in average width, and extending for a distance of 120 miles inland from the east coast. In the Waitaki Valley he completely cleared up the evidence on which the subdivision of the Lower Tertiary and Upper Cretaceous strata had been proposed, and obtained a large addition to the collection of fossils. He also proved the existence in the first range of mountains of the Permian and Upper Devonian formation, and refers the highly-altered slates and sandstones of the Kurow Mountains to the Lower Devonian group, identifying them with the rocks of the Walter Cecil Peaks south-west of Wakatipu Lake. He further found that the silicious rocks charged with mineral veins, at the source of the Arrow and Shotover Rivers, overlie the older schists of Central Otago, and in the higher points of the Black Peak Range, found them to be traversed by dykes of igneous rocks, and to afford other indications of their being probably intersected by rich mineral lodes. In the Devonian formation in South-east Canterbury he found a local development of white feldspathic rocks charged with auriferous pyrites, which, in their mineral character, closely approached the auriferous rocks of the Coromandel Peninsula, and which, on further examination, may prove of importance to the miner.

### Publications.

The following publications have been issued by the department during the year: (1.) Fifteenth Annual Report of the Colonial Museum and Laboratory, together with list of additions, &c., and an Abstract of the Results of Analyses. 56 pp. 8vo. (2.) Fourteenth Progress Report of the Geological Survey of New Zealand for the Season 1879–80. By Dr. Hector, with maps and sections, including Reports on Riwaka (Cox), Mount Arthur Reefs (Cox), Rimutaka Reefs (Cox), Rodney and Marsden Counties (Cox), Southland County (McKay), Chalk in Ashley County (McKay), Selwyn County, Trelissic and Curiosity Shop Beds (McKay), Ashley and Amuri Counties (McKay), Lake County (McKay), Picton Coal (McKay), Dusky Sound Copper Lode (Rowe), Hindon Antimony Lode (Rowe), Waipori Copper Lode (Rowe), Further Report on Dusky Sound (Rowe). 200 pp. 8vo. (3. Manual of New Zealand Coleoptera. By Captain Thomas Brown. Part II., pp. 8vo. (4.) Catalogue of New Zealand Diptera, Orthoptera and Hymenoptera. By Professor Hutton. pp. 8vo. (5.) Biological Exercises for New Zealand Students: No. 1, The Shepherd's Purse, by Professor Hutton; No. 2, The Bean, by Professor Parker. (6.) Meteorological Report for 1877–79, with abstracts of all returns prior to that date. pp. 8vo. (7.) New Zealand Palæontology Part IV., Fossil Corals, by Rev J E. Tenison-Woods, Pres. Lin. S., N.S.W 50 pp., 4 plates. (8.) Handbook of New Zealand. By Dr. Hector. New edition, prepared for the Melbourne Exhibition, with geological and other maps. 112 pp., 9 plates and maps.

*In the Press.*

(1.) Manual of New Zealand Birds, illustrated with lithographs and woodcuts, by Dr. Buller, C.M.G., F.R.S. (2.) Fifteenth Progress Report of the Geological Survey of New Zealand for 1880–81, by Dr. Hector, with maps and sections, and including Special Reports on the Chrome Deposits of New Zealand (Hector; Cox); On the Aniseed Valley Copper Mine (Cox); On the Richmond Hill Silver Mine (Cox); On the Wallsend Colliery, Collingwood (Cox); On the North Auckland District, including Thames and Coromandel Gold Fields, Island of Kawau, and Drury Coal Field (Cox); On the Aorere and Takaka Districts, Nelson (Cox); On the Waitaki Valley, Lindis, and Wanaka Lake District (McKay); Index to the Localities where Fossils have been collected in New Zealand, with their Stratigraphical Position.

### Meteorology.

Important changes were introduced on the 1s January in the Meteorological Department, with the view of retrenchment, in order to continue the Weather Signal Branch, the vote for which was disallowed last session of Parliament. As far as possible the recommendations of the Conference held in Sydney in 1879 have been adopted in this reorganization.

1. The number of first-class Meteorological Stations has been reduced from eighteen to the three at Auckland, Wellington, and Dunedin, but statistics are also furnished by the Director of the School of Agriculture, at Lincoln, near Christchurch.

2. Thirty-seven reporting stations are now fitted with reliable instruments, and supply information by telegraph at 9 a.m. on every day but Sunday, as to the wind, pressure, temperature, humidity, and general state of the weather. These telegrams are grouped according to the aspects decided on by the Conference, viz.: (*a.*) North-east, from the North Cape to the East Cape. (*b.*) North-west, from the North Cape to the West Cape. (*c.*) Southern, from the West Cape to Moeraki. (*d.*) South-east, from Moeraki to the East Cape. (*e.*) Cook Strait. From the data thus obtained, and from extra telegrams when necessary, an isobaric map is constructed for each day, and a general report for each of the above aspects is prepared, and warnings are telegraphed to any part of the coast when dangerous win s or heavy seas are apprehended. This local weather signalling is still performed as efficiently as hitherto by Captain Edwin, R.N., whose services have now been removed from the Marine to the Meteorological Department. These observations are also in part used as second-class station returns, for statistical purposes.

3. A large number of third-class stations are being established, at which Government officials and amateurs will record the rain fall, temperature, wind, and weather changes.

4. At the second meeting of the Conference, held in Melbourne in April last, a system of inter-colonial weather exchanges was agreed upon, and telegrams are exchanged daily between Sydney and Wellington in a special code, the former giving an abstract of the weather, particularly the movement of storm centres and atmospheric disturbances in Australia, and the latter the same for New Zealand. These abstracts are supplied to the Press Agencies, and are telegraphed to the morning papers throughout the colony

The experience of two months has proved that this system will be of especial value to New Zealand, as the progress of nearly all storms appears to be from west to east, so that after the system has been more fully studied it will be capable of affording from three to five days' warning of the approach of marked atmospheric disturbances.