CANADA'S EXPERIMENTAL FARMS THEIR WORK AND THEIR METHODS

BY ELIZABETH WALMSLEY, IN THE EMPIRE REVIEW.

Few chapters in the history of Western Canada's development are of greater interest and of greater significance than those dealing with the experimental farms, established by the Dominion government in the mutual interest of the land and her settlers, and with the men who have made these farms a recognized power in agriculture, in science, and in education.

The Dominion department of agriculture succeeded a provincial department of a similar nature, presided over by the minister of agriculture at Quebec. In the first session of the first Dominion parliament an act was passed for the reorganization of the Quebec department on a new and more efficient basis, and in 1886, a number of experimental farms were established throughout the country. To the five original farms at Ottawa (467 acres), Nappan (Nova Scotia, 300 acres), Brandon (Manitoba, 625 acres), Indian Head (Saskatchewan, 680 acres), and Agassiz, B.C. (300 acres), have been added those at Lethbridge, South Alberta (400 acres), and Lacombe, North Alberta (150 acres). Each of the local farms is managed by a superintendent, but the general control is exercised from the central farm at Ottawa, where are carried out the principal scientific investigations.

Canada also possesses many admirable agricultural colleges similar to those in this country. These colleges are situated at Truro (Nova Scotia), Guleph (Ontario), at Ste. Anne de Bellevue, a little west of Montreal, and near Winnipeg (Manitoba), while it is expected that the Saskatchewan college will open its classes this autumn. But although these colleges play an important role in the educative system of Canada, they can hardly be regarded as an immediate part of that admirable machinery the Dominion has devised in its experimental farms for the vast business of turning its hundreds and thousands of immigrants, year by year, into successful farmers. The colleges provide the farms with superintendents, horticulturists, chemists, cerealists, botanists, entomologists, and the various departments of the government with geographers, hydrographers, mineralogists, inspectors of fisheries, and similar officials, but it is these farms which metamorphose cobblers, soldiers, sailors, clerks, engineers, waiters, masons—all the rank and file of every trade and profession besides that of the land—into expert grain growers and scientific ranchers. The colleges supply the officers, and the farms the mass of that great army of men who have beaten their swords into plowshares, and set about the conquest of the great Northwest.

In Canada, farming in all its branches is looked upon not only as the first national concern, but as the great social force par excellence "for the humanizing of the people, and the cultivating of a proper spirit of pride of race." It is to be hoped that England will arrest in time her gradual metamorphosis from an agricultural to a manufacturing country, lest the cry come back to the land," which Mr. Chamberlain first will point out, the vengeance for the innumerable social and economic evils that have grown up in the process, like a pestilential by-product, should become for her an anachronism. England had better forfeit her farm laborers to Canada if she cannot prevent their drifting into the cities, for the wage-earner over here has a fine chance, there, of dealing not with another man's land and crops all his life, but with his own. "Back to the land" should really be "emigrate." Millions of glorious acres are to be had practically for the asking in Canada, and Canada in providing for her own expansion has also provided for the wholesale regeneration of England's—of Europe's—pale-faced, city-worn, devitalized men and women and children. This indeed is the view taken by men in the Dominion who are not only agriculturists but humanitarians.

"Agriculture," said Dr. Robertson, principal of the Macdonald College, Montreal, "is the greatest educational experience England's people have ever had for teaching citizenship, self-reliance, and every kind of adventurous courage." And what has been done in the Motherland can be done in Canada. England must, however, see to it that she sends over the right sort of raw material to manufacture into farmers, for success or failure in homesteading results less from any element of chance than from a man's own character. "It's the land and the man," as a Saskatchewan farmer observed when discussing an instance of failure, "and the first two years out here depend more upon the man than on the land. . . the land is no good to men who can't or won't work." Canada has made it sufficiently clear that while she will do all in her power to aid and teach and encourage good and likely settlers, she will undertake no philanthropic experiments. Settlers throughout the country have the right of access to the government farms for assistance and counsel, free of charge, and the large and constantly increasing demand for literature, the rapidly extending correspondence, and the readiness shown by the settlers everywhere to co-operate with the work of the experimental farms furnish strong evidence of a growing desire for expert information.

