

1878.
NEW ZEALAND.

ROUTE OF RAILWAY LINES IN NORTHERN DISTRICTS OF SOUTH ISLAND

(REPORT ON, BY MR. FOY).

Presented to both Houses of the General Assembly by Command of His Excellency.

Mr. T. M. Foy to the DISTRICT ENGINEER, Hokitika.

SIR,—

Public Works Office, Nelson, 26th July, 1878.

I have now the honor to forward you a report upon the surveys and examinations made in connection with the public works railway scheme in the northern districts of the South Island, accompanied by a sketch map, upon which is shown all the routes that have been examined, also the "dray" roads that have been constructed, and affording communication at the present time between the centres of population in that part of the country.

The sketch map is upon a scale of four miles to an inch, which I think you will find to be of sufficient size so as to show distinctly the general course of the several lines; and, although the map must not be considered as being sufficiently accurate to enable the distances to be measured with a degree of minute reliability, nevertheless it is correct enough to allow of comparative lengths of lines in their entirety being made.

The information supplied and shown upon the sketch map comprises the following, namely:—Bridle roads, represented by a black, dotted line; dray roads, represented by a black, firm line; railway routes explored, by a red, elongated, dotted line; portions of railway routes surveyed, by a red, firm line.

Before we enter on the subject of railways, perhaps a few words relative to the dray roads through the district as a means of accommodation for traffic may not be out of place.

I have endeavoured to show the whole of these roads upon the sketch map, by which it will be seen that there is (taken altogether) a considerable mileage of this description of road accommodation already constructed; and, if the gaps that at present exist were filled up, namely, from Tophouse, *viâ* Tarndale, to the Clarence River Accommodation House, a distance of about fifty-six miles through one district, and from the Government Reserve *viâ* the Awatere River and over Ward's or Saxton's Pass to the same place, a distance of about seventy miles through another district, a horse and dray would then be able to travel the whole way from Nelson to Invercargill. However, as this matter can scarcely be admitted to come within the province of Government consideration in connection with our railway scheme, this subject may not, necessarily, be further considered. However, I feel particularly anxious to draw your attention to the fact of their being carefully shown on the sketch map, should reference to them be necessary for other purposes.

I have appended clippings from the various reports forwarded from time to time to the late Engineer-in-Chief, and, having paged them as well, I think you will have no difficulty in finding the parts referred to in the body of this report, should you feel disposed to read them.

I have numbered the lines upon the sketch map in the order of their precedence of examination.

WEST COAST LINE.

This line has not been included in the numbering, as it was neither examined nor surveyed by myself, and for other reasons that will now be mentioned.

The survey was made for a line of railway by Mr. Rochfort in the year 1873-74. It commences at Foxhill, the present terminus of the Nelson and Foxhill Railway; thence over the Spooner Range of high hills into the valley of the Motueka, to its junction with the Motupiko; and, after following the upward course of the latter river for some distance, it crosses the Hope Saddle into the valley of the Hope River, which it follows to its junction with the Buller; thence along the Buller as far as the Inangahua River; and, after traversing the valley of the Inangahua to its source, it passes over another saddle, and enters the valley of the Little Grey, which it follows to its junction with the Big Grey; thence down the valley of this river to Brunnerton, the present terminus of the Greymouth and Brunnerton Railway.

I am not able to explain the object of this line beyond the fact that it brings into connection the Port of Nelson on the North and that of Greymouth on the West Coast.

Two short portions, one at either end of this line, as you are well aware, have been constructed and open to the public for some time past.

This line has always been known, especially in Nelson, as the West Coast line; but, after the line had been surveyed, I have reason to believe that its further extension, especially from the Foxhill end, was stopped in consequence of the estimate making the probable cost of the line not less than from £10,000 to £12,000 per mile; nor have I ever heard that it was intended that this line should form part of the general scheme of railway accommodation in the northern portion of the South Island as an extension of the main trunk line northwards from Canterbury, or whether it was merely for the purpose of connecting the two ports before alluded to.

However, since this survey for a line of railway was made, I find that a first-class dray road has been completed, and of such a character that a stage coach, with the exception of a gap of four miles between Hampden and the Lyell, could travel the whole way from Nelson to Greymouth: together with a branch road from Reefton to Westport, as shown upon the sketch map. This road, having been completed, is now open, and over which a stage coach is running.

With these facts before us—that is, of a first-class dray and coach road accommodation as just described, and upon which a considerable outlay of capital must have been expended, it can scarcely be expected that the Government would feel themselves justified in any way in providing railway accommodation along this route; and more especially when it appears, from information received, that upon the portion of the dray road, namely, from Foxhill to Hampden, a distance of about sixty miles, the average amount of traffic, at ordinary times, does not exceed one or two drays per week.

And when we further consider that the railway from Nelson to Foxhill, its first instalment at the northern end, and passing through the only populated district along the entire route, is said not to pay working expenses (I am glad to find that the revenue of the line is improving), how can it reasonably be expected that, at an increased cost of construction per mile of its extension southwards, any improvement can possibly be looked for? On the contrary, it is absolutely certain that a worse state of things must follow the further the line is extended in this direction. And I feel certain that it will soon be discovered that the repairs of even the present dray road will so tax the pockets of the ratepayers that ere long the road will be abandoned as regards its repairs, and left to take care of itself, or that a toll will have to be levied and the repairs maintained by those who use the road; which simply means that, like too many other works in this country, the repairs are found to be so costly an item that they have, in consequence, been allowed to go beyond the power of repairing. If this is likely to occur in the case of a dray road, what a mistake would be made by extending the railway upon such poor prospects of success.

We may, therefore, without any feeling of prejudice towards the district, reasonably and fairly assert that, for a long time to come, the settlers along this district, who are, with truth, few and far between, should be satisfied, and consider their dray road sufficient accommodation for all the purposes of traffic, at all events for the present, without anything additional in the shape of a railway.

I shall have occasion to allude again to a portion of this route further on in this report.

For a fuller description of this route I beg to refer you to Mr. Rochfort's report, which will be found on page 1 of the Appendix; also, to the late Engineer-in-Chief's remarks upon this line, which will be found at page 6 of the Appendix, under the heading of "Surveys, Nelson to the Grey."

