

the Oamaru Valley to "Hay's Pre-emptive," thence through McDonald's Saddle to the Owake Valley and Catlin's River. The length of the Inverciel line is about $17\frac{1}{2}$ miles, and of the Stirling one $18\frac{1}{2}$. The curves and gradients are good, but the works, which include about 20 chains of tunnelling, are somewhat heavy. The estimate for the Inverciel line complete is £95,000. The Stirling one will cost much the same, with the addition of the bridges over the two branches of the Clutha; if built at a low level in the ordinary way these will cost about £10,000, but if the one over the Koau Branch is constructed so as not to interrupt the river traffic the item of bridging will require to be increased to about £30,000. The main object in adopting the Stirling line is to accommodate the traffic on Inch Clutha; it will also save about four miles in the distance from Dunedin to the Bluff should the Catlin's River Branch be extended along the coast as a through-line.

The Catlin's River Branch, after running through a rich agricultural country, terminates in one of the best-timbered districts in Otago, consequently the traffic will be considerable—it also forms a link in the through communication above alluded to.

Edendale to Fortrose.—Three routes have been examined for this branch, going more or less into the country north of the Maitara, but preference is given to the one next the river. It starts from the Edendale Station on the main line, and for five miles follows generally the course of the Fortrose Road. After crossing the Wyndham it diverges southwards and keeps along the Wyndham and Maitara Valleys to the lower end of Maitara Island, after which it follows the foot of the terraces to the terminus at Fortrose. The total length of the line above described is about 23 miles. A saving of about three or four miles might be effected by at once running southwards from Edendale to a crossing near the ninth mile, but this would leave out a portion of the closely-settled country on the Otago side of the Maitara. Possibly a modification of the two alternatives will be found the most suitable.

The alignment and gradients of the Edendale and Fortrose Branch are particularly good, and the works are very light, the approximate estimate for the whole line, including equipment, being £110,000.

The Fortrose Branch, up to within five miles of the coast, is well located; but I do not think it should go any further in that direction, as the country immediately surrounding Toitoes Harbour is fairly accommodated by water carriage. The line should turn off at the point named, and run up the Wamak Valley, five or six miles into the heart of the Toitoes District. In addition to opening up more country, the latter portion will possibly come in as a link in a through line to the Clutha. I believe that a branch railway from some point, or other on the main line to the Toitoes District is required, and that it would amply repay its cost.

In connection with the Catlin's River and Fortrose Branches, and another branch that the Provincial Government of Otago intended to make into the Seaward Bush from Invercargill, it is a question whether the interests of the country would not be best served by making instead one through loop line from Greenhills on the Bluff Railway, *via* Toitoes and Catlin's River, to the Clutha. Such a line would open up a great extent of rich agricultural and timber country. It would afford communication in both directions to the districts traversed, and shorten the journey from Dunedin and Christchurch to the Bluff by fifteen or twenty miles. So far as can be ascertained without a regular survey there are no serious engineering difficulties in the way of its construction; the only doubtful part is about twenty miles in the Tautuku Forest, not yet explored.

If this idea can be entertained at present, the section from Greenhills to Toitoes should be substituted for the Edendale-Toitoes Branch; they are exactly the same length, and the former is somewhat easier to make, and much superior in alignment and levels; indeed it might be made perfectly straight and level for nearly twenty miles.

The objection to the Greenhills line as against the Edendale is that it leaves out a better-settled country in the Wyndham District than is brought in at Oteramika, and that, under any circumstance, a connection will ultimately be required between the two lines along the Maitara Valley, so the Edendale Branch does not become useless when the other is constructed. If it is not necessary to make the Seaward Bush Line, these objections will probably hold good, and the Edendale Branch should be constructed first; but, if the former is considered a necessity, the Greenhills-Toitoes line is decidedly preferable to separate branches at Seaward Bush and Edendale.

ESTIMATES.

Since commencing this report I have received your instructions to furnish approximate estimates of the lengths and costs of lines in the Middle Island the construction of which I would recommend for consideration. In accordance therewith, and acting on the principle already laid down of making every extension, however small, a link in the general railway system of the Island, I have considered the subject in all its bearings, so far as our present information will permit. Although our knowledge of the country traversed by the various lines suggested is such as to make the general direction tolerably correct, the details of lines and distances must not be taken as conclusive. The estimates of cost, which are only approximate, are in most cases based on a comparison between them and railways already constructed in other parts of the colony; they are intended to cover cost of main line, sidings, stations, rolling-stock, land, and engineering, together with all other charges required to construct and equip the lines.

I have divided the railway system I suggest for the Middle Island into four classes, thus: Extension, 1st class; Extension, 2nd class; Future Extensions, first class; and Future Extensions, 2nd class, according to what I consider their importance and the order in which they should be constructed. The future extensions being a matter of much uncertainty, it is not necessary at present to give details of length and cost; their enumeration is mainly useful in showing the general system.

EXTENSIONS, FIRST CLASS.			
<i>Main Lines.</i>		Length, Miles.	Cost.
Dunedin to Albert Town, Otago Central	...	160	£1,100,000
Amberley to Brunnerton	...	110	950,000
Greymouth to Hokitika	...	26	220,000
Totals for Main Lines	...	296	£2,270,000