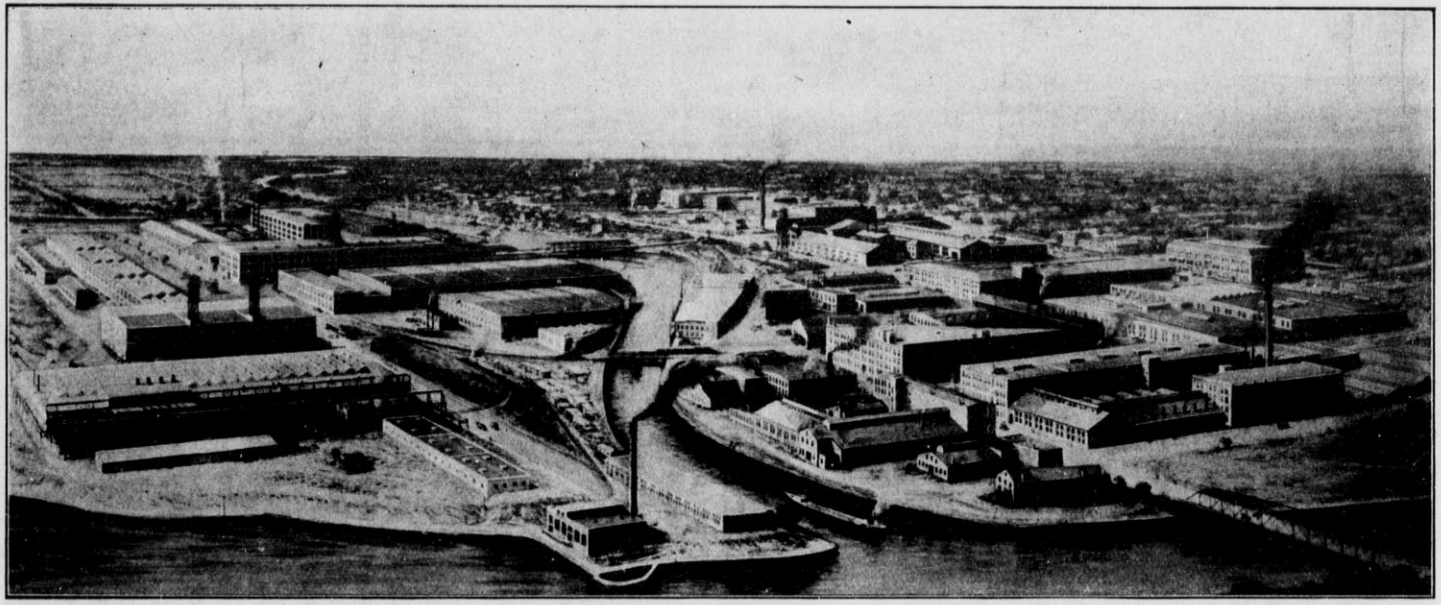

Fig. 67—In this drawing the different groups of buildings belonging to the Racine plants of the J. I. Case Threshing Machine Company are brought together. This is the largest and one of the oldest industries of Racine.

more being off-shoots of older industries, just as the automobile plants have grown out of the wagon and carriage factories, and the Case tractors have grown out of the Case traction engines.

The making of boots and shoes, which had always been represented among the city's manufactures, had grown to an industry of $850,000 in products, made in five factories.

After 1900 the U. S. Census made a change in its reports on manufacturing, omitting very small shops, and certain other forms of industry which had formerly been classed as manufacturing. Under the old classification, Racine had 252 manufacturing establishments producing $12,502,796 worth of products. Under the new classification, there were only 135 establishments producing $11,676,000 worth. The latter figures are to be used in comparisons with later census years (1904, 1910, 1914).

TABLE XXXV. *Racine Industries in 1900**

Large industries	*Number of employees*
Alshuler garment company	175
Am. School furniture company	225
Badger Mfg. Co. (army supplies)	145
Belle City Malleable Iron Co	268
J. I. Case Threshing Machine Co	914
J. I. Case plow works	400
Fish Brothers wagon company	245
Freeman boiler factory	250
Hartman Trunk Co	150
Higgins Spring Company	125
Horlick Food Co	229
Lake Side Malleable Iron Co	150
Miller Co. (boots)	319
Mitchell & Lewis Co. (wagons)	430
Racine Boat Co	100
Racine Wagon and Carriage Co	625
Racine Woolen Mills	100
Racine Malleable & Wrought Iron Co. (hardware)	325
M. M. Secor—trunks	100
Shoop's Family Medicine Co	200
Wisconsin Wheel Works (bicycles)	150
Total for city	7,365

From 1899 to 1904 the city increased its number of manufacturing plants from 135 to 148; the number of employees

* State Bureau of Labor Statistics 1900, p. 1146.

made only a small growth, but the amount of capital invested rose from 16 million dollars to 26 million dollars, and the value of products jumped 5 million dollars, to $16,459,000. We have now reached the period of Racine's greatest expansion in manufacturing. From 1904 to 1914 the number of persons engaged in manufacturing increased to over 13,000, or 60 per cent. Capital invested increased to 68 million dollars, a growth of 162 per cent in a single decade. The value of products rose from 16½ millions to 43½ millions, or 170 per cent. The growth in the 10 years following 1904 was very much more than the entire increase in the previous 70 years. Racine had become a city of large and diversified industries. It had forgotten that its lake commerce had ever been its chief interest. It had passed the day of small things and was developing into one of the industrial centers of the Middle West. Official statistics of its progress since 1914 are not yet obtainable, but dependable estimates are; these indicate that the growth not only is continuing but is going forward even more rapidly.

Racine in 1920

During the European war, and the years immediately following, Racine's manufacturing plants were pushed to their utmost. Many of them made extensive additions. New plants were established and the output of manufactured products went upward at a rate never before equalled. The records of the Chamber of Commerce, based upon its own census of industries, contains about 100 factories of considerable size, and the number of employees as given by the companies themselves totals about 20,000. Competent judges believe the value of manufactured products has more than doubled since 1914, which was a year of relatively low prices. On this basis, Racine's manufacturing output may be estimated at 90 million dollars in 1919. These figures must, however, be regarded only as an estimate until the official U. S. Census figures are announced. The U. S. Census of 1920 gives the city a population of 58,593.

Character of the manufactures

An analysis of the city's industries shows that metal products lead all others. The manufacture of castings, forgings, machines, and machine parts, employs over 30 establishments. Eighteen establishments are engaged in making auto and other

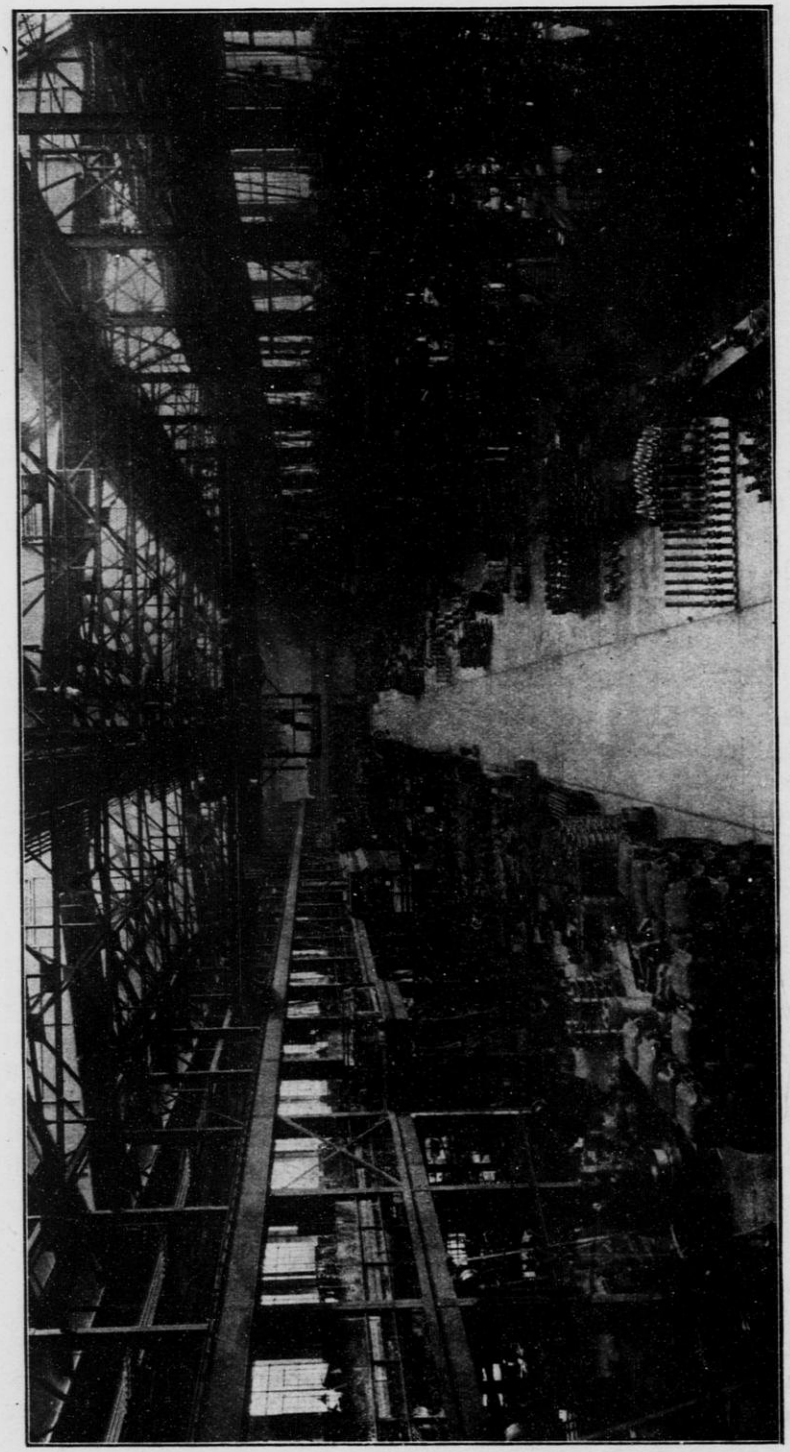

Fig. 68—Interior view of the great machine shop of the south plant of the J. I. Case Threshing Machine Company, Racine.

vehicles and parts. Thirteen are engaged in making agricultural implements and machinery; seven in making leather or metal shoes; six in making electrical goods; six in making planing mill products; five in making tractors and engines; four in making trunks and satchels; and a score or more of large plants in making various specialties. In addition, there are such important plants as the Horlick's Malted Milk Company, the Eisendrath tannery, and the shirt factories. The largest plants in the city are the J. I. Case Threshing Machine Company employing about 4500 people and producing a large variety of products, including tractors and automobiles; the Mitchell Motors Company employing 2500; the Racine Rubber Company employing upwards of 1500 persons; the Racine Auto-Tire Co., employing 700 persons; and the Racine Manufacturing Co., (automobile bodies) employing nearly 1000 persons.

From its early days, Racine has specialized in agricultural machinery and vehicles, and they still lead, though greatly changed in character. Many of the big and stable industries have grown up from small shops in the city, and are owned and managed by Racine families. The products are notably those in which skilled labor is employed and notably those in which labor constitutes a very high proportion of the final cost. They are highly wrought and highly finished products, as distinguished from such products as flour, rolled steel, common textiles, malt liquors, etc., in which the skill and genius of the workman play a small part.

It would be interesting to trace the development of several of Racine's manufacturing concerns, but one must suffice.

THE J. I. CASE THRESHING MACHINE COMPANY. This industry, the J. I. Case Threshing Machine Company, goes back to the little village of Rochester, Wis., and even back to New York State whence Jerome I. Case came, bringing with him six small threshing machines, five of which he sold, and one of which he himself, a practical thresher, used in Racine County. He improved upon these machines and began making them in a small way in a little shop in Racine in 1844. Five years later he erected a three-story brick building, a large factory in those days. By the early seventies the company was making a million dollars' worth of machines a year. New machines were constantly added to the list of products; traction engines of various types, steam rollers, rock crushers, ensilage cutters, gang plows, tractors, and automobiles. By 1916 the plant covered 60 acres and the property in Racine had a value of $10,-

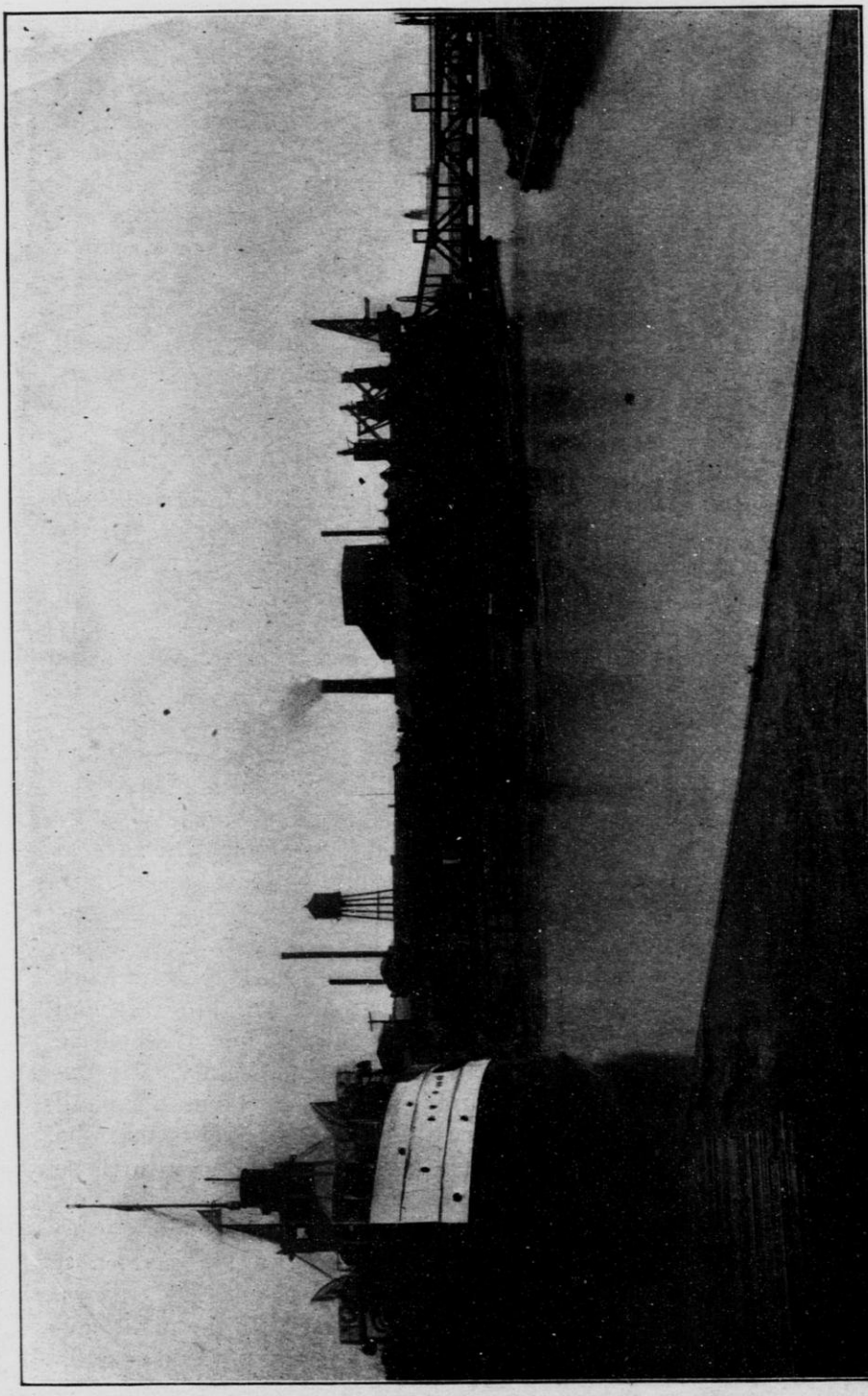

Fig. 69—The mouth of Root River which forms the harbor of Racine.

000,000. All of the available space by the river was occupied and large new structures were erected south of the city. Now the works cover 140 acres, and about 4500 people are employed (Figs. 67 and 68). Tractors are at present the leading product; 40 to 50 carloads of them are sometimes shipped at once, and the annual output has reached 15,000 (1919). The company has a branch plant at Dixon, Ill., and 4 branch houses scattered over the world and the Case products are sold by 9000 dealers. In 1919 the total sales of the company reached the great sum of $32,000,000; and the J. I. Case Plow Works sold $10,000,000 worth of its products in addition. The latter company is now affiliated with the Wallis Tractor Co., and together they employ about 1800 men.

