In this part they are of special interest as having, on the west spur of Moehau, a considerable variety of dyke rocks intruded into the sedimentaries, the interest in which is increased by the fact that these dykes themselves are of Palæozoic age, and correspond to the dykes that are so abundant in the Tokatea-Tiki area. It is this Tokatea-Tiki area as a goldfield, and its rocks as distinguished from later volcanic products on other parts of the peninsula, that more particularly have to be described in order that the object and meaning of this paper be made clear.

Subsequent to the discovery of gold at the Thames, through a long series of years up till the present time, various surveys and examinations of the Thames, Coromandel, Karangahake, Waihi, Waitekauri, and Te Aroha mining districts have been made, and, from the various reports that have appeared, the general impression is that the gold is chiefly and almost wholly confined to volcanic rocks of Tertiary age. Some gold-mining was carried on in slates at Tapu Creek, but scarcely with satisfactory results, and later a considerable amount of gold was obtained from reefs in slate country on Kuaotunu Peninsula; but here also within recent years the gold-yield has lessened in amount, apparently confirming the idea that the Carboniferous rocks of the peninsula do not produce gold in paying quantities, except temporarily and to a limited extent, in comparison with the yield from the auriferous andesites of Tertiary date.

Since 1869 many claims have been worked on Tokatea Saddle and Hill without, however, the owners being aware that the rocks in which mining was carried on were different to those mined in Scotty's and Kapanga Mines, and thence to Kevin's Point, at Coromandel, or that the rocks of Tokatea Hill were the same in age and belonged to the same formation as the slates and sandstones of Tapu Creek and Kuaotunu, or the felsite tuffs of Rocky Point or the gorge of Tapu Creek.

Hochstetter, when he visited Coromandel, in 1859, and examined the alluvial or slope deposits of Driving Creek, considered that the gold was derived from reefs of crystalline quartz occurring in the clay-slate formation that formed the backbone and main range of the peninsula. In 1870 Sir James Hector associated intrusions of porphyritic rocks with the slates of the main range in this part of the peninsula; but he leaves the impression that he believed the igneous intrusions were of much later date than the rocks into which they have been intruded—that they were, in fact, of the age of the volcanic outburst that accumulated the andesites of the neighbouring low grounds, and formed vast accumulations over the greater part of the peninsula, and which at that time (1870) were being most successfully mined in at the Thames. During the same year Captain Hutton, in reporting on the district adjacent to Coromandel—from the Tiki to Kennedy's Bay—states that the main range is in part composed of slates, in places described as blue arenaceous slates, weathering into soft yellowish-brown slates, on which is superimposed a thick mass of volcanic tuff and breccia, which, being the bed-rock of the gold veins and covering a large extent of country, is of far more importance than the slates.*

All the volcanic rocks were by Hutton regarded as of Tertiary age, and no mention is made of the occurrence of gold in the slates of the main range or Tokatea Hill.

In 1880 S. H. Cox, then Assistant Geologist, examined the rocks of this area between the Tiki and Tokatea Hill. At the Tiki he found that the Golden Belt had been (then abandoned) worked in slates. On Tokatea Hill he recognises the presence of a felsite dyke, but considers the rocks mined in as decomposed volcanic rock; but he is not clear in regard to what is the relationship of this volcanic rock. In 1882 he states that the rocks of Tokatea Hill and Saddle are unlike those of the Thames or elsewhere of the southern part of the peninsula, and more resemble the felsite or felsite tuff of the underlying slate formation.

In 1893 Professor Park considered the rocks on Tokatea Hill as identical with the volcanic rocks that overlie the coal at Torehine, on the coast south of Cabbage Bay, and states that the volcanic rocks are continuous between the places named. The dyke-intrusions in Palæozoic rocks at Torehine are also regarded as younger than the conglomerates at the base of the coal formation, no trace of igneous rocks being discoverable in the conglomerates, which fact is claimed to be negative evidence of great value.† At a later date, when, in 1897, he read his paper on the "Geology and Veins of the Hauraki Goldfields," he evidently had not changed the opinion held in 1893, and in spite of the free use of the term "greywacke," as applied to the felspathic sandstones of the peninsula, there is no hint that a strong development of volcanic and dyke rocks existed between the Tiki and Tokatea Hill, and it is significant of the opinions held at this date that, "although the gold-bearing andesites and succeeding volcanic rocks have been erupted through the Palæozoic basement rocks throughout the length and breadth of the peninsula, it is only at a few places that andesite dykes are seen penetrating the slaty shales."‡

In 1897, noting a great distinction between the igneous rocks of Tokatea Hill and those of the lower grounds to the west, I proposed the term "Kapanga group" for the latter, andclassed the Tokatea rocks with those of the Thames, Karangahake, Te Aroha, &c., under the term "Thames-Tokatea group"; but further researches during the following year led to the separation of the rocks of Tokatea Hill and Saddle and the west slope of the main range to the Tiki and Pukewhau Saddle, and the inclusion of the igneous rocks of this part with, and as forming part of, the Carboniferous formation.

The dyke-intrusions on the west spur and northern slope of Moehau had also to be considered, if younger than the rocks in which they appear, as being at least of Palæozoic, probably of Permian, age; but the dykes at Torehine and on the coast north of the Mata River, within Thames County, are probably rightly considered as belonging to or connected with a later volcanic outburst.

* Geol. Reports, 1870–71, p. 2. † Trans. N.Z. Inst., Vol. xxvi., p. 360. ‡ Trans. N.Z. Min. Eng., 1897, Vol. i., p. 16.