

1892.  
NEW ZEALAND.

NORTH ISLAND MAIN TRUNK RAILWAY COMMITTEE  
(REPORT OF THE, TOGETHER WITH MINUTES OF EVIDENCE AND APPENDIX).

*Brought up 6th October, 1892, and ordered to be printed.*

ORDER OF REFERENCE.

*Extract from the Journals of the House of Representatives.*

WEDNESDAY, THE 31ST DAY OF AUGUST, 1892.

*Ordered, "That a Select Committee be appointed, to whom shall be referred the question of the best method of connecting Auckland and Wellington by railway; such Committee to consist of Mr. Blake, Mr. Carnecross, Mr. Duncan, Mr. Rhodes, Mr. Wright, and Mr. C. H. Mills; three to form a quorum; with power to summon witnesses, take evidence on oath or otherwise, and to call for papers; and to report within four weeks."—(Mr. SHEPA.)*

R E P O R T.

In compliance with the order of the House made on the 31st day of August, your Committee have taken the evidence of twenty-six witnesses, and made the fullest inquiry into the subject that the time at their disposal has permitted.

1. Your Committee find that the decision arrived at by a former parliamentary Committee, appointed in 1884 to investigate this matter, was quite in accordance with the evidence then submitted to them, and in reliance upon which they recommended the construction of a railway from Marton to Te Awamutu.

2. Your Committee also find that the evidence tendered to the Committee of 1884 was in some respects exceedingly erroneous.

3. For instance, the cost of constructing a railway 216 miles in length from Marton to Te Awamutu was then estimated at £1,293,134, and is now estimated at £2,007,985, including the sum of £402,025 already expended.

4. As further evidence of the entire want of accuracy in the original estimate, another example may suffice. The bridges along the central route in 1884 were estimated to cost £30,000, whilst the present estimate of expenditure under the heading "Bridges and Viaducts" is £256,750; and your Committee think that, owing to the unfinished state of the exploration and surveys over a large portion of the central route, the present estimate of the cost is probably far below what may ultimately be required.

5. Since 1884 a considerable sum has been expended in exploring and surveying the country between Stratford and Ongarue (the point of divergence from the central route), which district is for the most part comprised under what is hereinafter referred to as the Ngaire route.

6. The information thus obtained shows that a line of railway can be carried through this country at a less cost per mile than one along the central route.

7. That the actual length to be made between Ngaire and Ongarue is 103 miles 75 chains, whilst the estimated distance from the end of the open line at Rangatira to Ongarue is 138 miles 10 chains, thus showing 34 miles 15 chains less to be made on the Ngaire route than are required to complete the central line, except a few miles now partly constructed.

8. That the saving in cost in favour of the Ngaire line is at present estimated by the Public Works Department at £460,034, and the saving will probably be much more, owing to the want of detailed information in respect of nearly eighty miles unsurveyed on the central route.

9. Your Committee are of opinion that the country along the Ngaire route is of a character more likely to attract permanent settlers than the country extending for an equal distance south of Ongarue along the central route, whilst acre for acre it will support a much larger population, and is favoured with a more genial climate.

10. The line from Ongarue southwards towards Marton, for a distance of at least fifty miles, traverses an elevated plateau, where the winters are severe and the soil poor.

11. That, as regards the country along the central route, for a distance of fifty miles northwards from Marton your Committee believe that the extent of good land is sufficient to justify its being opened up by a line of railway, whether such line form part of a Main Trunk Railway or not.

12. Your Committee are also of opinion that the completion of an additional eight miles of railway beyond Rangitira, which are now partly constructed, would be quite sufficient to open up for settlement most of the good land in the Rangitikei watershed, and would be as large an extension as the prospective traffic is likely to justify for some years to come.

13. Your Committee find that since 1884 the railway works have been extended from Te Awamutu southwards for a distance of about forty-eight miles, at a cost of £266,398, through land of inferior quality, which is still in the possession of the Natives, and upon which little or no settlement has taken place; and they desire to express their strong disapproval of any line or lines of railway being pushed forward through Native lands whilst the negotiations for the purchase thereof are still pending.

14. The same objection exists as to the construction of any considerable further portion of the railway at the Marton end until the purchase of the Awarua Block shall be completed.

15. It also appears to your Committee that the expenditure which would be necessary to reduce the heavy grades upon the open line of railway between Marton and Eltham (on the New Plymouth line) to a maximum of 1 in 50 would be so heavy that, if added to the cost of a railway along the Ngaire route, it would raise the joint expenditure to within £160,000 of the sum said to be sufficient to complete the railway by the central route.

16. On the other hand, the cost of constructing 103 miles of railway by the Ngaire route to connect the railway systems north and south is now ascertained *within very narrow limits of error*, whilst the *stated* cost of a large portion along the central route is not based upon any reliable data, but is calculated upon a system of general averages, which, as in former instances, may turn out to be extremely erroneous.

17. That, in point of suitability of soil and climate for settlement purposes, the Ngaire route has certain advantages over the central route; whilst the latter, considered from the standpoint of a through line only, would hold the first position if we disregard cost of construction, quality of land, and costliness of maintenance.

18. That either line would require the support of a large passenger traffic, or the Government should be prepared to meet a large annual loss for maintenance and working-expenses.

19. The distance from Auckland to Wellington by the Ngaire route is 480 miles, and by the central 432 miles, giving an advantage to the latter in point of time of not less than two hours.

20. No consideration has been given to the route by way of Waitara to the Upper Mokau, or to that from Hastings by way of Taupo, on the ground that both these routes have been previously condemned, either on the score of excessive cost, or of the poverty of the country to be traversed.

21. At the same time attention is directed to an easy route said to exist between Urenui and Taumaranui, which, if correct, would have much to commend it, as passing through a large extent of Crown lands, and connecting the New Plymouth District with the Main Trunk Railway, upon whatever line it may ultimately be located.