The only consideration that might engage the attention of the Government relative to this matter, in my opinion, is the extension of the line from Foxhill until it reaches the timbered country, where saw-mills have been erected about three miles from the present terminus.

I have always understood that the railway scheme of the late Engineer-in-Chief, as applicable, in his opinion, to the districts of this part of the South Island, was that of the extension of the North Canterbury line from its present terminus at Amberley to one of the northern ports—namely, Nelson or Picton, thereby completing the main trunk line throughout the whole of the Island, together with a branch from off this line at some convenient point to Brunnerton, the present terminus of the Greymouth and Brunnerton line on the West Coast, and which may be designated as the "intercoastal" line.

This scheme, considered from a commercial and, I may perhaps add, from an equitable point of view also, and more especially in the case of the intercoastal line, appears to have met with the general approval of the inhabitants, who have settled down upon these districts with the certain assurance that, if this scheme were carried out in its entirety, the country would not only become benefited by it as a means of communication, but that it would also become the means of adding to its further settlement, and that to a very considerable extent.

I will now give you a description of the various routes that have been reconnoitred and partly surveyed with this object, and afterwards remark upon them from an engineering point of view.

INTERCOASTAL LINES.

Descriptive and Explanatory Remarks.

Line No. 1.—This route was the first that was examined in connection with the before-mentioned scheme.

This line commences at the Brunnerton terminus and passes through the valley of the Grey River as far up as the point where the Brown Grey flows into it from the North. This line, reported upon in the year 1875 (*see* Appendix, page), was considered altogether too rough for construction, and passing along as it does what is called the "Gorges of the Grey," and through a country, from the point of junction of the Grey River with that of the Little Grey, that could never be expected to contribute in any way whatever to the traffic of the line.

Another reason for its rejection was the absence of any outlet in the upper part of the river to connect with the valleys of the Lewis, Boyle, or Doubtful, lying South and in the direction the line was intended to take. In short, no other means of forming an outlet in the required direction existed but that of tunnelling through a mass of hills the extent of which was altogether too great for a moment's contemplation.

However, since the time of the first examination of this route, further explorations have been undertaken along a portion of it, and suggestions made that will be referred to in connection with the "main trunk line" and its extension northwards.

Line No. 2.—This line, which leaves the preceding one at the point near the village of Ahaura, passes along the banks of the river of that name the whole way to the saddle over the main range of hills known as the "Amuri Pass;" leaving the Pass on the east side of the range, it traverses the valleys of the Doubtful, Boyle, and Waiau Rivers, thence over the Waiau and Hurunui Plains. The line then crosses the Hurunui River near the site of the present bridge and township, and over the Waikari Plains to the Weka Pass, thence to the Waipara Plains, and, after crossing that river, joins the terminus of the North Canterbury line at Amberley.

The first part of this line, which passes along the banks of the Ahaura River, is but little better than the Grey, until a place called the "Haupiri Flats" is reached. Here the line enters a more favourable country; but the route has been objected to by reason of the length of the tunnel through the hills at the Amuri Pass, which would not be less than one and a half miles and probably longer, as the top of the saddle itself is at least a mile across. Portions of this route eastward from the saddle have been, since the first examination was made, so incorporated with other schemes (*see* sketch map) as to render any further remarks upon this route, as a separate and distinct one, at this place unnecessary.

Line No. 3.—This line may be considered as being common to No. 2 as far as the junction of the Tutaekuri with the Ahaura River, when, instead of continuing along this river, and passing over the saddle of the Amuri Pass, it follows the upward course of the Tutaekuri River, leaving it at a point about three and a half miles up the valley. From this point it follows the course of a branch which flows from the Hope Saddle, and, passing over the Main Range, at this place descends through the valleys of the Hope, Boyle, and Waiau Rivers, to its junction with the main trunk line, near the homestead of the St. Leonard's Run.

This line was examined with the object of comparing the Hope Saddle with that at the Amuri Pass, both of which cross the Main Range. The result of this examination led to the discovery of the Hope Saddle being the more favourable of the two. This being the case, a survey of a portion of this line was made commencing at Brunnerton and extending over the Saddle to the junction of the Boyle and Hope Rivers, and which will be found as shown as such upon the sketch map.

From Brunnerton to the junction of Lines Nos. 3 and 4 (*see* sketch map) I consider to be very favourable for a line of railway from this point to their respective junctions with the main trunk line. The remainder of these two competing lines, Nos. 3 and 4, will form the subject of a comparison further on.

Line No. 4.—This line commences at the junction of the Kiwi with that of the Hope River, traversing the valley of the former to its source, and from thence, over some high ground, to the north bank of Lake Sumner, and passing along it, as shown upon the sketch map, until the terrace is reached near the point where the Hurunui emerges from the lake; thence over the terrace which forms the north bank of the Hurunui, which it crosses at a point near to its junction with the south branch of the Hurunui; thence, after crossing the south branch of the Hurunui, it follows the course of the river along its south bank until the Waikari Plains are reached, and where this line is proposed to form a junction with the main trunk line.

This line may be considered of a sufficiently-distinctive character as to have a separate number attached to it, although it is short, and common to the preceding ones for a long distance. However, its importance is such that more frequent reference will have to be made to it than that of any of the others when the "comparative" merits of the lines are under consideration.

Line No. 5.—This line starts from Greymouth, and, instead of proceeding in the direction of Brunnerton, it takes a southerly course coastwise, and passing along the Greymouth and Hokitika Railway Reserve as far as the Teremakau River.

An alternative line, as shown upon the sketch map, along the first portion of this route, leaves the line at a point about six miles from Greymouth, and, passing through the villages of Marsden, Cockabulla, and Clifton, and skirting the southern part of Lake Brunner, joins the main line, on the northern bank of the Teremakau River, at a point about twenty miles from its mouth; the line then traverses the north bank of this river the whole way up to the saddle on the main range, and known as the "Hurunui" or "Teremakau" Pass; on leaving the saddle, it passes along the southern bank of the Hurunui River as far as Lake Sumner; thence over open and gently-undulating ground, and passing along the south bank of Lake Taylor, it joins Line No. 4, near the junction of the Hurunui River and its south branch.