There is moreover another side to Dr. Robertson's view of the value of agriculture as a means of citizen-making. Canada is confronted with the vast problem of how best to assimilate all the heterogeneous elements of the tide of immigration flowing in upon her. What can a national flag mean to all those strange Sclavic peoples who have no knowledge of its traditions, and little conception of its meaning? What does the British flag with the Canadian wreath in the corner signify to Galician and Doukhobor? What does Canada's national anthem, brand new as it is, signify to the alien Chinaman, the subjugated Indian, the homesick Italian and the triumphant Yankee? Empire Day and Dominion Day stand for a good deal, but unity of interest, of effort, of experience, stand for much more, and in agriculture is to be found the solution of the riddle how to weld Canada's population into one great people. Here again all the thanks will be due to the work of the experimental farms.

Canada's system of weed inspection often astonishes the English farmer. Perhaps it hardly matters, over here, if a pocket handkerchief of a field, neatly hedged in by fences or the white high road of the English countryside, gets infested with mustard, but mustard spreading for hundreds of acres over the great wheat floors of the prairie would be quite another matter. Hence each province in the West draws up a list of weeds which deserve to come under the heading of "noxious" for her particular purposes, organizes a small corps of "weed inspectors," and keeps them driving about the country all the summer at $5 or $4 a day expatiating remedially on the subject to the various farmers. In the winter these inspectors, or field-agents, as they are sometimes called, lecture in the various local centres to the little groups of settlers belonging to this, that, or the other agricultural association. In this they follow up the lecturing activities of the superintendents of the local experimental farms, who are always more or less on the move in the interests of such societies and meetings, organizing seed fairs, cattle shows and what not. Judged by the principle that prevention is better than cure, the work of these inspectors is invaluable. They are in close touch with the heads of their department and the farms behind them are busy devising all sorts of weed-destroyers in aid of such farmers whose crops must be condemned

"While the Noxious Weeds Act gives the inspector power to order the destruction of all or any port of a crop," so runs the field-agent's vade mecum, "you are to avoid if possible taking any arbitrary action which would be likely to create ill-feeling. You should rather make it clear to offenders against the act that the object of enforcing it is to afford protection to them as well as to their neighbors, and that it is distinctly in the interest of every farmer to assist the inspector in his efforts to have the weeds kept under control. In all your dealings with the farmers it will be well to remember that although you are invested with certain powers, your duty is not so much judicial as educative." Together with these clear-sighted instructions Alberta—for one—supplies her weed inspectors with sheaves of bulletins for distribution, with a specimen case of the seeds of all the weeds upon which he is to wage relentless war, and with a splendid technical volume, well illustrated, called "The Farm Weeds of Canada," calculated to rouse life-long interest in the young botany of the virgin prairies.

From the weeds alone one might write the history of the invasion of the West! The stinkweed, for instance, was introduced from Europe to Manitoba in the days of the fur trade; the Russian thistle first made its appearance in South Dakota in 1873, the seeds having been brought from Russia with flax seed. Through the agencies of the wind and the railroad and by importation of foul seed grain from infested areas it has now spread over a wide range and is found, to a greater or lesser extent in the prairie provinces. Mr. Henderson, late chief inspector of weeds in Alberta, told me last summer that this weed first made its appearance in Southern Alberta in 1894 along the line of the C.P.R., and that since then it has lost no time in combating the farmers' crops over wide acres for light and air and nourishment. Every weed has its own history and has scored it far and wide on the face of the land.

No less than twenty-one annual reports were written for the minister of agriculture by the late Dr. Fletcher, entomologist and botanist to the Dominion experimental farms, and these, says Dr. Saunders, "have been of great value to the farmers of Canada by instructing them how to recognize their (weed and) insect enemies, as well as their insect friends, and have at the same time instructed them as to the most practical measures to adopt for the destruction of the more injurious species." The Hessian fly, the Wheat-joint worm, the Cinch bug, the Grain aphis, the Clover seed midge, the Hop-flea beetle, the Apple leaf hopper, root maggots, moths, cankerworms, the Pear leaf blister mite, and countless other insect pests have received much unwelcome attention at the hands of Dr. Fletcher and his successors, while such grain blights as "smut" and "rust" have also been diligently studied. Dr. Fletcher's bulletins on all these subjects form indeed an agricultural literature by themselves at once highly scientific and eminently practical.