Upon a careful review of all the features of an extremely difficult question, your Committee recommend,—

1. That the railway now in progress be extended to a point about twenty-six miles north of Marton so soon as the negotiations shall be completed for the purchase of the 100,000 acres now under offer in the Awarua Block.

2. That a dray-road be put in hand to connect the Taranaki District with the Upper Mokau.

3. That further exploration and survey are necessary before the location of the North Island Trunk Railway can be determined.

4. That in the meantime no railway extension (except the eight miles above indicated) should be undertaken either at the northern or southern extremities of the two suggested routes until the land is first of all acquired from the Natives, and so far opened up by exploration and roads that judgment upon this question may be given with such a degree of certainty and force that it will be accepted as final.

EDWARD G. WRIGHT,  
Chairman.

## MINUTES OF EVIDENCE.

WEDNESDAY, 7TH SEPTEMBER, 1892. (Mr. E. G. WRIGHT, Chairman.)

Mr. J. PALMER, M.H.R., sworn, and examined.

*Mr. J. Palmer:* I left Auckland with a party, including the Native Minister, Mr. Lawry, M.H.R., and others, on Monday, the 18th January last, for the purpose of exploring the route to Stratford. We reached Te Kuiti by rail; from thence we rode across the proposed central route to the point of divergence at the Ongarue River. At the last part of the central route we found the land extremely poor, especially about the point of divergence, the growth being simply scrub. From the ridges we could see Lake Taupo to the south-east, and the lands to the south, and the class of country was all just the same as that already described as covered with simply scrub. I have previously been over that part of the central-route country up to a straight line from Tokaanu to Taumararui, at both of which places I have been, and thus I can describe that part of the country as I have just done. To go back now to the point of divergence of the Stratford and central routes: I have described the land on the south and south-east; on the west was the proposed Stratford route, and here our journey on that route commenced. Soon after leaving the point of divergence, we saw that the land began to improve, and when we had reached a distance of about five miles the land became decidedly good, and for the next five miles the land continued to improve, till we were now in a splendid class of country, and had reached the valley watered by the Ohura River. From this throughout the journey we did not meet with a bad acre of ground right to Stratford. The Ohura Valley is partly wooded, partly fern, some of the stalks of which were nearly an inch in diameter, and the remainder ti-tree country. The soil was of the papa-rock formation, and the growth prolific in some places where grass had been dropped at old camps. Some single stalks of the grass would reach up to the horses' withers.

*The Chairman:* Before you go on I would like you to give us some idea as to the length and breadth of the valley.

*Mr. Palmer:* We travelled down the valley a couple of days, and it extended still further.

*Mr. Mills:* You might state approximately the distance.

*Mr. Palmer:* We went about fifteen miles a day, and I should conjecture the valley to be, say, three miles in width and upwards of thirty miles in length. After leaving the Ohura Valley we got into a flat country mainly timbered with tawa, pukatea, rimu, kahikatea, and a little totara. This was a valley watered by the Mangaroa Stream. The soil of this Mangaroa Valley was of the same nature as that already described—namely, papa-rock. We travelled up this valley till we came to the Huatahi Flats, and went up a narrow little gorge in the Huatahi Creek, this having no valley. We then crossed the watershed, the Waiaraia Ranges, about 500ft. above the creek-level, through which the line of railway would have to be tunnelled for a short distance. On the tops of the Waiaraia Ranges, and indeed on the tops of all the ranges, we found the land equally as good as the land in the valleys. We traversed the valley formed by the Heao River, where the land was of the quality I have already described. It was bush land with rather more totara and rimu than the other land. The trees were so high that it was impossible to kill the pigeons if they sat near the tops of the trees; all we could do when we fired at them was to knock their feathers out.

1. *Mr. Mills.]* Would the place be suitable for sawmills?—It would not pay to have sawmills so far in the interior of the country as this. After crossing the watershed we struck the little Paparata Creek and went down the valley of this creek to the Tongarakau River. Round this watershed the railway will run, and a slight tunnel—

*The Chairman.]* I may say, Mr. Palmer, we will be calling expert evidence as to the engineering and construction of this line, and this will obviate the necessity of your going into that evidence. We are more anxious to hear from you the nature of the soil and the class of the country.

*Mr. Palmer:* Thank you. As expert evidence is to be called, I will confine my remarks as you suggest. To go back to the point in my evidence that I left—namely, we went down the Paparata Creek to the Tongarakau Gorge. Just before we reached the Tongarakau River we crossed the Paparata Creek on a seam of coal, over which there was a slight waterfall. This seam was about 10ft. in thickness, and the coal was black coal and very compact.

2. *The Chairman:* This was about forty miles from the point of divergence, was it not?—Yes. We went down the Tongarakau Gorge, which is very hard to travel. It is a very narrow deep gorge, with precipitous ranges on either side. There is a slight plateau of about 100ft. wide throughout this gorge, on each bank of the Tongarakau River. The Tongarakau Gorge itself, although the land is good, would be unfit for anything but a domain, as it is too precipitous, and it would not do to fell the timber off it, but it would make the most beautiful natural domain in the whole colony on account of its exquisite ferns and foliage. In the Tongarakau River, at three different places, we could trace seams of coal, but they went down into the river, and we could not tell their depth.

3. Was it brown coal?—No, it was black coal.

4. Was it bituminous coal?—Yes.

5. There is a road proposed from this point to the Mokau?—Yes, there is a road surveyed out of this gorge that will go to the Mokau. It is surveyed up a very narrow creek valley out of this gorge in a westerly direction, about a point commencing about seven miles from the junction of the Paparata and Tongarakau. We ascended from the Tongarakau Gorge up the Waingarara stream, up which the proposed railway will run, crossed a narrow ridge, which will require about 100 yards of tunnel, and descended into the Tuhoraparoa Valley. The nature of the soil all this

time was as already described—namely, fertile papa formation. We found this valley a small fertile one, and soon were able to cross another watershed into the Wangamomona Valley, which is a splendid fertile valley over a dozen miles long.

