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Rural Electrification

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RURAL ELECTRIFICATION

Due to the fact that our country is and has been for sometime in a very prosperous condition we are apt to take prosperity for granted and assume that present conditions will continue indefinitely. We do not as a rule take time to investigate and learn the reasons why general business conditions are good and wages are high, but such investigations have been made by a delegation representing British Trade Unions who were sent to the United States to study labor conditions in this country, and it is interesting to hear what this delegation had to report. The following is a quotation from an editorial in the British Electrical Review which is one of the leading industrial organs published in England:

"The highest standard of living of all classes in the United States is evident to the most casual observer, and the recent delegation of British Trade Unions saw that the reason lay largely in the extensive use of machinery and labor-saving devices and the initiative displayed in American business organization.

"The rapid advance of the light and power industry in the United States is the envy of every foreign country, and the benefit of such a development is found in the solution of labor problems. **If human beings are made the controllers of Power instead of the generators, their earning power is so much increased as to make it possible to pay them not only a living wage, but a cultural wage.**

"Private initiative is at the foundation of America's prosperity today and although there exists many Government agencies to protect the public against abuses, this is quite a different thing from Government ownership or subsidy."

It is interesting to note that the men representing trade unions of England laid the cause of our prosperity in this country largely to the extensive use of power, machinery and labor saving devices and gave a great deal of credit to the light and power industry. A brief review of a few facts will convince anyone that the statements made by representatives of the British Unions are well founded. Only six percent of the people in the world live in the United States, yet more than half of the electrical energy used in the world is generated and distributed in this country. We use more mechanical power per person than any other country in the world. The power is used for operating machinery and there is a direct relationship between the amount of power used and machinery used so that if we are the largest user of power per person, we are likewise the largest user of machinery. There is no question but that wages paid to the average laborer are higher in this country than anywhere else in the world. There are, of course, other factors which enter into this picture but the above facts stand out and make a foundation for the statements made by the English delegation.

The farmer is in competition with industry in the employment of labor. If the average wage in this country is high, the farmer must pay a high average wage for labor. The highest single item of cost to the farmer is the cost

of human energy required to operate the farm so that while it is a wonderful thing for this country to have a high average level of wages it may prove a hardship to the farmer unless he can use labor as efficiently as general industry uses it. The American farmer has made much progress in the use of machinery and labor saving devices, but the development in this direction has not been as rapid as in general industry. The result is that at the present time the farmer is not in a position to use labor as efficiently and, therefore, cannot afford to pay as high a wage to labor as general industry can and this brings about a rather difficult situation.

While there are many things which can be done to help bring prosperity to the farmers of this country, I believe that one thing is absolutely essential; namely, that farming methods be brought up to a standard whereby machinery and labor saving devices are used in the same relative degree to that now used in general industry.

For the last twenty years industry has had the benefits which come through the use of central station power. Until recently this service has been denied the farmers, and at the present time less than 10% of the farms in this state have this service available. Take central station service away from the industrial life of this country and the wages paid to industrial workers will drop, for the application of central station power to industrial operations has greatly improved old methods. It has brought about lower production costs and has increased the amount and quality of goods produced. Central station service

brought to the farmer and properly applied will do as much for the operation of his farm.

There are approximately 200,000 farms in the State of Wisconsin, and it should be possible to get central station service to 100,000 of these farms within the next few years. If this can be done and electricity properly applied to do the work on these farms, large saving can be made, farm profits will increase, living conditions will be better, and an important load will be added to the public utility systems.

At the present time electric service is not being used on farms to the extent that it should be. For the most part lighting and socket appliances in the home constitute the principal load. The average consumption by the farmers now using electric service is approximately 50 kilowatt hours per month. This condition must be changed before it will be economically feasible to spend the large amounts of money necessary to make electric service available to the farms in this state.

On the Ripon experimental line the average consumption per farm per month is about 300 kilowatt hours and this will be increased materially as the work progresses. Some may say that this is an experimental proposition and that no farmers will use as much as 300 kilowatt hours per month. I, therefore, wish to call your attention to two farms which are receiving central station service from lines of the Wisconsin Power and Light Company. These farms are operated for the purpose of making a living for the owners. They are not display farms and are using electric service because it is profitable

to do so. One of these farms is owned by Mr. W. J. Dougan, and the other is owned by Mr. Martin Hoppert.

The W. J. Dougan farm consists of 230 acres and lies about one mile east of Beloit. It is just an ordinary farm with average buildings neatly kept. It differs from the average farm only in the amount of work done by electricity. This is a dairy farm although from 50 to 100 hogs are raised on it each year. The farm supports a herd of 80 Guernseys; forty of these are milk cows and forty young cattle. Electricity was first furnished on this farm in 1914 by a small farm lighting plant. In 1916 due largely to the increased electrical load on Mr. Dougan's farm electric service was obtained from central station lines. The farm home, tenant home, milk house, barn, yard, etc. are well lighted with lamps having a total connected load of 3500 watts. The house is equipped with a washing machine, vacuum cleaner, electric iron, dishwasher and fireless cooker. The barn is equipped with eight motors having a total capacity of 23 horse power. The largest of these, a 15 horse power motor, is used to fill two silos, grind feed, hoist hay and elevate grain into bins. A 2 horse power motor operates a milking machine. Another 2 horse power motor is used on an automatic pumping system which supplies water to cool the milk and to supply water to the house, barn, and hog house.

