

(November 11th, 1907.)

## Agriculture as a Profession.

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ADDRESSING the Canadian Club on "Agriculture as a Profession," Mr. Geo. C. Creelman, B.A., M.S., President of the Ontario Agricultural College, said:

*Mr. President and Members of the Canadian Club of Toronto,*—On behalf of the farmers of the Province of Ontario I thank you for this opportunity of telling your members of the work which we do with them and for them. Moreover, I bring you greeting from the Ontario Agricultural College and from the Canadian Club of Guelph. The Club there has a growing membership—it is now 210—and it is seeking to do its part for the citizens of Guelph in breaking down the petty spirit that so often influences small town and city councils and commissions. The Canadian Club is seeking to get together all classes and all political faiths in building up the true Canadian spirit. I bear the greeting of its members to the Canadian Club of Toronto, the parent organization of so many splendid fellow institutions throughout the whole Dominion.

"When Adam delved and Eve span,  
Who was then the gentleman?"

When gentlemen and gentlewomen from the Mother Land come to visit the Ontario Agricultural College, they ask first to see the farm, the farm operations, and the farm live stock. In the stables they inspect each animal, know the name, the breed, and often the family represented, showing a knowledge of the relative values of the breed types, and apparently take great pleasure in discussing their relative merits.

When Canadian gentlemen and gentlewomen visit us, they, as a rule, ask for the conservatories and museums and are interested in the farm work and the farm itself only as it presents a contrast to the landscape of the city or town, and in the farm animal only when the individuals are larger than anything the visitors have seen before.

In the Old Land most persons engaged in commerce look forward to the time when they will retire to rural life and engage personally in agricultural pursuits.

In this country our farmers hope some time to be able to sever all connection with the old homestead and pass their latter days in peace and happiness in the neighboring town or city.

Which, think you, has the prospect of greater happiness?

In this country we have set up false standards regarding farmers and farm operations. The city man does not always appreciate the value of the farmer as a citizen, nor the farms in the aggregate as the greatest source of our natural wealth. The country man, on the other hand, is often jealous of the apparent ease with which the city man makes his money and the appearance of luxury with which he surrounds himself.

The reason is that country and city people judge each other by entirely different standards.

When you hear the word "Hayseed" you think at once of a man in the country clothed for manual labor. When a farmer hears the word "Dude" he immediately pictures to himself a man well dressed, with a crease in his trousers, perhaps on his way to business. Neither of these men deserve the terms applied; each is properly dressed for his work, and yet each thinks the other is extreme in style.

Again, the city man looks upon most farmers as men who are near and close fisted in money matters and so jump to the conclusion that such men are narrow-minded and ungenerous in thought, word, and deed. The truth is that though a man in the country is often indisposed to pay out even comparatively small amounts of money for charity, for the public good, or even for his church, it is not as a rule an indication of "nearness," as the Scotchman would call it, but because he does not handle much money. For the same cause he would most generously donate hams, and potatoes, and flour, and bread, and cakes, and pies by the dozen.

On the other hand, the city man, who gives more readily in cash, would, I fear, make a poor showing if asked to give up a crock of good country butter from his city cellar or to share his strictly new laid eggs, even with a sick friend.

You wear a silk hat and frock coat to church because you would otherwise be conspicuous. The farmer does not wear such raiment for exactly the same reason.

And so, when you stop to think that nine-tenths of you are only one generation removed from the farm itself, you realize that it is not a difference of blood, or intellect, or even culture that distinguishes you from the man that tills the soil, but rather a mere superficial difference of immediate local environment.

Will Carleton, in one of his country ballads, says:

"It ain't the funniest thing a man can do,  
Existing in a country when it's new."

So our forefathers found it, for before they could get at the soil of Ontario, it had first to be cleared of bush, and this by purely muscular effort. When once cleared, however, there was usually fertile soil, well watered, abundant rainfall, and plenty of sunshine. All of these virtues combined ensured good crops. Farming in Essex was the same as farming in Glengarry. Few varieties of crops were grown and few tools were necessary for their cultivation and harvesting. There were practically no enemies, such as insects and plant diseases and weeds, to share the land with the crop. Farming was a simple equation. The more boys one had the more land was cleared, the more wheat and barley was raised, to buy more bush for the boys to clear. The amount of grain raised by each farmer, therefore, was in exact proportion to the amount of brawn expended by the farmer and his family. Then, farming was a business.

To-day, if you will have patience, I shall try to tell you of some of our problems, and when I have finished I shall leave it to you, if the various operations of farm work, requiring a full knowledge of many underlying sciences, do not constitute a profession, and a very complex one at that. Weeds, insects, fungous diseases, drought, improved varieties of farm crops, and the distribution of soil moisture are subjects of which our forefathers needed to know little or nothing at all, and yet to-day successful or unsuccessful farming is the result of the application, or the lack of the application, of a knowledge of these very things.