Again the lengthy and carefully conducted experiments of the farms in horticulture, arboriculture, fruit-growing, bee-keeping, poultry-keeping, dairying, stock-raising, and dry-farming, are all undertaken with a view to advising settlers as to the best and most expeditious ways of utilizing their sections and quarter-sections. Free samples of high quality grain are distributed, either for the purpose of co-operative experiment, or to set the farmer on his legs again after some severe loss caused by frost or fire. The number of farmers who unite with the farms in makers who unite with the farms in making of these samples in 1908 was no less than 38,748. "It is remarkable," says the report, "how rapidly a supply of grain may be built up from a single four or five pound sample. Take for instance a sample of oats. The four pounds received will, if well cared for, usually produce from three to four bushels. This sown on two acres of land will at a very moderate estimate give one hundred bushels, and sometimes much more, but taking the lower figure as the basis for this calculation, the crop at the end of the second year would be sufficient to sow fifty acres, which at the same moderate computation would furnish 2,500 bushels available for seed or sale at the end of the third year." Granted, of course, that the seasons were good and propitious.

In arranging such a matter as a rotation of crops best suited to any given locality or requirements the farmer has only to send to the experimental farm nearest at hand, state particulars as to site and soil, and he will receive in return such-and-such a schedule exactly calculated to meet the case, a schedule which is the direct result of practical experiment. In arranging a rotation it is very necessary to have some knowledge of the food requirements of different crops, and to know something of the values of the residues from the different crops included. Certain forage crops need an abundance of nitrates, other crops need more phosphates, hence do well after some forage crop has taken up the super-abundance of free nitrates found after sod. It is evident therefore that a good rotation will include (1) meadow or pasture, (2) roots or corn, (3) some cereal crop. Farmers of course know this all the world over, but the Canadian immigrant is not necessarily a farmer, so the experimental farms, or experience and possibly years of failure have to tell him.

In view again of the vast importance of making the best possible use of barnyard manure it is difficult to estimate the value of just one item of information which an experimental farm might arrive at whereas the ordinary farmer has no facilities for discovering it. That fresh manure is equal ton for ton in crop-producing power to rotted manure (which experiments have shown to lose during the process of rotting about 60 per cent. of its weight, is a fact for which even farmers by profession may thank the experts for demonstrating.

Yet there are not lacking persons who will scoff at the yields on experimental farms "Anyone," they say, "could do that with the government behind them; the farm doesn't have to pay its way." Such critics forget, as The Edmonton Daily Bulletin has pointed out, that men don't get the care of such farms until they have made good on other farms, and if they did they could not hold the job two years, for no amount of money without brains and skill to direct it can make two bushels of wheat grow where most men grow but one, or make Scotch firs succeed where wolf willow is the natural growth.

These men who have graduated in the school of hard work and self-help for this larger sphere of usefulness in the development of the West, are men Canada may well be proud of. Take for instance, Mr. Angus Mackay, superintendent of the experimental farm at Indian Head, Saskatchewan, who is a Canadian of Scotch descent. He farmed in Saskatchewan for some years before he was askey to occupy his present responsible post, and was practically the discoverer of the secret of successful wheat-growing on the illimitable plains of that province. To the initiate the word "dry-farming" will explain the secret. Then there is Mr. Bedford, until recently superintendent of the farm at Brandon, Manitoba, who has been called "the uncrowned king of agriculture.",

"He farms as to the manner born, and one readily believes that any wilderness would blossom as the rose under the spell of his almost uncanny knowledge of plant life. Ignorance of agriculture will never be laid at Mr. Bedford's door, for he comes of generations of Kent and Sussex farmers, emigrated to Ontario when twelve years of age, and later homesteaded in the Darlingford District, Southern Manitoba, in 1877, when the railroad was yet 350 miles from Winnipeg. The character of the man, his passion for good farming, and his knowledge of the essentials of success in his business, are well illustrated in the manner of his securing the first seed for his homestead.

"One day he informed his neighbors that he was going away to locate some good seed grain. 'When will you be back?' they asked. 'I don't know; it depends on how soon I find seed to suit me,' was the reply. One could readily excuse a young homesteader a hundred miles from a large town if his standards in this matter were not very high and he took almost any seed he could get, assuring himself that he would clean it well and hand-pick the growing crop. Such a man was not young Bedford. He walked eighty miles from farm to farm and stopping-place to stopping-place before he returned from his historic seed hunt, but he had located pure seed of high quality and bought thirty bushels of it. As a result of his tramp and subsequent skill in handling the product, while other men were laboriously hauling their crop to Emerson, sixty-five miles distant, the nearest market, Mr. Bedford was able to sell his entire crop year after year for seed purposes, and have men pay higher prices for his grain right in his own yard than he could have obtained had he teamed it to Emerson! His first crop of oats yielded eighty-four bushels to the acre and fetched—literally fetched—for farmers came and hauled them away—seventy-five cents a bushel! The only load of grain he ever hauled to Emerson was wheat, and the price obtained after drawing it sixty-five miles was sixty-five cents!