6. Was the land you were travelling over generally good or bad land?—It was all good land. We never came across a single acre of bad land after five miles from the point of divergence.

7. The country is very much broken, is it not?—No, sir. In the Tangarakau Gorge it is very broken, but all these rivers which have big valleys have ridges.

8. You speak of big valleys. What would be their width?—Some are only a mile, and some are three miles.

9. Are the sides very precipitous?—No; all the country would be suitable for settlement.

10. The reason I ask this question is that in the evidence of 1884 it was said that from the 25-mile peg to the 70-mile peg the land was about the worst in New Zealand, and most broken?—Well, Sir, the Wangamomona Valley, which I am describing, is about thirteen miles by two and a half (I am putting it at the minimum), and is all flat land. I have never seen better land in New Zealand. It is magnificent country.

11. What point on the route have you reached now?—I have come to the 45-mile peg, on the plan before me, and here we cross a spur about 700ft. high, and get into the Mangere Valley, which will be marked 40 on the map. This valley is not so good as the Wangamomona, or so fit for ploughing purposes, being very broken. The timber here was chiefly teridi and tawa. It was not birch-land. The woods I have mentioned burn well. The guide, Julien, who was with us, offered to take any contract we liked to give him at 15s. an acre.

12. This indicates a very light growth?—The bush is so compact that it has no room to grow, and teridi and tawa do not grow to any thickness in any part of the colony. It would be an extremely large tree that would span 2ft. The average is about 18in.

We next crossed the Matemateonga Range, and went down the fertile valley of the Makahu, and thence left the watershed of the Wanganui River tributaries, and crossed over a range into the watershed of the Patea River. We descended the Mangaotuku, and about thirty-seven miles from Stratford met the party from that town, which had come along the East Road from Stratford to meet us. From thence you can ride to Stratford, and I need not describe the country from here into that town, as it is well-known country. But throughout the whole time there were no engineering difficulties to be met with, and the land is the same as I have already described.

13. Did you come across any birch or poor clayey land?—We never saw half an acre of clayey soil; it was all papa rock. At least three-quarters of the whole land we saw on that journey was fit for settlement, especially fertile were the Wangamomona and Ohura Valleys, and not an acre of black-birch land was there on our journey.

14. *Mr. Mills*: Did you at any time get a fair view of the country from any elevated place?—Yes, we could get a good view at eight different spots, and we could see the whole surrounding country.

15. What width is the track?—There is no track at all. We had to cut our way through with slashers, and could not have got through by any other means.

16. Could you form any idea as to what proportion there was between land heavily timbered, such as rimu land and the tawa land?—The greater portion of the land is tawa and the like timber. Only a small proportion is heavily timbered.

17. Is there much totara?—In the Wangamomona Valley there was a little totara, but very little rimu.

Hon. Mr. CADMAN sworn, and examined.

*Hon. Mr. Cadman*: I was asked by the Auckland Railway League to give them my opinion as to which line should be constructed, and the answer I sent them was that I would express no opinion as to either route until I had been over both. I supported the vote for the central route, being greatly influenced to do so by the opinions expressed by Mr. Mitchelson, who was an authority on the question at that time, and who had gone to a good deal of trouble over the matter. The Auckland people wanted the Stratford line constructed, and asked me to act with them, but I answered that, before I gave them an answer, I would go over the lines. I started from Hunterville, and went to Kerioi, a distance of sixty miles. I did not go through the Waimarino Block, as I had a block of land offered to me by the Natives, named Puketapu, and I was desirous of having the land for settlement as a feeder to the central line. But to return: we went on from Hunterville till we struck the main road leading from Kerioi to Napier. From Hunterville to this road I thought the land first-class. I am not a competent judge of land; but what I formed my opinion from was the height of the cocksfoot. It was nearly ripe at the time we rode through, and Mr. Lawry, who was on a good-sized horse, rode into the grass, and tied the heads of the cocksfoot over his horse's neck. After we left the Awarua Block the land was not so good, but for all that it was still good, till we reached the Napier Road. I cannot give you the distance. We then rode on to Kerioi, and though at first the land was not first-class, it was not poor, judging from much of the land I have seen in the Auckland District. It gradually got worse as we advanced; and before we got to Kerioi we were among stuff very much like the Kiangaroo Plains, covered with tussock. We struck what I may call second-class land at Taumaranui; and it continued till we came to Mokau. Comparing this land with the whole district, I consider it to be only medium. Well, then I came back with some Auckland people, right through to Wellington. From Ongarue, where the junction is, for about ten miles, or perhaps twelve miles, the land was middling, if it was even that. It was certainly not first-class; but after that it seemed to improve as we advanced right through to the end of the line. At some places, however, it is very rough. We passed through several flats like the Hutt Valley, and the rough country was alongside these valleys; and yet this hilly land seemed to be good. Anyhow, it was the class of soil that would carry grass easily. In the distance we could see hills like those of Wellington. That is, when we were in elevated situations, for we were travelling through bush.

18. *The Chairman*: As to settlement, do you think that the character of the land on the central route renders it as fit for settlement as that on the Ngaire route?—Well, my opinion is this: that the land from Hunterville to the Napier Road is fit for settlement. I think the railway should be constructed to there. What is wanted is land to feed the railway from, and unless this can be done, your land is not worth much.

19. Is the land fit for settlement, right through to Stratford, except the first ten miles?—Yes. Of course I am only speaking of what I saw going along the line.

20. *Mr. Carnecross*: And as to the Waimarino Block?—I have not been along it, and have no personal knowledge of it, never having been on it.

21. *Mr. Mills*: What class of milling timber is there on the Ngaire route?—Well, we did not see very much timber that I would judge to be fit for milling, unless you formed settlements there. Otherwise it would be impossible to deal with the timber owing to the difficulties of transportation.

