

For political and economical reasons the communication between Auckland and the South will have to suffer at first a more serious divergence from the direct line than would occur in the service between Christchurch and Picton by the central line.

3. The third condition accepted for the trunk line, South Island extension, is that it shall be capable of construction at a cost not exceeding that admitted in similar cases within the colony. Here the central line answers the requirement far better than its competitor. Mr. Blair, a very resolute antagonist, allows that, notwithstanding its greater length, it would not cost more than the coast line. Mr. Rochfort's evidence tends to show that it would cost less. He cautiously estimates it at £8,000 per mile, complete and stocked. In this estimate, however, he includes a section of thirty miles not properly belonging to the trunk line (the extension of the Waimea line to the Tophouse, the greater part of which has appeared on the estimates for a long time under the titles "Nelson-Roundell" and "Nelson-Greymouth"), which stands on another footing. The section referred to contains a tunnel and heavy earthworks over a considerable length, and materially augments the average cost per mile in Mr. Rochfort's estimate.

A short description of the central route will best exhibit the grounds on which the Committee claim for it something below average costliness. It follows easy leading valleys for four-fifths of its length, and not more than a tenth part of it shows heavy work. From Blenheim to the Rainbow River, about seventy-six miles, the line is in the open Wairau Valley, and there is little in the shape of works except the bridges over the Wairau and Waihopai. Surface-formation will nearly everywhere prevail, and ballast is everywhere at hand in the river-bed. If indeed it is decided to carry the line near the level of the Tophouse Junction saddle, the spurs of the mountains must be followed in side-cutting for ten or twelve miles. Mr. Rochfort reports the spurs as admitting easy curves without deep cutting, and it must be observed that side-cutting on easy hills is the cheapest form of earthwork. It is not essential that the trunk line should pass near this saddle; the Nelson junction may be effected at any time by a short branch on a level leading along the hill-sides up stream. But with a view to economize mileage and prepare for the completion of the system, it would be advisable to incur the expense when the main line is under construction. The divergence towards the saddle would not force the gradients on the main line to anything near the ruling maximum of 1 in 50; even including this diversion the line from Blenheim to the Rainbow River would be exceptionally cheap.

Three miles of heavy work follow in the Gorge and along the shingle-slides higher up. They would include two or three small bridges with inexpensive and secure abutments on rock, and probably a few chains of tunnelling to secure good curves, as well as a mile of heavy side-cutting in rock not extremely hard. On the shingle-slips, as well as in the Gorge, some low timber-framing may be necessary to allow the moving shingle and the overflow of small streams during the winter-frosts to pass under the line. Thence through Tarndale Plateau and down the Acheron about thirty miles the works will be generally trifling, except at two points on the Acheron, where the river must be bridged and short rocky bluffs pierced with tunnels or open cutting. The formation will be generally on the surface. On the next section the most serious works in point of extension will be found. The Clarence requires a bridge of no great span, and the rise to and descent from the Hossack Saddle must involve a considerable length of side-cutting. The saddle itself may be reduced in height by cutting, the ridge being steep and narrow. The last section from the Hammer Junction to the Red Post begins with a bridge over the Waiau-uwha, of no great length, but of considerable height and span. Some form of suspension bridge is suggested by Mr. Ashcroft. Beyond this point the line will be generally on the surface of the river-terrace.

Taken as a whole the works will not be serious, the payments for land trifling, the buildings and stock small and inexpensive. The Committee are advised that the line may be constructed and stocked at a cost something under £7,000 per mile, or for a gross sum of about £980,000. As to the cost of the East Coast line no evidence was produced in Nelson, but the advocate of the Cheviot route, Mr. Blair, has spoken distinctly in his report of 1879 (E.-1, page 65): he is comparing the Cheviot and Greenhills alternatives. "So far as can be judged without detailed surveys there is little to choose between the routes as regards the cost of the work. The country between the Conway and Kahautara in the one case, and the Mason and Kahautara in the other, is very rough indeed. Notwithstanding the steepness of the gradients the trial section of the Greenhills line shows a succession of cuttings and embankments far heavier than anything hitherto encountered in the railway works of New Zealand. In the first five miles north of the Whale's Back the line crosses thirteen broad ravines, five of them being from 50 to 90 feet deep, and eight of them from 90 to 160 feet. Further on the same section has four banks from 50 to 70 feet deep, and four from 90 to 160 feet. The cuttings are also on the same gigantic scale, several being 60 to 80 feet deep and a quarter of a mile long." Mr. Blair continues to describe the Greenhills route as to gradients in a most condemnatory style, and winds up thus: "The main, if not the sole, object in making a railway in this direction is to provide the quickest means of transit between the southern settlements and the North Island, and this object will certainly not be obtained by the line thus described. Altogether I have not the slightest hesitation in rejecting the Greenhills route in favour of the coast line, *i.e.*, the line by Cheviot and Parnassus."

In his report of 1878 (E.-1, page 39) Mr. Blair had written thus: "Mr. Dobson's line by Cheviot is also very costly for about ten miles, but I am inclined to think it superior to Mr. Foy's on account of its lower summit level."

Mr. Foy had previously reported on the two coast lines; he sums up his observations thus (E.-1, 1876, page 39): "A railway line over such a country [Greenhills] could not possibly be made without doing so regardless of cost both as to construction and maintenance. A line by the coast is equally impossible." And again: "It is therefore demonstrably certain that the main trunk line can never pass through the Cheviot Hills District. . . . It is no use to fight against Nature, and it may be said with truth of the two competing lines that, whilst one is just practicable, the other is undeniably impracticable. . . ."

It is impossible to read these reports without a conviction that the undertaking of the coast line will launch the colony in a very extravagant expenditure. It will be observed that neither Mr. Blair nor Mr. Foy says anything of the works on the actual coast. There is, however, a long section on this