

throughout the country, where the work in progress in his department is discussed and the results of experiments given.

The Division of Entomology and Botany

has been, ever since the establishment of the Experimental Farm system, in charge of Dr. James Fletcher, who since 1892 has been assisted by Mr. J. A. Guignard. Both of these gentlemen are enthusiasts in their work, and a vast amount of useful information has been published and sent out by them for the benefit of the farmers of Canada, particularly with regard to the most commonly occurring pests of the farm and garden. Investigations have been carried on to discover the most effective remedies for the various insect enemies which from year to year levy so heavy a tax upon all crops that are grown, and many valuable articles have appeared in the columns of the FARMER'S ADVOCATE upon this important subject, prepared expressly for us by the Entomologist, who recognized that by being published in our columns the farmers of the country would be effectively reached. The apiary at the Experimental Farm, although under the direct management of Mr. John Fixter, the farm foreman, is naturally attached to this division. A class of work which has been of much value is the testing of a large number of grasses and fodder plants, special attention being given to those which are natives of Canada. One of the results of this work has been the introduction of Awnless Brome

soils of the Dominion have been made, so that now there is on record a considerable amount of data on this important question. Of late years attention has especially been paid to the estimation of available plant food in soils, a matter of considerable moment in determining a soil's deficiencies. Much analytical work has also been accomplished in connection with Canadian fodders, feed stuffs, and fertilizers. The feeding values of most of our native and introduced grasses, of Indian corn in various stages of growth, of milling products, etc., have been ascertained, and the data so obtained are all available to farmers, stockmen, and dairymen. The naturally-occurring fertilizers of the Dominion—muck, marl, tidal deposits, seaweed, etc.—have also been investigated and valuable information of their properties published. Dairy products, spraying mixtures, insecticides, farm well-waters, and a host of other matters connected with farming have all come under examination. The work done in connection with farm water supplies is one of great importance, and no doubt will be most instrumental in bringing about a much-needed reform, for polluted water on farms is altogether too prevalent.

The Poultry Department.

The poultry department, under the direction of Mr. A. G. Gilbert, is composed of three buildings of about 100 feet in length and from 14 to 18 feet in width, with passageway 4 feet wide. The buildings are divided into pens of different sizes,

operation and giving the best results with the least attention.

6. The penning up and fattening of thorough breeds and ordinary barnyard chickens to determine which are the most rapid flesh-formers on the least quantity of food.

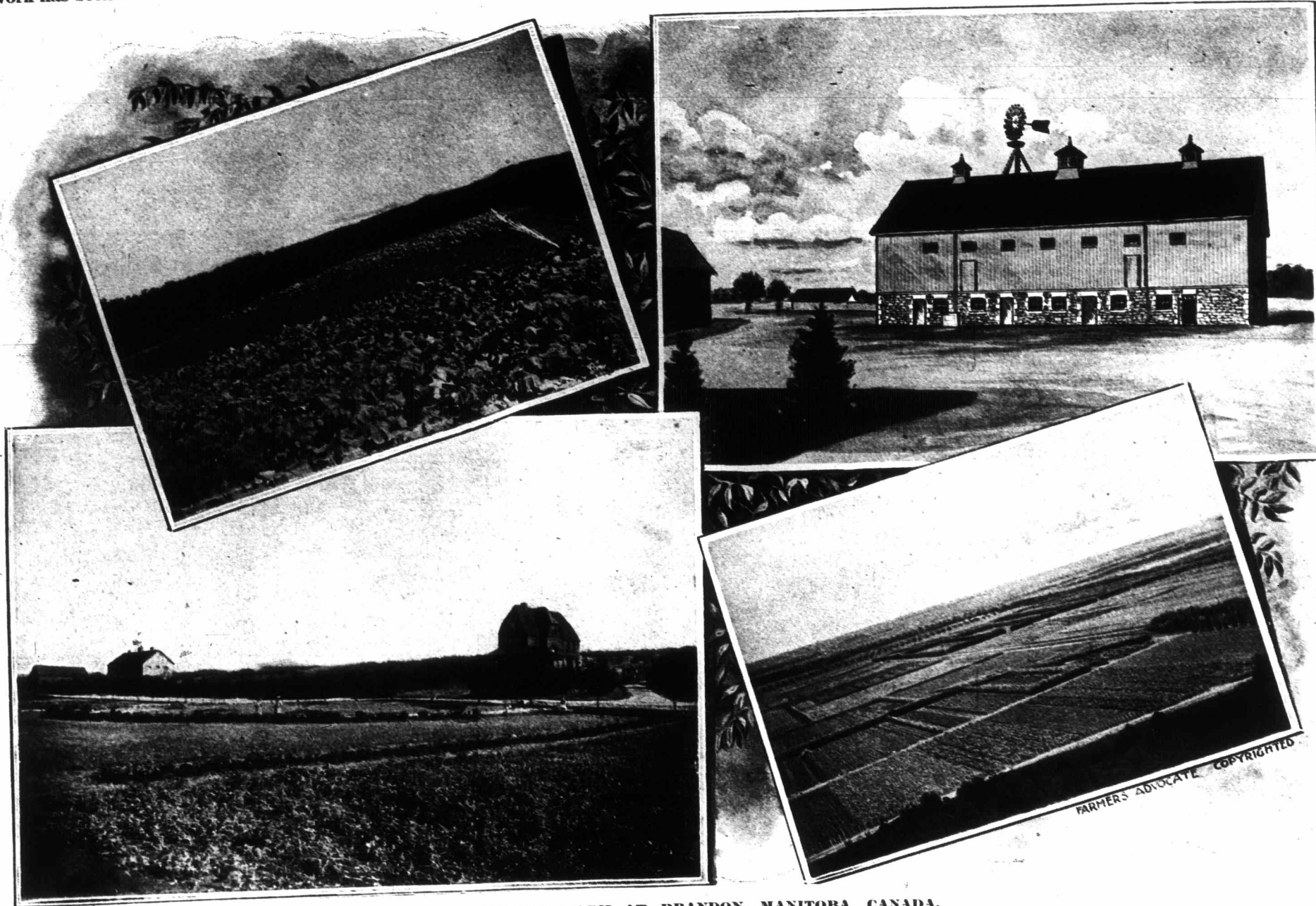
7. The trial of pullets, and one-, two- and three-year-old hens, to obtain satisfactory data as to which lay the most eggs at the time eggs are most valuable.

