

Dr. HECTOR, Government Geologist, examined.

1367. *The Chairman.*] We have asked you to come here, Dr. Hector, because we understand you have travelled over a great deal of the country proposed to be traversed by one or other of the lines of railway for the North Island Main Trunk Line, and we would like to hear from you in the first place whether you can give us a description of the country itself as to whether it is fit for settlement, and in the next place as to whether it is valuable as a mineral country; in short, any information you can give us. Would you kindly explain what part of the country you know?—I know the whole of it, excepting the upper bend of the Wanganui; and I have never been on what is known as the Tuhua country. I have been all about Ruapehu and Tongariro, and to the eastward from there, and between that and the coast, and through from Mokau up to the Waikato. The Upper Wanganui country, I may mention, has been very well reported on twenty years ago by the late Dr. von. Hochstetter, and also by Mr. J. Coutts Crawford; but since my time I have never been able to go there; there has always been some objection on the part of the Natives.

1368. Taking the central line, would you kindly describe the country?—The country up as far as Murimotu is clay and marls, steep, broken country, with flat-bottomed valleys. That is the general character. Murimotu land is very good quality, although it is somewhat high, and the winter is a little bleak. It was the only place in the North Island where, in its original state, I found grasses and pastures at all analogous to the South Island. The south slope to the Kaimanawa is schistose land. Round the west, south of Ruapehu, as far as I have seen, there is a high plateau of pumice and lava soil. It is very poor land all round Ruapehu, but I am not aware how far that poor land extends towards the Wanganui River—i.e., to the westward. As far as I know, it extends about ten or twelve miles from the base of Ruapehu, but I have only seen that country from the top of Tongariro. North of Tongariro, at Rotoaira, you have a small patch of very good country, consisting of alluvial deposit covering volcanic rock; but, as a rule in that district, the country all round Ruapehu is poor and arid, and the soil will never be profitable while there is better soil to be got. A large proportion of the soil is composed of pumice or fine quartz sand. Then, that tract of country that I have described forms a very extensive plateau, which occupies the bulk of the interior of the Island. The plateau maintains an average level of about 1,800 feet above the sea, and is poor soil. It abuts on the Mokau River and the junction of the Pauerau. The Pauerau joins the Mokau about twenty miles from the mouth at the elbow, and below that point to the sea the Mokau is cutting through moderately-rugged country, of sandstone, limestone, and clay marls, with very good coal seams at the base. These coal seams strike through from Kawhia, and strike through to the Ohura, on the Wanganui River. I have no doubt, from what I have seen, that these coal seams will be pretty extensive and the quality very good.

1369. *Mr. Larnach.*] Is it a brown coal?—It is rather better than Shag Point coal, and it is equal to Springfield coal, but it is not so good as the West Coast coal, for the reason that it does not cake or yield illuminating gas.

1370. But it would do for driving steamers?—Yes; I should say it was equal to the Bay of Islands coal for that purpose.

1371. Equal to ordinary Newcastle coal?—Well, no; hardly. It is not so valuable. It is not a gas coal.

1372. *The Chairman.*] Are those seams close to the central line?—Yes; this plateau of what I call the high land is continued to the north-west as the dividing range which connects Mount Egmont with the central volcanic system; that is to say, it turns the Wanganui River. That dividing ridge is crossed by the present Stratford railway, and the same dividing ridge may be crossed, in a depression of about 1,500 feet altitude, some distance above the Pauerau junction. Also on the spur leading up from the south side of the Mokauiti there is a saddle in the range having about the same altitude, through which the old track from Kawhia to Taupo passes. I have been along that track for a considerable distance, almost to the top of the range, but the range itself is about 2,000 feet in height, and overhangs, like the edge of a plateau, the valley of the Mokau. This same plateau has also been excavated by the Wanganui River, because at Tuhua we have the slates of the basement rocks that underlie the whole of the trachyte and tertiary series rocks exposed at moderate elevations, so that the excavation is below the bed of the plateau as it were. The plateau having been etched out in a half-circle left an area of comparatively low land; but still, between that low land and the low land which is met with on the northern side of the range, in which the valleys of the Waipa and Mokau lie, there is still the continuation of the Stratford Range to be crossed, and that range has to be crossed, whether you do it at Stratford or whether you do it at Mokauiti. In whichever direction you go in order to get the Waikato level you must cross this range. The broken country above the point that I described—above the junction of the Pauerau—opens out into a very considerable valley, averaging about five miles, and extending in a direct line to the Waipa Valley, the two valleys being almost continuous, although the main branch of the Waipa, and also the Mokau, take their rise in a slate range called the Rangitoto. But the head-waters of the Mokau and Waipa almost join, and are separated by a saddle about 400 feet above the level of the Mokau and 500 feet above the level of the Waipa, and composed of soft, friable, sandy rock. The Mokau Valley, from that saddle down to the Wairere Falls, is a very beautiful piece of country—slopes, limestone bluffs, and slight coating of volcanic rock on top. The spurs are very gentle, and slope down to a broad, grass valley, and the valley itself has very little fall—in fact, only some 70 or 80 feet from where you rise to the saddle down to the falls, where there is a total descent of 250 feet in a few miles, and the river there washes over old slate rocks that underlie the whole formation of the country, although they only appear at very rare intervals. Below the Wairere Falls the Mokau has an average of about 150 feet above the sea, and falls through a limestone country. The country is not really broken, but the limestone has slipped on the hill-sides so as to give it a rugged look. After you pass that you come down to from 30 to 40 feet above the sea-level, and from that point you can go in canoes. I went up in a canoe, and was three days in going up the river up to this point, which is well inside what may be called