As a matter of fact, thousands of farms in this Province, after they were cleared, were found to contain one or more fields of a swampy nature or upon which the water would lie late in the spring. This went on for years, until recently the authorities at the Ontario Agricultural College announced that they were prepared to make a drainage plan of the farm of any man who would ask for it. This year we have had three men on the road engaged in this work, and next year we expect to have five. The following is a concrete illustration of the result:

One man in Victoria County had ten acres of land of black muck underlaid with clay. Before drainage he never sowed earlier than June; the field never gave more than half a crop

and often only 25 per cent., and it would grow nothing but oats and hay at best, and was therefore the poorest field on the place.

This field has now been drained at the cost of \$14.50 an acre. The farmer now sows six weeks earlier, never has a failure in crops, even in the most unfavorable seasons, grows any crop desired, was repaid for the full cost of drainage in three years by the increased crop alone, and this ten acres is now the best field on the place.

The tile draining of the low fields of our cleared land in Ontario would mean easily an increase in the value of marketable crops in those fields alone equal to many millions of dollars.

By collecting statistics the Ontario Department of Agriculture has found that Ontario does not raise as many potatoes as the people of this Province consume. The supply for Toronto alone, which is from 2,000 to 3,000 bags per day, comes very largely from the Province of New Brunswick, and last year a specialist was employed to go throughout this Province to find the reason why. This has not always been true, for some years we exported potatoes in large quantities, besides supplying the needs of our own people. We found that the principal reason for the falling off of this crop was that a blight had been active in potato fields for some years, cutting down the quantity per acre. It was also observed that the best varieties were not being raised, and that 64 per cent. of the varieties in general use were subject to blight, whereas there were other varieties grown in other Provinces and other countries, and to a small extent in Ontario, that were almost free from blight influence. Farmers' Institute lecturers have therefore been instructed to say to the 15,000 farmers who will no doubt attend the meetings this year that there are good varieties of potatoes, easily obtainable, that are not subject to blight, and that there is no reason why the New Brunswick potatoes should supplant in our own markets potatoes raised in Ontario. In the meantime we are getting one and a half millions of bushels from one outside Province and Ontario is the loser to that extent.

When the McKinley tariff practically shut out farmers from the markets of the United States, we found ourselves with a class of pork products for which we had no market either at home or abroad. Those in authority in agricultural matters in this Province then got their heads together and decided that a new market must be secured, and that speedily. The Old

Country markets were canvassed, and it was found that a good quality of hams and bacon would always find ready sale in almost any quantity in the markets of Great Britain. At that time, and that not so long ago, I venture to say that not 10 per cent. of the marketable hogs of Ontario were of the type required by the consumers of bacon in the Old Land. Farmers' Institute lecturers were gotten together and instructed practically as to what the market demanded, how to breed and feed such hogs at home, and how to fit them for the market. They were also supplied with large charts showing desirable and undesirable types of the bacon hog, and these they took with them and displayed at each meeting. By persistent effort in the Farmers' Institute, at the Provincial Winter Fair at Guelph, and the great exhibitions of Toronto, London, and Ottawa, and through the agency of our smaller fairs, the farmers have been educated until to-day more than 75 per cent. of all hogs shipped into our large packing houses are of the bacon type, and a trade has been built up with Great Britain to the extent of nearly twenty millions of dollars.

In most grain-growing countries it is a well-known fact that the land becomes less productive from generation to generation, until in many cases it is not any longer profitable to grow grains at all. In Ontario, on the contrary, we are growing larger and better crops of grains every year, but this has not come about by chance. Some twenty years ago there was organized at the Ontario Agricultural College an Association called the Ontario Experimental Union. Graduates of the College at first, and afterwards other farmers, joined this Association and made it their business to test on their own farms different varieties of grains, grasses, forage crops, and roots, that they might find out for themselves what crops would do best on their own homestead from year to year. The Secretary of the Association was instructed to secure new varieties of grains from anywhere in the known world and to give the different members of the Association an opportunity of trying them for themselves. The results of this work would seem to you business men, I am afraid, like a fairy tale; but when I say to you that most of the leading varieties of wheat and oats and peas and barley and rye now grown by the millions of bushels in this Province were introduced by the Secretary of this Association at the Agricultural College, tried for five years, and then distributed to the farmers, you may realize to some extent what this may mean in dollars and cents in the aggregate. Just one or two examples.

For a number of years in the Province of Ontario, and particularly in the farming districts between Toronto and Kingston, the farmers devoted a large part of their acreage to the growing of barley for the brewers of the United States. The McKinley tariff put a stop to this, and for a few years these farmers were really in a very bad way. At this time the College authorities realized that barley had a high feeding value for live stock, and knowing that it was highly desirable to feed as much coarse grain as possible at home, because of the benefits that domestic animals have upon the soil, we looked about for a solution of the question. Barley was introduced from different countries and tested as to its feeding value rather than as to its value as a brewer's grain. From Mandscheuri in 1889 a small handful was procured, tested, grown in large quantities on the College farm, and finally distributed to the members of the Experimental Union. When I say that in 1905 half a million of acres in Ontario were devoted to the growing of this variety alone, and that it yielded about five bushels per acre more than the average of the other barleys commonly grown, you will realize that with barley at 50 cents per bushel this means an increase of two and a half millions of dollars to the farmers in that one year alone.