This route was examined to ascertain the practicability of a line of railway over the "Hurunui" or "Teremakau" Pass, situate on the main range, when it was found that a tunnel at this saddle could not be constructed less than two and a half miles in length. This fact, coupled with the exceedingly-rugged formation of the ground on the west side of the Pass, led to its rejection, for on either side of the Teremakau River, and most notably at the junction of the Otira River, where, for a distance of about a mile, the line would have to be benched out of the solid rock, which would be nearly equal, in point of cost, to tunnelling.

There are several other reasons for condemning this route, and, without recording them at this place, I think sufficient has already been said for you to perceive the cause of its rejection.

Line No. 6.—This is a line shown upon the sketch map from off No. 2 intercoastal line, but, in reality, it was intended to connect with Line No. 5, main trunk line, at the head of the Marina Plains, and by that means avoid the tunnel at the Hope Saddle; and so anxious and hopeful was the

late Engineer-in-Chief upon the subject that a survey was ordered to be made of that portion of it commencing about one and a half miles south of the Lewis Saddle, thence over the saddle and along the Caunibal Gorge to a tributary on the south side of the Marina River called "Derbyshire Creek."

However, the anticipations with reference to this locality given by Mr. Fowler in his report upon a "reconnaissance" survey of this part of the country were not supported by the results of the survey, which demonstrated that a tunnel of about twenty-five chains in length was indispensable, except by having recourse to grades of exceptional steepness, and that, in several places down the river between the Derbyshire Creek and the head of the Marina Plains, the line would pass along the bed of the river, or have to be benched out of the solid rock, as the banks rise nearly perpendicular from the water's edge. Further remarks in connection with the scheme of which this forms a part will be found under the heading of "Main Trunk Lines," No. 5.

I think I have now laid before you, by a description and explanatory notice, all the routes that have been examined for a line of railway in connection with what may be considered an "intercoastal line." I will therefore now describe the various routes that have been examined in connection with the proposed railway extension of the main trunk line northwards from its present terminus at Amberley, numbering them in the same order as that of the preceding or "intercoastal" lines.

MAIN TRUNK LINES.

Descriptive and Explanatory Remarks.

Line No. 1.—This was the first line examined the object of which was to connect Amberley with Foxhill, the present termini of their respective lines.

Starting from Foxhill (the course taken during the time of its examination) the route of this line follows that of the west branch of the Waiti River to its source in the "Spooners" range of hills, over which it crosses into the valley of the Motueka River; thence over another part of the same range into the valley of the Motupiko River, following the course of this river through the Big Bush, and over a rather low saddle into the valley of the Wairau River at Tophouse; thence up the valley of the Wairau and through the gorge of that name to Tarndale; from Tarndale it continues to follow the course of the Wairau River, until it reaches the source of its southern branch, and over the summit of a high range of hills into the valley of the Clarence River, which it follows in its downward course until it reaches the junction of the stream that flows from Jack's Pass; leaving the valley of the Clarence River at this place, and following the course of this stream, it passes over the saddle at Jack's Pass, in the valley of the Chatterton River, and outwards to the Hanmer Plains, joining intercoastal line No. 3 at the junction of the Wairau, Percival, and Hanmer Rivers.

Any further description of the direction of this line may be considered unnecessary, as the sketch map plainly shows the continuance of its route to Amberley Station, and which has been already described and referred to.

Reference to a line of railway by this route was made by the Minister for Public Works in his address to the House in the year 1874 or 1875, intimating that the West Coast line, namely, from Nelson to Greymouth (remarked upon in the first part of this report), could not be proceeded with until the line by this route had been examined.

Now it is from this remark alone that any information can be gleaned as to the object of this so-called "West Coast" line, and from which an inference might be drawn that the line had been intended as part of the general scheme of railway extension northwards from Canterbury. But, in my opinion, if this West Coast line was actually constructed, and formed part of the main trunk line northwards from Canterbury, no *through* traffic, in either passengers or goods, would at any time take place between Christchurch, or even from the more northern districts of Canterbury, to Wellington.

It might be remarked in this place that the portion of this line, namely, from the junction of Rivers Waiau, Percival, and Hanmer to Tarndale, was condemned by the late Engineer-in-Chief, for reasons that will be alluded to in connection with line No. 2 of the main trunk lines.

However, in addition to the objectionable grade of 1 in 12 over Jack's Pass on this line, the fact of the summit at the head of the Clarence River rising to a height of 4,493 feet, and therefore being 700 feet higher than Ward's Pass, is sufficient of itself to condemn this portion; and, further, that, along the whole length of this part of the line, there is not an acre of land fit for cultivation.

Other portions along the route are equally objectionable—namely, the Wairau Gorge, to pass which would require works of a most costly character, as the river flows along the bottom of high hills, the slopes of which are too steep to admit of a roadway being constructed along them. And, again, the ascents and descents to and from Spooners' Range, approaching Foxhill, which involve tunnelling, or grades of exceptional steepness, namely, 1 in 12.

You will observe, by looking at the sketch map in connection with this line, a branch from Tophouse and following the course of the Wairau River to Blenheim, a distance of about sixty miles; and, although I have called this a "branch" line, in reality it may be considered as entering into competition with that other portion of this line—namely, from Tophouse to Nelson. This will be referred to again when the Ports of Nelson and Picton are under consideration as connecting points by a ferry to Wellington in the North Island.

Line No. 2.—The route of this line, starting from a common point to No. 1 line—namely, from the junction of the Waiau, Percival, and Hanmer Rivers, instead of passing over Jack's Pass, takes a direction across the Hanmer Plains to Jollie's Pass, and rises on to the saddle with a grade of 1 in 15, and up which a dray road has recently been constructed; whereas the best grade to be had up to the saddle of Jack's Pass is 1 in 12.

From the saddle of Jollie's Pass the line, with a comparatively easy grade, reaches the Clarence River, along which it passes as far as its junction with the Acheron River. Here the line crosses the Clarence, and traverses the valley of the Acheron to its junction with the Guide River. At this point there is an alternative line, which leaves the Acheron, and follows the course of the Guide River to its

source at Barefell's Pass. The saddle at this Pass is very high, requiring either a tunnel or steep grades on either side, until it reaches the junction of another line, as shown upon the sketch map. This alternative line is condemned owing to the reasons just mentioned.