BURLINGTON

Burlington was settled in 1835–6 by a group of Vermonters. They called the settlement Foxville and the first postoffice (1837) bore that name, but later it was changed to Burlington in honor of Burlington in their native state. The particular site was selected because of the water powers of the White River and of the Fox River which unite at this point. A small saw mill and a grist mill were quickly erected, and in 1838 a lime kiln was started. The first woolen mill in Racine County was built at Burlington in 1843. The so-called "big mill" a flour mill four stories high and having three runs of stones, was built in 1846. This burned, as did its successor; then a stone mill was erected and became one of the famous flour mills of the region. Flour from this mill was shipped to eastern markets and even to Europe.

Early Importance of the Woolen Industry

The woolen mill, like many of the mills of the early days, utilized wool grown in the vicinity and brought to the mill by the farmers who produced it, and who took in part payment some of the yarn and cloth made from their own wool. A large part of the yarn and cloth was used by the people of the surrounding region. The middlemen who take so large a part in modern transactions were few in the pioneer days. Today wool is brought from Australia, Argentina, or South Africa, passes through the hands of two or three brokers and dealers before

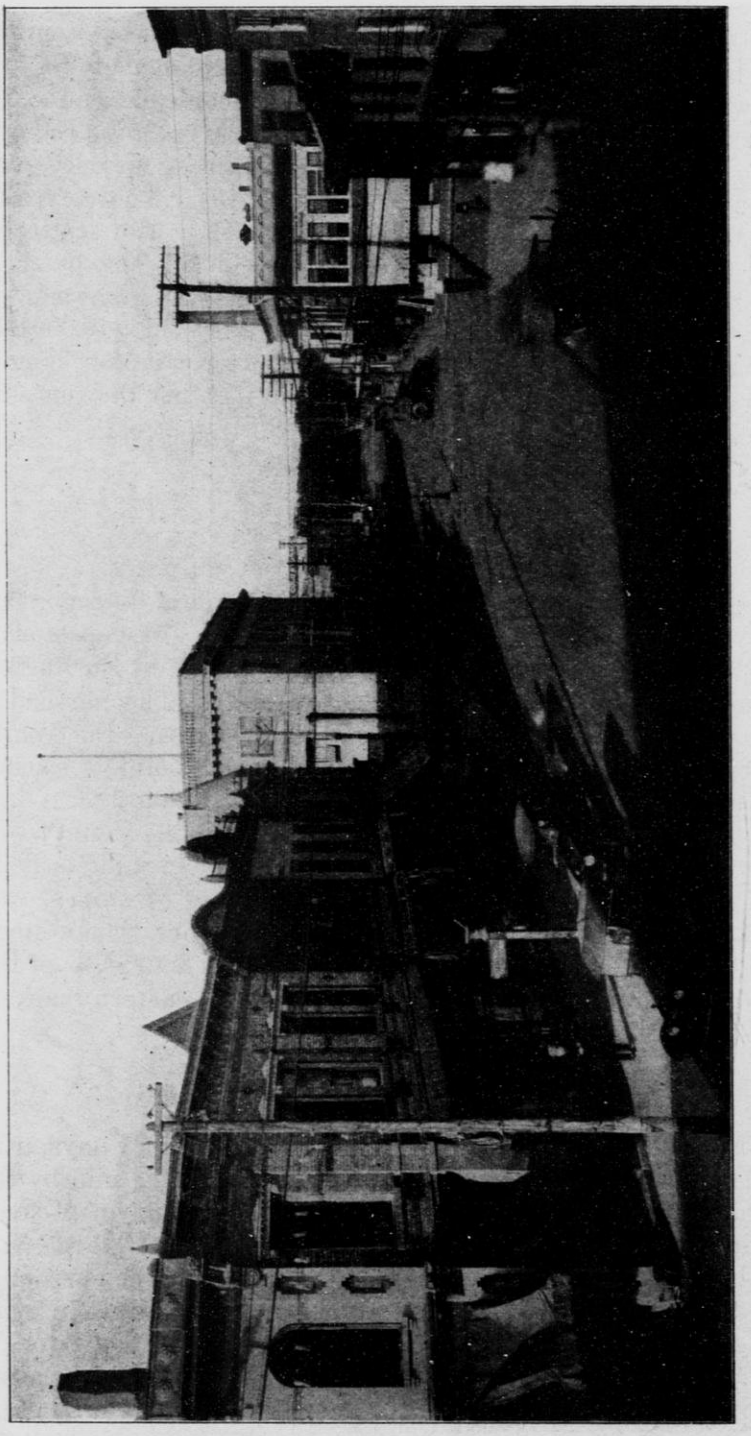

Fig. 70—Scene in the business section of Burlington, 1920. The population of the city in 1920 was 3,626.

it reaches the mill, and after the cloth is manufactured it passes through as many more hands before it reaches the final wearer. At its height, the mill at Burlington used from 75,000 to 100,000 pounds of wool annually. At one time (1851) there were two woolen mills in the village. In the period between 1850 and 1880 sheep-raising was one of the most important industries in southeastern Wisconsin. In 1850 Racine County had about 10,000 sheep; in 1889 it had 48,000. Now (1919) there are only 3500. The five southeastern counties raised half of the sheep of the state in the period around 1860. The rise of dairying brought a great decline in sheep raising. Burlington was an early trading center of considerable importance because of important roads which passed through it, including a branch of the plank road from Racine.

The Railroads Give a New Impetus

The great event in the earlier history of Burlington was the coming of the Racine and Mississippi Railroad in 1855; for a time the place enjoyed something of a boom but declined after the Civil War. In 1886 it was incorporated as a village with a population of 1744. In 1888 the Wisconsin Central Railroad, now the Soo Line, passed through Burlington and gave new impetus to the town. It grew slowly, however, and when incorporated as a city in 1900, it had a population of about 2500. By this date quite a number of industries were located in the city; the largest of these were the Burlington Blanket Company employing over 100 persons and the Wisconsin Condensed Milk Company employing 70 persons. A little later (1905–6) the blanket company employed nearly 200 persons; the Burlington Brass Works employed 35, and the Multiscope and Film company employed 25; a total of 360 persons were employed in manufacturing. In 1910 the number had increased to 475, including the following:

Industry	*Employees*
Blanket Company	133
Condensed Milk Co.	86
Brass Works	61
Basket and Veneer Company	27
Brewery	19
Brick and Tile Co.	18
Cigar factory	12
Lightning Rod Co.	10
Creamery	10

Since 1910 little gain in manufacturing has been made, and some of the above companies have discontinued operations. The milk condensing plant is now the largest industry. The blanket mill, the brass works and the brick and tile plant are still operating. The population in 1910 had grown to 3212, and in 1920 to 3626.

Incorporated Villages of Racine County

There are four of these: Waterford, Rochester, Corliss and Union Grove. The first two have been places of some local importance since about 1840. Both are on the Fox River at points where water power could be developed. Both had early manufacturing industries, including saw mills and grist mills; Waterford had a woolen mill and two flour mills. At Roches-

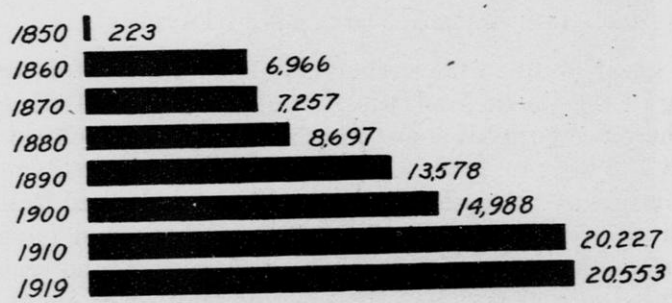

Fig. 71—Diagram showing the increase in the number of cows in Racine County, 1850–1919.

ter, Richard Ela manufactured the first fanning mills made in the county, and J. I. Case began work on his threshing machines, an industry which later grew to great dimensions in Racine. Both villages were on important early highways from Milwaukee and Racine. Waterford was connected with Milwaukee by plank road about 1850, and Rochester was on the plank road running into Racine. Both villages are now on the electric line running from Burlington to Milwaukee. Waterford has a population of about 700, while Rochester is one-third as large.

Union Grove is an inland village on the branch of the Chicago, Milwaukee and St. Paul railroad running from Racine to Beloit.

Corliss is at the junction of two lines of the Chicago, Milwaukee and St. Paul R. R. a few miles west of Racine. It has manufacturing industries of some importance.

CHAPTER VIII

THE CITY AND COUNTY OF KENOSHA

KENOSHA COUNTY

The present Kenosha County was a part of Milwaukee County until 1836, and was included in Racine County from 1836 to 1850 when it was made a separate county with the county seat at Kenosha. Its area is 274 square miles, making it one of the four small counties in the state; only Milwaukee, Ozaukee, and Pepin counties are smaller. It has one city—Kenosha—and no large villages; it is essentially a farming county.

Growth of Population

The first settlers, largely New Yorkers and New Englanders, came in 1835; and in 1850, over 10,000 persons were living in the county,—two-thirds of these on farms. Some of the townships had more people seventy years ago than they have now; for example, the town of Brighton had 875 people in 1850, and 833 in 1910. Outside of the city of Kenosha, the population of the county has increased but little in a half century, yet the output of farm products has increased many fold; this is mainly due to the increased use of machinery which enables one or two men to accomplish in certain kinds of work more than a dozen accomplished 50 years ago.

The Fox River and the Village of Wilmot

The principal stream in the county is the Fox River, which flows southward across the western end of the county into the Illinois River and thence to the Mississippi. The village of Wilmot, settled in 1844, and now having less than 300 people, is the principal village on the Fox River in Kenosha County. The village, like many others, owed its location to an early water power; a small flour and grist mill was erected there in 1846 and was used until 1878 when it burned. In 1875 Wilmot had a flour mill, two saw mills, and a woolen mill. In 1879

Kenosha County had 14 butter and cheese factories and 6 flour and grist mills, nearly all of which have passed out of existence.

It hardly seems possible that the Fox River could ever have been used for navigation, yet a small steamer, the *Lady Catherine,* was launched at Wilmot in 1854 and was used for towing purposes during the construction of a railroad in the valley. Later, in the years between 1868 and 1878, a steamer 65 feet in length is reported to have navigated the river at times of high water; considerable dredging was done for the purpose of deepening the channel.

Roads and Railroads

Three important east-west roads traversed the county in the early days. One ran from Kenosha through Paris to Burlington; another from Kenosha through Pleasant Prairie to Wilmot and on into Illinois; and a third—later planked as far as Fox River—from Kenosha directly west to Lake Geneva. The old mail road from Chicago northward crossed the eastern end of the county. This was a U. S. Government road, substantially built and extensively used. It was the chief north-south highway of the time.

The first railroads completed in the county were the Chicago and Milwaukee (1855) and the Kenosha and Fox River R. R. (1857–59). Both of these lines are now parts of the Chicago and NorthWestern system (Fig. 34).

In 1873 the Chicago, Milwaukee and St. Paul line between Milwaukee and Chicago was opened. In 1888 the Wisconsin Central, now the Soo Line, was built through the western part of the county. In 1906 the Chicago and North Western opened its double track freight line through from Milwaukee to Chicago. Thus, there are six tracks traversing the eastern end of the county in addition to two electric lines.

Manufacturing

The county is peculiar in that practically all of its manufacturing is done in one place, the city of Kenosha. There are only 2 creameries in the county, 1 condensary and 5 active cheese factories (1920). In the southeastern part of the county is a powder mill belonging to the DuPont Company, employing 150 to 200 persons.

Agriculture in Kenosha County

The county has a land area of about 180,480 acres* of which two-thirds, or about 120,000 acres are improved farm land. Originally the land was a region of prairies and oak openings, with almost no heavy timber anywhere. Like Racine County, it is a region of broad, low hills; 90% of the surface is composed of terminal moraines. A strip about two miles wide along the shore of Lake Michigan was formerly under the waters of the lake when the surface of the lake was about 40 feet higher than it is now. This coastal strip is nearly flat and its soil is largely sand and sandy loam.

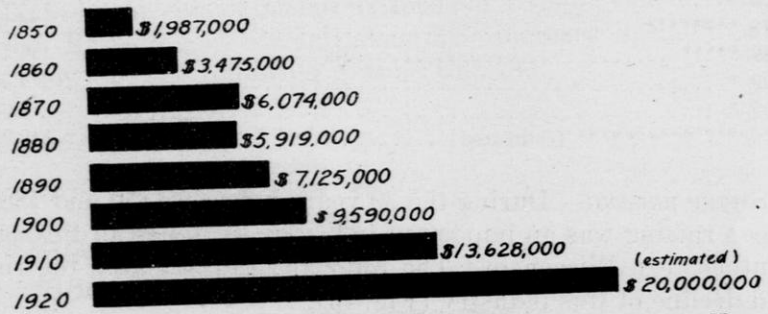

Fig. 72—Diagram showing the increase in the total value of farms in Kenosha County, 1850–1920.

The most productive agricultural land is in the eastern part of the county, in the towns of Somers and Pleasant Prairie, where most of the truck farms are located. In the towns of Salem and Bristol, in the southern tier of townships, dairying is the all-important occupation. The towns of Paris and Brighton, in the northern tier, are not quite so well drained, and have no railroads. Wheatland and Randall, in the west, are crossed by a glacial moraine and are considerably more hilly than the other townships.

On the whole, Kenosha is a very prosperous farming county. The value of land in the county advanced nearly fifty per cent between 1900 and 1910, and has advanced nearly as much more since 1910, reaching in some instances $300 an acre. About one-half of the farms are less than 100 acres in size, the average being about 112 acres. There were seven farms over 500 acres each in 1910.

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* U. S. Census of 1910. This is more than 274 square miles, which is the area given by the Wis. Blue Book.

WHEAT GROWING. Up to 1870, wheat was the leading crop, although wheat growing reached its high point about ten years earlier, when 350,000 bushels a year were produced. By 1900 wheat growing had nearly disappeared, but it was revived during the great World War and in 1919, the county produced some 140,000 bushels.

The following graph shows the rise and decline of wheat growing in Kenosha County.

*Each * represents 10,000 bushels of wheat*

1849	**********	318,051
1859	**********	350,799
1869	**********	214,567
1879	********	79,145
1889	*****	46,118
1899	*	7,480
1909	*	13,636
1919	********** (estimated)	140,000

SHEEP RAISING. During the 30 years between 1850 and 1880, sheep raising was an important industry, as it was all through southeastern Wisconsin. The following graph shows the rise and decline of this industry (Fig. 73).

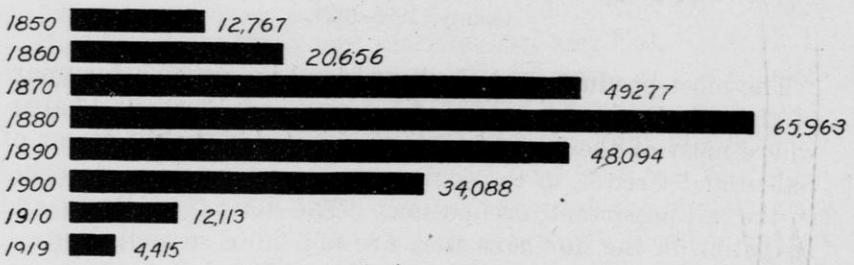

Fig. 73—Diagram showing the number of sheep in Kenosha County at different dates.

PRESENT CROPS. The county lies in the corn belt of the United States and corn is the leading cereal grown. In 1918, 22,000 acres were devoted to this crop, yielding an estimated production of 40 bushels per acre, or 880,000 bushels. Oats follow corn in number of acres and nearly equal it in production. The county raised over 1,000,000 bushels of oats in 1899, but has fallen below that figure in recent years. Neither barley nor rye is largely grown. Hay, both wild and tame, is a very large crop as would be expected in a dairy county. Potatoes are now a relatively small crop;

in fact, more land was devoted to cabbage (2535 acres) in 1918 than to potatoes (2037 acres). As in eastern Racine County, so in eastern Kenosha County, cabbages are a conspicuous crop, especially in the black soil of old swamp lands now drained. Onions and sugar beets are also of importance among the truck crops. The onions are chiefly grown in the sandy strip near the lake.

Dairying. Dairying has become the dominant type of farming, as it has in Wisconsin as a whole. However, there are but 5 cheese factories, 2 creameries and 1 condensary in the county (1920); the major part of the milk goes to Chicago on the daily milk trains. There are a dozen or more receiving and bottling plants in the county including those at Bristol, Salem, Wheatland, Bassett, and Silver Lake. The increase in dairy cattle is shown by the following graph (Fig. 74).