Wheat and oats and peas and rye have been treated in the same way, but we have not time to discuss individual cases.

Extensive experiments conducted at the College have shown that the yields per acre of the first year's crop from large seeds of grain surpassed those from small seeds of grain of the same variety by 19.1 per cent., and that the yields from plump seeds surpassed those from shrunken seeds by 20.2 per cent.

Twenty years of continual testing of sowing different grains at different dates in the spring show the following startling results: Spring wheat, oats, barley, and peas sown in that order one week apart, occupying four weeks, in the entire seeding gave an average result of 40.8 bushels per acre. Seeding peas, spring wheat, barley, and oats in the order named, one week apart, give an average return of only 35.1 bushels per acre, or an average difference in favor of the first order of 5.7 bushels per acre. This would make a difference of 55,382,309 bushels, if applied to the whole Province, or about the same number of bushels as the entire Province of Manitoba produces each year of wheat.

Four thousand farmers on their own farms in this Province are now conducting experiments along the lines indicated above, and as they find a variety superior to anything else they

have ever tried, it is not long before the neighbors find it out and endeavor to get some of the seed. This, together with the intelligent effort put forth by our Ontario farmers in the performance of their work, has kept up the average production of wheat per acre to 20.4 bushels for the last fifteen years, whereas the average in the United States for the same length of time is but 12 bushels per acre. And so with oats. Instead of a decrease, as you would expect, with exhaustion of the land after so many years cropping, our farmers have, by an improved system of farming, by rotation of crops, and by the introduction by the College and experimental farms of higher yielding varieties, has actually increased the yield by 19 per cent. in the last ten years. As the oat crop of this Province has averaged over one hundred million bushels during the last five years, so that the Ontario farmer has pocketed about \$20,000,000 annually from the increased crop.

Perhaps the greatest problem that every farmer has to contend with in a regular way of business is the maintaining and increasing of soil fertility. There are two ways of doing this: First, by actually returning to the soil, in the form of a manure or commercial fertilizer, just those elements that have been taken from the soil by constant cropping; or by planting frequently some member of a large family of plants of which the clovers, peas, and vetches are examples. These plants have the power of taking free nitrogen from the air and storing it in the soil in the form of valuable plant food. Nitrogen in a manure is worth commercially about twenty cents a pound, and about every farm crop needs this particular element in large quantities if a maximum yield is to be obtained.

Therefore, it would seem reasonable to suppose that every farmer would endeavor to grow plants of the clover family in as large numbers as possible. This is true to a large extent, and our farmers are growing more clover from year to year, but the ability of these plants to take nitrogen from the air is dependent on certain bacterial organisms which work upon the roots of these plants. If the soil does not contain the particular germ that works on a particular species of clover the farmer desires to grow, then he cannot get the full crop from that land.

In our bacteriological laboratory we produce these germs in countless millions, bottle them up in small packages, and send them direct to the farmer, with instructions to dilute the substance in a small quantity of water and sprinkle the seed, and so introduce these germs into the land.

Here, again, our work is to place every farmer in possession of such facts, based on actual practice, as will enable him to get the highest per cent. of rich milk from each of his cows, and much has already been accomplished.

In competition with the world, Canada's cheese stands first on the British market to-day, and in fact Great Britain now receives more than 70 per cent. of her entire import of cheese direct from the Dominion of Canada. This means that over twenty millions of dollars are paid to us direct by the Old Country commission men each year for this one product alone.

Having secured the milk, therefore it is our duty now to not only keep up the quality of the product, but as far as possible to increase the quantity per annum. In other words, there is yet too great a difference between the average and the possible, and when I say to you that the average cow of the Province of Ontario gives about 3,000 pounds of milk a year, and that we have one cow in the College herd this year that has actually produced 20,778 pounds, or the equivalent of 912 pounds of butter, in 365 days, you will realize that there is a lot of scientific work yet to be done in this field alone.

And so I might go on to enumerate other phases of the work, were this the time and place for a lecture on farm methods or farm management. But I realize that I am addressing a Canadian Club, composed of business and professional men living in a large city, but indirectly interested in the work of the farm. I do want you to believe, however,

- (1) That farming and farm operations have materially changed in the last few years;
- (2) That farm life should not be more monotonous than the life in the town or city;
- (3) That there are problems being solved and to be solved on the farm requiring the application of the highest intelligence and most persistent and painstaking effort;
- (4) That science in Agriculture has materially assisted in placing and maintaining Ontario in the position she now occupies;
- (5) That the possibilities for further improvement in Ontario agriculture are enormous;
- (6) That the facts that I have told you and thousands of others, together with the true principle of scientific agriculture, will yet come to be taught in the rural school to the boy, while his time is not yet of much commercial value;

(7) And then, when transportation facilities have been further improved, when farm homes have been made more attractive, when the farmers themselves have, through co-operation, come to appreciate a little more the advantages of a broader education, with more social intercourse, may we not hope to see many—yes, very many—of the citizens of such a city as this make it their ambition to possess, not a mere mortgage, but a good Ontario farm.