Reverting to the junction of the Acheron with the Guide River, the more preferable line continues up the valley of the Acheron, with a branch or connecting line, through Traveller's Valley, to Tarndale (which will be again alluded to), and another alternative line over Saxton's Pass.

The route over Ward's Pass has been preferred, the saddle being somewhat lower and the route two miles shorter than the other by way of Saxton's Pass. The line, leaving Ward's Pass, now traverses the valley of the Awatere River as far as a point opposite to Dashwood's Pass, over which it passes with a tolerable grade, and sweeping round the base of a cluster of hills to the Town of Blenheim.

An alternative line was examined over Taylor's Pass, but was condemned owing to the steepness of the grades on either side of the saddle, and the rugged nature of the ground on the northern side.

Another alternative line is shown upon the sketch map. Leaving the valley of the Awatere River, and following the upward course of the Grey River to its source at the Avon Pass; thence down the valley of the Avon River to its junction with the Waipoi River; thence along the downward course of this river to Blenheim. This line has been condemned in consequence of the rough nature of the ground along the Grey River, and the extreme height of the Avon Pass, through which a tunnel would be indispensable and of considerable length, to ease the grades on either side.

Reverting again to the main line, the general course and character of which was preferred to that of No. 1, by reason of its passing through a better country in every respect, and particularly as containing a considerable acreage of land that could be brought under cultivation, more especially in the lower part of the valley of the Awatere River.

However, it is far too rough, generally speaking, and unproductive for a line of railway ever to be constructed along this route; nor was it viewed in anything like a favourable light by the late Engineer-in-Chief. But I may here mention that, in his opinion, a combination of these two lines, that is, Nos. 1 and 2, would be the more preferable, as follows, namely: commencing at the junction of the Rivers Wairau, Hanmer, and Percival; thence over Jollie's Pass into the valleys of the Clarence and Acheron Rivers to the junction of the last-named river with that of the Severn; and, instead of proceeding over Ward's Pass, he preferred the route *viâ* the Traveller's Valley to Tarndale, thence by the valley of the Wairau to Blenheim.

The choice of this route was in consequence of the easier nature of the grades, whereby the grade over Ward's Pass of 1 in 15 was avoided; but, when the line *viâ* the Waiau and Kaikoura Townships and the East Coast was examined and reported upon, a further preference to it was given over all the others.

Line No. 3.—As that portion of the extension of the main trunk line northwards, namely, from Amberley to Waikari, is being located, and will, I presume, soon be under construction, we must consider this line as commencing from the latter place.

From the station, therefore, at Waikari, the line proceeds in the direction of the Hurunui Township, crossing the river of that name a short distance north of the site of the present bridge. After crossing the Hurunui River it traverses the Hurunui and Waiau Plains in a straight direction and over gently-undulating ground the whole way to the crossing of the Waiau River from the Waiau Township, which is situated on the eastern side of the river; the line continues along the south side of the Mason River, which it crosses about two miles from the township; and thence proceeds over a flat but rather high terrace for about three miles, when it crosses the Lottery River, and after a short distance it enters the valley of the Wandell, a small but tortuous river. Here the Sherwood Forest commences, the line passing through it for about eight miles and over undulating ground to another crossing of the Mason River at the foot of the Whale's Back; the line then passes over the saddle at the Whale's Back into the valley of the Conway River, which it crosses, and from thence over the Quail Range and crossing the Charwell River to the Greenhills Station; from the Greenhills the line passes over the Government reserve to Greenburn, crossing the Kahautara River at this place, and thence by the route of the dray road across Crib Creek and the Kohai River to the suburban districts of the Township of Kaikoura. Here the river traverses along the base of Mount Tyffe, until it reaches the Hapuka River, which it crosses about one and a half miles from its mouth; thence in a straight direction and for about three miles, where it reaches the sea beach. The line then traverses along the beach and over ground about twenty feet above high-water mark for a distance of about forty miles, crossing in its course the Clarence, Kekerunga, and Ure Rivers. Immediately after crossing the last-named river, the line leaves the sea beach, and proceeds across the Flaxbourne Run, over gently-undulating ground, and following the general course of the dray road, to the Awatere River, which it crosses at a point a little north of the station of the Starborough Run. After crossing the river the line proceeds in a straight direction to the foot of Dashwood's Pass, where it joins Line No. 2.

This line may be said to have received far more favourable consideration from the late Engineer-in-Chief than any of the others, in which I entirely concur, and for reasons stated in my report of 1876. This line will receive further consideration under the heading of "Comparative Remarks."

Line No. 4.—This is another line that has been examined in connection with the extension of the main trunk line northwards, and is principally known as the "Cheviot Hills line," the route of which is as follows:—

Starting from a point on the north side of the Waipara River about seven miles from Amberley Station, and after crossing the Weka Creek to its junction with the Waipara, it traverses the Waipara Plains, passing a short distance east of the station of the Glenmark Run and over a rather low saddle into the valley of the Waikari River, down which it passes until the Hurunui River is reached.

Having crossed this river near to its junction with the Waikari, it follows its downward course for about nine miles, when it leaves the valley of the Hurunui River, and, turning sharply to the left, passes through the Cheviot Hills Run, crossing the Waiau River about a mile west of its junction with the

Leader; thence, passing close to the station of the Parnassus Run, it crosses the Leader River about two miles from its junction with the Hurunui, and, ascending the high ground at Hawkeswood, it passes within half a mile west of the station to the crossing of the Conway; thence along the north bank of the Conway River for about two miles, where it ends, it having been considered that from this point the route any further northwards becomes impracticable for a line of railway.

This is a line the route of which was examined for comparison with that portion of line No. 3 commencing at the north bank of the Waipara River, and passing by the Townships of Waikari, Hurunui, and Waiau, and thence over the Whale's Back, to the Kaikoura Township.

My opinion of a line of railway by this route is fully recorded in my report to the Engineer-in-Chief in the year 1876 (*see* Appendix, page 7), in which I have given my reasons why the line, in my opinion, becomes impracticable beyond the point marked A upon the sketch map, about a mile and a half down the Conway from the crossings of that river.

