

Relation of Electricity to Farmers

Of the present graduating class only ten percent intend to follow farming as a means of obtaining a living. The old question which is never fully answered, is, why do not more of the educated class follow agriculture?

I do not wish it understood I intend to answer it here, but like writers who seem to think that they have satisfactorily settled the question, I intend only to show how more inducements may be held out to those choosing an occupation.

A man should not choose an occupation if he thinks he would not be suited to that occupation, but I think that farming may be improved so that it will be looked upon more favorably.

I believe that farmers as a rule are of the less educated class. That they do not and cannot enjoy themselves as other people do. People who follow other occupations associate with each other on equal footing.

A lawyer, a merchant and a mechanic may associate with each other, and each consider the other his equal, but a farmer is seldom recognized as equal to the lawyer or merchant in social circles, and this is due to a lack of education.

How does education make this difference?

Simply in the fact that the farmer is not acquainted with the habits and wants of people who move out of his own sphere. He does not have the same tastes that they have.

The remedy for this is evident. We must perfect our school system.

Some schools, a large percent in fact, must make a specialty of training men for the farm. The farmer must be supplied with better literature. This will come with better education. There must be better organizations of the farmers. They must associate more. The different classes of labor must be associated more, that the individuals of one class may understand the wants of the other.

After we have the farmer educated and intelligent he can better take hold of the forces of nature and use them to his advantage. If we study the life of the average farmer we see that he uses only those things,

to advantage, which he has studied. His education and training may be by the things with which he surrounds himself.

There are many ways in which the farmer may be benefited. A part of the crop which he raises are used to produce force with which to raise other crops.

This force is used in a dozen different ways. In transporting his produce to market, preparing the soil for other crops, for harvesting the grain, and in former years it was used to produce his light and heat. This energy is obtained and made use of through animal agencies.

There are forces all around them which are entirely wasted, and which by careful manipulation may be made to serve his purpose.

The farmer needs better methods of transporting his products to the market. True the railroads reach the centers of near all the large agricultural districts. The system of electric trolleyage which has been invented would come in here, and supply what could not be had in any other way. Instead of a man going to town spending one half to three quarters of a day on the road, the whole trip might be accomplished in from two to three hours.

Machinery is used on the farm to a very great extent. The plow, the harvester and the thrasher are indispensable adjuncts to farming, and these are all used only in connection with animal power.

At present we have no

source of power which has successfully been used in the place of animals, but by means of the perfection of the electric motor we may be able to utilize some of these waste forces to conduct the ordinary farm work.

Another question of some importance to the farmer is in regard to fuel. At first the only source of fuel is the forest tree and the coal fields and the farmer must in an indirect way consume his farm products. Electric heating may be brought in here to a good advantage, although electricity is used but little for heating purposes at present. Lighting is just the same to the farmer as heating.

That is, it takes the farm products in just the same way. The present system of electric lighting for cities

shows that this matter could be easily met by electricity.

I believe there is no doubt that electricity could be used on the farm where every force of any kind is needed, but for the fact that we have not the electricity to use.

Now electricity is simply a form of energy just as is light, heat, motions of matter and chemical action.

The law of transformation of energy tells us that any form of energy may be changed into any other form. Though we have no cheap source of electricity we do have the power of running streams and of the wind.

Where power is distributed over a small area as in mills and factories this dynamic force may be used without process

of transformation. Where the force is distributed over a large area as in electric lights, power plants and street railways, it is first converted into electricity for distribution, and after it is distributed it is converted into dynamic force again. For instance, heat has been used to a great extent heretofore by converting it into dynamical energy through agencies of steam, and since electricity has come into common use this dynamic energy is transformed into electricity. Thus we see that the energy which is stored up in the coal may be converted by many steps into light, heat and motion.

In the force of running streams we have dynamic force to begin with thus the conversion of the force from the conserved to the dynamic

is unnecessary. The force of the wind may be converted into electrical energy by the same number of steps as the force of steam.

The use of coal as a source of energy to the farmer would practically be consuming his products of the farm just as is done now, but this is not the case when we utilize the power of running streams. The force is supplied by nature. The only cost of its use being the machinery used in converting and transporting it.

It may appear that this supply of force is not sufficient to justify its use.

By calculating the horse power obtained from a dam across the Blue river, I find that there is enough power in the Blue and Kaw between here and Kansas City to supply sixteen horse power to every

section in a belt along the river eight miles wide and reaching from here to Kansas City.

Now this of course is only a small percent of the whole farming area. In western Kansas where there are only two rivers of any size the amount of land which would be benefitted by this power would be almost nothing when compared with the whole area of that part of the state.

This power which is obtained by rivers could be easily distributed along the rivers where the power of wind could not be used to so great an advantage.

On the upland we have the force of the wind. Here we have a variable but infinite force. By means of the windmill in connection

with the dynamo and motor we could have every operation of the farm carried on by force which costs practically nothing.

Right here would come in the application of another very important principle, the conservation of energy.

Where the source of power is so variable the power might fail just at the time it was most needed, and it might be acting to best advantage just at the time when it could not be used. The storage battery in some form would probably be useful here.

The greatest difficulty which lies in the way of the adoption of some such a system of electrical engineering would probably be the cost of the machinery in first putting up the plant.

If a farmer would wish to equip his farm with electrical apparatus either in connection with wind or water power, it would take more than his farm would be worth to do it.

We must understand that this is the beginning of the electrical age. Every piece of apparatus is covered with one or more patents, and the pieces at present go to pay the monopolies.

Such a system as this would necessitate closer industrial organization than we have at present among the farming classes.

This would be especially true in the application of the power of rivers. It would necessitate aggregation of capital.

The power of wind could be utilized on a smaller scale and without so much

capital. In fact I see no reason why each individual farmer might not have a plant of his own.

Again, the construction of any system of telperage would necessitate the combination of capital.

It might be best to use the force of the streams to supply the power for transportation.

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