8. And other experimental work, the necessity for which makes itself felt from time to time.

The experiments of last year were conducted with 157 hens and 63 pullets. A certain number of male birds are kept for breeders. The young male birds to spare are sold in the fall season. Eggs for hatching are also sold in the spring. The results of the experimental work as far as conducted may be had in the reports issued every year. So far the experience gained goes to show that for the farmer Plymouth Rocks, Wyandottes, and Brahmas make the best layers and flesh-formers; while Andalusians, Leghorns, and Minorcas will yield the most eggs, but are not as good flesh-formers.

Brandon Experimental Farm.

The Experimental Farm for the Province of Manitoba was selected in 1882. The services of Mr. S. A. Bedford, whose long experience as farmer, land guide, and colonization agent had given him a very



EXPERIMENTAL FARM AT BRANDON, MANITOBA, CANADA.

grass, which is now one of the greatest boons to farmers in the Western Provinces. The division is also largely used as a source of reference by scientific students, who continually send in large numbers of insects and plants to be named. Special efforts have been made, not only in the reports and bulletins, but in the large correspondence of this division, to avoid as much as possible scientific or technical expressions. Among recent subjects studied, mention may be made of the San José scale in Ontario, Rocky Mountain locusts in Manitoba, the carrot fly in New Brunswick, wheat insects in Prince Edward Island and the Prairie Provinces, and fruit insects in British Columbia.

The Chemical Division.

Chemistry is chief among those sciences from which the farmer learns the why and wherefore of his work. By stating and explaining the requirements of our stock and crops, it enables us to farm intelligently and economically. The field for chemical work in agriculture is a wide one, for there is scarcely a question in farming that chemistry does not throw some light upon. This being so, we can only in the present article indicate the nature of some of the more important investigations carried out in the farm laboratories at Ottawa, under the capable direction of Mr. Frank T. Shutt, the chemist of the staff. Many analyses of virgin

with outside runs of same width, and from 24 to 48 feet in depth. These runs open again into small fields in rear of the buildings. The newly-hatched chickens are placed, with the mother hens, in small coops, which are arranged in fields in front of the buildings. The inside pens have all modern floors, which have been found the best, and each one contains platform and roost, nests, dust bath, narrow trough (33 inches wide) fastened to side of the pens for feeding of mash and cut bones, drinking fountain, and small box (divided) for grit and oyster shells. The runs outside are provided with grass, gravel and sand.

The experimental work is conducted with the object of:

1. Obtaining new-laid eggs in winter in as great number as possible at the least cost.

2. The use of such rations as will be most effective, cheapest, and most convenient to the farmer.

3. The hatching and rearing, by hens, of chickens of different breeds, so as to learn which are the hardiest, make the most rapid growth, the best flesh-formers, and the earliest layers.

4. The crossing of different breeds of thoroughbred fowls, with the same object as described in the foregoing.

5. The trial of different sorts of poultry, with the view of finding out which breed is best adapted

full knowledge of the country, were called into requisition in locating the farm, and he has ably filled the position of superintendent ever since its establishment. It is doubtful if a better selection could have been made, when all the purposes of the farm are taken into consideration. The farm comprises a section of land, 640 acres, adjoining the City of Brandon, on the north side of the Assiniboine River, on the main line of the Canadian Pacific, and about the center of the great wheat-producing portion of the Province. The prevailing climatic conditions do not render the work of the farm as useful, perhaps, to the eastern and northern districts, but no location could better serve, in every detail, the whole Province. Many people not thoroughly acquainted with the farm are not aware of the variety of soil and conditions that obtain. Of the lower lands in the river valley there is about 150 acres of heavy, stiff, clay soil, 100 acres of which is under cultivation. This land is as heavy as any Red River Valley lands. Another 100 acres in cultivation, a little higher up is of rich black sandy loam, very fertile in character and well adapted for export crops. Still higher up, another 100 acres of light, gravelly loam is cultivated. This is on the top of the hill which rises on the bank of the wide valley of the Assiniboine, and runs through the farm and