Line No. 5.—This line commences at a point on one of the intercoastal lines and the Haupiri Flats, and, after crossing the Ahaura River, it follows the upward course of the Nancy Creek to the saddle of the ridge which divides the Nancy from the Tass River; leaving the saddle, it follows the last-named river until it reaches the Grey, the valley of which is traversed as far as its junction with the Brown Grey.

Here the line leaves the valley of the Grey River, and ascends a tributary named the "Brown Grey" as far as its junction with the Mary Creek, which it follows to its source at Mackay's Pass.

Here the line proceeds over the saddle that forms the watershed of the Grey and the Marina Valleys, and, after traversing for about twenty miles the downward course of the Marina River and across the plains, it ascends the River Warwick to a saddle in a range of hills, which it crosses, and then follows the River Warbeck to its junction with the Matakataki.

The line then traverses the valley of this river for about sixteen miles to the point where it crosses the Buller, then it joins the line surveyed by Mr. Rochfort, and proceeds up the Buller as far as its junction with the Hope River; but, instead of following the course of this river, and that of Mr. Rochfort's line over the Hope Saddle, it continues along the Buller to its source at Lake Roto-Iti. From the lake it follows the upward course of a small tributary thereto, through the Black Valley, and over a low saddle, to Tophouse, ending at a point about a mile therefrom in the valley of the Wairau, on the north side of the river.

There is a branch, as shown upon the sketch map, from off this line at the head of the Marina Plains to Reefton; but, as this does not enter into competition with that of any other, and as there is not the remotest probability of its ever being constructed, I do not think it necessary in this place to describe it, but must refer you to a notice of it in my report upon the Lewis Saddle and Cannibal Gorge Survey.

This line, No. 5, is a line like that of No. 1, main trunk line, with its northern terminus at Nelson, and is in many respects similar to that surveyed by Mr. Rochfort, and described in the first part of this report, and is common to that line along the valley of the Buller River for some distance.

The whole of this line, as shown upon the sketch map, namely, from the Haupiri Flats to Tophouse, has been surveyed, with the exception of the portion over the Marina Plains, a distance of about twenty miles, which Mr. Simpson was obliged to leave unfinished in consequence of the severity of the weather and the depth of snow lying upon the ground.

The survey of this line was ordered by the late Engineer-in-Chief in consequence of its forming part of the scheme brought under his notice by Mr. Fowler's report of a reconnaissance survey, and which has been before alluded to.

I have had the sections over the bad parts of this line plotted, so as to ascertain the nature of the grades. The first is over the saddle at the head of the Nancy Creek, which gives the following results:—

Grades.	Distances.
1 in 9 ...	20 chains
1 in 15 ...	30 "
1 in 16 ...	32 "
1 in 18 ...	55 "

The next is over the saddle at the head of the Warwick and Warbeck Streams, which form the dividing ridge between the Marina and Matakataki Rivers. They are as follows:—

Grades.	Distances.
1 in 9 ...	60 chains
1 in 11 ...	25 "
1 in 15 ...	100 "
1 in 20 ...	65 "

The next place with a long length of steep grade is at the saddle at Tophouse, as follows:—

Grade.	Distance.
1 in 20 ...	140 chains.

These are the grades over the worst parts of the line, and which I consider are sufficient to condemn this route, especially as I fear the grades of 1 in 9, the steepest, cannot be improved.

The general character of this line is, as before stated, very similar to Mr. Rochfort's, and running for a long distance nearly parallel to it, consequently its cost per mile would be about the same—namely, from £10,000 to £12,000.

The country it passes through is rough in the extreme the whole way from the Haupiri Flats to the Buller River.

The only part of the line that can be considered in any respect as an exception to the foregoing remark is the Marina Plains, and from its very altitude an idea can be gained of the nature of the line.

These plains are about twenty miles in length, with the average width of a mile to a mile and a half. The soil is poor and cold, being in many parts stony and swampy, leaving but a small portion

of the whole extent of the plains that could be brought under cultivation to yield anything but grass. I understand that the plains are capable of raising and maintaining about two or three thousand sheep; but, in consequence of the absence of a good road, and the distance from the plains to the dray road at Hampden, it does not pay to shear more than five hundred sheep during the season.

It is absolutely certain that no local traffic of any importance could ever be expected along the whole of this length, that is, from the Haupiri Flats to the Buller River. Along the valley of the Matakataki, here and there, are to be found gold-diggers at work; but the yield of this and the adjacent valleys is of a most precarious nature, being confined entirely to auriferous deposits, without any hope or reason to expect the discovery of gold-bearing rock.

In the vicinity of Hampden there is a considerable area of bush land, which, if cleared, would be found to be adapted for agricultural purposes, and in point of quality far superior to that on the Marina Plains; and the same may be said for some distance up the valley of the Matakataki, especially along the terrace at the east bank of the river. But the low lands adjoining the river, where some clearings have been made, is, I should imagine, subject to flood. However, the want of a good road through the valley is much felt, and is doubtless the cause of the land remaining as it is.

The portion of this line along the Buller is well described by Mr. Rochfort in his report. (*See Appendix, page 1.*)

From the junction of the Hope with the Buller River the whole of the way to Tophouse the line passes through a country that has nothing to contribute towards the support of a railway.

The only open portion of country along this distance is at the Five-Mile Plains, which commences at the Devil's Grip and ends near Lake Roto-Iti, the land of which is notoriously cold and unproductive, no portion of it being capable of producing anything beyond a poor description of grass.

This last line was examined with the view of connecting the Towns of Nelson and Blenheim, so that, should either of them at any time become the northern terminus of the main trunk line, it would become the means of bringing the other place into communication with the railway system of the South Island.

The examination of this route commenced at Tua Marina, a station on the Picton and Blenheim Railway, with an alternative line (*see sketch map*) from Blenheim, the junction of the two lines being placed on the north bank of the Wairau River.