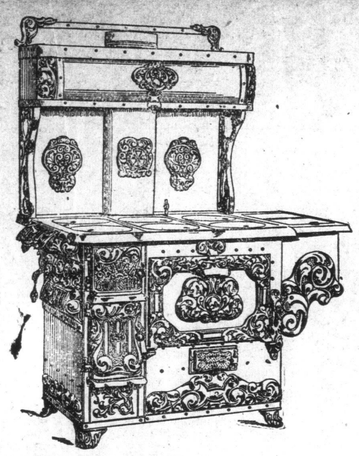
"This was the man to whom the superintendency of the new experimental farm at Brandon, comprising some 700 acres, was offered in 1887 without any seeking on his part, and certainly the men at Ottawa responsible for the manning of the farms were well advised and very fortunate when they secured two such men as Angus Mackay and Spencer A. Bedford to inaugurate this new and important work in the West. During the last year of Mr. Bedford's superintendency he estimated that no fewer than eighteen thousand farmers and others visited the farm, and three thousand letters were despatched, besides many hundreds of circulars. From these figures and the fact that the farm superintendents address from twelve to twenty gatherings each year, some idea of the amount of information disseminated annually from such stations may be obtained."

Mr. James Murray, who has now succeeded Mr. Bedford at Brandon is a "Canadian born" from Ontario. He was trained at the Guelph Agricultural College, and "has been a government official since the day he left it, being first with the Dominion government in the east engaged in seed testing work, and later in charge of the work of the seed branch in the entire west, which work involved the introduction of such new and now successful methods of spreading the gospel of good seed as grain field competitions, seed fairs, and the work of the Canadian Seed Growers' Association. While in this work Mr. Murray attracted the notice of the new Saskatchewon government, and in the spring of 1906 entered its service as superintendent of the newly-formed department of fairs and institutes. In the following spring he returned to his old love and re-entered the service of the Dominion government as superintendent of the Brandon farm. Thus Mr. Murray has started a series of experiments in fattening steers in the open air during the winter months, whereby it is hoped to prove conclusively that elaborate and expensive buildings are not at all essential or even necessary to profitable steer-feeding even with such winters as the West enjoys. The growing of fodder corn for ensilage and of alfalfa for stock-feeding and the rebuilding of worn out soils are other lines which, as in the past, are also receiving much attention."

Again, Mr. Fairfield at Lethbridge, and Mr. Hutton, B.S.A., at Lacombe, both college men, are doing magnificent work at their posts at the head of Alberta's farmers.

It would be unfair, of course, in any general estimate of the agriculturally educative forces at work in Canada to omit the influence of the agricultural journals, but numberless as they seem to be, there is nothing to distinguish them from similar journals in other countries. They are eminently practical and useful, but they do not mean for Canadian immigrants what the experimental farms mean, nor can it be said that the work they do has a tithe of the national and ethical value of that so ably carried on under the direction of Dr. William Saunders.

ELIZABETH WALMSLEY.



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THE FINANCIAL AND COMMERCIAL MARKETS

THURSDAY'S GRAIN MARKETS.

Winnipeg, Dec. 1—The new month opened with decided strength in all markets. Liverpool cables were 3-8 to 1-2 higher and were followed by strength in American and local markets, which was greatly aided by reports of severe damage to winter wheat by drouht in the Southwestern States. The present condition of the crop in Oklahoma is reported to be 38.6, while in July it was 91. Trading was brisk in both options and cash wheat and fair quantities for export were worked. At the close, Winnipeg showed an advance in December of 7-8 and May 5-8 to 3-4.

Oats also showed some strength and closed 1-4 to 3-8 higher.

Flax continues to decline. December dropping 5 and May 3.

American markets showed sharper advances than the local. At the close, December was up 1 to 1 1-4c, May 3-8 to 1-2c, and July 1-2 to 5-8c, while Minneapolis December closed 1 1-2 to 5-8c and May 1 1-8c higher.

Oats in Chicago showed sharp advances for nearby options.

Corn was a trifle weaker.

Winnipeg Markets.