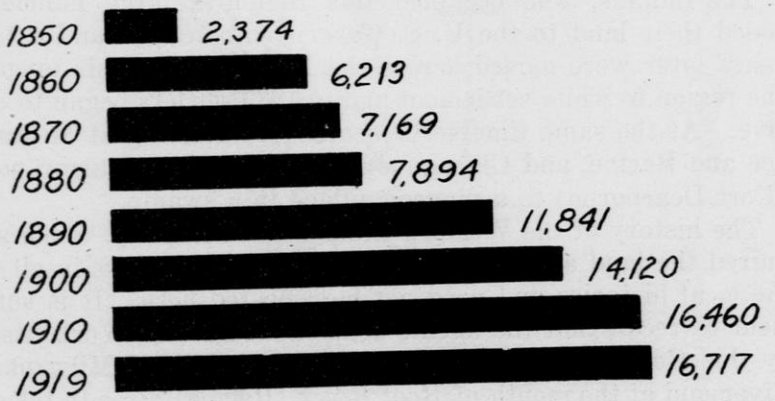

Fig. 74—Diagram showing the increase in the number of cows in Kenosha County, 1850–1919.

THE CITY OF KENOSHA

Site of the City

Ten miles south of Racine and six miles north of the Wisconsin-Illinois boundary is the mouth of Pike Creek, and also the former mouth of Pike River which now enters the lake one and a half miles farther north. Formerly Pike River flowed southward for the last two miles of its course nearly parallel to the shore of Lake Michigan and close to it. The dashing of the waves against the bluffs along the coast gradually wore

them back until the narrow strip of land which separated Pike River from the lake was eaten away at one point, and the river was permitted to enter the lake north of its former mouth. This change left an island between the old and the new mouths of the river; this is the present Washington Island. The old river channel at the north end of the island has since been filled, and now the island is no longer "entirely surrounded by water" (Figs. 75 and 78).

A small, swampy estuary remained at the mouth of Pike Creek, but it was sometimes almost wholly cut off from connection with the lake by a sand bar across the mouth. Keeping a channel dredged across this bar has been one of the constant difficulties in the maintenance of a harbor at Kenosha.

The first settlement

The Indians, who occupied this region in large numbers, ceded their land to the U. S. Government in 1833 and a few years later were moved across the Mississippi. This opened the region to white settlement and in 1835 settlers began to arrive. At the same time settlements were starting at Milwaukee and Racine, and Chicago was passing from an army post (Fort Dearborne) to a pioneer village in a swamp.

The history of the Western Emigration Company, which acquired the land at the mouth of Pike Creek, appears in all of the local histories and need not be repeated here. It is sufficient to recall that the agents sent out from New York State by this Company found the land at the mouth of Milwaukee River and at the mouth of Root River (Racine) already taken. Both of these points offered better opportunities for harbors than existed at Pike Creek, and the agents sought to buy Gilbert Knapp's claim at the mouth of the Root River. The deal, however, was not actually completed and in June, 1835, the agent of the Western Emigration Company decided upon the mouth of Pike Creek as the best available site for settlement. Thus it came about that the site of the future Kenosha was selected for precisely the same reason that those of Racine, Milwaukee, Sheboygan and Manitowoc were selected, namely, the opportunity for a harbor. For the first two years the settlement was called Pike Creek, and the first post office was known as Pike. In 1837 the name was changed to Southport and in 1841 a village was organized, the name being selected because the place was the southernmost port in Wisconsin.

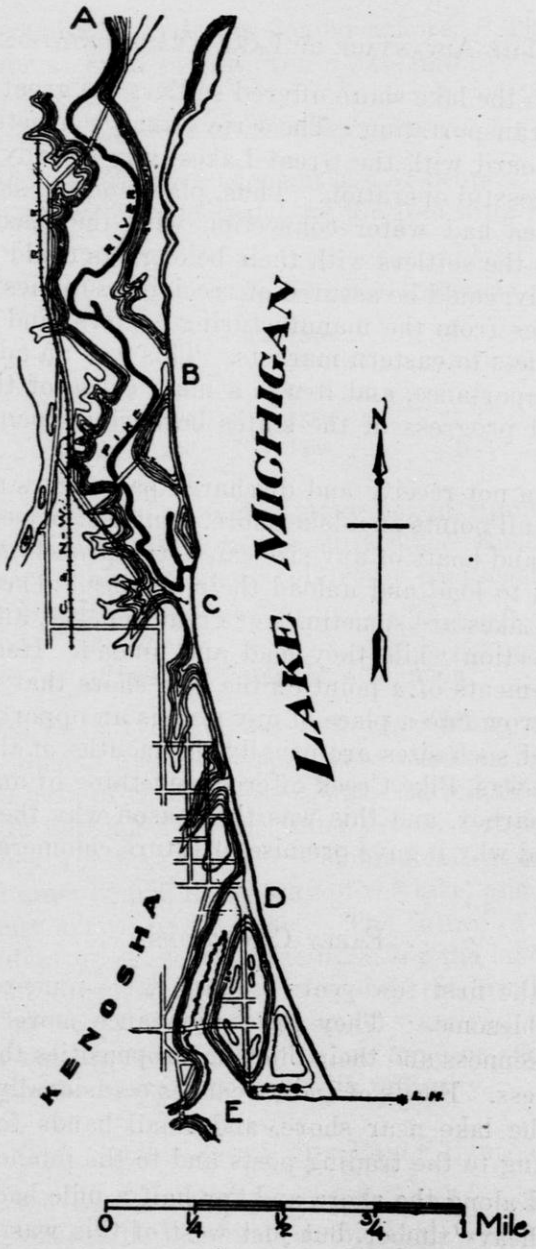

Fig. 75—The waves have cut away the shore land between C and D; Pike River, which once emptied into the lake at E, now enters at C.

The Advantage of Lake Transportation

Points on the lake shore offered settlers the great advantage of water transportation. The Erie Canal, connecting the Atlantic seaboard with the Great Lakes, was already completed and in successful operation. Thus, places on the shores of the Great Lakes had water connection with the East and that meant that the settlers with their belongings could reach such places easily, could be assured of receiving supplies and necessary articles from the manufacturing centers, and could ship their products to eastern markets. This was an advantage of greatest importance, and it was a main cause of the wonderfully rapid progress of the states bordering upon the Great Lakes.

Boats can not receive and discharge passengers and freight at any and all points on a lake shore. In most places the water is shallow and boats of any size can not approach near enough to the land to load and unload their cargoes. The storms on the Great Lakes are sometimes of great violence, and boats require protection while they load and unload. Hence, one of the requirements of a point on the lake shore that may be expected to grow into a place of any size, is an opportunity for a harbor, and such sites are usually the mouths of the streams. Small as it was, Pike Creek offered something of an opportunity for a harbor, and this was the reason why the place was selected and why it gave promise of future commercial importance.

Early Conditions

During the first few years Indians were numerous and at times troublesome. They gave annoyance more because of their drunkenness and their thieving propensities than because of viciousness. Fleets of Indian canoes occasionally passed up or down the lake near shore, and small bands followed the trails leading to the trading posts and to the inland lakes.

The land along the shore and for half a mile back was covered with heavy timber, but just west of this was an area of open prairie. The low land near Pike Creek was a swamp, and, on the whole, the place was none too attractive.

In July, 1835, the first cargo of any kind arrived; it was a small quantity of lumber, of which the settlers stood in great need. The schooner could not land, so the lumber was

dropped over-board and was floated ashore. There was no water power at hand to run even a saw mill.

Growth of the Settlement

By the end of 1835 the settlement had 32 people. The growth was fairly steady but not rapid, as the following figures indicate:

Table XXXV. *Early Population of Kenosha*

1835	32 people	1840	337 people
1836	84 "	1843	1,132 "
1837	144 "	1847	2,655 "
1838	186 "	1850	3,455 "
1839	246 "	1860	3,990 "

In the fall of 1836 a weekly stage began running between Chicago and Milwaukee on the Milwaukee Road, and post offices were established along this route at Pleasant Prairie, Somers, Willis' Tavern, and Pike.

Pressing Need of a Harbor

The farm lands lying to the west were filling with settlers for whom Racine and Southport were markets and shipping points. In both of these places it was realized that their business growth depended on one thing—some sort of harbor or landing place for lake boats. Communication with the outside world must be mainly by way of the lake, and most of the settlers must arrive by the lake. The future of both places was dependent upon securing facilities for the landing of passengers and cargoes, and for shipping the products of the farms. The first steamboat passengers arrived in 1836; the boat could not approach within a half mile of shore, and the passengers were brought ashore with difficulty.

The Struggles for the Early Harbor

In 1837 the people raised money to send a representative (Charles Durkee) to Washington to plead for an appropriation for the improvement of the harbor. Milwaukee and Racine and other lake shore points were also pressing their claims for similar appropriations, and each one felt that its claims were peculiarly deserving.

The first survey of the harbor was made in 1837 by Captain Allen. During this year the arrival of settlers with their be-

longings was rapid; 61 steamboats, 80 schooners, and two brigs arrived; but there was no pier and no harbor, and people and goods had to be taken to and from the lake boats in small scows called lighters. In rough weather it was next to impossible to transfer passengers and freight from lake boats to lighters in safety, and long delays occurred.

The next year (1838), 72 steamboats and 88 schooners arrived, and this number increased to 102 steamboats, 47 schooners, 3 brigs, and one ship in 1839. Settlers were arriving constantly but only a few chose to remain in the village; the majority sought farm lands in the interior.

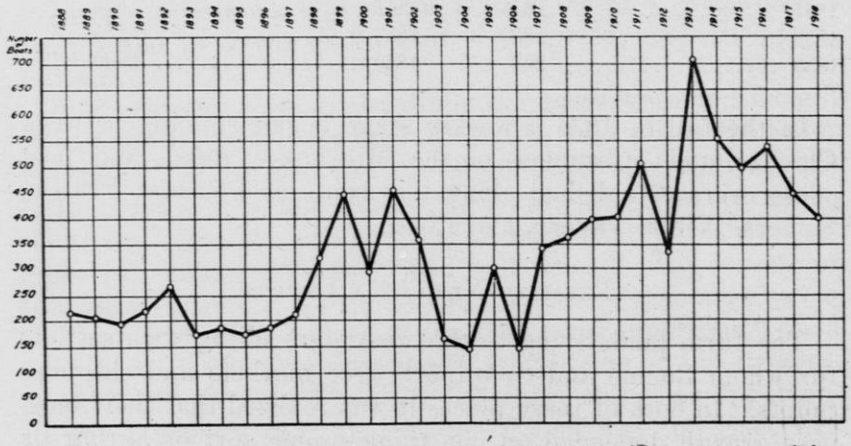

Fig. 76—Graph showing the number of steamboats and sailing vessels arriving annualy at Kenosha from 1888 to 1918.

So all-important to the village was the improvement of the harbor that in 1839 the merchants of Southport passed the following resolution:

"We the merchants of Southport will pledge and do hereby propose to encumber by bond and mortgage all our real estate in said village of Southport to secure the payment of a loan of $30,000 for the improvement of the Harbor; the safety of navigation and the interests of our town render a harbor indispensable; without it our property is comparatively worthless. We believe that the whole town plat of Southport might be safely and with propriety mortgaged to raise money for this object."

Mr. Durkee's appeal to congress in 1837 for an appropriation for Southport harbor failed, as did all subsequent ones until 1844. In 1839 Captain Cram of the U. S. Army Engineers made surveys of the region at the mouth of Root River and of Pike Creek. His report was more favorable to Root

River (Racine) than to Southport. He reported that it would require $200,000 to secure a suitable harbor at Southport, but only $50,000 for one at Racine. The people of Southport rose in indignation, held meetings of violent protest, declaring the report to be biased and unfair, and some demanded the impeachment of Captain Cram. However, Racine received no government appropriation at this time either, and its people were no less violent in their denunciation of the government for its failure to grant them help.

Substitutes for a Harbor

Since there was no prospect of government assistance in securing a harbor at Southport, a pier reaching some distance out into the lake was begun and was completed at private expense in 1842. Up to this time and afterward lighters were used; so anxious were the people of the village to encourage the landing of settlers and goods that it became the custom whenever a passing steamer or schooner indicated that it wished to land passengers or goods, for every able-bodied man in the village to drop his own work and rush down to the shore to assist in getting the heavy scow, used for a lighter, out to the waiting boat and to aid the passengers in getting to land. The people regarded this as a public duty which they were as much obligated to perform as they were to assist at a "raising" or to fight a fire.*

Ups and Downs of the Village

The village had not been any too prosperous before, but 1842 was the darkest year of all. Business was almost at a standstill. Land was not salable; money was exceedingly scarce and discouragement reigned. But all this changed the next year, and what amounted almost to a boom visited the village. In 1843 it is said that 165 buildings of various kinds were erected. Wheat from the interior arrived in increasing quantities and 71,500 bushels were shipped from the port during the season. The village was also greatly elated over the arrival of lead, brought by ox-teams from the mines of south-

* "As to manning the lighter, it was the custom to have a man of minimum reverence for divine worship make the rounds of the churches when the steamship 'hove in sight' on Sunday and shout 'Man the lighter!' This call to duty would empty the church of its able bodied men even in the middle of the long prayer."—F. H. Lyman.

western Wisconsin, to be shipped east. As pointed out elsewhere (p. 54) all of the principal Wisconsin ports on Lake Michigan vied with one another in their efforts to secure this lead trade which was looked upon as the most desirable trade in all Wisconsin. The arrival of many ox-teams, bringing lead and returning with lumber and merchandise bought in Southport filled the village with hope. As in the case of Milwaukee and Racine, the lead trade proved to be of only minor importance.

By 1844 another pier was built. The village now had about 1200 people, 20 general stores, six lumber yards, six shoe shops, a small iron foundry, two forwarding houses, and two shops where fanning mills were made.

The First Harbor Appropriations

Southport's prosperity depended upon its port business; there was practically no manufacturing. Consequently when the news came in 1844 that Congress had appropriated $12,500 for the improvement of a harbor at Southport, the village went wild with joy. The *Southport American* of June 29, 1844, said: "The anxiety and suspense is terminated—our hopes are realized. In this event all our citizens are expected to rejoice. The pioneers of our youthful village will regard it as the breaking of the morning light after a long night of toil."

But this joy was soon dampened by the report that the harbor might be placed at the mouth of the Pike River, a mile or two north, and not at Southport. Colonel Michael Frank wrote in his diary, July 16, 1844, "This is now a city of despair". However the despair was soon relieved, for in August the government engineer decided that the harbor improvements should be made at Southport, and again the village rejoiced. Colonel Frank wrote in his diary: "Despair now suddenly changed to gladness. The future stability of the town is now fully settled. Of all events of the last five years, this is the most important."

A daily line of steamers, running between Chicago and Buffalo, stopped at Southport and immigrants arrived weekly. A census taken for McCabe's Gazetteer in November, 1843, indicated the following make-up of the population of the village of Southport: 756 were born in New York, 141 in Vermont, 77 in Connecticut, 76 in Massachusetts, 170 in Ireland, 129 in England, 15 in German states, and a scattering of others.

There were 354 frame buildings, six of brick, one of stone, and three of logs, a total of 364 for a population of 1200 people.

Continued efforts to secure government appropriations for the harbor were successful, and in 1845 the village was again thrown into a fever of rejoicing over the news that Congress had appropriated $15,000 more for Southport harbor.

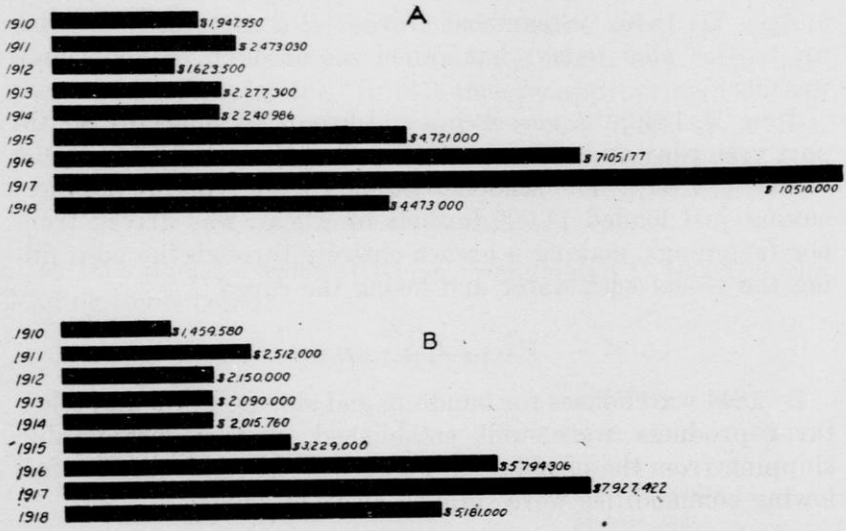

Fig. 77—A. Diagram showing the value of commodities received by lake boats at Kenosha, 1910–1918.

