

reefs, the original prospectors, in working upwards from the low grounds towards the outcrops of the reefs, found but a stray colour here and there as a reward of many dishfuls of soil "panned off." A further fillip to the industry was furnished in 1872 by the discovery of the famous Green Harp shoot of gold in what is now the Union Beach section of the Hauraki Mine. This yielded over £40,000 of gold.

After this period the yield of gold gradually decreased, and there is nothing of note to record until 1885, when a mild rush to Blackmore's Find at the Tiki took place. Vigorous prospecting here, however, gave but poor returns, and the field generally declined until the discovery of Legge's rich tribute leader in 1895. From this leader over three hundred thousand pounds' worth of gold has been taken, precipitating the recent boom, with its attendant pegging-out of mining claims, and consequent prospecting. Unfortunately, no new finds of importance have been made in the Coromandel area, and attention is now solely directed to the old-established centres—viz., Tokatea, Kapanga, Hauraki, and Tiki.

IV.—PREVIOUS GEOLOGICAL INVESTIGATIONS.

The first geological notices of the Coromandel Goldfields were contributed by Major Heaphy in papers read before the Geological Society of London in 1854 and 1855. In these papers, however, the author falls into the error of describing the Miocene trachytic and andesitic breccias at the entrance to the harbour as granite and granite porphyry.*

In June, 1859, however, Coromandel was visited by a geologist of some repute, in the person of Baron Ferdinand von Hochstetter, who was then accompanying the Austrian frigate "Novara" on a voyage of scientific discovery. He described the trachytic breccias of Beeson's Island, at the mouth of the harbour, but stated they were intruded by doleritic and basaltic dykes; and, further, that the auriferous reefs occur in the Palæozoic clay-slate formation—that is to say, in the beds which he afterwards grouped with his Maitai series.† In this connection, though it has been found of recent years that reefs in the slaty shales are auriferous in the Tokatea area, yet no auriferous reef in the slates could possibly have been exposed at the time of this visit, and it is now quite certain that the gold to which he refers was shed into the creeks from reefs, not in the Palæozoic slates, but in the decomposed volcanic andesites or porphyrites (propylites of Park).

Five years later, and again in April, 1868, Sir James Hector visited the field. The rock at Keven's Point (Hauraki area) he then described as a light-grey tufaceous porphyry, probably an original claystone porphyry, decomposed along fissures to a mottled pipeclay. Though reefs had been found in this area, they were, so far as was then known, barren and worthless. On the occasion of Dr. Hector's second visit, in 1868, he collected, for the first time in New Zealand, specimens of native arsenic. These came from the 300 ft. level of the Kapanga Mine. At the same time he re-examined the Tokatea, Kennedy Bay,‡ Whangapoua, and Tiki districts.

In November, 1880, Mr. S. Herbert Cox, F.G.S., then Assistant Geologist, examined the field with a view to determining the age of the auriferous series. The trachytic breccias (Beeson's Island beds) were correlated with the Tertiary breccias of the Manukau Heads, to the west of Auckland, making them younger than the main auriferous andesitic series, and also younger than the coal series of Cabbage Bay. On examining the sedimentary beds in the Torehine section, he concluded that the main auriferous series was overlain by the Lower Eocene beds, and hence was Pre-tertiary. As will be seen later, this view is not supported by other observers. Re-examining the Tokatea district in 1882, he came to the conclusion that the felsite (felsitic tuff of Hutton) must be grouped with the underlying slaty shales, and not with the overlying volcanic series.§

The first correct interpretation of the Torehine section was made in 1883 by Mr. A. McKay, F.G.S., who considered the main auriferous series to unconformably overlie the upper limestone beds, and hence to be later than Lower Eocene (Cretaceo-tertiary of the New Zealand Geological Survey).||

In a paper read by Professor Hutton before the Australasian Association for the Advancement of Science are the first published notes on the micro-petrology of the district, sections of an augite and a hornblende andesite from Coromandel being described.¶

Mr. James Park, F.G.S., in 1897 published a report on the Hauraki Goldfields, which include Coromandel, dealing briefly with the formations and the most important reefs.**

In 1897 also appeared the most comprehensive report on the Hauraki Goldfield yet published††—namely, that by Mr. A. McKay, F.G.S., Government Geologist, who in a reconnaissance survey mapped out the boundaries of the various formations; and it is to this report that we are indebted for our first detailed information on the distribution of the various beds throughout the peninsula. Mr. McKay, however, divides the auriferous andesitic series into upper and lower divisions, or the Thames-Tokatea and Kapanga series—a position which appears to me to be quite untenable, for reasons that will be detailed at a later stage.

* Heaphy: Q.J.G.S., Vol. x. (1854), p. 311, "On the Coromandel Goldfields"; Vol. xi. (1855), p. 31, "Gold-bearing District of Coromandel Harbour, New Zealand."

† Hochstetter: "Geology of New Zealand," pp. 14 and 51, Auckland, 1864; "Reise der Novara," Geologischer Theil, I. Band, p. 24, Wien, 1864; "New Zealand," p. 24, Stuttgart, 1867.

‡ Hector: Progress Reports, Geological Survey, 1866–67, p. 32; 1868–69, p. viii.

§ Geological Reports, 1881, p. 36; 1882, p. 4.

|| Geological Reports, 1885, p. 192.

¶ Trans. Aust. Assoc. Adv. Sci., Vol. I., p. 245.

** "Geology and Veins of the Hauraki Goldfields," Auckland, 1897.

†† "Report on the Geology of the Cape Colville Peninsula, Auckland"—C.-9 of 1897.