

previously discovered as far back as 1850, when he called the cliffs on the south side of the Kakanui River the Ruby Cliffs. In the neighbourhood of Palmerston he examined the section across the Horse Range, finding the Port Chalmers breccia at the base of the Shag Point series, and occurring along the line of fault previously described by Mr. Cox. He collected specimens at Waihemo, Green Valley, and Pigroot, those from Green Valley being identical with the fossils of the coal beds in the Waitaki Valley. At Naseby he examined the shaft and surrounding country in Hogburn Creek, where the Deep Sinking Prospecting Company is situated; this shaft has proved nothing more than could be equally well seen from the surface. There is yet another hundred feet to sink before reaching the main bottom, where there is a good prospect of gold occurring. He examined the country from Clarke's to the Kyeburn Diggings, and found the rocks there to belong to the Te Anau series. In the neighbourhood of St. Bathans he found small patches of volcanic rocks in the Manuherikia Valley, breaking through the old lacustrine deposits of the district. He then made a further collection of fossils from Nugget Point, obtaining some important additions to the fossils of that district, including an ammonite about 18 inches in diameter across the chambered portion, which would give a diameter of about 3 feet for the perfect shell. In the neighbourhood of Catlin's River he examined the Mataura beds, in which boreholes had been put down for coal with unsatisfactory results. He found nothing which leads him to suppose that workable seams of coal will be found here, the conditions being similar to those at the Toitois and Hokonui Ranges. During May he visited the Wairarapa, and made an examination of the Cretaceous rocks along the coast, the most important discovery made being a series of volcanic rocks occurring as dykes, and sheets in them. In June he visited the Terawhiti Gold Field, and made a general examination of the district, paying special attention to the Golden Crown claim, in which the reefs appear to be very broken, but unquestionably containing a percentage of gold which will be remunerative if the reefs hold.

COLLECTIONS.

During the intervals of field work Mr. Cox has been engaged on an examination of the New Zealand minerals, and has embodied the results of his work in two papers, read before the Wellington Philosophical Society, in which he has scheduled all the minerals which are yet known in New Zealand. The total number of varieties mentioned is 74 metallic and 134 non-metallic minerals, making 208 in all. He has since been engaged on an examination of the rocks, and is grouping and classifying them prior to description. He has also completed the classification of a fine collection of foreign minerals, including a valuable series presented some years ago by the Director of the Geological Survey of Canada, which has hitherto been inaccessible for reference. The examination of very large collections of New Zealand rocks has also been commenced, about fifty selected specimens of volcanic rocks having been sliced and prepared for microscopic analysis, and about a thousand specimens critically examined. During the past year collections of fossils have been made at twenty different localities, chiefly from Tertiary and Cretaceous-tertiary strata. The collections are not yet fully worked out, but the number of specimens added to the Geological Survey collections in the Museum cannot be short of 10,000 fossils. Nearly 9,000 of these came from a single locality. The remaining collections, not numbering more than 1,300 specimens, are, though small, very valuable additions to our knowledge of the fauna of the beds from whence they came.

PUBLICATIONS.

The Seventeenth Museum and Laboratory Report (68 pages 8vo.), and the Fifteenth Progress Report of the Geological Survey, have been distributed. The following are in the press: (1) New Zealand Handbook, 3 Ed., Dr. Hector. A new geological map has been prepared to accompany this work, and printed in colours, in the General Survey Lithographic Department; and a copy of the map, together with explanatory letterpress, has been forwarded to the Agent-General for incorporation with a smaller work which he is publishing in London. (2) The Sixteenth Progress Report of the Geological Survey, 1882, by Dr. Hector, with maps and sections, and including special reports on the Norsewood Lignites (Cox), on the Gold Fields of Cape Colville Peninsula (Cox), on Deep Alluvial Gold Mines in Westland (Cox), on the Geology of Shag Valley (Cox), on the Malvern Hills Coal Mines (Cox), on the Collingwood District (Cox), on Motunau District (McKay), on the Antimony Lode, Carrick Ranges (McKay), on Langdon's Reef (McKay), on the Terawhiti Reefs (McKay), on the Antimony Lode, Reefton (McKay), on the Geology of the Reefton District (McKay). (3) The Meteorological Reports for 1880-82 are being included in one volume, which is now in an advanced state of preparation, and will be illustrated by diagrams showing the changes for each month.

LIBRARIES.

The libraries remain on the same footing as hitherto, and appear to be greatly appreciated. But, as in all other parts of the Museum, the want of sufficient space creates great inconvenience to the public.

New Zealand Institute Library.—There have been 275 volumes received this year, chiefly in exchange for the Transactions of the New Zealand Institute and the publications of the Museum and Geological Survey.

Public Library.—The number of persons using this library is steadily increasing. Twelve more, out of the large number of volumes missing when the library was removed to the Museum, have been recovered by the Librarian.

Patent Library.—It would seem that the vast amount of information contained in this library is becoming more generally known, as the number of persons referring to the volumes is much larger than last year. Twenty-one volumes have been added since last report.