Something must therefore be said as to the physical features and geology of the eastern slope of the main range between the Napier–Taupo Road and that leading from Gisborne to Opotiki.

Omitting Mahia Peninsula and a limited area on the mainland opposite, the younger rocks are invariably found along the coast-line, and those of greater age successively outcrop as the section is followed to the westward, till finally the Older Secondary or Younger Palæozoic rocks of the district make their appearance, which in the extreme south is to the east of the main water-divide, but in the middle and north-east parts is on the northern slopes of the main range.

Older Tertiary and Cretaceous rocks form the higher part of the main range from the south-east sources of the Whakatane River to a point in the Middle Motu Valley, a mile above the bridge over that river on the road from Gisborne to Opotiki.

The average height of the water-divide is between 3,000ft. and 4,000ft. above sea-level, and, as before said, from this height the fall of the country to the east is gradual, though at a lesser angle than the dip of the strata generally.

West of the main range the Cretaceous and Tertiary rocks, where present, terminate suddenly, and in the part of the district including and immediately north-east and south-west of Maungapohatu, erosion by the tributary streams within the Whakatane watershed has proceeded so rapidly and in such a manner that the whole of the Cretaceous rocks once present have been removed, and the present features of the country sculptured out of the underlying older rocks. The character of the Cretaceous rocks, and the positions which they occupy, nearly horizontal, on the main range favour the formation of the great line of cliffs which has already been noticed in a preceding part of this report. North-east of Maungapohatu, by the evidence brought down to the main stream by the different tributaries of the Waimana, it is clear that not only do the lesser streams reach back to the edge of the Cretaceous formation in the general line of its trend, but that, along the spurs separating the different deep valleys, narrow strips of Cretaceous rocks are continued to the westward.

Large subangular blocks of Cretaceous sandstone are found in the bed of the Waimana where no such rocks are in sight on the surrounding hills, and it may fairly be assumed that at one time the Cretaceous sheet extended west to the main valley of the Whakatane River.

In the south-west and north-west parts of the district a younger series of rocks cover the tops of the mountains in a like manner. At the south-west sources of the Whakatane, Trachytes or Rhyolitic volcanic rocks are seen disposed as horizontal sheets on the top of the mountains, but do not appear anywhere in the low grounds till passing westward of Ahikereru.

In the north-western part of the district, rocks of a similar character are to be met with on the range forming the water-parting between the middle Whakatane and the Rangitaiki Rivers. These Tertiary volcanic rocks may have been deposited after the erosion of the Cretaceous rocks if these latter ever extended thus far to the westward, or the plateau-like character of the region may have been preserved, while the presence of the Cretaceous rocks tell of the period of the volcanic outburst, which, however, would seem to be unlikely.

More modern volcanic rocks of a fragmental character fill the lower valley of the Whakatane, and cover the downs of the coastal region between the mouth of the Whakatane and Opotiki.

The formation present in the district may be classified as under:—

Table of Formations.

1. *Recent*	(*a.*) Littoral, fluviatile, and turbary.
"	(*b.*) Volcanic ejectamenta due to Eruption of Tarawera, 1886.
"	(*c.*) Pumiceous deposits of older date.
2. *Pliocene*	(*a.*) Gravel hills of the lower part of the Ruatoki Plain.
3. *Upper Miocene*	(*a.*) Trachytic volcanic rocks.
4. *Cretaceous*	(*a.*) Limestones, &c., of the main range on the eastern border of the district.
"	(*b.*) Shales, &c., underlying (*a*).
5. *Old Secondary and Palæozoic Rocks*	(*a.*) Sandstones and shales intermingled with slate.
" "	(*b.*) Breccias and diabasic or calcareous volcanic tufas.
" "	(*c.*) Hornstones and flinty jasperoid rocks.

1. Recent.

(*a.*) *Littoral.*—These deposits form a series of sand dunes along the coast-line between the Whakatane and Rangitaiki Rivers, and from them drift-sands are carried inland by winds from the Bay of Plenty, and to some extent they have encroached on the swampy lands to the south, filling up and rendering solid what would otherwise be an impassable swamp. The material of these sand-hills is in part pumiceous, but not nearly so much so as the similar deposits on the shore of the Bay of Plenty, more to the north. The reason of this is, that both the Rangitaiki and Whakatane Rivers bring down a large amount of detritus derived from the sandstone mountains of the interior part of the Urewera country, and part of this also is supplied by the erosion and wear of the sea-cliffs to the east of the mouth of the Whakatane River.

Fluviatile.—The modern fluviatile deposits of the district constitute the alluvial lowlands on each bank of the Whakatane River from five miles above its mouth to the sea. In this part there is a mixture of comminuted material derived from all the rocks of the district, but the prevailing ingredients of the soil are fine sand and mud from the older rocks, mixed with partly decomposed pumice grains derived from a covering of pumice spread all over the district. The result of this mixture of rock ingredients is an exceedingly rich soil, which yields large crops of maize without the application of any artificial means; the returns showing scarcely any diminution in amount after twelve years' successive cropping of the same piece of land. The Ruatoki Plain has over its surface