22. Can you form any idea as to the length and breadth of the valleys through which you passed?—I understand them to be very large. I can hardly give you any true idea as to their size. When I spoke of the Hutt Valley, I was only giving my impression which at best was formed from a view much limited at times. Where the river had overflowed its banks, some of these valleys were inclined to be swampy, but they could be easily drained.

23. *The Chairman*: Is the bush on the Ngaire route generally inferior?—I saw very little totara; rimu and pines seem to be the chief timber trees.

24. Was there any evidence of the spread of grass or clover seeds?—Yes; wherever the surveyors had been it had sprung up and we had to wade through it.

25. That was in the valleys, I suppose?—No; sometimes on the top of the ridges.

26. Was the growth equally luxuriant there?—Yes.

27. *Mr. Mills*: In the event of the railway being constructed through there, do you think that there will be enough timber to feed it with?—Well, I could hardly go so far as to say that. In looking at timber, you must consider the general contour of the country, and the way you are to get it out for export.

28. But is there enough timber to feed a line, in your opinion?—Yes; I think there is for a considerable time.

Mr. F. LAWRY sworn, and examined.

*Mr. F. Lawry*: Early last December I started from Hunterville, which is practically the terminus of the constructed part of the central route. I was accompanied by the Hon. Mr. Cadman, Mr. Wilson Hursthouse, and a guide. From Hunterville till we struck the Rangitikei River, we found the land to be of excellent quality, especially for grazing purposes, but too broken to be generally useful as an arable country. The quality was very much the same all through till we struck the Rankitikei River, where we found the land to be very flat, but also very gravelly. We struck the river, say, at the end of the first five miles, and after we had left the gravelly beds, we came across some of the finest country I ever saw, running right through the Awarua Block, and continuing to Turangarere, where the coach road from Napier meets the railway-line. Through the Awarua Block the road has been cleared a chain wide; it is practically level, and in very many places the Hon. Mr. Cadman and myself rode into the grass growing, and tied it over our horses' withers. My horse was sixteen hands high. I never saw finer land in this colony than we passed through in this block, or any better suited for settlement, and there was very little change in its quality until we reached Turangarere, where the main road from Napier joins the railway-line; but soon after we left the latter place we struck the pumice country on the Murimutu Plains.

29. *The Chairman*.] How many miles was that?—From three to five. Practically the first-class land ends at Turangarere. We continued through well-watered, but pumice land to Kerioi, following the course of the railway-line to this place. The next day we diverged from the railway-line, which in its northerly course passes across the Murimutu Plains and strikes the Waimarino Bush four or five miles south of Ohakune. We made the divergence at Kerioi for the purpose of inspecting a large block of bush country, under offer to the Government, known as the Puketapu Block. For this reason we went up the bed of the Wangaehu River, on the south side of Ruapehu, and from thence across the country to Tokaanu, finding no land *en route* suitable for settlement purposes. Leaving the latter place, we proceeded past the head waters of Lake Taupo and the Waihi Native settlement, and also the settlement of Porua, through an open country largely impregnated with pumice, and of inferior quality. About fifteen miles from Tokaanu we entered the Puketapu Bush, and travelled through it for a distance of ten or twelve miles, emerging therefrom on reaching the valley of the Tuhua River, a tributary of the Wanganui, down which we travelled a distance of ten or twelve miles, making two days' journey from Tokaanu to the Wanganui River, which we struck about four or five miles above Tamaranui, and crossing the river near the mouth of the Tuhua, we entered upon the Waimarino Block. I may say that another object in inspecting this block was to see if its quality was of a nature to give additional reasons for adopting the central route; but as the whole country is more or less pumice, I did not think it gave any new reasons for it, as very little of the block, or of any of the country we saw, is fit for settlement purposes. We then followed down the railway-line to Tamaranui, and from thence to Te Kuiti, finding no great engineering difficulties in the way of railway construction; but as the whole country is a region of pumice, it can never support a population, or produce freight for a railway.

30. *The Chairman*.] You are, of course, aware that that part of the country is common to both routes?—No, Sir; not as far as Tamaranui. From Mokau to the point of divergence it is. Well, after this I returned to Auckland; but, thinking that it would not be fair to express any opinion till I had seen the whole of both routes, I made a second journey, accompanied by Mr. Monro Wilson, and a guide. From Tamaranui we followed up the banks of the Wanganui River, and for six or seven miles the country was very flat, but all pumice. About seven miles up the river we left it on our left, and began to ascend a very high bluff. We then entered what is known as the Waimarino

Bush, the country being somewhat broken, but covered with heavy timber; and it was at this point that we came across what I believe to be the finest totara bush in New Zealand. The trees were growing in groups, and some of them were 18ft. to 20ft. in circumference. We at first thought that land which could produce such trees must be very good; but we found that wherever the wind had caught the branches, and especially with a certain class of trees, they tipped right over, showing that when growing, they "sat" on the pumice. There was an inch or two of good soil, that seemed to be the result of vegetable decomposition. The trees had no tap-roots, and you could push a supplejack down into the pumice where the fallen trees had grown, in many places, as easily as you could into a bag of flour. We could form no idea as to how the trees had grown to such a size in that region of pumice. We could find no indications of grass on clearings; not even a bite for our horses. I suppose the length of the road over which the trees were growing in the first bush to be seven or eight miles; and it would be difficult to estimate the commercial value of that forest. There was no variation in the quality of the timber land, as far as we could ascertain, until we emerged into the Waimarino Plains.

31. How far would you be from Tamaranui?—About fifteen or sixteen miles. We had an aneroid barometer with us, and found that from the Wanganui River we ascended from 1,800ft. to 2,000ft. in about seven or eight miles, gradually rising until we struck the Waimarino Plains.

32. *Mr. Blake.*] Are the plains as high as that?—Yes; that is, I believe, what Mr. Wilson's aneroid registered. The Waimarino Plains are of immense extent.