B. Value of commodities shipped by boat. Note the effect of the European War (1916, 1917).

Disasters Due to the Lack of a Harbor

Goods and passengers were still handled at the piers, for the harbor was not open for a number of years after the work was begun. There was no harbor of refuge anywhere along the coast, and disasters were frequent. Colonel Frank records the following in his diary:

"May 21, 1840, The steamboat New England came in last evening about 8 o'clock. The 'big lighter' full of freight was upset by the steamboat and a dozen or so precipitated in the water. One family lost their all".

Nov. 30, 1842, "Tremendous storm on lake the evening of the 17th and many vessels driven ashore".

Nov. 17, 1843, "The big *Osceola* loaded with nearly 6000 bushels of wheat was driven ashore today doing great damage

to the pier and nearly ruining the vessel itself, causing it to lose fully half of its cargo".

Apr. 12, 1844, "Many people fear that Racine will go ahead of us and get a harbor first. Discouraging talk heard at every corner of the streets".

Apr. 16, 1844, "A schooner from the lower lakes lying at the wharf, where she was driven ashore during the night".

Apr. 11, 1846, "Steamboat *Burkes Hill* attempted to come up to the pier today, but failed on account of the rough weather".

June 27, 1846, "A vessel capsized five or six miles off Southport yesterday and six or seven lives lost"

Nov. 6, 1847, "The schooner *Samuel Hale* lying at the pier, having just loaded 11,000 bushels of wheat, was driven from her fastenings, making a breach entirely through the pier, filling the vessel with water and losing the cargo."

Early Commerce

By 1844 warehouses for handling and storing grain and other farm products were well established, and a considerable shipping from the port was in progress. In that year, the following commodities were shipped away by lake:

Wheat	122,429 bushels
Flour	1,235 barrels
Hides	86,750 pounds
Wool	3,907 pounds
Furs	$500 worth
Potatoes	$200 worth
Cranberries	14 barrels
Total Value	$93,504

Optimism and Pessimism

Southport was ever a place of ups and downs. Writing in his diary at the close of 1847, Col. Frank says:

"The prospect of the village of Southport during the past year has been less flattering than any year since its settlement. The population has not increased, while the neighboring villages on the lake shore have advanced in population. The business reputation of the place has been bad during the past year and is still so. Unless some new impetus be given to business, property must decline. Our citizens have not yet any confidence in the place."

But a year and a half later he wrote (June 21, 1849):

"There has never been so much confidence in the town as this year."

Southport Becomes the City of Kenosha

In 1850 Kenosha County was set off from Racine County; the village of Southport became the city of Kenosha and was made the county seat. The population was 3455. The growth of the place had been slow and continued so for many years longer.

Harbor improvements were making slow progress, and it was evident that the city itself must aid financially if the harbor was to become useful. In 1851 the city appropriated $10,000 for the harbor. This was followed by a vote of $5,000 in 1854, $4,000 in 1855, and there were subsequent appropriations.

Commerce in the early fifties

In 1852 the lake traffic at Kenosha amounted to $900,000, the leading items being:

Table XXXVI

Exports	*Imports*
184,606 bu. wheat	1,701,525 ft. lumber
134,109 bu. oats	239,701 lath
54,267 bu. barley	1,000 cedar posts
169,474 lbs. butter	2,043 bbls. salt
9,643 bbls. flour	1,160 tons coal
189,000 brick	977 tons mdse.
	3,442 bbls. bulk mdse.

The harbor remained the one all important consideration, and in his inaugural address of 1853 the mayor said:

"Without this improvement (harbor) other enterprises can avail but little as a means of establishing the business interests of our city on a permanent basis. With it, our prosperity and growth as a commercial point are secured beyond question."

Even by 1854, ten years after the first government appropriation had been made, only small sized vessels could enter the harbor, yet the traffic through the port grew rapidly and in 1855 reached a little over 2½ million dollars in receipts and nearly as much in shipments.

The receipts were chiefly lumber and other wood products and general merchandise. The principal shipments were as follows*:

* Exec. Doc. 16, 34th Cong., 3d Sess. 1856–57, Vol. 5, p. 178.

	Dollars		*Dollars*
Wheat	1,003,992	Flour	54,340
Merchandise	839,500	Wagons	42,030
Stoves	77,700	Wool	39,396
Pork	74,466	Total Shipments	2,460,267
Barley	59,898		

These figures indicate a very large exportation of wheat, averaging between a million and a million and a half bushels a year.

During this period the two big items were incoming lumber and outgoing wheat. At this time the lumbering operations near the shore of Lake Michigan in the northern parts of both Michigan and Wisconsin were enormous, and there was a constant procession of lumber schooners moving southward to Milwaukee, Racine, Kenosha, and Chicago.

In 1855 the Lake Shore Railroad was completed from Milwaukee to Chicago through Kenosha. This was a great event. The coming of railroads at first increased lake traffic, especially in the case of those roads which connected the ports with the interior. Later—but many years later—the railroads deprived the lake carriers of freight and caused the decline of lake traffic. Moreover, the two big items of lake shipment, wheat and lumber, greatly declined in production so far as Wisconsin was concerned, as time went on. Lumber continued important much longer than wheat. In 1874 Kenosha received nearly 15,000,000 feet of lumber by boat. Wood, shingles, posts, laths, fence pickets, etc, were the important items.

In 1860 two disastrous fires occurred in the city and burned 70 buildings. These fires were followed by the erection of a better class of buildings, yet the city's growth still was slow. The population had reached only 3990 in 1860, 4308 in 1870, and 4959 in 1875. While Kenosha was adding about 500 people, Madison added more than 7000; Oshkosh added nearly 12,000; Fond du Lac 10,000; Janesville 5000; Watertown 6000; Racine 2,500, and Milwaukee 50,000.

THE WESTERN RAILROAD. Kenosha County had one plank road leading westward from Kenosha to the Fox River, and this greatly stimulated the trade of the city. In the early fifties it was decided that a railroad must be built westward from Kenosha into the rapidly developing farm lands, and thence on to the Mississippi River. In 1857 Milwaukee had completed a railroad to the Mississippi, and Racine had opened its Western Union Railroad to Beloit in the same year. Both Milwaukee

and Racine had serious difficulty in securing the necessary money to build these roads, but Kenosha had still more difficulty, for the city had less capital to draw upon than her rivals. In 1855 the Western railroad was at a standstill for want of money. Reluctantly the city of Kenosha pledged its credit for $150,000, agreeing to pay 10% interest and to raise the amount by taxation. Trains ran out a short distance by 1860 and to Rockford in 1861, but the road failed financially and passed into the hands of a receiver, later to be sold to the Chicago and North Western system (1864). But it left a burden of debt upon the city which was not wholly discharged for nearly fifty years.

HARBOR ACTIVITIES AFTER 1860. Since no stream of any size flows through the harbor of Kenosha, sand and silt are not carried out of the channel into the lake. The northeast winds cause currents along the shore and these almost constantly re-formed the bar across the channel. Year after year, sums of money were expended in dredging, but it took the currents and wind less time to rebuild the bar than it did the dredges to remove it. The government plans in the eighties called for a channel 15 feet deep, but it was seldom more than 10 or 12 feet and sometimes even less.

In 1866, 115 vessels, mostly schooners, entered the harbor, carrying imports and exports as follows:

TABLE XXXVII. *Lake Traffic, Kenosha Harbor, 1866*

Imports	*Exports*
4,358,000 ft. lumber	16 bbls. of lime
168,000 laths	3 bbls. beans
7,400 posts	500 doz. eggs
1,429,000 shingles	1,000 lbs. of cheese
760 cords of wood	500 lbs. butter
278 cords of bark	100 bbls. of beef
9,500 bu. of barley	
705 tons of coal	
100 cords of stone	

It will be seen that the amount shipped away by boat was small.

During the following years the business of the port increased steadily, and, in 1874, 328 vessels arrived ~~and departed~~. The principal imports and exports were as follows:

351 departed / 679 total ← see Annual Report of Chief of Engineers U.S. Army (1874)

TABLE XXXVIII. *Lake Traffic, Kenosha Harbor, 1874**

Principal Exports		*Principal Imports*	
Hams	1,029 bbls.	Salt	2,217 bbls.
Pork	352 bbls.	Flour	1,105 bbls.
Cheese	17 bbls. and 6,000 lbs.	Pig iron	1,732 tons
Malt	107,000 bu.	Lumber	13,536,000 ft.
Iron Castings	1,108 tons	Coal	8,244 tons
Leather	1,950 rolls	Shingles	2,375,500
Matches	1,428 cases	Bark	1,250 cords
Fresh fish	1,247 tons	Posts	15,000

By 1878 the city had expended $75,000 on the harbor, and the U. S. Government had expended $190,000. The number of vessels bringing cargoes to the city reached its height about this time. Sailing vessels greatly predominated, and lumber and other forest products formed the bulk of the imports. For many years the receipts of lumber were in the neighborhood of 15,000,000 feet (board measure) a year. The decline of wheat-growing cut off the commodity chiefly shipped from the port in the early days, and the fact that the large grain carriers could not enter Kenosha harbor led to the shipment of wheat from the farms to Racine and Milwaukee. During the decade 1880 to 1890, the traffic of the port about held its own. The figures given in the Table XXXIX; as far as 1905, do not include the regular passenger and packet steamers which merely stopped at Kenosha as one of their calling points. The figures for 1913 do include such steamers. In fact these boats carry nearly all of the present traffic except the coal.

In 1895, a typical year for the decade 1890–1900, the total shipments from the port were valued at only $136,000 and the receipts at a little less than a million dollars. In that year receipts by boat were only a little over four per cent of the receipts by rail, and the shipments by boat were less than one per cent of those by rail.

* The reports for 1866 (table 37) and for 1874 (table 38), do not include wheat. It hardly seems possible that no wheat was shipped by lake in three years.

Fig. 78—From a drawing of the City of Kenosha in 1882.

TABLE XXXIX. *Harbor Movements at Kenosha, 1866–1918*

(Daily packet boats not included)

1866	115	vessels	entered	and	cleared				
1874	328	"	"	"	"				
1880	237	arrivals							
1882	191	"	(10	steamers	and	181	sailing	vessels)	
1883	249	"	(25	"	"	224	"	"	)
1884	291	"	(47	"	"	244	"	"	)
1885	233	"	(99	"	"	134	"	"	)
1886	252	"	(84	"	"	168	"	"	)
1887	220	"	(74	"	"	146	"	"	)
1888	214	"	(51	"	"	163	"	"	)
1889	196	"	(35	"	"	161	"	"	)
1890	219	"	(58	"	"	161	"	"	)
1891	267	"	(72	"	"	195	"	"	)
1895	184	"	(56	"	"	128	"	"	)
1899	289	"	(152	"	"	141	"	"	)
1905	147	"							

(Daily packet boats included)

1913	712	arrivals
1914	553	"
1915	500	"
1916	543	"
1917	450	"
1918	445	"

From 1890 to 1900 the Government's expenditures on the harbor were the largest of any decade, totalling over $250,000. This was more than the appropriations for the 50 years following the initial appropriation in 1844. Despite these efforts to assist the lake traffic it continued to decline. The lumber traffic almost ceased several years ago. Package freight, brought mainly from Chicago by the daily steamers, and coal from Lake Erie ports, are about the only items now received at the port. The receipts and shipments for recent years are shown in the following table:

TABLE XL. *Harbor Movements at Kenosha, 1913–1917*

Date	No. of arrivals	Net. reg. tonnage	Passengers	Shipts. sh. tons	Shipts. value	Receipts sh. tons	Receipts value
1917	450	129,137	6,250	26,742	$7,927,000	74,689	$18,437,000
1916	543	155,973	7,350	61,558*	5,794,000	66,386	7,105,000
1915	500	148,559	900	16,739	3,230,000	56 529	4,721,000
1914	553	144,243	6,250	9,731	2,016,000	68,910	2,244,000
1913	712	199,500	5,000	15,369	2,300,000	70,374	2,277,000

*42 000 tons of sand.

During the European War, there was for a time an increased use of the lake boats as the foregoing table indicates. A considerable quantity of brass, leather, and other commodities was shipped both in and out by boat, but these shipments practically ceased as soon as railway conditions returned to normal.

The harbor has almost ceased to be a factor in the life of the city. In the summer of 1919, one steam boat ran daily between Kenosha and Chicago, stopping at Waukegan; it carried mainly package freight.

The government and the city are still making small appropriations for the harbor; an effort is made to keep a channel 19 feet deep, but this depth is not maintained. The following table shows the appropriations made by Congress down to 1918.

TABLE XLI. *U. S. Appropriations for Kenosha Harbor, 1844–1918*

1844	$12,500	1890	17,500
1845	15,000	1892	15,000
1852	10,000	1894	15,000
1866	75,461	1896	24,000
1869	5,346	1899	50,000
1870	10,000	1900	135,000
1871	10,000	1902	5,000
1872	10,000	1905	5,000
1874	10,000	1907	22,000
1875	15,000	1909	10,000
1876	8,000	1910	12,500
1877	8,000	1911	11,000
1879	5,000	1912	15,000
1880	5,000	1913	24,000
1881	5,000	1915	25,000
1882	$6,000	1917	3,500
1884	5,000	1918	4,500
1886	5,000		
1888	7,500		$621,807

THE DEVELOPMENT OF MANUFACTURING IN KENOSHA

Unlike Milwaukee and Racine, the site of Kenosha supplied no water power. This condition was unfavorable to early manufacturing, and doubtless was one cause for the slow progress of the early industries. Kenosha's harbor was not so good as either that at Racine or at Milwaukee, and this operated against Kenosha. The slightly superior commercial advantages of Racine, and the greatly superior ones of Milwaukee aided them in getting roads and railroads, all of which

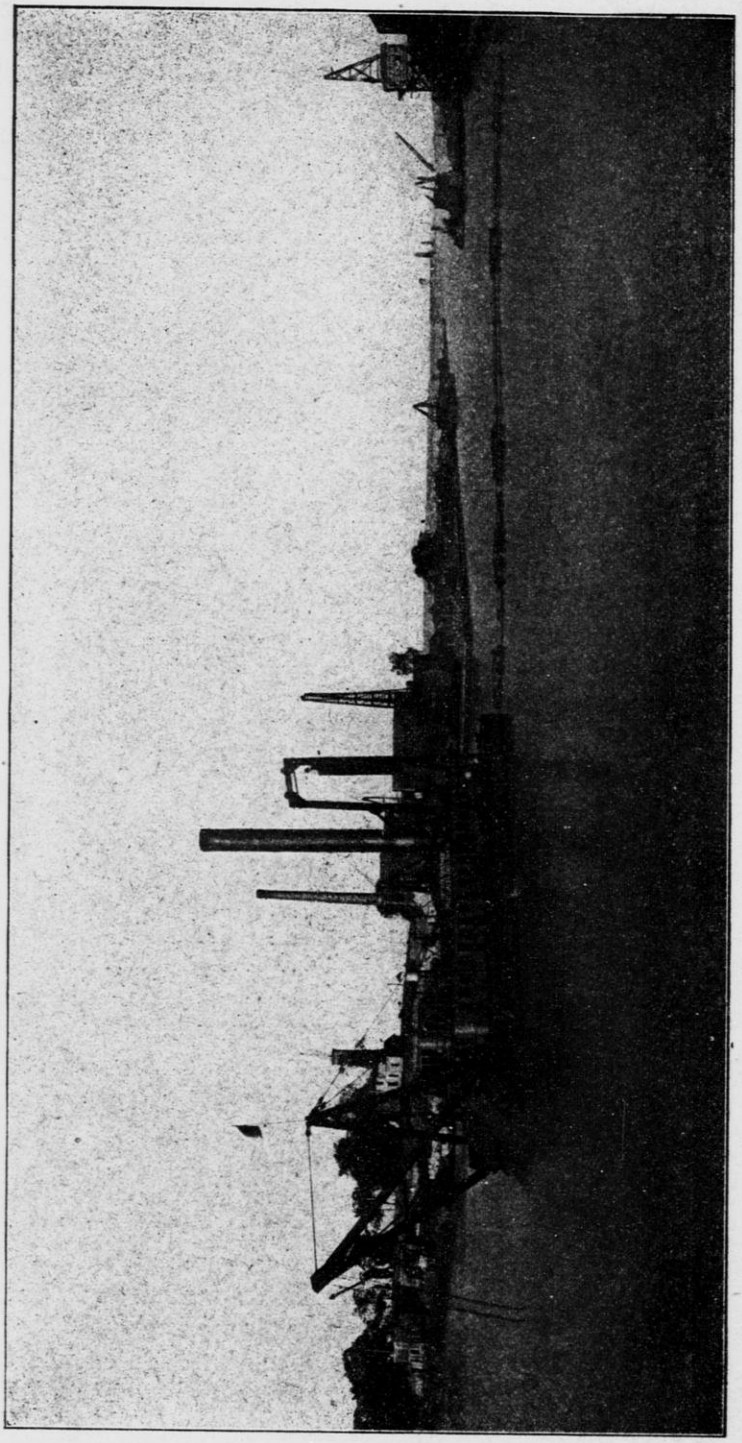

Fig. 79—Dredge at work in Kenosha harbor in 1919.

promoted their growth and promoted it partly at the expense of Kenosha. In 1860 when the city had a population of about 4000, it had scarcely 200 persons engaged in manufacturing and the total output of manufactured goods did not reach quite $300,000.

