



AGRICULTURAL ENGINEERING NEWS LETTER

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The Agricultural Engineering News Letter

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The Division of Agricultural Engineering, University of Minnesota, herewith introduces the Agricultural Engineering News Letter, which will be published by the Agricultural Extension Division. Present plans contemplate twelve issues of the News Letter annually, each issue making its appearance on the fifteenth day of the month.

It is believed that this service will be of benefit and that it may be used by those in important positions so far as the dissemination of agricultural information to farmers throughout the state is concerned.

In the News Letter, staff members of the Division of Agricultural Engineering will discuss subjects relating to farm power and machinery, farm buildings, and reclamation. The subjects will be timely and the discussions will be of such a character that they may be readily understood and the data readily applied by the average reader. In effect they will consist of a practical interpretation of scientific information that will be of benefit to those owning or operating farms.

How to use farm power and machinery to best advantage so that the cost of production may be kept as low as possible, is an illustration of the ideas that will be treated in the News Letter. Horse and tractor hitches for farm machines, farm garages and shops, maintaining the farm drains, the moldboard plow and its adjustments, milk cooling on the farm, and characteristics of tractor fuels, are some of the subjects that will be discussed in early issues.

The rapid and remarkable development in farm machinery, building equipment, etc., in the past one hundred years has no doubt resulted from the knowledge which men have gained through education, together with the skill that has been acquired in making and using tools.

Only the technical engineer who is constantly in contact with these developments can understand how wonderfully the materials and the forces of nature are correlated and can be utilized for the benefit of man when men learn to adjust themselves to new conditions which are thus brought about. This may be illustrated by the use of fire. It is good for man only when under control, and its use has made necessary the construction

of stoves, furnaces, steam boilers and engines, all of which during their construction and operation serve also to give employment to men.

The steam engine was not developed until the year 1769 when James Watt in England was able to construct a very inefficient one. His difficulty was not only in working out the idea but also the mechanical difficulty of constructing the cylinder, piston, etc., accurately enough to produce mechanical motion by the use of steam. This accomplishment brought a great change in the occupation of people.

Many changes have taken place in American civilization in the past one hundred years. These changes have been outstanding; they have affected industry as well as agriculture. As the United States has advanced in prosperity people have left agriculture and engaged in other industries. This has brought greater prosperity to those engaged in agriculture, who took advantage of modern machinery and improved methods of farming. Apparently agriculture prospers most when a large number are engaged in other kinds of industry and industrial wages are relatively high. This tends to hold workers in industry; and they are then consumers of farm products, thus forming a market for those who raise them.

Government statistics show that in 1800, 97 per cent of the people in the United States were agricultural. The doctor and the lawyer lived on the land and kept their own cow, horse and chickens, as well as a large garden. We had no steam engines at that time; they were just being perfected. Their success was due to the scientific knowledge that was being acquired together with mechanical skill of the mechanics who constructed them. There were no railroads and very little machinery. The ox and the horse were the only form of agricultural power other than human power.

Ninety-seven per cent is practically all of the people. This percentage was in agriculture in 1800. A rough estimate would indicate that by 1930, a period of little more than 100 years, about 25 per cent of our people had been taken out of agriculture, due to the employment given them in the development and manufacturing of the steam engine as a producer of power and the machinery which it

drives, together with its other uses, such as heating, cooking, etc.

Generally speaking 25 per cent more has been taken out due to the gasoline engine development, providing employment in the building and operating of gasoline and oil engines, automobiles, trucks, tractors, highways, filling stations, airplanes, etc.

Approximately another 25 per cent has been taken out of agriculture and given employment elsewhere due to the electrical developments that have taken place in the last fifty years. This has been due to the knowledge acquired concerning the use of magnetism in the generation of electricity which makes possible the transmission of inexpensive mechanical power at the lowest known possible cost.

This leaves about 25 per cent engaged in agriculture. Government statistics make it less. What is the complaint of those left in agriculture? Some say over-production, some say under-consumption, some say lack of foreign buying power, some say the tariff, some say the monetary system. Each of these makes itself felt in the present situation, but is it justifiable to say that too much machinery or mechanical power is being used? Surely we agree that mechanical power applied to the farm business and to farm life has made it possible for the individual farmer to produce more and to do it more easily, than in any previous time in history. Under present conditions, economical production can not be maintained without the best possible use of mechanical power and equipment. Perhaps we shall need to adjust ourselves to the advantages of mechanical power.

The present depression in agriculture makes the long-time point of view difficult to visualize with optimism. However, looking forward to improved economic conditions and an improved type of agricultural life, one of the helpful factors will be home building and home ownership. These homes may be built on a long-time payment plan, carrying a low rate of interest. This work will assist in maintaining a wage scale that will give purchasing power for food and other products. In this field, as well as in the development of mechanical power, the engineering colleges have an important part to play in publishing essential facts and in aiding the people to adjust themselves to the conditions as they develop.