

strong fern land, and many Native cultivations exist both on the flats and the low-side hills, which are generally good.

Limestone outcrops near sixty-six miles. There are some exceptional cases where the hills are pumice-sand and the land worthless. It is necessary to direct attention to the difference between pumice-sand country and the country where drift-pumice occurs amongst the soil—the latter not indicating poverty of the soil, which is injured only to the extent of the room occupied by the pumice. It exists in this form, more or less, from Mokau to Waimarino.

From fifty-seven to fifty-three miles the land is open; much of it plain, of considerable width, but very poor, though there are cultivations on hill-tops near, on land of good quality, with limestone outcrops.

From fifty-three to fifty-one miles we cross good land, with heavy fern on flats, and land of extremely good quality on tops of hills, where many of the Native cultivations are.

From fifty-one to forty-eight miles, low bush hills; soil and timber very good.

From forty-eight to thirty-seven miles, open grass and fern lands; bush on hill-tops; good quality. Shell limestone at forty-eight miles and limestone caves.

From thirty-seven to twenty-nine miles, part bush and part open land; quality of land generally good. Down the Mokau there is a large extent of good land which can be readily reached from the railway, by a level road.

From twenty-nine to twenty-six miles, good land and kahikatea bush on hill-tops, and limestone outcrops of good quality.

From twenty-six miles to Te Awamutu, very good open land, with occasional bush clumps—generally white-pine and pukatea, and to the west a large extent of splendid country of a diversified character. Ballast will generally be got near at hand, and suitable timber for bridges, &c., will be easily obtained.

Alternative Line, Feilding to Hautapu.

Having completed the exploration from Marton through to Te Awamutu, and started survey parties on the line, I explored under instructions an alternative route from Feilding to Hautapu, the map and approximate section of which are forwarded herewith. From Feilding there are two routes to be considered, the one following up the Oroua Valley, and the other up the Kiwitea; both routes have flat country for the first twenty miles, but beyond that the country is very much broken. At about twenty miles from Feilding the watershed-range, lying between the Oroua and Kiwitea Valleys begins to show itself, and, gradually rising, it follows the course of the Oroua until it joins the Ruahine Range. A branch range, of considerable height, turns off from this range, and, heading all the branches of the Kiwitea, runs north-westerly down the general course of the Mangawharariki and ends abruptly at the Rangitikei. Further on another branch range, also high, runs between the Mangawharariki and the Kawatau, ending, like the last, abruptly on the Rangitikei River. A third range, parallel to the two just described, comes away from the Ruahine, and runs between the Kawatau and the Rangitikei Rivers. These three ranges all abut on the Rangitikei River, within the last six miles, immediately below the confluence of the Hautapu. The east side of the Rangitikei River, for at least twenty miles below, presents similar features, with cliffs of heights varying from 200 to 450 feet; the greater heights generally marking the places where ranges end, so that no possible crossing-place from Feilding could be found lower down.

The Oroua route would have to be graded along the eastern side of the watershed range, and a low saddle in the same range crossed into the head of the Kiwitea, near the Rangiwahia Trig. Station, and thence follow over a high saddle into the Mangawharariki; this saddle is shown by the Trigometrical Survey to be about two thousand feet high. The Mangawharariki would then have to be followed down to the Rangitikei River, and would there join the Kiwitea line. This route would, besides being high, be circuitous; and for these reasons I did not consider it necessary to lose time in going through it, so I decided in giving more attention to the more promising route by the Kiwitea.

The Kiwitea route, which is shown in the section, looks more promising, but compares unfavourably with the original line. It should, after leaving the flat country before referred to, be graded along the western side of the watershed range, neither too high up on the hills, nor too low in the valley, which is rough. A good grade can be got to near the Whare Trig. Station ("Curles's whare"), and probably up to the watershed of a branch of the Kiwitea, and a creek following into the Mangawharariki, near the Hinau Trig. Station. The last-named creek would then have to be followed down with a heavy grade of about 1 in 35 to the Mangawharariki. The Mangawharariki would then have to be crossed with a viaduct about 150 feet in height. The Mangawharariki is, like most of the rivers in this locality, a ravine running between high papa cliffs, and hills occasionally on the cliffs, causing a vast increase in height on the river-sides. There are several natural clearings of considerable extent on the Mangawharariki and Kawatau Rivers, but they are difficult of access.

After crossing the Mangawharariki, the country is level but high above the river-beds to the Kawatau River, which has to be crossed next. Near its confluence with the Rangitikei the space between the cliffs is of great extent, but about half a mile up a spur occurs on the side of the river having a bluff of great height abutting on the river. By going round inside it, a short tunnel of about fifteen chains would bring the line out at a better place, and the Kawatau might be crossed, as the cliffs, although about two hundred feet high, meet within about one hundred feet of each other.

On the north side of the Kawatau the country is again flat, though still high above the river-beds, and the line could be taken to a point on the Rangitikei River about one and a half miles above the confluence of the Kawatau. There the third parallel range before referred to as coming down from the Ruahine strikes the Rangitikei; but the narrowest place I have seen in the river also occurs here, and the Natives with me also said it was the only narrow place. It was found to be