

The Dominion Experimental Farms.

The system of experimental farms organized and established by the Dominion Government some twelve years ago was designed to embrace investigations relating to the chief departments of agriculture, and to cover a very comprehensive field, extending from the Atlantic Ocean to the Pacific. Considering the magnitude of the scheme and the difficulties incident to the prosecution of work of this nature, it has been developed with infinite care in its details, the foundations have been laid broad and deep for future advances, and the splendid condition of the farms is evidence in one direction alone of what has been accomplished. Some idea of the extent of the work may be gathered when the area of the farms is considered, viz.: The Central Farm at Ottawa (which, besides being the headquarters, serves specially for Ontario and Quebec Provinces)—500 acres; the Maritime Provinces Farm at Nappan, N. S.—310 acres; the Manitoba Farm at Brandon—670 acres; the Northwest Territories Farm at Indian Head—680 acres; and the British Columbia Farm at Agassiz—300 acres valley land and 800 mountain; making a grand total of 3,200 acres. The work on these farms in connection with grain culture, horticulture, arboriculture, clover and grass culture, stands out pre-eminent. The selection of locations for the different stations, being naturally made with a view to convenience of access rather than to suitability of soil and environment, necessarily led in some cases to the selection of lands that were far from being equal to the average of farming lands in the different sections where they were established, which, while affording the opportunity of demonstrating the possibility, by good management, of achieving results in spite of adverse conditions, proved a considerable drawback to making a good showing in the first years of their history. This was particularly true of the site selected for the central station, which was a hungry, light soil, within three miles of the Capitol buildings at Ottawa, which was taken up in a very much neglected condition by Dr. Wm. Saunders, who was appointed to the position of director at the inception, a position he has held continuously to the present time. Horticulture, arboriculture and good general farm methods were particularly needed in order to give the place a proper appearance. The extensive system of tree-planting followed has been eminently successful, and in connection with a judicious system of rotation of crops and of feeding the land, the once wilderness of drifting sand has been made to blossom as the rose. It is indeed a great object lesson to the country. When, in addition to this, the long and extended record of careful experimental work is considered, it could not but afford the Director and staff genuine pleasure and satisfaction in the retrospect to see such great improvement in the general appearance and condition of the farm. We give below and on the following pages detailed descriptions, together with a complete series of illustrations, which will afford the reader a graphic idea of the plan and purpose of the entire Experimental Farm system.

The Work of Director and Agriculturist.

The progress of agriculture throughout Canada has been greatly stimulated by the results obtained from the useful lines of work carried on at the Experimental Farms. Among the more important of these at the Central Farm are the tests, which have been conducted for the past four years with special reference to increasing the product and improving the quality of the more important farm crops, and those which have been carried on for ten years past to gain information as to the effect of many different fertilizers and combinations of fertilizers on the growth of wheat, oats, barley, corn, and roots.

Clover Culture. A third course of experiments also deserve special mention, because of their wide bearing on profitable farming. These are the tests which have been made in growing different quantities and varieties of clover with grain and plowing the crop under late in the autumn or in the following spring. The best results have been had by sowing ten pounds of common red clover per acre. The experience of several years has shown that clover can be sown with advantage with wheat, barley or oats; that when so sown it does not lessen the crop of grain, and after this is cut the clover grows rapidly and stores up in its tissues a large quantity of nitrogen, one of the most valuable and expensive of fertilizers, a considerable part of which is taken

from the air. The clover also serves as a catch crop, absorbing and appropriating the fertilizers brought down by the rain during late summer and autumn. The thick mat of clover produced checks the growth of weeds. Clover has also another advantage over other green crops for plowing under, by reason of its extensive and deep root system, which penetrates to depths in the soil and subsoil which few other plants can reach, and brings from these lower strata additional stores of plant food. By the middle of October the clover usually covers the ground with a thick growth varying from six to twelve inches high, which, when plowed under, adds much to the fertility of the land; it also improves the texture of the soil, making it more retentive of moisture, thus giving more favorable conditions for subsequent plant growth. The experiments tried have shown that



HEDGES AT INDIAN HEAD EXPERIMENTAL FARM.

the weight of clover leaves, stems and roots which can thus be produced by the latter part of October will run from six to eight tons per acre, and chemical analyses have proven that each ton of this material will add to the soil almost as much nitrogen as one and one-half tons of barnyard manure. From experiments conducted in 1898 it has been demonstrated that land on which clover has thus been grown gives a larger crop of grain than adjoining land on which there has been no clover but which has otherwise received similar treatment. The oat crop was found to be thus increased, the gain varying from seven to nineteen bushels per acre, according to the quality of the soil.