The line passes through the valleys of the Are-Are and Kaituna Rivers, to Havelock; thence along the north bank of the Pelorus to its junction with the Rai Rivers; here the line ascends the Rai Valley as far as a tributary called the Brown River, the course of which is followed up the saddle that forms the dividing ridge of the Rai and Wangamoa Valleys. From the saddle the line follows the course of the Collins River to its junction with the Wangamoa. The upward course of the Wangamoa River is then followed, passing over another saddle and down the Bluff Rock River into Happy Valley, crossing the Rivers Teal and Judd about half a mile above their junction, when, on leaving this valley, it passes over a third saddle into the district called Wakapuaka, to the sea beach, along which and inside the public road it passes to Nelson. This route was examined more particularly to satisfy the wishes of the settlers and owners of land situate between the Towns of Nelson and Blenheim, as a portion of this line passes through a fine timbered country. But any chance of a line of railway ever being constructed by the Government as part of the general railway scheme must be considered very remote, as I have endeavoured to show in my report to the Engineer-in-Chief in the year 1876. (*See Appendix, page 13.*)

COMPARATIVE REMARKS.

Having described the routes of the various lines, and given an explanation of their character and general bearing in connection with the subject of a general railway scheme, I will now endeavour to treat of the reasons upon which I have based my opinions as to the route which I have advised should be taken for the intercoastal line, and shown by a general comparison its superiority over the other ones, all of which I beg to submit for your further consideration.

Whenever distances are stated in this report, they are the result of scaling from the sketch map, which, as before mentioned, may be considered sufficiently accurate for comparison, as, whatever difference from the true measurements may exist, all may be considered as partaking of the same error in proportion to the respective length of the lines.

In reference to the approximate cost of these lines, you are as well aware as myself that there is no reliable data procurable whereon to base an estimate, as no railway works have as yet been constructed through this part of the country. The only way by which even a loose approximation can be obtained is by assuming the cost at so much per mile over parts of the country that partake of the same character, which, in the case before us, is not so difficult from that point of view, as the whole of the lines examined partake of one or other of the two distinctive characteristics—namely, open and level terraces, or rough and stony bush land; and it is by such means and these alone that an approximation can be obtained.

Intercoastal Line.

The line that, in my opinion (and which has been arrived at after mature consideration, and based upon a general knowledge of the country), should become the intercoastal line is that following the route as shown upon the sketch map by a double red line. It comprises portions of the several lines that have been examined, but by its distinctive representation upon the sketch map I think will be readily seen.

The only line that may be considered as entering into competition with it for about one-half of its entire length is part of lines 2 and 3, which passes from the junction of lines at Waikari over the Hurunui and Waiau Plains, and thence along the Waiau River to the junction of the Hope and Kiwi Rivers.

For the purpose of ascertaining which of these two lines was in reality the best in every respect, I strongly recommend that they should be surveyed. Still, at the same time, I felt certain that, when all the leading points for consideration were brought into comparison, the result would serve to prove the superiority in every respect of the one recommended *via* Lake Sumner.

On the line just described, by the Waiau River, first, in the locality of Jones's Station, it would be found exceedingly rough and expensive in construction, also difficult to grade. Secondly and more especially in the locality of Glen Wye Station, where a formidable gorge in the Waiau River exists, with very high and rocky banks, and about three-quarters of a mile in length, with rapid descents on either side almost to the level of the river; and, again, the impracticability of passing the river a little east of the Boyle and Hope Rivers.

These are some of the engineering difficulties along this line, but of sufficient importance, I consider, to condemn the route. It is true that a line over the high terrace from the junction of the above-mentioned rivers, and passing in rear of the Glen Wye Station, may be considered more practicable and less expensive than that by the rivers just mentioned; but even in this case the same difficulty is to be met with in getting from the high terrace down to the low ground near the river.

No such formidable difficulties exist on the route of the other line, and it must be admitted that, upon further consideration, the difference in distance as a direct line from the Waikari Plains, namely, twenty miles, is in itself a convincing recommendation in favour of the route *viâ* Lake Sumner.

I have always considered, and as before expressed in my report upon the Lewis Saddle and Cannibal Gorge route (copy of which can be had from the Public Works Office), that the line connecting Canterbury with the West Coast should be made as short as possible, because, not only will there be an ever-increasing through traffic between these two localities, but I would further predict that, by the time this line shall have been constructed, a considerable traffic may at once be reckoned upon.

The sketch map, upon which the competing lines are shown, supplies, in my opinion, the best possible argument in favour of the proposed line, and which I feel certain will be amply proved when the survey is fully completed.

This intercoastal line should, I respectfully submit, also take precedence, as regards construction, of that of the extension of the main trunk line northwards, for reasons that will be given further on.

The route of this line *viâ* Lake Sumner will pass over better and more favourable ground than that of any other line that can be projected as an intercoastal line. No engineering difficulties, as far as I have had an opportunity of observing from an examination of the country, exist on any portion of the line by this route that may be considered exceptionally bad.

As regards this intercoastal line, there are no engineering difficulties of a serious nature until the tunnel at the Hope Saddle is reached, and, as mentioned in a former report, this line can be worked from the Waikari Plains to the highest point on the main range—namely, at the tunnel, with a “ruling gradient” not exceeding that of 1 in 25. The tunnel, which is one mile in length, is, as a matter of course, the most formidable obstacle along the route of this line; nevertheless it is the lowest that can be obtained at all the saddles over the main range in this part of the country, and also the shortest in length, except that of the Lewis Saddle, which is but twenty-five chains. But to use this saddle in preference to that of the “Hope” by reason of the shortness of the tunnel would be a fatal mistake, as I will endeavour to show.

By way of comparison, a survey was made over the Lewis Saddle, which resulted in proving the necessity of a tunnel of twenty-five chains in length, or having recourse to grades of exceptional steepness: added to this, the distance of a direct intercoastal line would be increased, according to Mr. Fowler's report, by sixteen miles, but, in my opinion, at least twenty miles.