	Open.	Close.
Wheat.—		
December	90 1-4	91 1-8
May	95 1-2	96 3-4
Oats.—		
December	32 1-4	32 3-4
May	36 7-8	37 1-8
Flax—		
December	2.30a	2.326b
May		2.32
Chicago—		
December	90 1-4	91 1-2
May	96 1-2	97 1-8
July	93 3-8	94 3-8
Minneapolis—		
December	101	102 5-8
May	105 3-8	106 5-8

Winnipeg Cash Wheat—No. 1, Nor. 91; No. 2, 88; No. 3, 85; No. 4, 81 1-2; No. 5, 75 1-2; No. 6, 70 1-2; No. 1 feed, 91; rejected 1-1 Nor. 91 1-2; rejected 1-2 Nor. 82; rejected 2-1 Nor. 82; rejected 2-2 Nor. 80; rejected 1 Nor. 84; reected 2 Nor. 82.

Oats—No. 2 C.W. 32 3-4; No. 3, C.W. 30; extra feed, 30 1-4; No. 1 feed 28.

Flax—No. 1, W. 2.26.

CHICAGO GRAIN MARKETS.

Chicago, Dec. 1—Sensationally bullish figures on the condition of winter wheat in Oklahoma decided the course of today's wheat market. The close was strong at a net advance of 3-4 to 1 1-4. Other leading staples all finished higher than last night, corn up 3-8 to 1-2, oats a shade to 3-4 higher.

The Oklahoma official state report as to wheat came just after noon and gave the condition of new sown grain as 38.66, against 93 a year ago and 91 at harvest this year. Before this information was received, fluctuations had been uncertain, May showing a heavy tone but December and July being relatively firm. The weakness early resulted in the main from an increased estimate of the Argentine exportable surplus.

There was a temporary rally, due to falling off in stocks at Liverpool and to less favorable crop conditions in Russia. Other facts encouraging to buyers were French purchases at Liverpool. Belief that the big deliveries here had gone into strong hands and report that water was being hauled by Kansas farmers because of excessive dry weather. The effect of these influences, however, had about worn off when the news came regarding the extraordinary results of drought in Oklahoma. A sharp advance ensued and latest values were virtually at the highest point of session.

There were deliveries of 390,000 bushels of oats, but chiefly to shipping concerns. Shorts were in consequence forced to buy on a rising market. The advance in other grains helped to make a strong close.

INNISFAIL.

Bulletin News Service.

A fire occurred on Sunday night about four miles north of town. A shack belonging to W. Davis, who came from the Yukon, being entirely demolished. It is supposed that hot ashes being put into a wooden box was the cause of the conflagration.

The town is beginning to take interest in the forthcoming elections; some entirely fresh names being put forward for the council and three prominent names for the position of mayor.

Mr. and Mrs. J. Marshall are rejoicing over the birth of a daughter which took place last Thursday

Several town people are visitors at the home of Mr. and Mrs. John McMillan, Lake View, to a very pretty wedding of their daughter, Mabel, and Mr. B. A. Barnes, of Carlstadt, and formerly of Lake View. Rev. Mr. Chalmers, of Bowden, officiated and the happy couple afterwards left for Calgary.

A most successful concert and dance was held at Belchton to raise funds for the Christmas tree and which is given each year, every child receiving a gift. Mr. J. Turnbull took the chair and Miss Walker, of Lone Pine, and Mr Percy Hayward, of Bowden, gave the music for the dances

Mr. Hutton, superintendent of the experimental farm, Lacombe, addresses the members of the Agricultural society at Bowden on Dec. 1st.

A. W. Upham has arrived in Olds with a car load of effects to take up residence on his farm, half a mile south of the creamery. He came from Foscourt, Kansas.

A large number of parents and friends were present at the Bowden public school at the invitation of the principal, Mr. Colwell, and a committee of senior scholars. The Rev. F. E. Davies was selected chairman. Mr. Colwell gave a brief outline of his methods of teaching. Rev. Davies addressed the boys and girls on the duty of loving their parents. Songs, recitations and music were given by the scholars. Words of thanks were spoken by the Rev. Chalmers, Mr. Brewster and Mr. Shenfield, sr. The singing of the National anthem closed the proceedings.

The contract for the G. T. P. bridge across the Trochu valley has been let privately. The greater part of the timber required for the trestle work will be hauled out this winter.

GRIFFIN'S CIRCULAR.

The J. Y. Griffin Co. have issued a circular dated December 2nd, giving the following quotations, good until December 10th:

"We will pay the following prices from December 5th to December 10th, weighed off cars at Edmonton.

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