Where cattle are available the clover can be economically pastured in the autumn and the uncut portions plowed under at the close of the season; or if the land is to be devoted the following year to corn or potatoes, the clover is allowed to grow until about the 20th of May

158 of these new sorts, consisting of 71 of wheat, 14 of barley, 14 of oats, and 38 of peas. A few of these of special promise are being grown in a larger way with the object of introducing them more rapidly into general cultivation. The cross-bred sorts, with some of the best of the more newly imported varieties, are distributed every year among farmers for test, three pounds of one sort only being sent to each applicant. Such samples, when properly cared for, usually produce from one to three bushels the first year, and by the end of the second year the crop will generally furnish the careful grower with sufficient seed to sow a considerable acreage. Since the establishment of the Experimental Farms, samples of grain have been thus supplied to about 180,000 applicants. As a result, many farmers in different parts of the Dominion are now cultivating some of these varieties, which, as they prove

superior, gradually replace less productive sorts, thus improving the character and quality of the grain produced in Canada and helping to make farming more profitable.

These, with some other lines of work, have been conducted from the outset under the personal supervision of the director, Dr. Wm. Saunders, and since the retirement of Prof. Robertson, in January, 1896, from the position of Agriculturist, the experimental work formerly carried on by him with cattle and swine has been assumed and continued by the Director. Since that time a large number of experiments have been made to ascertain the relative value and economy of using different sorts of fodder mixtures and grain for the production of beef and pork, and conclusions of much practical value have been reached, the details of which are published from time to time. The annual reports, etc., are supplied without charge to those applying for them. In addition, much information is given to the farmers of Canada by correspondence conducted by the officers of the Experimental Farms. For several years past the number of letters received at the Central Farm has averaged more than 25,000 annually; a large number is also received by the superintendents of the branch farms. The officers in charge of all divisions of the work are always pleased to give information to all who seek it, and in this way, and through special articles on various topics published in our columns, the cause of agriculture has been furthered.

The Horticultural Department

includes the orchards, vineyard, small fruits, vegetables, tobacco, forest belts, and arboretum, this being in charge of Mr. W. T. Macoun, Horticulturist, who also devotes his attention to the study of plant diseases. There are about 46 acres in the orchard enclosure, in which are being tested about 600 varieties of apples, of which 130 are Russian; 60 varieties of pears, 130 varieties of plums, and 50 varieties of cherries. The small-fruits plantations are also here, in which are 200 varieties of strawberries, 60 of currants, 128 of raspberries, and 121 of gooseberries. In a vineyard of about two acres 150 varieties of grapes are being tested. The principal objects in view in growing these fruits are to determine the hardiness and most prolific varieties under various methods of cultivation and with different fertilizers. New varieties are originated by cross fertilization and from seedlings. A special feature



HOME OF SKULI SIGFUSSON, LUNDAR, MANITOBA, PROSPEROUS ICELANDIC FARMER.

of the work this year was the testing of nearly 1,000 varieties of vegetables, among these being 140 varieties of potatoes, 108 varieties of tomatoes, and 100 varieties of peas. Corn, beans, carrots, turnips, beets, celery, cabbage, etc., were also grown. There were 35 varieties of tobacco tested this year, notes being taken on their earliness and the weight of crop of the different sorts ascertained. The forest belts, of about 21 acres, contain most of the timber trees, from which useful information is being gained as to the methods of planting and growth of the same. About 15 acres are devoted to the arboretum, in which more than 2,000 species of trees and shrubs from many parts of the world are grouped in their several families. The Horticulturist also examines specimens of new fruits sent to the meetings of fruit-growers