

Blenheim. This was the scheme suggested by that gentleman, and supported with hopeful results by Mr. Carruthers.

Brunnerton to Foxhill: Length, 173 miles; ruling gradient, 1 in 9. Brunnerton to Nelson, including constructed length: Length, 195 miles; ruling gradient, 1 in 9. Brunnerton to Blenheim: Length, 201 miles; ruling gradient, 1 in 9.

The second line is from the junction at the Waikari Plains, *via* Jollie's Pass, Clarence, Tarndale, and Wairau Rivers to Blenheim. Length, 168 miles; ruling gradient, 1 in 15.

This is the combination of lines preferred by Mr. Carruthers before the coast line *via* Kaikoura was examined.

The third line is from the same place on the Waikari Plains, *via* the Waiau and Kaikoura Townships, Coast, and Flaxbourne, to Blenheim, the line recommended in preference to all the other main trunk line routes. Length, 151 miles; ruling gradient, 1 in 15, over the Whale's Back.

The alternative line, by way of the Cheviot Hills to the Kowhai River, thence by the route of the other line by the coast to Blenheim, is as follows:—Length, 160 miles; ruling gradient, over high ground at Hawkeswood, not ascertained, probably 1 in 15 or 20.

This line would be nine or ten miles longer to construct than the other by the Waiau Township, as it would have to leave the main trunk line on the north bank of the Waipara River, instead of at the junction of lines on the Waikari Plains. (*See sketch map.*)

The ruling gradient of this alternative line will be not upon Mr. Dobson's surveyed line, but over the high ground near Hawkeswood, the gradient of which, I calculate, will be 1 in 15 or 20, at the very best, otherwise another long length of tunnelling will be required.

INTERCOASTAL LINE.

Upon this line, as recommended *via* Lake Sumner, there will be one mile of tunnelling.

The ruling gradient, as before remarked in the report, from the Waikari Plains to the tunnel of the Hope Saddle, will be 1 in 25.

The first portion of this grade of 1 in 25 would take place (for a short distance only) near Lake Sumner, and against the eastern approach to the tunnel at the Hope Saddle.

From the western entrance to the tunnel there will be about two and a half miles of a grade of 1 in 15. The remaining grades the whole way to Brunnerton are comparatively easy.

I have not given the entire distance of this line, as there is no other line entering into competition with it in this respect, except a portion of it by the Waiau River, and another portion by way of the Lewis Saddle and Cannibal Gorge, both of which have been commented upon before.

I have, &c.,

THOMAS M. FOY.

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