Two of the city's large industries started in a small way before this date: one was the Bain Wagon Works which began as a wagon repair shop in 1852, but grew rapidly, producing about 1000 high grade wagons in 1865, and 2500 in 1868. The other was the Allen tannery which began in 1856 with a capacity of about 5000 sides of leather a year. This, too, had a rapid growth, and in 1866 had a capacity of 20,000 sides of leather a year. The Pettit Malting Co., established in 1857, was one of the large plants for many years until it burned.

MANUFACTURING IN 1870. In 1870 there were 40 or 50 shops and small factories operating in the city, yet the total number of persons engaged in manufacturing was only about 500, and the entire product was valued at about a million dollars. In the entire county there were only 4 flour and feed mills, employing a total of 9 hands and grinding $48,000 worth of flour and feed. There were two or three small iron foundries whose total products reached $40,000 a year. The Allen tannery and the Bain Wagon Works were the only plants of large size. In 1870 the latter company made and sold 3820 wagons. This was a big industry for a city of 4300 people. The Bain Wagon became known throughout the West and even to the Pacific Coast because of its absolutely dependable quality. This was the first of Kenosha's large industries.

One of the city's great business men and manufacturers, Zalmon G. Simmons, began his manufacturing career by making cheese boxes. Later this factory was turned into a fanning mill factory and still later it became the Northwestern Wire Mattress Co., out of which grew the great Simmons plant of today. It is said that the Pacific Fanning Mill Company made 2000 fanning mills a year in the years around 1875.

MANUFACTURING IN 1880–1890. By 1880 the city had a population of 5039, and its manufacturing interests had gone forward to a moderate extent. Less than 600 persons were engaged in manufacturing, and the Bain Wagon Works was the only really large plant in the city. It employed over 200 people and made about $500,000 worth of wagons. The Allen tannery was the next largest establish-

ment, employing 50 persons and tanning $270,000 worth of leather. The malt works produced nearly a quarter of a million dollars' worth of malt. The entire county of Kenosha produced only $1,874,000 worth of manufactures in 1880. It is safe to estimate that 90% of these were made in Kenosha city for there were no other places of any size in the county.

The decade 1880–90 is recognized by Kenosha business men as the beginning of the city's modern industrial expansion. Many persons consider that the coming of the Chicago Brass Company—now the American Brass Company—in 1886 marks the beginning of the city's new life.

During this decade the Bain Wagon Company was making 12,000 wagons a year, and the Allen tannery was tanning well toward 200,000 sides of leather. Wages for factory workers averaged 6 to 10 dollars a week.

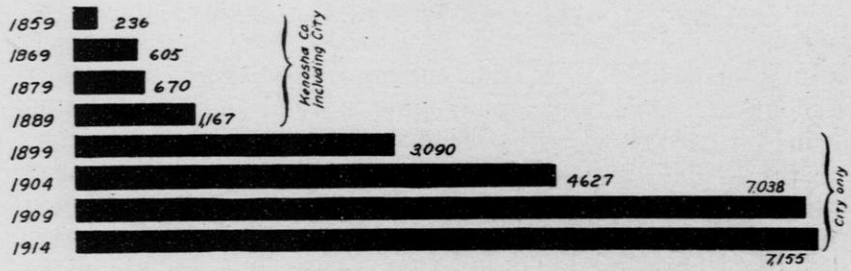

Fig. 80—Diagram showing the average number of persons employed in manufacturing in Kenosha in different census years. U. S. census figures for 1919 were not published at time of going to press. Note the rapid growth beginning with 1899.

The Northwestern Wire Mattress Company had expanded into a brick building 100x400 feet in size and required 10 acres of land for its plant and lumber yard. It employed about 200 people and had a daily capacity of 1500 mattresses.

In 1890, the population of the city had reached 6532, and about 1000 of these were employed in manufacturing. The total manufactures of the city were about 2½ million dollars. It is worth noting that any one of several plants in the city now manufactures a greater amount than the entire city did in 1890, and one plant now employes five times as many workmen as all the plants then employed.

THE DECADE 1890–1900. During this decade the city grew more in manufacturing than it had grown in the previous 60 years. In 1900 it had over 3000 persons en-

gaged in manufacturing, as compared with 1000 in 1890. The value of products jumped from 2½ million dollars to 7½ millions, a gain of 200 per cent. Kenosha had risen to 6th place among the manufacturing cities of the state. This year marked the beginning of what has become the largest plant in the city, the Nash Motor Co., which began in 1900 as the Thomas B. Jeffery Company, makers of the Rambler bicycles (Fig. 84). In 1902, Mr. Jeffery put his first automobile on the market. During this decade (in 1893) the present extensive knitting industry began, when the Chicago-Rockford Hosiery Company came from Rockford to Kenosha. The Black Cat Textile Co. is the outgrowth of this concern. The U. S. census of 1900 credited Kenosha with 38 manufacturing establishments; the largest of these were as follows:

TABLE XLII. *Leading Industries of Kenosha, 1900*

(State Bureau of Labor Statistics)

Allen & Sons tannery	750	employees
Badger Brass Co.	88	"
Bain Wagon Co.	275	"
Chicago Brass Co.	240	"
Chicago–Rockford Hosiery Co.	750	"
Kenosha Crib Co.	80	"
Simmons Mfg. Co.	971	"
Total employees reported	3,478	employees

THE DECADE 1900–1910. This decade registered a still greater growth in manufacturing. The population rose from 11,606 to 21,371: the number of persons employed in manufacturing in 1910 (7038) more than doubled over 1900, and the value of the manufactures jumped from 7½ million dollars to over 23 millions, a gain of nearly 220 per cent, and this on top of a 200 per cent gain the preceding decade. Kenosha was making up for the slow growth of its first half century and was on its way to the position of 3d manufacturing city of Wisconsin.

The Bain Wagon Works had ceased to be the great industry of the city, for the auto-vehicle was displacing the horse-drawn wagon. The Northwestern Wire Mattress Co. had become the modern Simmons Company, makers of beds on a large scale and the largest plant in the city. The manufacture of automobiles was rising to the foremost place in the industries of the city. The manufacture of brass and brass goods occu-

pied several establishments, one of which was expanding into the third largest industry of the city. The tanning industry was competing with the automobile industry for second place; and a half dozen new plants of large size were added. The leading industries in 1910 were as follows:

TABLE XLIII. *Leading Industries of Kenosha, 1910*

(State Bureau Labor Statistics)

Allen Sons Tannery	1,076	employees
Badger Brass Mfg. Co.	393	"
Bain Wagon Works	244	"
Chicago Brass Co.	540	"
Cooper Underwear Co.	886	"
Dagenback Cigar Factory	220	"
Frost Mfg. Co. (Plumber's supplies)	93	"
T. B. Jeffries Co. (automobiles)	1,000	"
Kenosha Crib Co.	145	"
Simmons Mfg. Co.	1,735	"
Windsor Spring Co.	125	"
Total—all industries	6,865	employees

THE DECADE 1910–1920. The United States census of manufacturers of 1915 covered a dull year, 1914, and the exceptionally rapid growth of Kenosha in the previous decade did not seem to be maintained during the first half of 1910–20. During the first five years a healthy but not an exceptional rate of expansion was registered. Then came the great war in Europe. Quickly there arose a demand for nearly every one of Kenosha's products. In 1916 the Nash Motor Co., which had succeeded the Thos. B. Jeffery Co., devoted almost its entire energy to war orders. Between 1916 and 1918 the company increased its output of trucks 400%. After the United States entered the war the company contracted to deliver 40 of its powerful army trucks (Quads) a day, and it shipped 40 a day "with precise regularity". During the war the Nash Company supplied 12,500 Quads to the armies of the Allies. During 1919 the company returned to the production of passenger cars and commercial trucks, and during the year made and sold 35,000 cars and thousands of trucks. The enormous plant covers over 100 acres, 40 of which are under roof. Five thousand people are employed. Plans are under way for the erection of another plant in Milwaukee.

The Simmons Manufacturing Company, whose great plant faces on the harbor, is one of the largest establishments in

Wisconsin, and employs about 4000 persons in Kenosha. The Company also has four manufacturing plants in Canada, one in San Francisco, one in Atlanta, and a recently-acquired one in Elizabeth, N. J. A profit sharing plan for the employees is in operation, and the company has practically never had a strike. The chief product of the plant is beds of many kinds, especially brass, enameled steel and other types of metal. About 4000 car loads of materials are received yearly and 7500 carloads are shipped. This means that on an average a train of 24 carloads leaves the plant every working day. Strange to say, practically all raw materials and coal are received by rail and all manufactured products shipped by rail, although the plant is directly on the harbor and has its own docks. (Fig. 83).

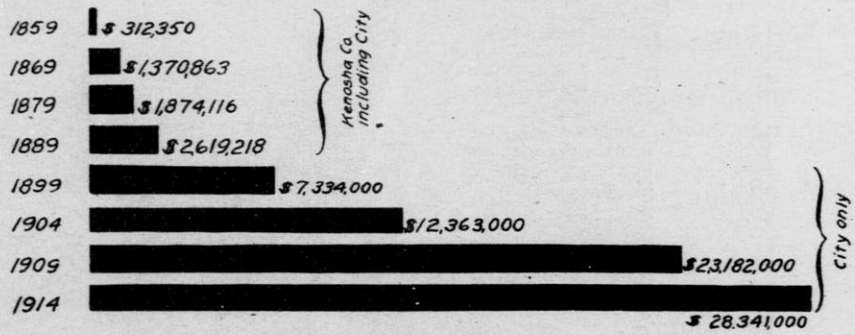

Fig. 81—Diagram showing the increase in the value of manufactured goods made in Kenosha in different census years. U. S. census figures for 1919 had not been published at time of going to press. Note the very rapid increase since 1899.

During the war the Black Cat Textile Company supplied 3 million pairs of socks and 500,000 suits of underwear to the army. The company employs about 800 people and does a business of $7,000,000 a year which is equal to the manufactured output of the entire city in 1900.

The American Brass Company's plant occupies a solid enclosure covering six city blocks. Surrounded by a neat brick wall the plant presents an exceptionally tidy appearance. Seldom does a great manufacturing plant so little disfigure the part of the city which it occupies as does this one. It employs 2000 people in the production of brass sheets, tubes, bars, plates, etc.

Across the street is the plant of the Frost Manufacturing Company, employing 200 persons; its product consists of

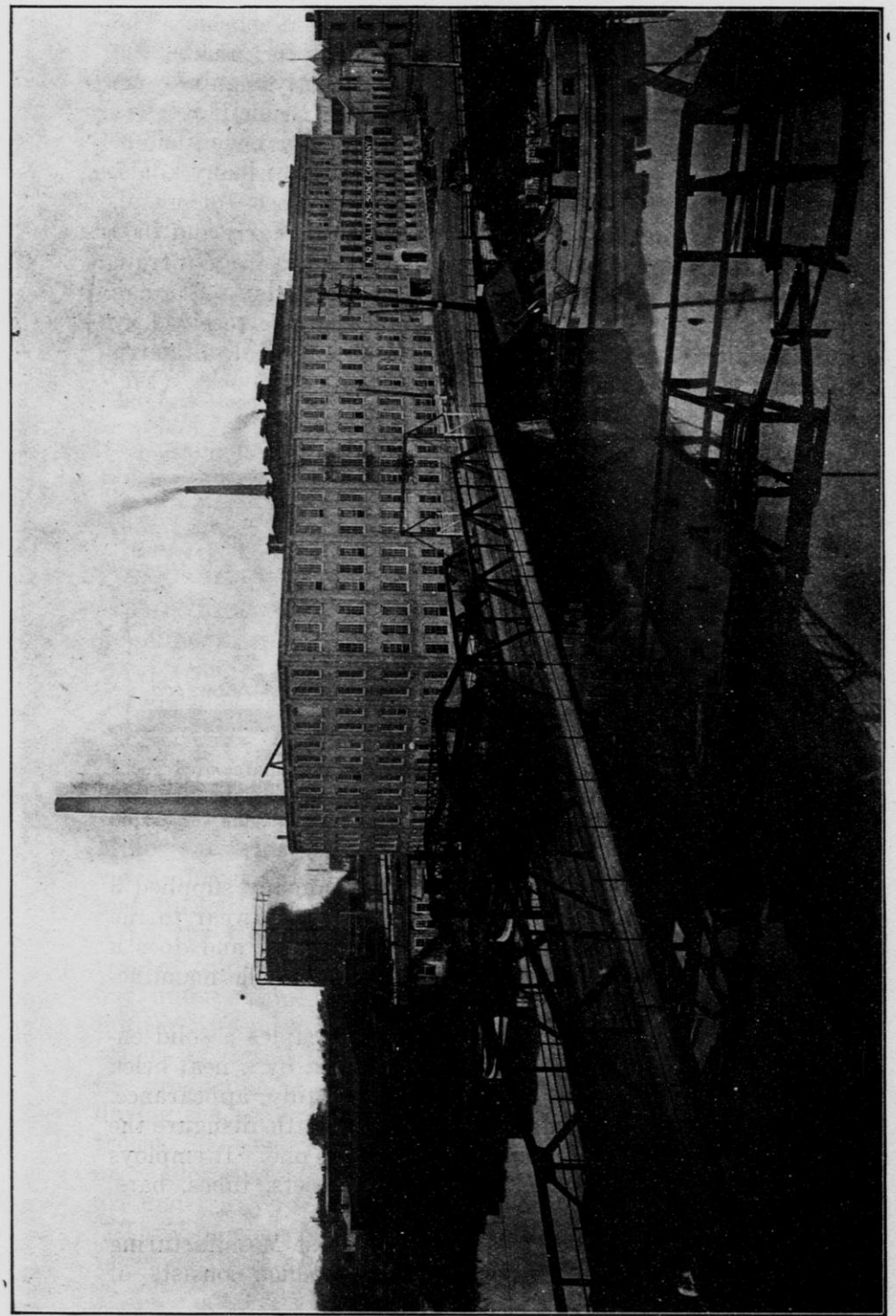

Fig. 82—Main building of the Allen Tannery, founded in 1856, and one of the few remaining tanneries in Wisconsin outside of Milwaukee.

(brass) plumber's supplies. It receives most of its material from the American Brass Company.

Nearby is the C. M. Hall Lamp Company, makers of cycle and auto lamps and similar products, employing 300 persons. It is said to manufacture 100,000 cycle lamps, and 400,000 auto lamps a year. Most of the brass used in these is manufactured in the American Brass Co.'s plant.

One of the important products of the Simmons Manufacturing Company is brass beds, the material for which comes mainly from the local plant of the American Brass Company. Thus it is that Kenosha has become one of the leading centers of brass goods in the United States.

The Allen tannery devoted most of its efforts to the production of leather for war purposes during the war. It has one of the largest single tanneries in America. It has grown until its 28 buildings occupy ten city blocks. When running at full capacity it employs 800–1000 people.

In addition to the foregoing concerns are the following:

The Hannahs Mfg. Co., makers of library tables, employing about 150 persons.

The F. L. Wells Co., metal-working machinery, about 75 employees.

The Macomber and Whyte Rope Co., wire rope and cables, 400 employees.

The Vincent Alward Co., bed springs, 100 employees.

The Arneson Foundry Co., general foundry, 100 employees.

The Peter Pirsch Co., fire trucks, 50–100 employees.

The Winther Motor Co., automobiles, about 200 employees.

All of the manufacturing industries of the city employ between 10,000 and 12,000 people. The estimated value of the products reaches $50,000,000, or double the production of 1910. If this estimate shall prove to be correct when the U. S. census figures for 1920 appear, it will mean that Kenosha's manufactures have risen from 7½ million dollars in 1900 to 50 million in 1920, a gain of nearly 600 per cent.

