

The line, by this plan, would enter Cromwell by a bridge thrown over the Kawarau River, thus rendering unnecessary a more expensive railway structure over the wider Clutha.

The total mileage of the line would thus be 82 miles from the Waipahi Junction, or 166 from Dunedin. In addition to this, I recommend for future consideration the construction of three 24-inch gauge tramways, upon the new established principle known in the engineering world as the "Welsh Festiniog."*

1. North-easterly from Alexandra, up the Valley of the Manuherikia, affording access to the five gold-mining townships of Ophir, Drybread, Blacks, Blackstone Hill, and St. Bathans [from whence it may be subsequently extended as a loop line through the Mount Ida District *via* Naseby, ultimately connecting with the Great Northern Railway at Palmerston].†

2. Northerly from Cromwell, embracing the seven townships of Bendigo, Upper Ferry, Alberton, Cardrona, Pembroke, Newcastle, and Gladstone, the three latter situate on the shores of Lakes Wanaka and Hawea.

3. Westerly from Cromwell, to the eight townships of Kawarau Gorge, Nevis, Morven, Shotover, Skippers, Arrow, Frankston, and Queenstown, the two latter on the shores of Lake Wakatipu.

These twenty towns and postal districts, together with the seven towns upon the line, and three from Spylaw Station (namely, Horse Shoe Bend, Dunkeld, and Switzers), altogether numbering thirty towns and postal districts which the railway would put into almost direct daily communication with the City of Dunedin.

It may not be considered altogether foreign to a reconnaissance survey and report upon a projected line of railway, that I should add a few of the many advantages which would assuredly accrue to the Province were this line constructed.

1. The area of land tributary to railway returns, say within the watershed of the Tapanui Ranges upon the east, the Umbrella Mountains on the west, and from the 46th degree of latitude to nearly the northern boundary of the Province, where the available country within the watershed spreads out to something like sixty miles at its widest part, comprising upwards of three million acres—that is, about one-fourth of the entire Province—a considerable proportion of which is well adapted for colonizing purposes, such as for agricultural settlement, seeing that it is the most fertile portion of Otago, and with a very temperate and equable climate.

2. The exclusively pastoral portions of the district named are of the finest character, as is amply proved by the sheep census returns of last year, numbering 1,072,032 sheep, although most of the runs are understocked. I have consequently taken advantage of that fact, and supplemented the item of wool carriage by estimating what it should produce in 1875.

3. The mining resources of the several localities of the thirty townships and postal districts enumerated are established by the detailed *Gazette* returns; that for 1870 being 102,175½ oz.; for the past year (1871) being 100,889½ oz. of gold, the value of which was about £389,825 3s. 3d., being two-thirds of the gold production of the entire Province. The escort returns for 1872, so far as the year has gone, bear about the same proportion, and to all appearance are likely to largely increase, as more improved mechanical appliances and scientific knowledge are brought to bear upon the newly discovered auriferous reefs, and other mineral wealth of the Province.

4. The population of the district, so far as can be gleaned from the Census returns, numbers about 10,792, that is, one-fourth of the population of the Province, after excluding the fixed population centred in the city of Dunedin and suburbs, the towns of Lawrence and Invercargill.

To return to the item of estimated traffic—*Vide* Appendix B. It may be a difficult problem in a new country to solve the monetary value of the traffic, which, in the usual course of events, may be expected to increase when the tributaries to a new railway become settled down into working order. An increase is the inevitable result of the substitution of a railway for an ordinary road, or, as in the majority of the cases here, a mere bush track. It will, however, be admitted that the expected receipts on the proposed line, calculated as they are from known statistics, without being over-estimated, and submitted to the rigid scrutiny of experts, cannot be otherwise than correct. My tabulated estimate of traffic, hereto appended, *vide* Appendix, simply represents the value of only such traffic as is absolutely certain, having been framed upon reliable data, showing that the net proceeds, over and above working expenses, would leave a large margin to cover interest upon constructive capital, sinking fund, &c., &c.

At the present time, owing to the nature of the intervening country, the carriage of goods both up and down is scattered over many tracks, and conveyed to its destination at a vast loss to the settlers, the Colony, and all parties concerned; for instance, the present cartage rate from Dunedin to Ettrick *via* Lawrence is £5 10s. per ton, whereas it would well pay a railway to carry at one-fourth of the amount, and in as many hours as the former requires days.

By the construction of this line of rail all that would be remedied, seeing that the traffic of the "Great Central Basin" of the Province would thereby be conveyed to one point,—that point being at the Waipahi, through the Conical Hills Gorge, the only legitimate railway outlet to the western extension of the Southern Trunk Railway. Moreover, the vast additional and concentrated traffic thereby contributed to the latter line would of itself be sufficient to insure its being a remunerative enterprise, thereby rendering the Great Central Trunk Railway, in conjunction with the Southern, the most important line of the Middle Island.

I have, &c.,

JOHN MILLAR, F.S.A.,

Consulting Railway Engineer.

The Hon. the Minister for Public Works.

* During the past Session of the British Imperial Parliament, Bills were passed empowering the North-Western Railway Co., and others, to construct several hundred miles of 24-inch gauge feeding railway or tramway lines in the County of Merioneth, North Wales, and elsewhere, so as to unite the Festiniog 24-inch gauge railway with North-Western wide (4 ft. 8½ in.) gauge, working in concert with each other.

† The words within brackets are added at the request of Mr. Millar, after the Report had been presented to the House of Representatives.—F. E. CAMPBELL.