The cost of haulage over this extra distance would be fatal to it as an intercoastal line, and it would prove a most injurious and repressive tax upon the trade and commerce of the districts on the East and West Coasts, as it would enhance the cost of every article of merchandise conveyed over it, whether the same be import or export trade, and which, as regards coal, timber, cattle, grain, and other articles of trade, would be very serious when the price of these articles again came into competition with the produce of other countries; and would, in addition thereto, become the means of preventing the railway from ever being able to enter into a fair competition with the coasting trade. Again, this extra haulage of twenty miles would be worked at a dead loss to the railway, for this reason: that, from the Haupiri Flats to the junction of the Boyle and Hope Rivers, by way of the Nancy, Grey, Marina, Lewis, and Boyle Rivers, not an article of produce would be forthcoming from the soil, nor could a single source of industry possibly develop itself along the whole route; and it further appears to me that it should be our highest aim to make the railways, which pass *through* the country, casting their innumerable benefits in every direction amongst the inhabitants, the highway of trade and commerce, instead of allowing it to be diverted and monopolized by the coasting trade, that cannot in any way whatever contribute to the general benefits of a community as a railway is capable of doing, as is proved by experience in every country where they exist.

It is with reluctance I refer to the report of Mr. Fowler's reconnaissance survey through this part of the country, because I cannot do so without condemning it in all its principal features; for, in the first place, none of the grades shown upon his section have been able to stand the test of a survey; and as for the routes and the character of the works along them, both are equally condemnatory of the scheme of which they form a part.

The line from the head of the Marina Plains to Reefton is also a failure, and the route of the extension to Blenheim and Nelson (as part of the scheme) is entirely out of the question, as the results of our survey will abundantly prove; and when viewed in this light I fear his report will be shorn of all its sanguine recommendations.

Reverting again to the line at the Hope Saddle: it must be admitted that the tunnel is indispensable. Nevertheless, whatever its cost, I consider it to be the proper and legitimate route for the intercoastal line, which fact, I am certain, will be confirmed some ten or twenty years hence. It is the lowest, or as low, as any of the other saddles on the range, and the tunnel is the shortest, except that at the Lewis, as before stated.

The first cost of a tunnel is, generally speaking, the only one, and, if it is located at the right place, it is always sure to have saved distance, which, in its relation to the cost of maintenance, becomes an important matter in the working of a railway.

At the time of construction, the grade through the tunnel, which is shown as level on the section of the survey (if I remember aright), can be reduced to a grade of, say, 1 in 50 or 60, which will bring the western end of the tunnel some 200 feet lower down towards the stream, whereby the steep grade at the western approach can be somewhat improved, and the line brought into better ground altogether for material required to form the road bed.

I think it must be conceded that the engineering difficulties at the Hope Saddle, with its one mile of tunnel, and length of only two or three miles of steep grade, to be worked by special machinery by the introduction of a third rail, will compare most favourably with the works constructed at the crossing of the Rimutaka Range, in the North Island, more especially when it is remembered that a crossing is hereby effected over the Southern Alps, or highest range of hills in the colony.

If we enter into a comparison between the cost of a tunnel and that of twenty, or even sixteen, miles of extra line of railway, the result is so much in favour of the former that a question can scarcely be raised upon the subject. The cost of the tunnel would be, say, £50,000 or £60,000, or, even at the highest calculation, £100,000, which would be equal, in regard to cost of construction, to about one-half of the extra distance, with the additional advantage in favour of the tunnel of its having no repairs or maintenance to provide for, as would be the case in this extra distance as against revenue, and with many other collateral advantages that would have to be taken into consideration in a case of this nature.

Along the valley of the Tutaekuri River care and judgment will have to be exercised in the location of the line; but, from the junction of the Tutaekuri with the Ahaura, the line is as good, and far better in many places, than the generality of the lines constructed in different parts of this country.

No question can be raised as to the claims, as far as population, industrial pursuits, geographical position, and the prospective importance (in every respect), which Greymouth possesses to be the proper terminus of the intercoastal line on the West Coast of the Middle Island.

At present there is but six or seven miles of a railway completed, and it will be almost unnecessary to assert that, for commercial purposes, with its abundance of coal, and that of the finest quality, at its present terminus, the course of this line, as its first instalments eastwards, cannot be overrated; and, when the harbour is improved by means of its protective works to insure a safe and certain egress and regress thereto, it will then become almost equal in importance to some of the best in the colony.

Therefore the extension of this line eastwards to connect with the more northern districts of Canterbury is an undertaking the benefits of which to the inhabitants of both coasts appears to me to speak for itself in language that cannot be gainsaid; for a free and constant exchange of their respective productions must of necessity produce a reciprocal benefit, and a trade thus secured as a source of revenue to the line may be depended upon, and almost sufficient in itself to support a line of railway, independent of any extraneous aid.

At this place I beg to draw your attention to the sketch map, by which it will be readily seen that it is the narrowest, or as narrow, as that of any other part of the South Island, and consequently the shortest distance across from coast to coast.

An intercoastal line through this part of the Island would undoubtedly, in the course of time, bring many tourists, men of business, and even invalids seeking a restoration to health, from the Australian Colonies, by which means an important auxiliary to the revenue of a through traffic would unquestionably result.

This line, if constructed, would also benefit—taking Greymouth as a central point—the inhabitants of the whole length of seaboard from below Hokitika to Reefton, which includes not only the most populous but the only part of the West Coast of the South Island that can ever be considered as being able to contribute towards the support of an intercoastal line of railway; and, in my opinion, it would do away with the necessity, at all events for some time, of the construction of any further railway works along the seaboard north or south of Greymouth.

The necessity for a line of communication between the East and West Coasts has shown itself for many years past. Hence the construction of the coach road from Christchurch to Greymouth and Hokitika, which must have involved an enormous outlay of money in its first construction, independent of the heavy annual cost for repairs, sufficient, I should imagine, in its totality, to go a great way towards the building of a railway. The time must of necessity soon come when this line will have to be constructed, as the number of inhabitants in the northern districts of Canterbury are fast increasing, and thousands of acres of land are about to be surveyed, with the express object of being laid out into lots for *bonâ fide* settlers.

If it be true that the trade on the West Coast has of late years deteriorated, nothing could possibly resuscitate its fallen condition so much as a connection with Canterbury by means of a line of railway, for doubtless industries would then spring up that the most far-seeing person could not at present imagine.

The only difficulty that may be considered in the construction of this line is the cost of tunnelling at the Hope Saddle, but the merits of the line, regarded in so many other respects, as a project does, in my opinion, far outweigh this consideration.