Reasons for the Slow Early Growth and the Rapid Recent Growth of Kenosha

Like its neighbors—Chicago, Racine, and Milwaukee—Kenosha owes its site to the opportunity for a harbor. Like those cities, the early business life of Kenosha depended almost wholly upon the commerce of the port and the trade with the back country. The unique position of Chicago, near the

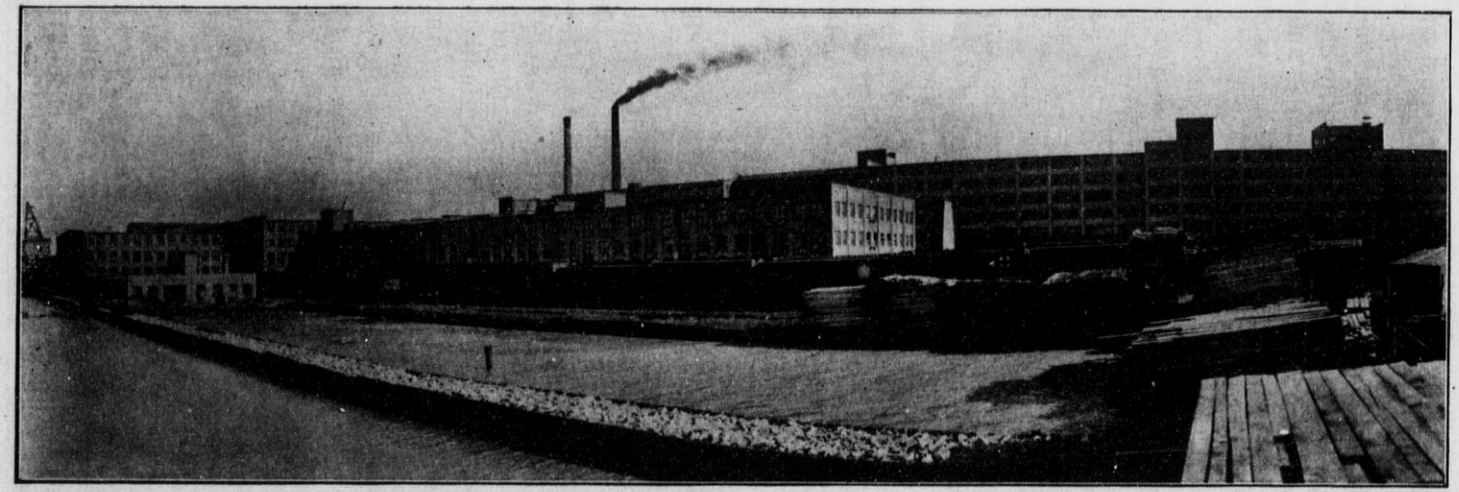

Fig. 83—A portion of the buildings of the Simmons Manufacturing Company, one of the oldest and largest establishments in the city. The company specializes in the manufacture of metal beds. It receives and ships 12,000 car loads of freight a year.

end of Lake Michigan, gave it advantages as a commercial and industrial center which quickly raised it entirely out of the class to which Milwaukee, Racine, and Kenosha could aspire. Chicago was built in a malarial swamp, a place far inferior in attractiveness to the sites of its northerly neighbors, but neither swamp nor malaria could prevent the growth of a great city at such a strategic point as Chicago occupies.

Next to Chicago, Milwaukee had the best advantages, especially in her harbor, which was much more commodious than those of Racine and Kenosha. Kenosha's inadequate harbor facilities formed one main reason for the slow growth of the village and early city. Milwaukee's superior harbor gave a sufficient advantage over its competitors to enable the city to get larger government appropriations and to secure money more easily for building roads and railroads into the interior. These roads and railroads, focusing upon Milwaukee, reached into the hinterland of Racine and Kenosha and drew to Milwaukee the larger part of the business of the interior of Wisconsin. Chicago became an even greater focus of transportation lines, some of which invaded the hinterland of Kenosha.

It is clear that, so long as the lake commerce and the trade with the interior were the chief causes for the prosperity of Racine and Kenosha, these places were at a disadvantage as compared with Milwaukee and Chicago. In short, the harbor and the transportation lines into the back country determined the amount of business which these lake ports did. In both these particulars, Kenosha was at a disadvantage.

So long as the shipments of wheat and the receipts of lumber by boat continued to be large items, Kenosha had a port trade of considerable value; but wheat ceased to be important in southern Wisconsin after 1880 and the great lumber trade of Lake Michigan declined rapidly soon afterward, for the forests of Michigan and Wisconsin were well on their way to exhaustion.

With its superior harbor and better distributing facilities, Milwaukee has absorbed the lion's share of the coal traffic of southern Wisconsin, and Kenosha has not been able to build up a coal trade to replace the declining grain and lumber trade. Moreover, trade is not in itself sufficient to build up a city's population. Only manufacturing can do that in a large way. The reason, then, for the slow early growth of Kenosha is to be found in the fact that her facilities for trade were below those of the competing cities both north and south of her.

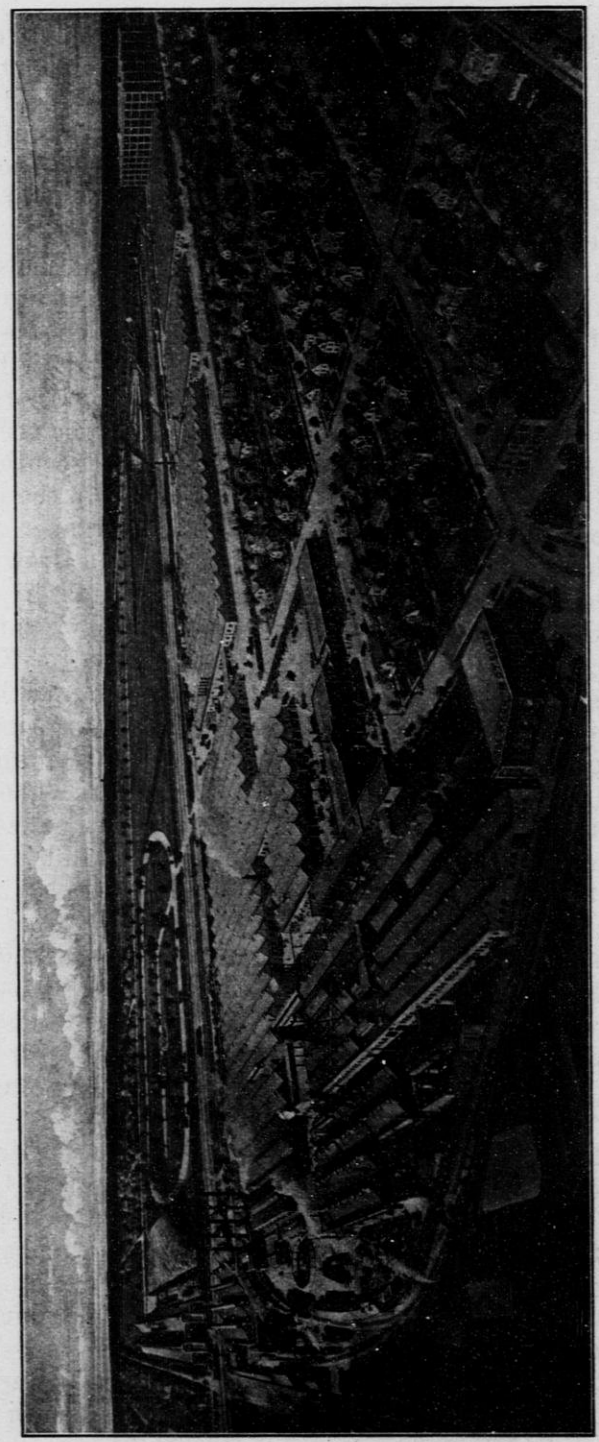

Fig. 84—Plant of the Nash Motor Company, in 1920 the largest manufacturing establishment in Kenosha, employing upwards of 5,000 persons.

During this period it is apparent that the position of the city between Chicago on the south, and Racine and Milwaukee on the north, was detrimental to her economic life.

But there came a time when a new set of economic forces began to dominate the city's growth. The great manufacturing era in the Middle West began about 1890. From this time on, the lake traffic fell more and more into the background, and manufacturing rose to an ever more dominant place. Then it was that Kenosha's geographical position began to work in her favor. Chicago was the railroad center of the nation, and the collecting, distributing, and manufacturing center of the West. A large and wealthy population existed within a few hundred miles of these Wisconsin ports on Lake Michigan. They became, in fact, part of the Chicago district, for the freight rates by rail or by lake to the East are the same from all the Wisconsin ports on Lake Michigan as they are from Chicago. Land and living are less expensive in Kenosha than in Chicago. Labor is likely to be more contented, and taxes are lower. These advantages enable the manufacturers of Kenosha to thrive. For purposes of manufacturing these lake shore cities of Wisconsin occupy an ideal position, and they are bound to grow to large size. No prediction for the future could be surer than this.

Kenosha's harbor is not now an important factor. Even the Simmons Company, situated on the harbor, and having its own dock, receives its coal and its raw material by rail, and ships practically everything by rail. Neither the Allen tannery nor the Bain Wagon Works, also on the waterfront, make any considerable use of lake transportation. But the potential value of the lake is considerable; it gives the city the same railway rates from the East that Chicago enjoys, and the time may come again when lake transportation will be, to a larger degree, an actual instead of a potential benefit to the city.

The population of Kenosha in 1920 had risen to 40,472, making it the third city in the state in population as it probably is in manufacturing.

CHAPTER IX

WALWORTH COUNTY

The present Walworth County was included in Milwaukee County until 1836, and in Racine County until 1839. It is four townships square and has an area of 562 square miles*. Each of the 16 townships is supposed to be 6 miles square and to have an area of 36 square miles; this would make the area of the county 576 square miles, or 14 more than the actual area.

When the first settlers came in 1835, the region was one of alternating prairies and oak openings. The larger prairies are shown in Fig. 11; many smaller ones are not shown. It is said that the oak openings were "as free from underbrush as an orchard". The first settlers selected their claims so as to include both prairie and woodland. The prairies received definite names, many of which are still used, as: Round prairie, Heart prairie, Meacham's prairie, Elkhorn prairie, Geneva prairie, Spring prairie, Gardner's prairie, Turtle prairie, and Sugar Creek prairie.

The most important Indian village in the county was at the head of what is now Lake Geneva, then called Bigfoot Lake. The village was called Bigfoot, for it was the residence of the Potawatomie chief, Bigfoot, and consisted of some sixty families. The stolid chief and his followers were required to leave their village and hunting grounds in 1836, for the Potawatomies had ceded their lands to the U. S. Government and had agreed to removal across the Mississippi.

Settlers came in with a rush during 1836, and settlements soon grew up at Geneva, Spring Prairie, Delavan, Troy, and East Troy, though some of the places bore different names at the beginning. Spring Prairie was the most important of these early settlements. In the fall of 1836, there were 35 families in the county. Game was exceedingly abundant and formed a valuable item of food. One settler at Troy is reported to have shot 98 deer during the winter of 1838–39. In 1836 the nearest post office was at Racine; in 1837, one was es-

* U. S. Census.

tablished at Burlington in Racine County. In 1838 the first post office in Walworth County was established at Spring Prairie and was called Franklin Post Office. By 1840 twelve post offices had been established.

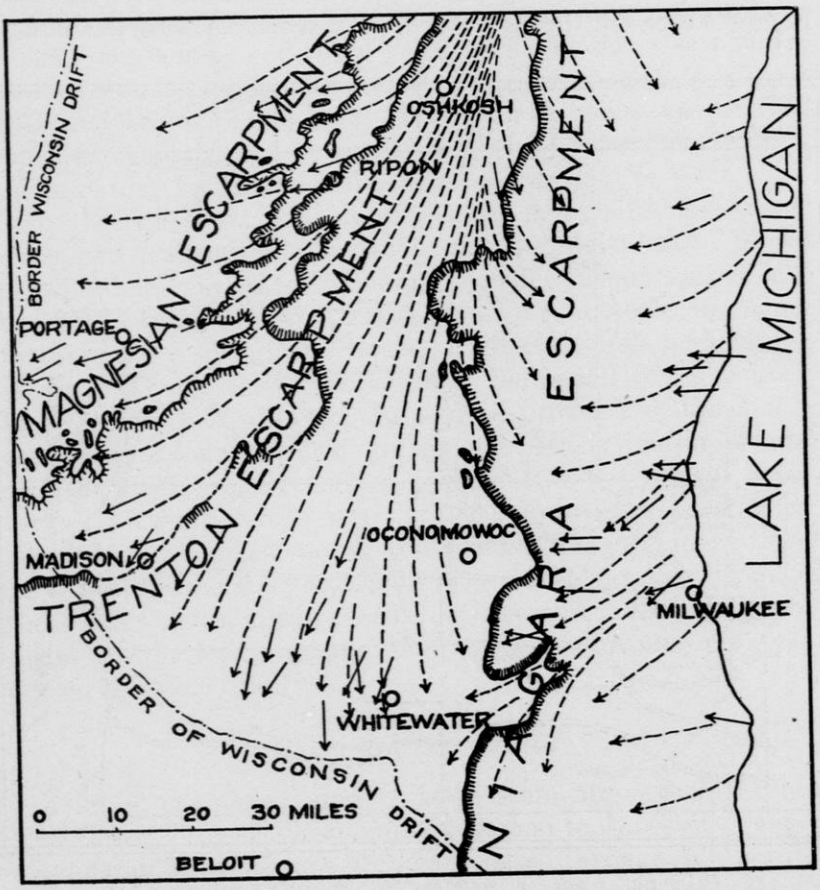

Fig. 85—Map showing the position of the Niagara and other escarpments in southeastern Wisconsin. Arrows at the right indicate the direction of movement of the ice in the Lake Michigan lobe and the other arrows the direction of movement of the ice in the Green Bay lobe.

Early Transportation

When the white settlers arrived, the only beaten paths were the Indian trails, a number of which traversed the present area of Walworth County. Some of these developed into the main highways of the region. As early as 1837 a road from the Rock River to Racine was marked out. A government road,

though a poor one, was cut through from Milwaukee to Janesville in 1838; it ran through East Troy, Mahew, Millard, and Richmond and was a mail route for over 40 years. One of the important early roads from Southport (Kenosha) to Beloit ran through Geneva. Another equally important one ran from Racine westward through Burlington across Walworth County

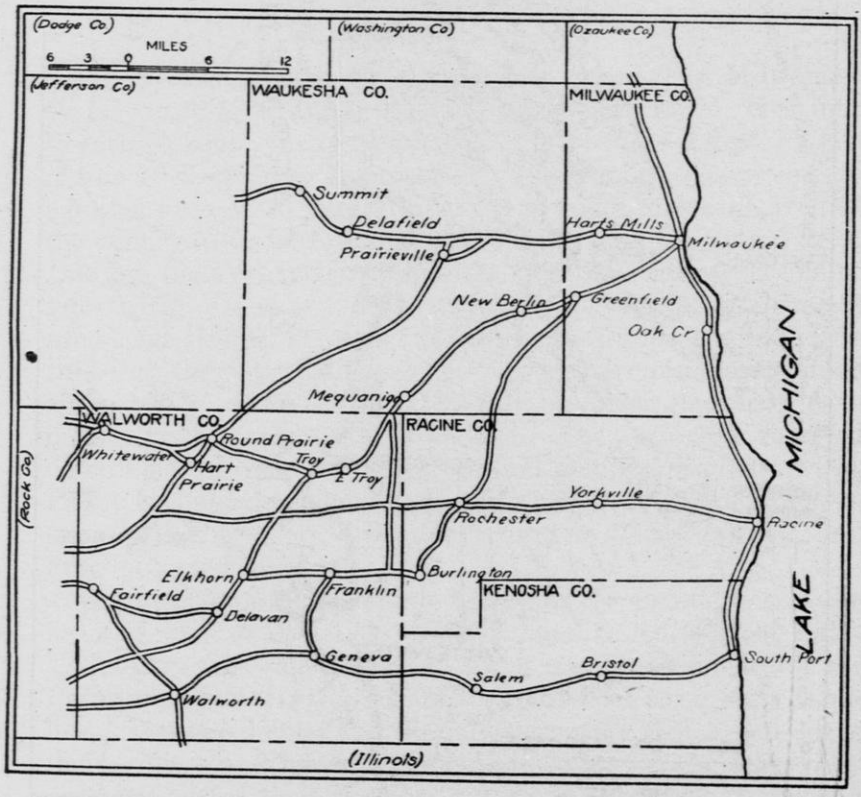

Fig. 86—Principal roads in southeastern Wisconsin about 1845. (After I. A. Lapham.)

to Janesville. The important roads of 1840–56 are shown in Fig. 86. These main highways leading to Milwaukee, Racine, and Kenosha were lines along which an enormous amount of wheat moved during the years 1840 to 1860. During the autumn, the farmers' wagons formed almost a procession, for wheat was the one big crop of the region, and nearly all of it had to be hauled in wagons to ports on Lake Michigan, 25 to 50 miles away.

