

RECONNAISSANCE OF NORTH CAPE PENINSULA.

INTRODUCTION.—The object of my journey to the North Cape was to get a general idea of the geology of that comparatively little-known part of New Zealand, and, more especially, for the purpose of correlating the strata occurring in the limited area of the Whangaroa Subdivision with the more extensive area farther north, in which similar rocks outcrop.

GENERAL GEOLOGY.—The geology of the North Cape Peninsula is distinctly complicated. The oldest rocks apparently are highly corrugated argillites and grauwackes, with which occur widespread flows of amygdaloid and allied volcanics. The age of the rocks is uncertain, though they are probably Mesozoic. It is possible they may belong to two series as indicated by McKay, though, judging from the limited section seen by us, no definite reason for any such separation seems to exist.

The argillites are greyish, greenish, or purplish in colour. The amygdaloids in many places show a curious pseudo-agglomeratic structure, with rounded areas enclosed in a matrix of the same material, showing, however, a faint alignment, and containing much chloritic and calciferous material.

Rocks of this oldest series outcrop at Scott's Point, and are practically continuous from Cape Maria van Diemen to Tom Bowline Bay. They also appear around Parengarenga Inlet.

The rocks of Mount Camel are thought to be of the same age as the ones just described further north, though it is possible they may be older.

Cutting these rocks between the North Cape and Tom Bowline Bay is a great mass of igneous rocks—all of ultra-basic type, and comprising gabbros, norites, lherzolites, and harzburgites. It is probable that smaller masses or dykes of similar ultra-basics cut the older sedimentaries and flows at several points west of Tom Bowline Bay.

Unconformably above the earlier sedimentaries and igneous rocks are fossiliferous sandstones and shales, with coal-seams. The sandstones are practically reassorted volcanic tufa, and they represent merely the lower beds of volcanic breccia which are of widespread outcrop on the hills to the south-east and north of Parengarenga Harbour and towards Tom Bowline Bay. These breccias are generally conceded to be of Miocene age—a fact to which fossiliferous beds at their base testify. They are apparently similar in age to the Manukau breccias and to the Wairakau breccias of the Whangaroa Subdivision.

The fossiliferous sediments at the base of the breccias of the area now being described occur to the north of Parengarenga Inlet, and again just south of the North Cape. These rocks, as well as the overlying breccias, generally lie horizontally or at least at angles departing but slightly therefrom.

Above the breccias are a series of but slightly coherent sands, grits, fine conglomerates, and peat-beds. McKay classifies these as Pliocene, but it is probable that they extend from that period into the Pleistocene. These beds are conspicuous just south of Cape Maria van Diemen, north of Parengarenga Harbour, and southward therefrom almost as far as Hohoura. In many places, however, they, with older rocks, are almost completely shrouded by the widespread and all-invading sand-dunes which cover practically the whole of the North Cape Peninsula from Ahipara to within a mile of Parengarenga Inlet on the east and as far as Rocky Point on the west.

ECONOMIC GEOLOGY.—From an economic standpoint there is comparatively little interest in the geology of the North Cape Peninsula. The mineral wealth may be discussed under the following sections: (1) Quartz veins, (2) copper-ore, (3) iron-ore, (4) coal and peat, (5) glass-sand.

(1.) *Quartz Veins.*—Quartz veins occur at Mount Camel, and on the ridge to the north thereof; to the east of Hohoura Inlet; and also near Cape Kerr. An inspection was made of a vein near Hohoura Inlet on which a little prospecting work had been done. The quartz is opaque and cherty in appearance and of a greyish-blue colour. The enclosing rock is argillite, which forms very indefinite walls to the narrow vein (about 2 ft. wide). Analyses of the quartz showed neither gold nor silver to be present. The veins of Mount Camel are said to be much wider than the one near Hohoura, and to be well mineralised.

A tiny stringer of quartz a few inches wide was noted in pinkish and rusty argillites just west of Cape Kerr. The quartz resembled that seen near Hohoura Inlet, but was much more ferruginous. An analysis of a sample of quartz from this locality gave,—

								Per Ton. dwt. gr.
Gold	..	..	..	..	..	..	..	1 21
Silver	..	..	..	..	..	..	..	0 15

Value, 7s. 7d. per ton.

(2.) *Copper-ore.*—While in the North, samples of copper-ore were given to me which on reliable authority were said to come from near the North Cape. The specimens of ore seen consist of iron-sulphide with some chalcopryrite and a little green copper-carbonate. From the description given, the deposit is apparently very small. An analysis of what was said to be a typical specimen gave the following result:—

Gold	..	..	..	..	..	..	Nil.
Silver	..	..	..	..	..	..	7 dwt. 13 gr. per ton.
Copper	..	..	..	..	..	..	6.24 per cent.
Cobalt and nickel	..	..	..	..	..	..	Nil.

Copper-ores have also been reported from near Cape Karikari.

(3.) *Iron-ore.*—On the elevated table-land between Cape Kerr and the North Cape thousands of tons of high-grade limonite lie scattered in large boulders, small fragments, and even dust, on a surface of softish yellow clay formed by the weathering of the ultra-basic igneous rocks of this locality. The iron-ore also is a product of the decay of these highly ferruginous rocks.