33. *Mr. Mills.*] What length are they?—We went about ten or twelve miles across them, but they stretched away to the left, and so on to Ruapehu. The land was wretchedly poor, growing nothing but tussock, and in summer wild horses and cattle run about the plains seeking for food, and their condition caused me to think the plains are overstocked. With regard to the land on our right, coming south, it seemed to be the same pumice bush as before. Directly we crossed the Waimarino Plains, and came upon the second bush, the land seemed slightly to improve, but still seemed to be strongly impregnated with pumice. It was alluvial in some parts, and I would class it as second-class land. We rode on till we struck the Manganui-te-au River, where we found a most fearful gorge, the width of which I cannot give. Its banks were perpendicular, and composed of a mixture of papa rock and clay, with a layer of pumice on top. Well, I calculated that this gorge would be about a quarter of a mile wide. We went down it by a natural opening, and came at the end upon the work done by the road-makers. They had cut a ledge about 3ft. or 4ft. wide. This ledge might have been half a mile long, winding in and out; and I expected our horses every moment to strike against the sides and topple over. Well, when we got down the distance I have indicated the track turned sheer round, and found a bridge over the river, 6 chains and 20ft. long, fit to bear the traffic of Lambton Quay.

34. *Mr. Blake.*] Who built this bridge?—The Government. It must have cost £4,000. You cross the bridge and come to the track once more, which is about 5ft. or 6ft. wide. All this time you are above the river, and you pursue a zigzag course up the ridge. Mr. Wilson will be able to tell you from his notes the height of the ridge we ascended in this zigzag way. We crossed over what may be termed the saddle—not very level, but with the land improving to the next creek, which is named Manganui. Here the thing is repeated over again—the same bridging and the same zigzagging; the only difference is that this gorge is not half as wide as the other, but is still spanned by the same useless and expensive bridge. The land is of better quality as Ohakune is approached, and for a distance of four or five miles of the track we found it very good indeed (that is, north of Ohakune), and fit for settlement. The first indication that I saw of good land was the way the grass grew wherever the surveyors had been, and there it grew most luxuriantly, and some cocksfoot growing was over 6ft. high on the road. The land is also good towards Ohakune to Kerioi till we struck the Murimutu Plains and again entered the pumice, which continues to Turangarere. From what I saw and heard from surveyors, there would be fifty or sixty thousand acres of land fit for settlement in the Waimarino Block, of which good land Ohakune might be taken as the central point. We were desirous of seeing the country between Ohakune and the Wanganui River, at Pipiriki. There is a very good road from Kerioi. It is practically finished to Pipiriki, made at an enormous expense, and with very easy grades; and I would say that two horses could easily take 30cwt. from Kerioi to Pipiriki over it in dry weather. Much of the country from Ohakune to Pipiriki is flat, alluvial, and heavily timbered, large areas of it being taken up by settlers from Bull Town, Marton, and other places. It seems to me that these settlers have taken up most of the land fit for settlement in the Waimarino Block. My principal object was to ascertain whether the most natural and the cheapest outlet for the produce of that country would not be by Pipiriki, thence to Wanganui by steamer; and I am quite satisfied that this would be found to be the cheapest and most expeditious method of getting the produce out of the settlements, of which Ohakune will be the centre.

35. *Mr. Wright:* This does not seem to bear on the merits of the two routes?—Yes; a steamer trades very frequently between Pipiriki and Wanganui; and it seems to me that all that is wanted is a little money expended on the river, snagging it, and dealing with the rapids, and so making it a much better highway for the settlers taking Ohakune as their centre.

36. What is the tonnage of the vessel that goes up to Pipiriki?—I do not know her tonnage. When the owners brought her out they expected she would draw, I think, about 11in. of water, but she drew more, and consequently frequently stuck in the river rapids. They have lengthened her now, and I hear she is able to make constant and regular trips to her destination.

37. Is she run in any season?—I think there would be just a month or two in the very height of summer when she could not reach Pipiriki, but even then she can go a long way up, and the settlers could have stores brought up the river in the large canoes, and goods taken down to the steamer. My own opinion is that it should be one of the first duties of the country to make the railway from Hunterville to Turangarere, because it is right through land adapted for immediate and profitable settlement. You would strike the road already made from Hunterville to Napier;

and I think the railway should for the present end there. I think there would be a consensus of opinion that, from Turangarere to the present northern terminus of the Main Trunk line, Mokau, with the exception of this good bit of country around Ohakune—which would be better served by the Wanganui River—there is no land fit for settlement.

38. This is over a tract of 120 miles?—Yes; that is all I can tell you about the central route.

39. *Mr. Mills*: I should like to ask if Mr. Lawry was over the block, which skirts the eastern side of the Waimarino?—No.

40. *Mr. Carncross*: What time of the year was it when you saw those trees you were speaking about?—We were travelling about the 4th March.

41. *Mr. Wright*: Would that be the best time for your journey?—Yes; I should not like to do the travelling now.

TUESDAY, 13TH SEPTEMBER, 1892.

Mr. F. LAWRY, M.H.R., further examined.

