

## BOTANY SECTION.

H. H. ALLAN, Systematic Botanist.

During the greater part of the year I was absent from headquarters, Mr. V. D. Zotov zealously and ably carrying on the work of the Section. A report on my activities abroad has been furnished. Since my return considerable progress has been made in preparing the results of my studies for publication.

## TAXONOMY.

From the information gained abroad, especially at the Herbarium of the Royal Botanic Gardens, Kew, and at the British Museum Herbarium, South Kensington, I am in a position to effect a much-needed revision of many groups of the indigenous flora. This will be done by publication in various scientific journals. I also paid much attention to the taxonomy of the alien flora of New Zealand, and am now revising the manuscript of my proposed "Flora of the Alien Plants of New Zealand."

Arrangements were made with various workers for co-operative effort, especially with Mr. Summerhays of Kew (New Zealand flora in general, revision of *Agrostis* and *Juncus*), and with Mr. Wilmott of South Kensington (critical studies in the alien flora). A commencement has already been made with these projects. Especially have I commenced that closer association with the British Museum of Natural History that is greatly desired by Mr. Ramsbottom, Keeper for Botany.

Mr. Zotov made studies on *Agrostis* and *Danthonia*, and systematic work on all grasses, indigenous and exotic, is being conducted, with a view to the publication of a comprehensive work on the "Grasses of New Zealand."

## IDENTIFICATION OF SPECIMENS.

Some five hundred specimens were received and reported on, mainly by Mr. Zotov. A number of previously unreported species have been received, among which may be mentioned the buffalo burr (*Solanum rostratum*), and saffron thistle (*Carthamus lanatus*), both likely to become serious pests if allowed to spread. The advantage of early report in such cases is obvious. In this connection I should like to express my appreciation of the work of Field Instructors and Stock Inspectors in keeping a lookout for such undesirable incomers. An instance of the value of their work is the evidence afforded from specimens received that corn sowthistle (*Sonchus arvensis*) and hoary cress (*Lepidium draba*) are extending their areas in the North Island. Another example of the need for survey work is that of species of *Erica*, which are well established over many acres in the Volcanic Plateau area, but which have not before been recorded. As some time must elapse before a complete flora of alien plants is ready for the press, it is suggested that a preliminary bulletin be published of an annotated list of all the species so far recorded. A similar up-to-date list of the species of the indigenous flora is also a great desideratum. As the information is to hand the preparation of these lists would not occupy a great deal of time.

## HERBARIUM.

Some five hundred sheets have been added to the herbarium of indigenous species, which is rapidly becoming properly representative of the flora. Dr. Cockayne has generously offered to allow me to incorporate in our herbarium such material as I may desire from his private herbarium. By this means a number of very important specimens will be added. Our stock of duplicate material is enlarged on every opportunity, and has enabled us to effect valuable exchanges with the chief botanical institutions of the world. We now have some four thousand sheets of foreign material. As this has been largely selected for its bearing on the introduced plants of New Zealand, the collection is proving of great value for identification and critical work, and will be further increased during the coming year. We have also received several seed-collections and have added one hundred sheets from specimens grown at the station. The herbarium of introduced plants now contains almost a complete set of recorded species.

## RESEARCH.

General researches into the taxonomy and ecology of both the indigenous and the alien flora have been continued. Mr. Zotov has continued his detailed studies of *Juncus*, and the danthonias of the semi-annularis-pilosa group, and his results will shortly be ready for publication. The latter, especially, is of considerable economic significance. He has also greatly assisted me in the study of *Agrostis*. We expect to have the fundamental taxonomic work on *Agrostis* completed shortly, when a commencement of selection work may be successfully undertaken.

Further work on ragwort, gorse, blackberry, and pipiriri has been accomplished. Specimens of late-flowering gorse have been marked for the purpose of obtaining seed, in co-operation with the insect-control-weed work of the Scientific and Industrial Research Department. For the successful completion of these projects it will be necessary for us to be able to make field studies in various parts of their areas.

A revision of the indigenous grasses of New Zealand is under way, with a view to a publication replacing the now out-of-date volume of Buchanan. For this, also, a reasonable amount of field-work is essential. But by careful selection of the areas these projects can be carried on co-jointly, and the total amount of travelling required will not be excessive. Preliminary work for a general book on grasses is continuing.

## CHEMICAL SECTION.

B. W. DOAK, Chemist.

## CHEMICAL WORK ON MARTON MOWING TRIALS.

Chemical work on samples of mowings from various trials have been carried out during the year, and are being continued. It has not been found possible to carry out chemical work on samples from all the trials, but dry-matter determinations are being carried out on samples from all the mowing trials. Chemical analysis has had to be confined to three trials, but, owing to the amount of time involved in carrying out dry-matter determinations, it has not been possible to keep up to date with the chemical work. However, it is hoped that this work will be completed before next season's samples start. Dry-matter determinations were made on herbage from every cut. In the case of the trials from which samples are taken for analysis, it was decided to bulk samples in pairs if the mowings were made at less than a twenty days' interval. If the interval between