

the chalk-marls of the Waipawa Gorge, thus confirming the Cretaceous age of the beds which had been previously assigned to them, chiefly on account of their mineral character. In the same district fresh-water deposits, containing fossils, were discovered on the banks of the Waipawa River; but it is yet uncertain whether these beds form part of the series underlying the Scinde Island beds, or were deposited in lakes, which were spread over the district after the last elevation of land in Pleistocene times.

Farther south in the Provincial District of Wellington the chief collections have been made from the tertiary beds which form high cliffs along the shore of Palliser Bay. The higher beds occurring in these cliffs contain Pliocene fossils, and rest unconformably upon the Lower Miocene and Upper Eocene deposits below.

The only other discovery of importance in the North Island is the occurrence of the Mount Torlesse Annelid at Karori, in the neighbourhood of Wellington, which fossil, although widely distributed in the South, has not hitherto been found in the North Island.

The largest collections made during the past year come from the northern part of the Nelson Province. From the Triassic rocks occurring at the Wairoa Gorge, and their south-west extension to Eighty-eight Valley, the collections are as near as may be exhaustive. The difference between the fossils of the Oreti, Wairoa, and Otapiri series, which have a thickness of 8,000 feet, and represent the Trias formation in New Zealand, is far less than between the Oreti and Kaihiku series, several species found in the Oreti series being common to the Wairoa series, and one or two to the Otapiri series, while but one fossil is common to the Oreti and Kaihiku series.

Ammonites of the Jurassic and Liassic types are found, with *Nautilus reticularis*, in the lowest beds of the Middle Wairoa series; while Belemnites and Jurassic Terebratulidæ characterize the lower beds of the Otapiri series, the latter being again found in the lower beds of the Wairoa series. It is interesting to note the disappearance of *Spiriferina* of the *rostrata* group in the upper beds of the Monotis sandstone, its place being taken in the lower beds by the new genus *Psioidea*, *Spiriferina* again appearing in the Kaihiku beds as forms which in general outline closely resemble the Jurassic species. Not the least interesting discovery made in these beds is represented by a collection of plants from the lowest beds of the Otapiri series, immediately above the Monotis sandstone, in which a species of *Glossopteris* occurs. From the Kaihiku series (Permian) exactly the same fossils have been obtained which were found in Southland last year, only the forms are larger, and altogether form a more attractive collection.

Further collections were also made from the Carboniferous limestone, which has been shown to separate the Maitai slates from the Dun Mountain crystalline belt. Few additions to the species found last year have been obtained; but a choice collection of large and well-preserved *Spirifers*, as well as further specimens of *Productus* and corals, have been obtained.

In the western part of this district, the Upper Silurian rocks of the Baton River were largely collected from, and the following forms have been recognized: *Calymene blumenbachii*, *Homalonotus knightii*, *Murchisonia terebralis*, *Avicula subplana*, *Modiolopsis modiolaris*, *Orthonota solenoides*, *Nucula levata*, *Spirifera radiata*, *Spirifera sulcata*, *Rhynchonella wilsoni*, *Atrypa reticularis*, *Orthis fissicostata*, *Orthis protensa*, *Strophomena corrugitella*, &c. These last beds rest unconformably upon a still lower fossiliferous series, from which Graptolites are reported to have come; but Crinoid remains, and one coral, were all the fossils which could be obtained in this district. They must, however, from their position, be at least Lower Silurian in age.

A considerable collection was made from the Cretaceous-tertiary beds of the district, and some good specimens of Moa bones obtained from the caves on the table-land west of Mount Arthur.

The importance of correlating the geological formations of New Zealand with those of Australia has rendered it necessary to devote a great deal of time to the selection and thorough arrangement of a complete mineral and fossil collection, comprising over 2,000 specimens, for the Sydney Exhibition, from the stores of the Geological Department. This collection is to be illustrated by a special report, with maps and sections, bringing up the knowledge of the subject to the latest date, so as to furnish complete material for a conference with Australian geologists, the result of which may be of considerable advantage to this colony.

PUBLICATIONS.

The Museum and Laboratory Report, and the volume of Reports of the Geological Survey for last year, have been issued during the recess, and those for the current year are now ready for the press. A large amount of the material, both letterpress and plates, is in readiness for the first of a series of publications illustrative of the palæontology of New Zealand. The earliest-issued parts of this work will comprise the fossil flora and the Brachiopoda of the Lower Mesozoic formations. The illustrated work on the grasses of New Zealand, by Mr. Buchanan, is making good progress, considering the difficulties to be contended with in bringing out such an extensive and laborious work. Parts I. and II., comprising twenty-one folio plates, were issued last year, and Parts III. and IV. are now ready for the binder. The letterpress of the remainder of the work is now in the printer's hands, but some months will be required to complete the plates.

The whole of the work is being reprinted in a cheaper form, in octavo, for general circulation, the folio plates being reduced by photo-lithography as soon as impressions are obtained, so that the small-sized volume will be ready for issue immediately on the completion of the larger work.

The great advance in our knowledge of the natural history of the country, and the demand which exists on the part of students for the various descriptive catalogues that have been issued by the department, all of which are now out of print, has rendered the preparation of fresh editions necessary. A complete revision of the Mollusca, by Professor Hutton, will be the first of this series, and is now in press. Dr. Buller has undertaken the production of a revised handbook of the birds, and the necessary illustrations are in preparation.

A systematic work on the fishes, embodying information of a more popular nature respecting the edible species, and very thoroughly illustrated by wood-cuts, is also in an advanced state, and arrangements have been made for completing the series in other sections of zoology.