

1. *Recent.*

As mentioned in a previous part of this report, the alluvial deposits of the district are of a very limited extent, due to the fact of the Miocene formation carrying most of the streams. These rocks offer but little resistance to denuding action, and the streams cut them down in deep trenches and gorges, reducing the detritus to a fine mud and carrying it completely off. For this reason the Kuamahanga and Bismarck Creeks show very little alluvial, and it is not till the Kaiwhata passes through these Miocene rocks, and enters the older formation of Secondary age, that the river forms a broad gravelly bed typical of New Zealand streams. In consequence, the alluvial at the portion of the Kaiwhata is of moderate extent, occupying a strip of the valley from the sea-coast to a point where the stream makes its exit from the mountain gorge. Elsewhere there is a development of recent rocks, as shown in the blown sands and swamp-land on the coast stretching from that point to Glenburn. It has not penetrated inland for reasons pointed out elsewhere—viz., the proximity of the water-parting of the Maungaraki Range to the coast-line. North of Huatokitoki the deposit is composed for the most part of the coal-rocks upon which they are resting, while south of the same creek the coal-rocks give way to the younger beds of the same age, the coal-rocks being limited to isolated rocks within the tideway.

IGNEOUS ROCKS.

Associated with the Cretaceous rocks are igneous intrusions and tuffs, consisting of hornblendic rock and ejectamenta. They crop out in three separated localities: the first occurs in the Kaiwhata river-bed about a mile below its junction with the Bismarck Creek, the second near the confluence of the Te Maire and the Kaiwhata. In both cases the cutting-down of the creek has exposed the beds, and the rocks do not appear at higher levels. A third exposure occurs on the coast at Waikikino, covered in part by the sands of the sea-beach and other alluvial. In the Kaiwhata river-bed below the Bismarck Creek the igneous rock occurs as a dyke crossing the creek in a general north and south direction, which, as well as could be made out, was determined as its strike. It is a dark dense hornblendic rock decomposed to a brown at places; associated with it is a tuff containing calcite. These tuffs occur in much larger masses higher up the river-bed opposite Te Maire Creek.

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