leaves the ranges, it is evident that the rib mentioned on the spur dividing that river from the Makaretu occurs in the valley of the river, and it must be a considerable distance from the source.

Report on Quartz in the Mangatawainui Creek, Ruahine Ranges.

In the Mangatawainui Creek, a tributary of the Manawatu River, some reefs were said to have been found, and on the 6th April I examined the locality. The reef is on the face of a precipice, over which the creek falls in a drop of 150 ft., and at a height of 2,200 ft. above sea-level. The position is about half a mile from the source of the creek, at about eight to ten miles from Norsewood, while the main ridge of the Ruahines could be no more than 800 ft. above.

The rocks belong to the mineral belt, and consist of red rocks, which, however, are a little darker than the bright-red-coloured rocks seen elsewhere. No greensandstones, shales, &c., were seen; but, as the country is heavily timbered, and with but few rock-exposures, it is possible that they are in the vicinity. The strike of the rocks is due north and south, while the dip is almost vertical, and to the west. The bedding is thick—from 3 ft. to 5 ft. in width; while the reef is simply one of these beds, containing small stringers and irregularly shaped pieces of quartz—nothing longer than 3 in., and averaging about 1 in., or even less. The total quantity of quartz would not make a 2½ in. reef, while the whole is spread over a width of 4 ft. or 5 ft. in the ordinary red rocks. Outside this particular bed the quartz becomes less until it ceases, and consequently the strata, dotted with quartz veins, gives an appearance of direction and continuity. The stringers and pieces of quartz have no general direction, and even when these are 3 in. in length the strike is seldom the same in any two pieces. Of a necessity, the "reef" or "lode" has the same trend as the country-rock—namely, due north and south—while the dip is almost vertical, and to the west. The quartz is considerably mineralised, containing iron-pyrites pretty freely. The deposits could not be followed, on account of their disappearing over the precipice in one direction and into the bush in the other.

W. A. McKay.

REPORT ON THE GEOLOGY OF COOK STRAIT FROM PENCARROW HEAD TO THE RUAMAHANGA RIVER, AND OF THE EASTERN SLOPES OF THE RUAHINE MOUNTAINS BETWEEN THE TAMAKI AND MAKARETU RIVERS.

By W. A. McKay, Assistant Geologist.

On the 29th October, 1900, I received instructions to proceed to the shore of Cook Strait between the entrance to Wellington Harbour and the mouth of the Ruamahanga, and make an examination of the strata showing on the coast-line and adjacent thereto as far as the interior parts can be reached in a day's journey from the coast.

The piece of country under consideration is occupied by the southern extremity of the Rimutaka Mountains and the various subsidiary ranges. The main range lies between the Orongorongo River and the westerly shores of Palliser Bay, terminating in Cape Turakirae. The Rimutakas here maintain their height, and at Mount Matthews it is 3,079 ft., while Papatahi is 2,957 ft., and Kotuma is 2,578 ft. On their eastern slopes they descend abruptly to the coast-line, but further north, abreast of Onoke Lake, the mountains are flanked by lower ranges and terraces until the lower country is reached.

A parallel range of considerable height lies between the Orongorongo and the Wainuiomata River, forming a junction with the main ridge at a point some seventeen miles from the mouth of the Orongorongo River. It is less rugged than the main ridge, and in height it rises to between 1,000 ft. and 1,500 ft. Further west another and lesser ridge occurs between the Wainuiomata and the eastern shores of Wellington Harbour, with an average height of between 700 ft. to 800 ft.

Thus the Rimutaka Mountains in their southern extremity are divided into three long and parallel ranges, of about fifteen to twenty miles in length, with two important rivers dividing them, and flanked by lower hills and terraces on the east towards the Onoke Lake. Excepting a narrow strip from Cape Turakirae to Pencarrow Head, and the terraces to the west of Onoke Lake, the whole of the country is, or was, heavily timbered.

The chief rivers are the Wainuiomata and the Orongorongo, entering the sea near Baring Head, and the Little Mukamuka, Mukamuka, Wharekauhau, and Wharepapa, draining the east slopes, while the Ruamahanga, from the interior, empties itself at the Onoke Lake.

The formations presented within the district are:—

1. Recent.
2. Pleistocene.
3. Old Secondary or Palæozoic.

Within the area described in this report no outcrops of fossiliferous Pliocene rocks were observed, though it can hardly be doubted that rocks of that age, well seen on the east side of the Lower Wairarapa Valley, extend under the more recent deposits on the west side of the valley. As regards the older rocks forming the Rimutaka Mountains, although these have often been referred to and classified as being of Carboniferous age and referable to the Maitai series of the New Zealand Geological Survey classification, it would at the same time appear that possibly Old Secondary rocks are also present. These younger rocks are not easily separated even by those who have studied them more than the present writer, and therefore no attempt has been made to do so in this report.

1. *Recent: Alluvial Deposits, Raised Beaches, Blown Sands.*

Of the alluvial deposits the most prominent is the spit which backs up the waters of the Ruamahunga River and forms the Onoke Lake on the coast at the head of Palliser Bay. In