BIOLOGY SECTION.

REPORT OF A. H. COCKAYNE, BIOLOGIST.

Wellington, 26th May, 1916.

The Secretary of Agriculture, Industries, and Commerce.

I FORWARD herewith a summary of the work carried out by this Section for the year ended 31st March, 1916.

A. H. COCKAYNE, Biologist.

GENERAL ROUTINE WORK.

The usual large number of specimens, both botanical and zoological, have been dealt with during the year. This work naturally occupies the major portion of the time of the Section, and its importance in disseminating botanical and zoological information to the primary producers of the Dominion is very considerable. As has been usual in past years, information with regard to grasses and pasture plants has been especially demanded.

SEED-TESTING.

During the year 2,700 samples of agricultural seeds have been tested for purity and germination. This shows a decline of 500 samples on those received during the previous twelve months. This reduction is due almost entirely to the European war. The usual large number of small lines of Continental origin were notably absent, as, of course, was to be expected. During the past five years over 10,000 samples have been tested free of any charge. This gratuitous system has now been abandoned so far as seed-merchants are concerned, and the small fee of 1s. per sample for germination and a similar amount for a purity analysis is now charged. It is extremely gratifying to report that the seed-merchants have welcomed this decision to place seed-testing on a business footing. It is hoped that even with the small fees that are being charged this branch of the Section's activities will become quite self-supporting. So far as farmers are concerned no charge is made.

In August a female assistant, Miss H. Jensen, was appointed as seed-analyst, and after a preliminary training has given general satisfaction. A system of reporting progress-germination by means of post-cards has been adopted, and these are largely being used in the seed trade in the buying and selling of agricultural seeds. Mr. E. B. Levy is in supervision of the seed-testing work, and has performed his duties with great credit.

GRASS AND CLOVER EXPERIMENTS.

In collaboration with the Fields Division a very large series of experimental plots have been laid down at Ruakura, Moumahaki, and Weraroa. These experiments, which comprise some 1,600 plots, have as their objective the complete study of the life relations of pasture plants. From this work our knowledge on the formation of pastures, both temporary and permanent, should be greatly increased. The planning and preparation of these experiments have entailed a very large amount of work, and the proper carrying-out of the various lines of investigation that are intended will prove a great tax on the time of this Section as well as to members of the Experimental Farms' staff. In New Zealand, where grass is the supreme crop, the necessity for careful scientific investigation on pasture plants is apparent, and up to the present the methods adopted in pasture formation have been almost entirely empirical.

NEW ZEALAND FLAX DISEASES.

In February, 1916, Mr. David Miller, the well-known New Zealand entomologist, was appointed temporarily to conduct a complete investigation of the diseases of *Phormium tenax* in the Dominion. The great ravages caused by certain insects and diseases rendered it imperative from the millers' standpoint that some method of control should be devised, and it is hoped that the detailing of a special man with this single purpose in view should lead to extremely important results. Much preliminary work has already been done, and several very promising lines of investigation have presented themselves.