Early Industries

Nearly all of the settlers came for the purpose of farming, but a few were mechanics, merchants, and professional men. Saw mills and flour mills were needed at once and wherever waterpower was obtainable, a little mill was sure to spring up. In 1840 the county had three grist mills and seven saw mills; there were also ten general stores. The population rose from 1019 in 1838 to 2611 in 1840. This gain in two wears was as much as the gain in 30 years from 1860 to 1890. The gain in the next four years was still greater—from 2611 to 8000.

By 1845 the county had nine grist and flour mills, eleven saw mills, two carding mills for wool, and one woolen mill. Wheat growing had reached such a stage that one farmer raised 5625 bushels in 1845. Considering the county as a whole, its manufactures have been very closely connected with agriculture, which is the one chief occupation of the people of the county. In 1860 over half of the manufactured products of the county consisted of flour and feed; the second industry in importance was the making of agricultural implements (in five small factories). Twenty years later, in 1880, flour and feed still led, while wagons ranked second and agricultural machinery third. In 1880 there were seven wagon factories in the county; all of these have since disappeared. At present (1920) milk products are the leading manufactures; there are nine milk condensaries in the county.

Mail Routes in 1845

A stage ran three times a week from Milwaukee through East Troy, Troy, Elkhorn, and Richmond to Janesville; also a stage from Milwaukee to Madison passed through Whitewater three times a week. A tri-weekly stage ran from Racine through Spring Prairie, La Fayette, Elkhorn, Delavan, and Darien to Janesville; another from Southport carried the mail to Bloomfield, Geneva, Walworth, and Sharon to Beloit. In those days the arrival of the stage was the principal event of the day. Letters were rare, and in the early days the postage was 25c for each letter, and was usually paid by the receiver. The roads were wretched at the best, and in wet weather were almost impassable.

Coming of the Railroads

The first railroads in Wisconsin were built westward from ports on Lake Michigan and were designed to carry farm products to Lake ports for shipment eastward, and to carry freight from these ports to interior settlements. The more ambitious railroads aimed to connect Lake Michigan with the Mississippi River.

The first railroad in Wisconsin ran from Milwaukee to Waukesha, Madison, and to the Mississippi at Prairie du Chien. This pioneer road, now a division of the Chicago, Milwaukee and St. Paul system, reached Whitewater in 1852 and gave a boom to the place. In 1855–6 the Racine, Janesville, and Mississippi, now a division of the C. M. & St. P. was built through Walworth County (Fig. 33). In 1856 the main line of the Chicago and North Western from Chicago to Madison cut across one corner of the county, touching the village of Sharon. The railroad from Kenosha to Rockford, Ill., (completed in 1862) barely touched the southeastern corner of the county at Genoa Junction. A short line of road was built from Genoa Junction to Geneva in 1856, but failed, and train service was discontinued for several years. In 1871 the line was revived and is now a branch of the C. & N. W. system.

In 1901 an important line of the C. M. & St. P. between Chicago and Madison was built across the southwestern part of the county touching Walworth. A short line belonging to the C. M. & St. P. system also connects Elkhorn and Eagle. Four townships of the county have no railroads and practically all of the railroad mileage in the county belongs to branch lines rather than to main lines. Walworth County farmers, like those of all eastern Wisconsin, mortgaged their farms to raise money to assist early railroad companies. Some of the roads were built and failed; others were never built, but the deluded farmers had to pay the mortgages just the same. Bitter resentment followed, and railroad companies have never been able to outlive the suspicion which these early frauds aroused.

WHITEWATER

The first settler in Whitewater located his claim in 1836. Like many other villages, the town grew up around a mill located at a waterpower; it was built in 1839. Whitewater is in a region of extensive glacial deposits, among which are beds of clay. One of these gave rise to a brick yard, started in 1841. In 1843 a second flour mill was built. In 1844 the village had 29 dwellings and six stores. In 1845 a pottery began making coarse articles such as flower pots and jugs; in 1855 there were two potteries operating. In 1850 a stove foundry was attempted but was unsuccessful. At this time the village also had a distillery. When the Milwaukee and Mississippi Railroad built its tracks through the village in 1852, the place grew rapidly and became the leading town of the county; it was incorporated as a village in 1858.

About this time (in 1857) an inventor, George Esterly, who had perfected certain grain-harvesting machinery made Whitewater the center of his manufacturing operations, and for many years this plant was the most important in Whitewater, employing 400–500 hands. Mr. Esterly also established a furniture factory which was employing 75 persons in 1880. When the Esterly works left the city in 1893, it began a decline in population from which it has not fully recovered. Whitewater was for years one of the leading wheat-shipping stations on the Milwaukee and Mississippi Railway. During 1854, 322,000 bushels of wheat were shipped from that point; there were in the village seven warehouses for handling grain at that time.

Prior to 1860 another large manufacturing concern—the Winchester and Partridge Manufacturing Company—began the manufacture of plows, and later of wagons. The "Whitewater Wagon" became widely known, and it is said that 70,000 of them were turned out between 1864 and 1880. The company employed from 150 to 200 men.

A paper mill was established in 1860 and continued up to about 1895. In 1885 Whitewater was incorporated as a city. The principal industries at present are a milk condensary employing about 50 persons and a pea cannery employing in the canning season about 125 persons.

At various times the city has had a number of industries, many of which have since been discontinued; these included a

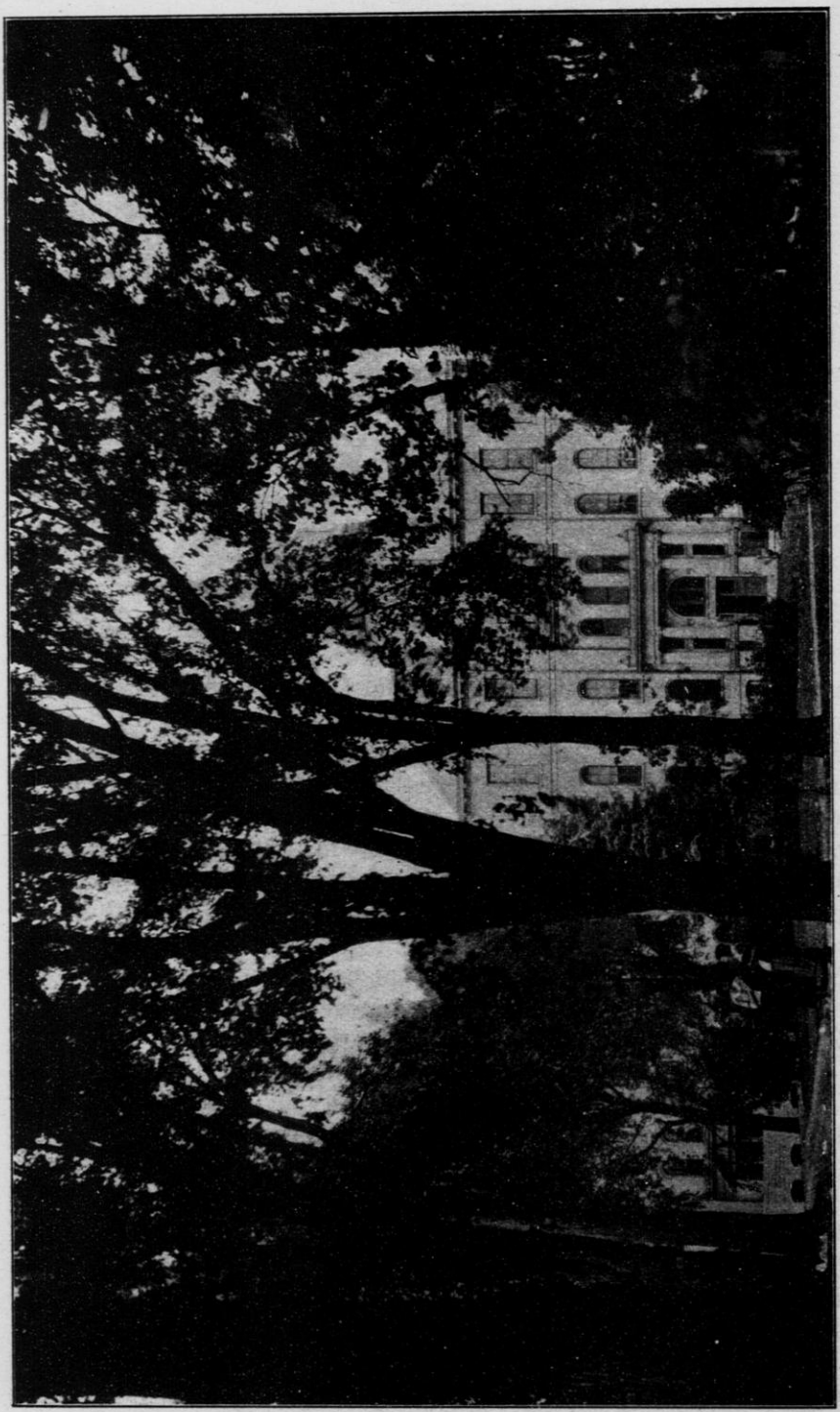

Fig. 87—Normal School, Whitewater, the second State Normal School established in Wisconsin (1868).

second wagon factory employing 30–50 persons; a leaf tobacco factory employing about 75 persons; a wire screen manufacturing company employing 35 persons; a brewery, distillery, planing mill, creamery, cheese box factory, tannery, etc.

The second normal school in Wisconsin was established in Whitewater in 1868 (Fig. 87). The school has been for a half century a real influence in education in the state, and has given an atmosphere of culture to the city. One man, Prof. Albert Salisbury, who gave 38 years of his life to the school, including 26 years as president, left a distinct impress upon hundreds of teachers who were fortunate enough to come under his influence.

TABLE XLIV. *Population of Whitewater*

1850	750	1895	3,799
1860	2,831	1900	3,405
1870	3,304	1905	3,108
1880	3,621	1910	3,224
1885	4,158	1920	3,215
1890	4,359		

LAKE GENEVA

This is another example of a place that owes its particular location to a water power site; in this instance, the outlet of Lake Geneva. Here the first flour mill in the county was built in 1837; in the same year a post office was established. The name was Geneva until 1882, when the present name of Lake Geneva was adopted.

An important road and stage route between Kenosha (Southport) and Beloit was established through Geneva in 1840, and in 1844 the settlement became an incorporated village. The Lake Geneva flour mills, at the water power, were patronized by a large part of the surrounding county, and the highway leading to Southport was one of the great thoroughfares for hauling wheat during the decades from 1840 to 1860. In the early days there were two saw mills in the place. Of the 403 people in the village in 1844, 206 came from New York, 54 from Vermont, and 19 from Massachusetts.

The most important event in the early history of the village was the coming of the railroad in 1856. The place grew slowly, and in 1870 had a population of only 998. (Fig. 90)

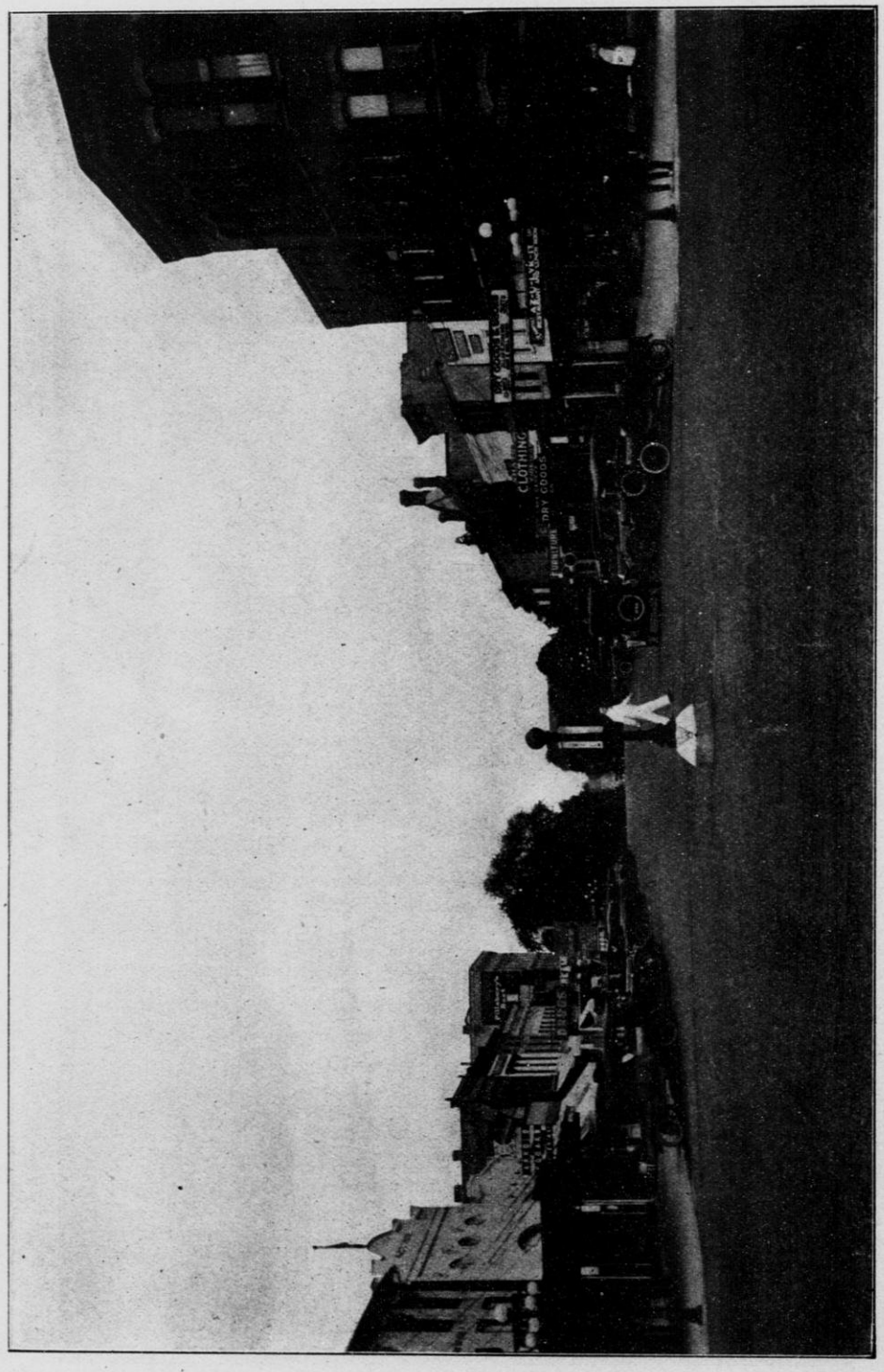

Fig. 88—Part of the business section of Lake Geneva. Population of the city in 1920 was 2,632.

Manufacturing has never been important; the reputation of the place rests upon the beautiful lake and its superb setting. Lying, as it does, near Chicago, and having a shore of great beauty, the lake has attracted many wealthy men who have built, on the south shore particularly, some of the most expensive summer homes to be found in Wisconsin. Estates valued at hundreds of thousands of dollars are numerous. The fleet of beautiful private yachts on the lake is probably not equalled on any other lake in the United States.

Overlooking the south shore of the lake, on a high eminence is the great Yerkes observatory containing one of the largest refracting telescopes in the world. At the west end of the lake is the small village of Fontana, and nearby on the north shore are the summer camps of the Y. M. C. A. and Y. W. C. A., to which hundreds of young people go yearly.

TABLE XLV. *Population of Lake Geneva*

1880	1,969	1900	2,585
1885	2,281	1905	3,449
1890	2,297	1910	3,079
1895	2,452	1920	2,632

DELAVAN

Two remarkable men—Henry and Samuel Phoenix—settled here in 1836 and named the place Delavan in honor of a noted temperance leader of New York. The settlement was intended to be a temperance colony and all deeds to property given by the Phoenix brothers contained a clause forbidding the sale of intoxicants on the property. A post office was established in 1837 and a saw mill and grist mill erected some years later. By 1846 the village had a population of 400 with shops engaged in making fanning mills, plows, etc., on a small scale. Delavan was on one of the most used of the early highways, the one extending westward from Racine to Janesville. This road was planked from Racine to Delavan and was one of the leading thoroughfares of its time. Delavan was incorporated as a village in 1855, and in 1856 the Racine and Mississippi Railroad built its tracks through the village. This is now a division of the C. M. & St. P. system. Delavan contains one of the notable state institutions of Wisconsin—the School for the Deaf—organized in 1852.

