

In order that I might be able to lay the whole subject before you as clearly as possible, you instructed me to make a personal examination of the country, and the various lines proposed. In accordance therewith, I devoted six weeks to the work, being accompanied by Mr. O'Connor, under whose charge most of the surveys were conducted. We examined all the principal passes in the main range and went generally over the whole of the more likely lines, making particular examination of leading features and special difficulties. Mr. O'Connor and I have considered the whole subject together, both on the ground and in the office, and I believe he concurs with me in all the professional conclusions and recommendations given in this report.

#### REQUIREMENTS.

With the view of considering the question intelligibly, it is necessary to enumerate leading requirements and objects, and set down certain propositions that naturally arise. These are as follow:—

1. That the railways be laid out so as to open up the most good country for settlement, and more particularly to open up Crown lands.
2. That the utmost facilities be given for the transport of the West Coast coal and timber to the eastern markets or a shipping port.
3. That the quickest railway communication be provided between the southern settlements and the port on Cook Strait that offers the greatest facility for communicating with the North Island.
4. That, if possible, one railway be made to serve both purposes of connecting the East and West Coasts, and forming the through communication between the Bluff and Cook Strait.
5. That the West Coast, as an integral part of the colony, be connected with Cook Strait and the East Coast.
6. Engineering considerations and carrying capacities of the lines obtainable.

#### DESCRIPTION AND RESOURCES OF COUNTRY.

One of the first considerations in determining the best line is the character of the country traversed. It is therefore advisable to give a short description here. The main range of mountains that forms the back-bone of the Middle Island extends in an unbroken chain from Otago to Nelson. There are few passes through it, and none of them is lower than 3,000 feet. The range is comparatively narrow and compact between Canterbury and Westland, but north of the Hurunui it breaks into subsidiary ranges running right to the East Coast. In fact, the whole of the north end of the Island is a regular jumble of mountains. The main range is considerably nearer the West than the East Coast, consequently the eastern ascent is easy, but it is quite impossible to get good gradients on the west side. This is unfortunate, for all the heavy traffic must necessarily come from the west.

Nearly all the country on the western side of the range is covered with dense timber, and the good flat land of any kind is comparatively limited. In connection herewith I beg to draw your special attention to a report by Mr. Calcutt, on this subject, published in Parliamentary Paper, E.—8, 1873. So far as my judgment goes I can corroborate all that Mr. Calcutt says as to the indifferent character of the land and its limited area.

The timber is, however, excellent and abundant. I travelled through immense tracts of forest country full of splendid pine and birch trees.

It is from the mineral resources of the West Coast that the principal railway traffic will be derived, so it is necessary to consider their extent and localities. Leaving out gold, which merely augments the general traffic, coal is the only mineral hitherto worked which may be depended on for a large permanent revenue. The quality of the West Coast coal is equal to that of any in the Australian Colonies: it is the only true coal in New Zealand. The supply is practically inexhaustible, and the mines are easily worked. But it should be pointed out that the main deposits occur in a narrow belt along the sea-coast, which entails the maximum length of carriage, right across the country. Coal has been discovered in small quantities up the Buller Valley, to within forty-five miles from Nelson, and this has been urged as a reason for the construction of a railway in that direction. But the deposits are small, and, according to the geological map, there is not much likelihood of a large coal field being found in that or any other locality many miles from the coast at the Grey or Buller; at any rate in the vicinity of the direct lines across the country.

We may therefore sum up the resources of the West Coast that will directly bring traffic to a railway as timber and coal. The timber traffic will begin from the crossing of the range, but the coal must be brought from the extreme end of the line.

On the eastern side of the range the West Coast lines pass through ordinary pastoral country that will give little traffic. With the exception of the Waiau and Hanmer Plains, all the good country is commanded by the railways now open or in progress, and in the case of those plains they are not particularly well accommodated by the lines that have a preponderance of other advantages.

Proceeding northwards along the East Coast, the good country terminates at the Conway, the width inland being about twenty miles. An isolated patch of thirty or forty square miles occurs at Kaikoura, after which there is no agricultural land worth mentioning to the Ure River, a distance of forty-five miles. The mountains then recede from the coast, and there is a large extent of good country all the way to Blenheim, particularly about the Awatere. The valley of the Awatere is rather narrow in proportion to its length, so it will not be opened up to the best advantage by a railway that simply crosses it as proposed; still the line would open up a large portion of agricultural land.

The East Coast lines terminate at Blenheim, which is the centre of the best land in Marlborough. The Wairau Valley is particularly good, and it is of an immense extent, reaching forty or fifty miles towards Tophouse.