I would therefore earnestly recommend that a minute examination, to insure for it the best possible location, should be made, as I consider the work warrants much labour and even expense, and that it has so far grown into importance as to have become a commercial necessity. This consideration would lead to the advisability of surveying the only remaining portion of the line—namely, from the Waikari Plains, *viâ* Lake Sumner, to the junction of the Hope and Kiwi Rivers, a distance of forty miles, and which I strongly urge upon the Government to carry out. And these remarks remind me of referring to the necessity of a proper consideration being given to the location of the station at Waikari, so that the extensions of the line northwards, and more particularly westward, should not be forgotten.

Main Trunk Lines.

I do not attach that importance of extending the main trunk line northwards in its entirety to either Nelson or Picton at the present time that some persons appear to do, for, in my opinion, the route it should take cannot be decided upon at once, but that, on the contrary, it can only be wisely and judiciously carried out in the course of time, and which circumstances alone can eventually decide.

In noticing this subject, I can but reiterate what I have already recorded in a former report as my opinion, and that is that, of all the routes that have been examined in connection with this work, the line by way of the Waiau and Kaikoura Townships, the Coast, and Flaxbourne, to Blenheim, is the best and only one that can ever be expected to pay for its construction.

None of the other examined routes for the extension of the main trunk line northwards can enter into comparison with this one as regards its adaptability for a line of railway when viewed in the light of containing land fit for cultivation, or in any other way as possessing the means whereby a population can be supported along it.

For example, there is a larger population in the township and suburban districts of Kaikoura than along the whole of the other routes put together, if we except the Town of Reefton. Nor must it be forgotten that, as at Kaikoura, so it would be in many parts along this route, where the settlers would obtain their support by the cultivation of land, instead of the more precarious industry of gold-digging.

The Hurunui and Waiau Plains, and the intervening runs, Lynden, Highfield, and Greenhills, with Kaikoura, contain altogether a considerable district of country the lands of which could be easily and cheaply brought under cultivation, and capable of supporting a large agricultural population.

Kaikoura, from its geographical position, its picturesque scenery unsurpassed by any other place in this Island, with its mild and salubrious climate, and its moderate amount of rainfall, would doubtless become, in course of time, one of the most fashionable watering-places in the whole of the colony. No other place can compare with it as a sanitarium for invalids or other persons seeking a change of air. Kaikoura may be considered about half way between the Ports of Lyttelton and Wellington, and, if the present harbour was improved by the removal of portions of the rock that at present block up the entrance, the place would become an attraction to the inhabitants of both Islands. Along the beach at Kaikoura, from the township the whole way to the Hapuka River, a distance of about eight miles, a road might be cheaply constructed that would furnish a drive equal to any of those at our watering-places at Home. There can be no exaggeration of the picturesque beauty of Kaikoura and its suburbs, for it is at once acknowledged by every person who has visited the place.

I may here draw your attention to the well-ascertained fact that the whole of the country north from the Waiau River, with an imaginary line continued in that direction to the West Coast, presents an unbroken chain of high and rugged hills (*see sketch map*), without, comparatively speaking, an acre of land fit for cultivation in any of the valleys until the vicinities of Nelson and Blenheim are reached; so that any line of railway passing through this district of country must of necessity depend upon a through traffic for support, and the distance through this mountainous country may be roughly estimated as being from 80 to 100 miles.

Although it may be considered by some persons that the Government is bound to afford railway communication throughout the entire length of the Island, yet it would be simply waste of money to construct a railway through a district that could not possibly contribute anything whatever to the maintenance of the line.

The only thing that, in my opinion, can be done by the Government in connection with this part of the country is for them to encourage, to the fullest extent in their power, the building of branch lines by private enterprise under the provisions of the District Railways Bill. For instance, a line from the north bank of the Waipara River, and passing over the Waipara Plains, as shown upon the sketch map, to Cheviot Hills. Another from the station at Waikari, over the Hurunui and Waiau Plains, following the course of the line recommended as the probable route, in the course of time, of the main trunk line, to the Waiau Township, and another from off this last-mentioned line to what is called the Upper Waiau Ferry, to accommodate the traffic from the Hammer Plains. These, together with another branch line in the northern district—namely, from Blenheim to Flaxbourne, would serve as feeders to the lines already constructed, and probably to the intercoastal line also, if the owners of property in these districts could be induced to lay out their lands in lots and dispose of them on easy terms to intending settlers.

This, of course, would be necessary, as, unfortunately, the lands throughout the whole of the districts just mentioned are in the hands of persons who hold them as private property.

Another important consideration in connection with the main trunk line northwards, as regards its continuity from Christchurch to Nelson, or even to Picton, is the opposition that such a line would have to contend with from the steamers that are constantly plying between the Ports of Lyttelton and Wellington; for it must not be forgotten that the break at Picton, which would be the case with a railway, does not apply to that of the steamers. And this circumstance alone would be sufficient to effect in a considerable degree a line of railway as a competitor for a through traffic between the above-mentioned ports, so that it would of a certainty have to depend for its support exclusively on a local traffic.

I will now conclude by giving a short summary of the preceding remarks, by which the lines under consideration will be brought more prominently under your notice.

I cannot take these lines as they are numbered upon the sketch map, for they have now lost their distinctive character in that respect, but I can easily particularize them by a short description.

There are three main trunk lines and one intercoastal that may be considered in relation to their distances and grades.

MAIN TRUNK LINES.

The first we will consider as Mr. Fowler's line, commencing at Brunnerton; then by way of the Haupiri Flats, Marina Plains, and Buller River to Tophouse; thence with branches to Nelson and

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.

By Authority: GEORGE DIDSBURY, Government Printer, Wellington.—1878.

Price 9d.]

SKETCH MAP shewing the **ROUTE of RAILWAY LINES**
that have been examined in the **NORTHERN DISTRICTS**
of the **SOUTH ISLAND**



Accompanying Mr Foy's report
of 26th July 1878.

W. J. Lewis
Eng^r in Charge M. I.

REFERENCE

Bridle Tracks	thus	-----
Dray Roads	"	=====
Railway lines explored	"	-----
do surveyed	"	=====
do recommended	"	=====