The refrigerating unit, operated with a 1-1/2 horse power motor, is used in conjunction with the cold water for cooling the milk and is attached to a large refrigerator where the bottled milk is kept; a 1/4 horse power

motor operates the milk bottle capper and cream separator and another similar motor operates the bottle washer. It would be very interesting to you to see the cows being milked, the milk being cooled, bottled and capped all by the use of electric power and then within fifteen minutes from the time the last cow was milked to see the last of the bottled milk being placed into the electric refrigerator where it is kept at the proper temperature until taken to market. When Mr. Dougan was asked whether the use of electricity was profitable on his farm, he replied that he could not operate his farm as efficiently without it and could not get as good results with any other kind of installation.

During the year 1925, Mr. Dougan used 10,219 kilowatt hours or an average of over 800 kilowatt hours per month. Mr. Dougan is not complaining about the net earnings of his farm. Here is a practical electrified farm that is being operated with profit by one who is not doing these things to make himself spectacular but rather because they actually increase farm profits.

The Martin Hoppert farm is located near Sheboygan and consists of 79 acres of which 40 acres are cultivated. The buildings on this farm are new and modern in every respect. The buildings and yard are well lighted with electric lamps having a total connected load of 2,750 watts. In the barn a one horse power motor operates a milking machine; a 1/2 horse power motor is used in connection with the ventilating system, and an Ultra—Violet Ray Quartz lamp is being used experimentally with the dairy herd. The dairy is equipped with a 1/6 horse

power motor. A 1/4 horse power motor operates a bottle washer and a refrigerator. A 1/4 horse power motor is used on a forced draft furnace and the house is also equipped with 2—1000 watt heaters, one hot plate, two irons, a vacuum cleaner and washing machine. An automatic system supplies water for all purposes.

The novel feature on this farm is the electric truck used in delivering milk. The truck storage batteries are charged each night, and Mr. Hoppert says he can operate the electric truck cheaper than a Ford truck.

The total consumption for 1925 was 6,229 kilowatt hours. The refrigerator was installed this year and therefore the consumption is higher this year than last. On last year's consumption the average used per month is in excess of 500 kilowatt hours. This farm is operated by Mr. Hoppert as a money making farm and he stated that each use to which he had applied electricity had first to show a profit over other methods before it was installed.

Many other examples of farms where electric energy is being used in liberal quantities could be given but these two examples should be sufficient to convince anyone that there is a big field for central station electric service on the farms of Wisconsin. These two farmers have not been oversold with electrical equipment by high pressure salesmen. These farmers have studied their own problems and have on their own initiative electrified their farms. These two men will undoubtedly continue electrifying their farms until the consumption is very much higher than it is now, but if the average farmer could be induced to

use one fourth as much electricity as either of these two farmers is using rural electric service would be a profitable load desired by all utility companies.

If the 100,000 Wisconsin farms, which should be connected to central station lines within the next few years could be so electrified that the average consumption would be 100 kilowatt hours per month, there would be required 10,000,000 kilowatt hours per month to take care of this load. Furthermore the 100,000 farms connected to central station lines adds 100,000 prospective customers for the purchase of automatic water pumping systems, washing machines, refrigerators, ranges, all the household appliances and probably more important than all others to a number of small motors on each farm properly connected to suitable machinery with which to carry on the farm operations.

It will require many millions of dollars to properly equip the farms of Wisconsin so that electricity can be used in sufficient quantities to make it profitable. This investment, however, if wisely made will bring to the farmers a big return. The men who sell this machinery and equipment must be salesmen and probably many of you men who are here today will have a part in helping to bring about this very desirable and important development.

A man fully qualified to properly sell merchandise and equipment in cities is not necessarily properly qualified to sell somewhat similar equipment in the rural districts. It should be recognized by everybody that rural electric service is a new class of utility business. It is a new application of light, heat

and power service to a new class of customers scattered over wide areas. The engineering, commercial and public relations problems involved are quite different from those connected to city service. Rural electric service is in the early stage of development and therefore calls for special consideration. The men that form the contact between the utility companies and the farmers must fully recognize all of these things and must so train themselves that they know enough about the farmer's requirements and the conditions under which he can operate, to be of real help to him in selecting and installing electrically operated equipment on the farm. This is extremely important. If the utility companies generally will equip themselves to give this new development the attention it deserves, electric service will soon be an exceedingly helpful servant of men throughout the farming industry just as it now is in the city.

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