1. *The Chairman.*] Will you kindly give the Committee your evidence as to the merits of the Ngairi route?—I think it was about the 20th of January last a large party left Auckland *via* Mokau for the purpose of inspecting the Ngairi route, which lies between the point of divergence on the Ongarue River and Stratford or Ngairi. The first seven or eight miles of the track we found to be through the pumice country, some of it broken, and the ridges covered with stunted fern and scrub, through which the pumice could be seen 200 or 300 yards off. This class of country continued to a point, say, of two miles below where they struck the Ohura River. At the point indicated we crossed a small creek when the character of the country suddenly changed; or, in other words, we had reached the end of the pumice country in that direction, and the country appears on the river plains there to be simply an alluvial deposit of a very rich quality, the soil being composed of a very rich deep loam. We had no doubt whatever about the quality of the land on the river flat, but were not so satisfied with the ridges and undulating downs lying at our left, and stretching as far as the eye could reach from the river bank. We saw a bit of a track leading up to one of the ridges, and we rode up it to a considerable distance, expecting, when we arrived at a certain elevation, that we would be able to take a better view of the surrounding country, and, consequently, form a better opinion of the general character of the country. We, however, found that the higher up we got the more difficult it was to see anything, as the fern was higher than our heads when we sat on our horses. We had no alternative but to return by the track we came. We followed the Ohura River, crossing it over a bridge at a point about where the railway-line would cross. The farther we got down the wider the valley appeared to become, and after we crossed the river we went across a flat, about four or five miles in width, of the same character of heavy alluvial land until we struck the Mongaroa Creek. We followed up this creek for a considerable distance—I should say for eight or ten miles—and found the land flat and alluvial—in fact, very similar in quality to the Ohura Valley flat, which we had previously crossed.

2. What is the name of the valley you describe as four miles wide?—It is crossed between the Ohura and Mongaroa Rivers, getting on towards the Huitahi. Roundly speaking, I should say from the Ohura we travelled twelve or fourteen miles before coming to anything that might be considered hilly or rising ground. I do not think, Mr. Chairman, I need go into the whole thing in detail.

3. If you would kindly specify the character of the land in each ten- or fifteen-mile section, then we shall have some idea of the portion that is good or bad?—After leaving the flat I have already described, we began to ascend some hills, some of them from 300ft. to 500ft. high. We were unable to determine whether we were then on the exact line of railway or not; but we were all satisfied that the character of the soil on the tops of the highest hills was exactly similar to that found on the flats below, the growth being precisely the same—the same trees—the same under-  
scrub, where there was any. I will say this: there was very little change in the character of the land until we began to go down the valley to the Paparata Creek, which is a tributary of the Tangarakau River. The character of the country, as far as we could ascertain, coming down the Paparata Creek, was broken, but the soil is very fine—rich soil lying upon beds of papa rock. In a small tributary of this creek we crossed a seam of coal apparently of very fine quality, I should think from 6ft. to 8ft. in thickness.

4. True coal?—Yes, very similar in quality to the Mokau coal. It is very similar to what Mr. E. M. Smith, M.H.R., is now exhibiting in the lobbies of the House. This seam of coal was found about one and a half miles before we reach the Tangarakau River. After passing from the Tangarakau Gorge, which we found to be very rough, and bounded by high and precipitous cliffs and ranges composed of papa rock underneath the soil, we crossed at an elevation, if I remember rightly, of about 450ft., with very good soil to the very top. Descending again into the valley of, I think, Waitohine —

5. That is a tributary of the Wanganui?—Yes, they are all tributaries of the Wanganui. In this next valley, which I think is about twelve miles long, if I remember rightly, and very extensive, we had an opportunity of more accurately gauging the area of the valley itself, in consequence of a very large fire which had taken place there. I should say that the fire had destroyed over 1,000 acres of the bush; we were consequently enabled to get backwards and forwards through it, and to judge of its character, which we were unanimous in declaring to be some of the finest country we had ever seen. We crossed over another ridge, and then got down into the valley of the Wangamomona River. We started very early in the morning to walk up this valley, and we continued walking over a level country until night, being eleven hours on this journey, and we calculated that we had travelled at least eleven miles, finding the land to be exceptionally rich the whole distance.

You stated, Mr. Chairman, that you only wanted me to deal with the general character of the country. The surveyors will give you more expert evidence than I can give. We found every inch of the country, so far as we could see, fit for settlers, who would occupy larger or smaller areas as the case might be. Some of the river valleys were, in my opinion, more suitable for dairy operations than any country I have seen in New Zealand. It had been stated before I went to see the country that we would find nothing but spurs covered with black birch. With the exception of the ridges at the Tangarakau River, I saw no birch ridges whatever; and my own opinion is that, after leaving the pumice, there is not an acre of bad land from the point where we left the pumice at Ohura to Stratford. On several occasions, whilst passing over the route, I climbed up to the top of the flag station, or trig. station as it is called, and took a general survey of the country, and, so far as I could ascertain, the country within the reach of the human eye was very much the same in character as that we had travelled over. I may say that my evidence is not that of an expert, except as one who has had a good deal of experience in judging of the quality of bush and other land in the North Island; and it was for the purpose of ascertaining whether or not the country was suitable for settlement that I travelled over and inspected it. I am satisfied that there is no country in New Zealand, not even on the base of Mount Egmont, more suitable, as a whole, for small settlers, especially those engaged in dairy work in the North Island. So far as engineering difficulties are concerned, Mr. Hursthouse, C.E., and Mr. Munro Wilson, C.E., will speak of any engineering difficulties. I do not know anything about them at all, except so far as a layman can judge, and I must say that I could not see where the engineering difficulties came in. There are no large rivers to bridge, and, so far as I could ascertain, there could only be one or two short cuttings. Out of the distance we travelled from the point of divergence at Ongarue to Stratford, with the exception of the seven or eight miles of pumice at the commencement, which I have already described, I do not think there is a single acre of bad country. Of course my printed reports go more fully into the matter, but I think I have given the Committee a clear understanding as to why I went, and that I am thoroughly satisfied the country is fit for immediate and profitable settlement.

