

Work of much value to the Dominion's agricultural industry continues to be carried out by the Biology Section. The ecological study of our grasslands is doing a great deal towards their improvement—a matter of first importance. In plant-pathology the main work has been on "dry-rot" in swedes, "take-all" in wheat, and "yellow-leaf" of phormium, while the Section has also taken a useful part in investigations connected with the fire-blight campaign. In economic entomology a good deal of original work has been carried out. Forest insect pests, and particularly those affecting eucalyptus plantations in the South Island, have been given some study.

During half the year the Biologist, Mr. A. H. Cockayne, was absent on a visit to the United States. His time in that country was mainly devoted to a study of agronomical conditions and research, seed-testing methods, and agricultural education, including the university extension system. The widened first-hand knowledge and experience acquired from this overseas travel should prove of much value in the development of the Department's work. An adaptation of American practice as regards standards of real value—definite percentages of purity and germination—for imported seeds has been embodied in a Pure Seeds Bill which has been prepared for submission to Parliament during the current session. The efficiency of our excellent seed-testing system can also be strengthened in several directions, especially with regard to more careful sampling by seed-merchants and others sending in samples for test.

The volume of work connected with flax-grading has fallen off somewhat as a result of decreased output consequent upon market and shipping conditions. The quality of the product shows improvement, good-fair grade, which may be regarded as the standard, showing a substantially increased percentage of the total gradings. More care in manufacturing, especially in the scutching process, is required, however, in some of the mills.

Owing to the urgent requirements of the Board of Trade in connection with the purchase of wheat the services of the Chief Grain Grader were loaned to the Board during the greater portion of the year. In view of the necessity for keeping abreast of the times it is intended, as soon as opportunity permits, to review the whole system of grain-grading as at present in operation, with a view to effecting improvements in the direction of greater efficiency.

The publications work of the Department has been well maintained, the circulation of the *Journal of Agriculture* having continued to increase during the year. Difficulties in connection with the paper-supply, however, have since placed severe restrictions on expansion in this direction, also on certain other publishing activities which had been proposed.

Under legislation passed during the 1919 session of Parliament a separate Department of Industries and Commerce was constituted, and shortly after the New Year the functions of that branch of this (Agriculture) Department were taken over by the new organization. At the same time the Department of Agriculture, Industries, and Commerce became simply the Department of Agriculture. The industries and commerce work carried out by this Department during the first part of the period under review was on similar lines to that outlined in last year's annual report, and does not call for any special comment. As indicated in that report, such work was extraneous to the legitimate functions of a Department of Agriculture, and the change here recorded will enable this Department to devote itself exclusively to its own great field of work.

During the past ten years the Board of Governors of Canterbury Agricultural College, Lincoln, has had in hand experimental work with the object of supplying to farmers improved seed of the commonly grown varieties of wheat. The Department of Agriculture now grants a subsidy to allow of the further prosecution, in conjunction with the Department, of this work and of its extension to the improvement of oats. Last year about 20 acres at Lincoln were under various wheat-selections, with their accompanying check-plots of commercial seed, the latter being used to estimate the superiority (if any) of the selections. Most of the plots were devoted to strains of White-straw Tuscan and Velvet, these being the two varieties in which no markedly improved strains have been isolated by the work of preceding years. There are indications that the trials of the next two years will allow the distribution of a strain of White-straw Tuscan of as good quality as the strains of Hunters, Pearl, Solid-straw Tuscan, and Purple-straw that the College has already produced. A start has been made with the selection of oats, and at present about 5 acres are under strains of Algerian oats on their trial. The improved strains of wheat already produced have been distributed to farmers at ordinary seed prices, and supplies of the pure seed are maintained by the Canterbury Seed-growers' Association, a group of farmers who take steps to keep their crops pure enough for seed purposes, and who submit them to inspection from that point of view. The Department assists the work by paying the travelling-expenses of Dr. F. W. Hilgendorf, of Lincoln College, while inspecting the farmers' crops. Some 2,000 bushels of seed-wheat bearing his certificate of purity were distributed during the past season.

In conclusion, I must express my thanks to the staff of the Department throughout for the energy and activity displayed in carrying on the work. The Assistant Director-General has worked in close co-operation with myself, and proved a most valuable coadjutor. The Divisional Directors, together with the Chemist and the Biologist and other responsible officers, have rendered most reliable and efficient services.

I append detailed reports furnished by each branch of the Department's services.

C. J. REAKES, D.V.Sc., M.R.C.V.S., Director-General.