MANUFACTURES. Several modest efforts at building up manufacturing have been made. In 1861 a pump factory was established which turned out 5000 wooden pumps a year; later, iron pumps and wind mills were made. Then followed a tack factory which did not prove successful. In 1903, however, an industry was started which has added greatly to the economic life of the city; it was the Globe Knitting Mills. Later it became the Bradley Knitting Company, and has grown into a

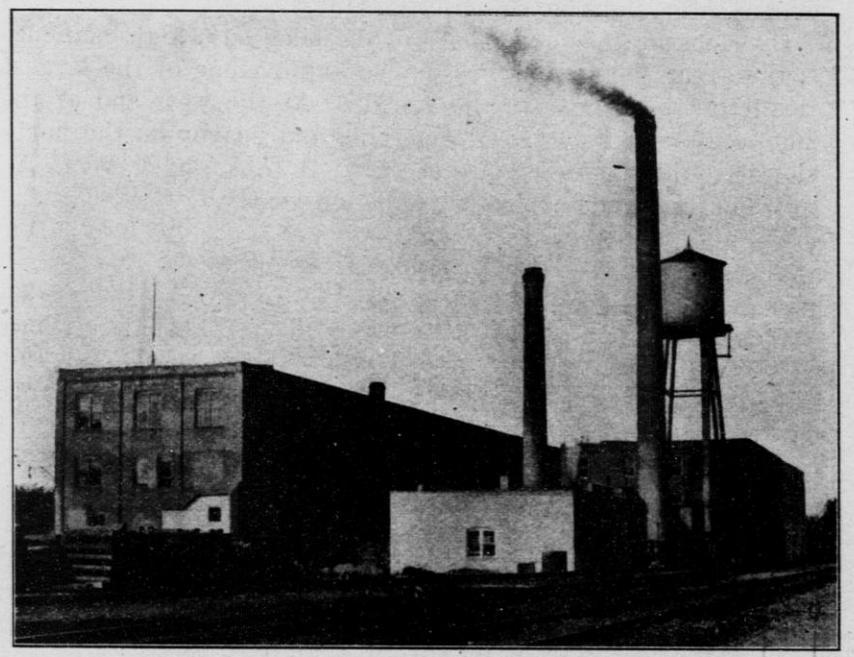

Fig. 89—Bradley Knitting Company's mill at Delavan.

large and important industry (Fig. 89). Its chief product is woolen sweaters. In 1910 it was employing 100 persons. During the War (1918) it employed 400 or more.

One of the eight milk condensaries of Walworth County is in Delavan.

TABLE XLVI. *The Population of Delavan*

1880	1,798	1900	2,244
1885	1,730	1905	2,321
1890	2,038	1910	2,450
1895	2,238	1920	3,016

LAKES. Near Delavan is Delavan Lake, second only to Lake Geneva in attractiveness. It, too, is surrounded by beautiful

summer homes and is one of the select summer resorts of southern Wisconsin. Between Delavan and Geneva is Lake Como, also a favorite summer play ground. These three lakes are all of glacial origin, caused by the terminal moraines of the Delavan Lobe. Lakes Geneva and Delavan lie between two moraines, the Elkhorn moraine and the Darien moraine, while Lake Como lies behind the Elkhorn moraine.

ELKHORN

Elkhorn is built upon a site which was selected and platted for a village because it was at the exact center of the county. Unlike most sites selected for early settlements it had no waterpower. It grew slowly and in 1849 had 539 people. One of the most travelled roads in the region—the Janesville-Racine road already referred to—passed through Elkhorn. A writer in the Racine Advocate (Oct. 17, 1843) says of this road: "It is the easiest and pleasantest route from the Rock River to the Lake Michigan and is well provided with good public houses". At one time this road was planked from Racine westward as far as Delavan. The Racine and Mississippi Railroad, previously referred to, passed through Elkhorn in 1856. This road, and the promise of others, gave something of a boom to the village, and in 1857 it had a population of about 1500, but afterwards declined. In 1870 a short line of railroad was built from Elkhorn to the Prairie du Chien division of the C. M. & St. P. R. R. at Eagle.

Elkhorn has been and still remains a business center of a rich farming region. It has never acquired important manufacturing concerns because it is, like other towns in the county, an inland city, off the main lines of communication, and holding out fewer advantages for manufacturing than are afforded by the cities on Lake Michigan, not far away. In 1920 the city had one manufacturing establishment of considerable importance, the Frank Holton Company, makers of brass band instruments, employing from 100 to 150 persons.

TABLE XLVII. *Population of Elkhorn*

1880	1,122	1900	1,731
1885	1,249	1905	1,818
1890	1,447	1910	1,707
1895	1,728	1920	1,991

Villages of Walworth County

In addition to its four cities, Walworth County has four incorporated villages: East Troy and Genoa Junction each having a population of about 700; Sharon, with a population of

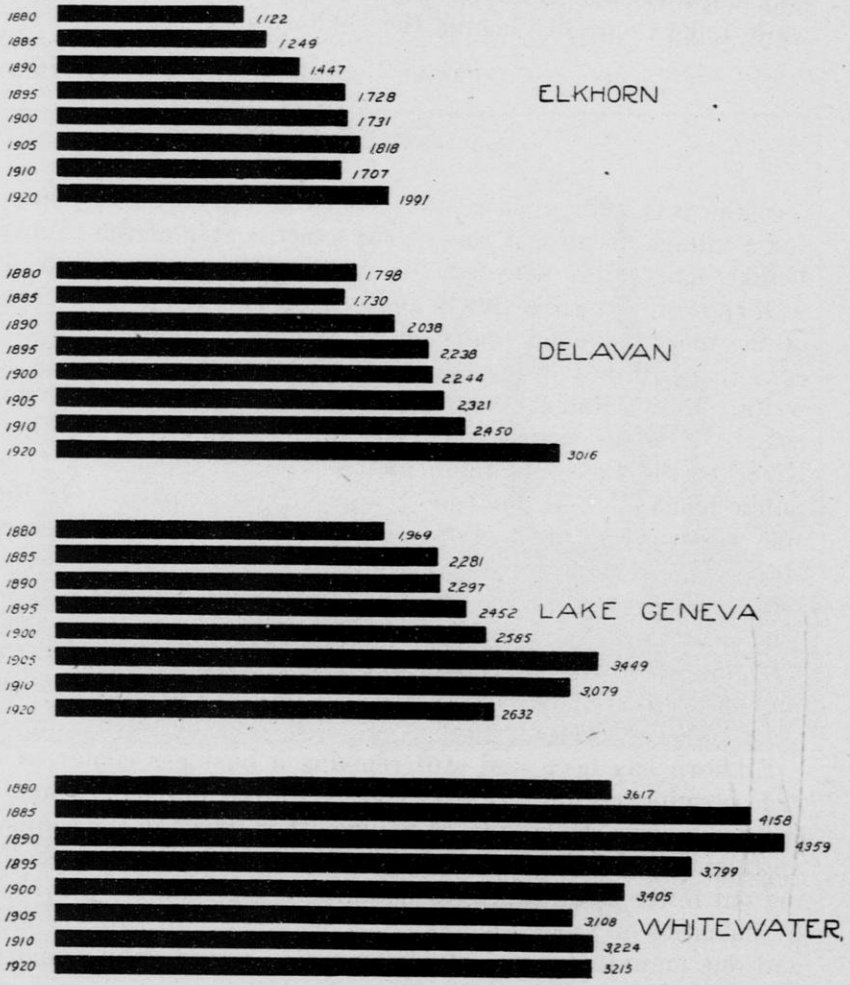

Fig. 90—Diagrams showing the population of the four cities of Walworth County from 1880 to 1920.

about 900; and Walworth with about 800. All are on railroads. East Troy, however, is served only by an electric railway running to Milwaukee.

There are also eleven smaller places ranging from hamlets to villages of 300 to 400 people. These are: Allen Grove,

Darien, Fontana, Honey Creek, Lake Beulah, Lyons, Springfield, Troy Center, Williams Bay, and Zenda. Practically all of these, in addition to being post offices and local trading centers, have either creameries or milk condensaries.

Agriculture in Walworth County

Of the five counties with which this Bulletin deals, Walworth is the most distinctly agricultural. Each of the other four counties has at least one city of good size, but the largest city in Walworth County has less than 4000 people, and its four cities and four incorporated villages together have fewer people than live in Kenosha alone. From the early settlement in 1835 down to date, Walworth County has been one of the prosperous agricultural counties of the state. Its lands were very rapidly occupied by settlers, most of whom came from New York and New England, bringing with them high ideals of citizenship. The very name of the county was given in honor of a distinguished jurist of New York state. The county has always had a dominantly American population.

There are about 2800 farms in the county. All of the land except 6 per cent is included in farms, and about two thirds of it is productive of crops or used for pasturage.

Soils. All of Walworth County, except the southwestern corner, was over-ridden by the ice of the Wisconsin glacier which was the last glacial invasion of this region. Nearly all of the soil, therefore, is glacial drift of the most recent deposit. The town of Sharon is covered by drift of the Illinoian age, which is much older than the Wisconsin drift. Two conspicuous ranges of morainic hills cross the county in large loops. In fact, about 75 per cent of the surface of Walworth County is covered with either terminal moraines or ground moraine, most of which is clay loam, with frequent patches of sandy and gravelly loam. The northern tier of townships contain a great deal of gravel, known as "glacial outwash", because it was deposited by streams flowing from the melting glacier. Running water is a great sorter of the materials which it carries; the coarse gravel is deposited near the glacier and the fine sand and clay is carried farther away. The towns of Lafayette and Spring Prairie are largely covered with hilly moraine deeply trenched by Sugar Creek which flows in a valley nearly two hundred feet deep in places.

Only a relatively small part of the county is strictly level, yet the highest hills seldom rise more than 100 to 150 feet

above the surrounding lowlands, and the difference in altitude between the highest and the lowest land in the county is scarcely 250 feet. Land of this general character gives rise to diversified farming.

CROPS. Walworth County lies in the great corn belt of the United States, the greatest corn-producing region of the world. This is the leading crop of the county; it is grown on 55,000

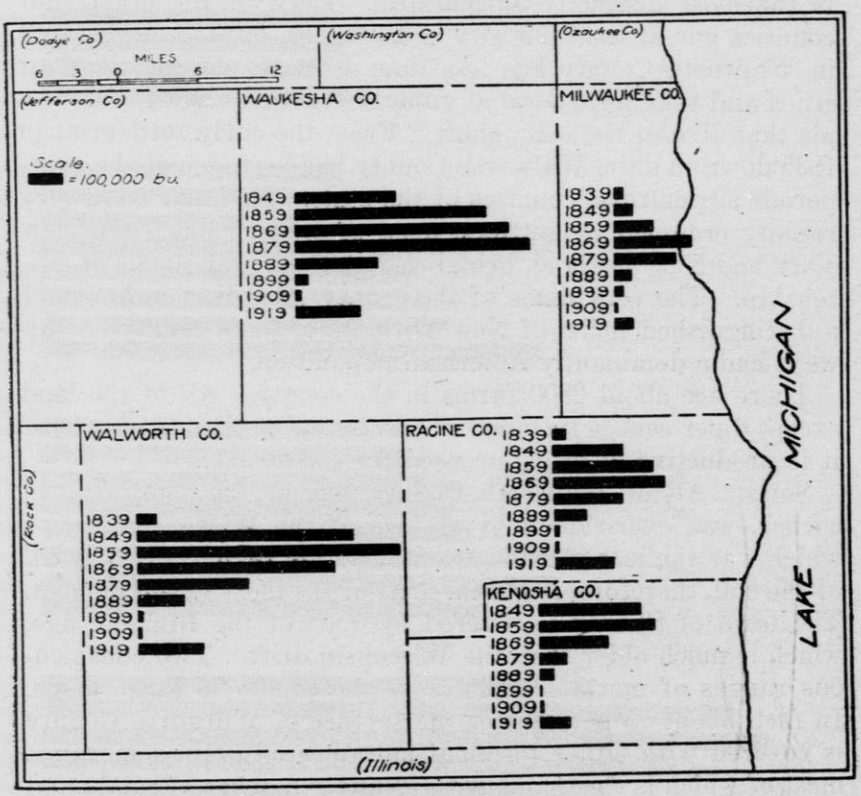

Fig. 91—Map showing the progress of wheat production in southeastern Wisconsin. Note the effect of war prices upon the crop of 1919.

to 65,000 acres annually, and yields a crop of from two million to three million bushels. Much of the corn is cut green and placed in silos for winter feeding; 2400 of the 2800 farms had silos in 1918; in this respect the county is a leader. Oats rank second among the crops, being grown on about 40,000 acres. Hay ranks third in acreage, not far below oats. It will be noted that each of the three leading crops is grown primarily for feeding to farm animals, and not directly for

human food. This is due to the great number of cattle and hogs which are raised in the county.

Ups and Downs of Wheat Raising. In Walworth County as in the other counties, wheat was the chief crop grown in the early days. It was the only crop which always had a market and an immediate cash value. Most of Walworth County was without a railroad until 1855, and wheat had to be hauled in wagons all the way to Lake Michigan ports. In 1850, a crop of over 600,000 bushels was raised in the county, and the larger part of it was hauled to Milwaukee, Racine, or Kenosha. In 1860 the crop exceeded 800,000 bushels. Soon after the Civil War wheat production fell off notably, reaching 605,000 bushels in 1870; and declining to 12,000 bushels in 1910. The European war of 1914–18 so raised the price of wheat that Walworth County again raised wheat, producing 175,000 bushels in 1917, and 135,000 bushels in 1920 (Fig. 91).

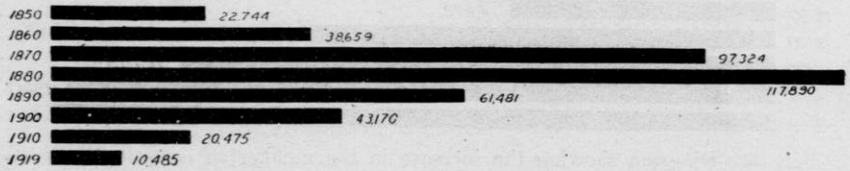

Fig. 92—Diagram showing the rise and decline in the number of sheep in Walworth County.

Sheep-raising. As already pointed out, Walworth County has a large amount of land better suited to pasturage than to the plow; this was devoted to sheep more than to cattle down to about 1885. Even as early as 1850, the county had 22,744 sheep and ranked first in the state. Wool is also a crop which has a ready market, and owing to its high value in proportion to weight, is a good crop to be raised on farms somewhat removed from markets. The number of sheep in the county continued to increase until the eighties, reaching 118,000 in 1880. Soon after this, sheep-raising began to give way to dairying, and cattle became more and more numerous. In 1919 there were scarcely 10,000 sheep in the county and nearly half of these were in the town of Spring Prairie. Aside from this one town sheep-raising is now a negligible industry in the county (Fig. 92).

Swine-raising. Corn-growing and hog-raising usually go together, but this is true only to a moderate extent in Walworth County. In 1910 the U. S. Census reported over 56,000 swine; while in 1918 the number was estimated at 37,000.

DAIRYING. This is now the dominant type of farming in the county, as it is in Wisconsin generally, for Wisconsin is the foremost dairying state in the Union. Up to 1880 dairying was a subordinate industry in Walworth County, which then had only 14,700 dairy cows. In 1890 the number had risen to 26,000, in 1910 to 39,000, and in 1919 to 40,000 (Fig. 93).

Cheese-making has never been important, but butter-making rose to great importance between 1900 and 1905. In the latter year, the county had 52 creameries which made 5,000,000 pounds of butter. The number of creameries had declined to 30 by 1910 and to 8 in 1920. At the same time the amount of milk produced kept on increasing. A large amount is shipped to Chicago for immediate use in that city, and an in-

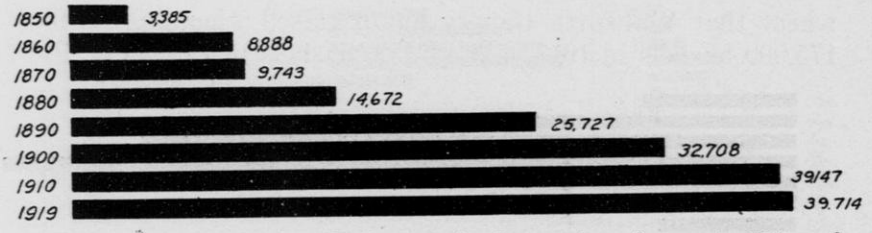

Fig. 93—Diagram showing the increase in the number of cows in Walworth County.

creasing amount is used by milk condensaries which have been established at favorable collecting centers. In 1911 Walworth County had six out of fifteen condensaries in the state. In 1920 there were 8 in the county; they were at Whitewater, Elkhorn, Genoa Junction, Walworth, Sharon, Delavan, Darien, and East Troy.

The high prices received for milk in recent years have added greatly to the prosperity of the county, and land values have advanced to unheard-of prices, reaching $250 to $300 an acre in some cases. The wealth of the county is between $2500 and $3000 per capita, or an average of fully $12,000 for every family. This is probably too low rather than too high.

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