6. Having travelled over both routes, Mr. Lawry, and looking to the extent of work already executed on the central route, to which of these two routes would you give the preference for the construction of a trunk line in the interests of the colony, putting aside all local considerations?—I would give the preference to the Stratford route, because it goes through good country, and the other one goes through bad, with the exception of the southern end of the central route, that is as far as Turangare. There has been a large sum spent in railway construction on this section, and rightly too, as it opens up good land. If you would allow me, I would like to assign very briefly the reasons why I am opposed to the construction of the railway through bad country, and I would take our own railway in Auckland—the railway between Auckland and Te Awamutu, at the southern end of our settlement on the confiscated boundary-line; with the exception of a bit of volcanic country, extending southward about twelve or fourteen miles from the city, and a little bit of good country about Pukekohe, our railway runs through a country that is of no use whatever from a settlement point of view; consequently between Drury and Ngaruawahia there is but little settlement-traffic to the railway, except that which comes from small settlements, of which Pukekohe is the centre; and were it not for the traffic from the Huntly Coal-mines, my own impression is that the railway would not pay much more than working-expenses. Considering that matter fully, I have come to the conclusion that it is folly, at present, at any rate, to make a railway through a country where it could not foster, or create and foster, settlement upon the land. I may say that I realise that it is out of the question to make either route for the present. Unless we go in for another era of borrowing we cannot have either one of them. I do think it is necessary that this inquiry should be made, and that the evidence we have should be placed on record, so as to be available when the country determines to go in for future borrowing for railway construction.

7. Such being your general view of the position, Mr. Lawry, and looking to the character of the land between Hunterville and Turangare, do you see any objection to a further expenditure of money in extending the railway beyond Hunterville?—No, Sir. If you have the money, the portion of railway to be constructed would be about thirty miles, in round numbers, from the point where the present contract ends.

8. An expenditure on that length, I gather from your remarks, would be justifiable?—Oh, yes! I would very strongly support it.

9. That is, whether it is to form a portion of the main trunk route or not?—Yes, that is so. It hits the main road to Napier, and I presume it is a very good road to Napier, because I saw heavy wool wagons which take loads of wool, &c., to Napier. In any case, whether we decide in favour of the Stratford route or the central route, I am firmly convinced that the railway should, when funds are available, be constructed to Turangare.

10. Then, until the colony is prepared to push through a main trunk line of railway, there would be no material advantage in extending the line southwards from Upper Mokau?—Well, no, I think not, unless we are prepared to go on with it.

11. That is, the country in that locality is too poor for settlement?—Yes, Sir.

12. *Mr. Blake.*] I understand, from your evidence, that between Turangare and Ohakune the land is of fair quality?—No, Sir, it is pumice right across the Murimutu Plains, and only becomes good land when we reach a point about four miles south of Ohakune, and that bit of good land about Ohakune would be, as I have already described, in my opinion, best served by the road made to Pipiriki on the Wanganui River, where the steamer trades between Wanganui and that place.

13. *Mr. Carncross.*] The land from Ongarue to Mangaotuku is Native land, of which the Government have not yet acquired any portion?—A very large portion of it is in the hands of

the Natives. I may say, in answering this question, that I have attended all the Native meetings addressed by the Hon. Mr. Cadman, in the capacity of reporter for the *New Zealand Herald*, and I am satisfied that it is only a question of obtaining sufficient funds to enable the Native Minister to buy every acre of land that he requires, not only on that railway route, but anywhere else in the North Island. The Native owners are disposed to sell, and they are not only disposed to sell, but they are anxious to assist the Government in planting settlement upon the land; and in this connection I may state that there are from six to seven hundred young men in Auckland now, the bulk of them sons of bush settlers, who are simply waiting for an opening to take up any portion of the country lying between the pumice country at the northern end and Tanga-rakau River. On the other hand, there are settlers in Taranaki only waiting to take up land in the southern part. Speaking in general terms, the settlers would take up the whole of the land in small holdings directly it is acquired by the Crown. I have not heard of many persons who are desirous of obtaining any portion of the Waimarino Block on the central route, except the bit of good country about Ohakune.

Mr. JAMES MCKERROW, sworn and examined.

14. *The Chairman.*] You are Chief Commissioner of Railways?—Yes.

15. When the Committee inquired into the subject of the North Island Trunk route, in 1884, you stated in your evidence that you had no personal knowledge of the ground?—Yes.

16. Have you acquired any knowledge since then?—Yes, of the central route I have.

17. Well, perhaps you will give the Committee the benefit of your knowledge?—Yes. Beginning at the Hunterville end of the central railway, I have gone along the proposed course of the line a few miles beyond Makohini. I have also seen the country from various trig. stations to the east of the line as far as Hautapu; and I have been on the ground at the head of the Hautapu Valley, and from there north as far as the Waimarino country, and generally I have had a very good view of the country from the summit of Tongariro. And, further, I have carefully studied all the official reports that have been given on the subject, so that I have a very fair comprehension of the nature of the country through which the two routes run.

18. Can you state to the Committee how much of the central route is fit for settlement?—From Hunterville to Ongarue throughout the whole length of the line, on both sides, the land is suitable for pastoral settlement. At the present time a great part of the route runs through forest that would, of course, have to be cleared before it was available for pastoral occupation. The bush in many parts is valuable for timber, there being totara, rimu, white pine, black maire, and birch. When the time comes for the use of these timbers, there should be an important industry in saw-milling along the line at various points. With regard to the nature of the land up to the head of the Hautapu Valley, the line is in the Rangitikei basin, all the land being of good quality. After that you enter the Murimutu Plains, which is a large expanse of open country of rather inferior soil, being mainly a sort of pumice sand, although it grows natural grasses, and is occupied as a sheep-run at present. Then beyond that, through the Waimarino Block, the country is of an altitude from 2,000 to 2,600ft., and mostly under forest of excellent quality; where open, as it is for about five or six miles near the Native village of Waimarino, there is a good growth of natural grasses; and I noticed when I was there, in April, 1887, some cattle in very good condition, also sheep. The soil no doubt is composed partly of pumice; but I was surprised to find that it had all the appearance of being better and more fertile than I had formerly supposed when I gave evidence in 1884.

19. Have you any knowledge of the Ngaire route?—My actual knowledge from personal inspection does not extend to more than twenty miles in from the existing railway-line. I have been in from Inglewood and several other places on the railway-line. I may say that on any part within twenty miles east of the New Plymouth line, the land is of good quality, although hilly, and very suitable, when cleared, for pastoral occupation; and in time, I dare say, it will be suitable for agriculture, but not for many years, of course—not until the stumps are rotted out. As regards the other portion of the line, I only know of it from reading the report of surveyors and others who have traversed the route.

