Veins of talc and pectolite(?) up to 1 in. wide were also observed. Chromite in grains and (rarely) in small lenses is found in dunite; the largest observed lens is 4 ft. long and 6 in. wide. Platinum in very small quantity has been found in the Lee (or Lea) River gravels a short distance outside the area examined during the past season (W. F. Worley, N.Z. Jour. Sci. & Tech., Vol. 6, No. 3, pp. 136–138, 1923).

2. Rodney Subdivision. (By H. T. Ferrar.)

Introduction.

The geological survey of North Auckland as summarized progressively in previous reports has been systematically continued. The Rodney Subdivision includes the following survey districts: Te Kuri, Hukatere, Otamatea, Pakiri, Rodney, North Head, Okaka, Tauhoa, Mahurangi, Kawau, Waioneke, Kaipara, Waiwera, and Tiritiri. Of these Te Kuri and North Head and parts of Hukatere and Okaka were surveyed last year; Otamatea, Pakiri, Rodney, and parts of Hukatere, Okaka, Tauhoa, and Mahurangi were surveyed this year; and the remaining portions of this area can be mapped next field season.

The country mapped this year, on a scale of 20 chains to the inch, is approximately 478 square miles in area, and lies immediately south of the strip of country surveyed the previous year. It extends from Cape Rodney, on the east coast of the North Auckland Peninsula, to Kaipara South Head, on the west coast. The field season opened on the 25th October, 1923, and closed on the 26th May, 1924, during which period valuable assistance was again rendered by Mr. P. T. Cox, M.A. (Canterbury College).

Physiography.

The district displays four types of country, namely—(1) Deeply dissected sandstone highlands, with peaks often more than 1,000 ft. high, which occupy the greater part of Pakiri and Tauhoa survey districts; (2) dissected claystone and limestone areas, 400 ft. to 500 ft. above sea-level, which are largely developed in Hukatere and Otamatea survey districts; (3) the consolidated sand-dunes of Okaka Survey District, 400 ft. to 500 ft. high; and (4) the belts of moving sand-dunes extending northwards from Pakiri estuary on the east coast, and southwards from Kaipara South Head on the west coast. The whole country has suffered many and sometimes great fluctuations in level, the penultimate movement having been one of depression, which submerged many river-valleys. These drowned valleys now form the ramifying arms of Kaipara Harbour, and are particularly numerous in Hukatere and Otamatea survey districts.

General Geology.

The following table gives a synopsis of the geological sequence in North Auckland, together with the approximate age of the several formations:—

Local Name.	Description of Strata.	Series or System.	Approximate Age.
..	Swamps, alluvial and drift sand	..	Recent.
..	Consolidated sand-dunes, gravel terraces ..	..	Pleistocene.
Purua Beds ..	Fresh-water leaf-beds, sandstones, and tuffs ..	(?) Wanganuian ..	Pliocene.
Pakaurangi and Cape Rodney Beds	Fossiliferous sandstones and tuffs; massive sandstones and fossiliferous grits	Oamaruian ..	Miocene and Oligocene.
Whangarei Formation	Crystalline limestone and brown sandstone with coal in places, or crystalline limestone, brown sandstone, and greensand		
	(Unconformity.)		
Onerahi Formation ..	Claystones, argillaceous limestone, greensand, grit, and conglomerate	Waiparan ..	Cretaceous.
	(Unconformity.)		
Otamatea Beds ..	Silicified claystone, sandstone with cone-in-cone limestone, *Inoceramus*, and ammonites		
	(Unconformity.)		
Waipapa Formation ..	Greywackes and argillites	Hokanuian ..	Trias-Jura(?).

Previous geological-survey work in the area under review was carried out by S. H. Cox in the year 1879 ("Reports of Geological Explorations during 1879–80," No. 13, 1881), and by J. Park in 1885 (Rep. Geol. Explor. No. 17, 1886). In the light of detailed examination it is found that their interpretation of the stratigraphy of the district requires some modification. Visits of short duration have also been made by McKay, Marshall, Bartrum, Morgan, and others to special localities, such as Pahi, Batley, Pakaurangi, Leigh, &c., where fossiliferous beds provide evidence as to the precise age of some of the strata.

The account of North Auckland stratigraphy as outlined in preceding annual reports still holds good. As the survey proceeds, new series of sediments are encountered which fill some of the gaps in the earlier published stratigraphical tables, and thus help to elucidate the geological history of the region, without which no sure assessment of the natural resources of the region can be made.

The oldest rocks in the district are the usual shattered greywackes and argillites of Trias-Jura(?) age. These rocks are of great thickness, but in the area examined outcrop over small areas only at Te Arai Point and at Cape Rodney.

Next in order are the concretionary sandstones of upper Cretaceous age which occur in the Otamatea district. These sandstones are characterized by the presence of one or more of the following—namely, cone-in-cone limestone, concretions of barytes, spherical calcareous concretions, and fossil remains of *Inoceramus* and of ammonites.

The claystones and argillaceous limestones of the Onerahi Formation cover large areas in Hukatere and Otamatea survey districts, and occur at Kaipara Flats and Warkworth. These beds, which are similar to the claystones and argillaceous limestone series of the Whangarei - Bay of Islands Subdivision, unconformably overlie the ammonite-bearing beds. They are correlated with the Amuri limestone, and, in the absence of fossils other than Foraminifera, are regarded as of late Cretaceous age.