20. Looking at the question from a colonial standpoint, which would you consider to be the more desirable route to have for a main trunk line?—I should say the central route decidedly. I may state my reasons for saying so. The central route opens up by far the greatest extent of land. Further, it has a more important bearing on the connection of the railway systems of the North Island than the other route. It is forty-eight miles shorter as between Auckland and Wellington. Then, on the Ngaire route, moreover, the grades of the railway between the Marton junction and the proposed Ngaire junction on the New Plymouth line are very bad at various places, and for considerable distances together the grades are 1 in 35 with curves of short radius, so that if it becomes part of the main through line between Wellington and Auckland, these grades, which cannot very well be improved, will be a very great bar to any extensive or profitable through traffic. On the other hand, the grades from Wellington to Marton junction are fairly good, and also from Auckland to Mokau, where the railway at present terminates, the grades are also fairly good. Then, as regards the new portion of the central line, so far as my knowledge goes, the grades and curves are at least as favourable as on the new portion of the Ngaire route. There is one thing to be said against the central route as compared with the Ngaire, and that is, that by the latter there is less railway to construct, the difference being about thirty-three miles more on the central route than on the Ngaire route. Of the thirty-three miles, twelve miles of earthworks are now partly constructed on the two sides of the Makohine ravine, so that really there are only twenty-five miles more of new ground to break in making the central than the Ngaire route. As regards the difference of cost of the two lines, I cannot speak. No doubt the Public Works Department will be able to advise you on that.

21. Would you state to the Committee what difference in time, as between Wellington and Auckland, would be entailed by travelling round by way of Eltham?—That question would require

some study, but I may say there is a difference of forty-eight miles in distance. The distance between Auckland and Wellington by the central route is 432 miles; *via* Ngaire, 480 miles. Were the lines of the same character, it would make a difference of from two hours to three hours in the actual travelling, according to ordinary New Zealand railway speed; but, as I have already pointed out, the grades on the existing open line between Marton and Ngaire are so unfavourable that additional time would be lost on the route, so that the comparison in time of the through journey between Auckland and Wellington is still more in favour of the central route. I should say that between Wellington and Auckland, by the central route, there would be no difficulty in running the through distance in from eighteen to twenty hours. A matter for the Committee to consider is this: that the through traffic would be for a long time only principally in passengers and mails; that there would be comparatively little through traffic in goods. The sea distance between Onehunga and Wellington being only 300 miles, the railway could never attempt to carry goods over 430 miles cheaper than they could be carried by water 300 miles; but, no doubt, in the matter of passengers and mails the railway would have the preference, because even with a fast steamer it would take at least twenty-four or more hours to go from Onehunga to Wellington. To give the Committee some idea of what the through passenger-traffic might be, I may mention that the through daily passenger-traffic between Christchurch and Dunedin, by the express train, including both ways, is about twenty-eight passengers. Of course the same train takes intermediate passengers, horses occasionally, light merchandise, and mails. Further, I should like to say to the Committee that I think it very premature to think of making this railway-line by either route; that what is really wanted for this interior country is a system of summer-roads so as to promote the pastoral occupation of the country; the clearing of bush and other work to be done will require many years to accomplish before settlement becomes of sufficient importance to warrant the construction of a railway for the convenience of settlers.

22. You spoke of the country through the Waimarino Block as being at an altitude of 2,600ft., and fit for pastoral settlement?—Yes.

23. Do you think the altitude excludes it from being occupied for agricultural purposes?—No, I do not. Oats would grow very well up there, and, were the soil sufficiently strong, wheat would also grow at that altitude.

24. *Mr. Blake.*] You have not been up the Ongarue Valley?—I have not been there.

25. *The Chairman.*] What would be the relative proportion of land available on the two routes?—I should say on the central route there would be at least twice as much land rendered available to the railway as on the Ngaire route—I mean the whole length as between the two lines—I mean twice the area of land fit for settlement would be served by the former railway.

26. Can you state approximately what would be the cost of making the grades on the open line between Marton and Eltham as good as the grades that will be secured on the central route?—I have not studied the cost, but the Committee will at once see that it would be a very large sum indeed when I tell them that the Wangapehu, Fordell, and Brunswick grades are several miles in length, with grades 1 in 35 and curves of 5 and 6 chains radius. If the line had to be improved to a grade of 1 in 50, it would mean the construction of an entirely new line by another route.

26A. That is, over a considerable portion of the distance?—Yes.

27. Would it, in your opinion, involve twenty miles of new line?—I believe it would, as there are some other grades nearly as bad which I might have mentioned, but those I have mentioned are sufficient to indicate the nature of the line.

Mr. S. PERCY SMITH, sworn and examined.

28. *The Chairman.*] You are Surveyor-General?—I am.

29. You informed me a few days back that you were having some plans prepared to give information to the Committee as to the quantity of land acquired by the Government; are you now prepared to proceed with your evidence in chief?—Yes, Mr. Chairman, I am. I now produce such a plan as indicated to you the other day.

29A. Would you be kind enough to state to the Committee, as concisely as possible, the area of land in the possession of the Crown, the area in the possession of the Natives, and the area in the hands of private individuals, on the two rival routes; and also state what you know as to the relative quality of those lands?—A map has been prepared to show the two routes—the Stratford route, and the central route, from the points where the two lines diverge to where they would connect with the present-existing railway-lines—that is, from Rangatira, near Hunterville, on the central line, and extending as far as the Mokau Railway-station in the north; and again from the railway-line near Eltham, and join into the main trunk railway-line at a place called Ongarue Valley. In order to get at some means of comparison, I have taken fifteen miles on each side of the two lines, excepting in the case of the eastern side of the central line, where it is manifest a larger extent of country would be served by the railway; in this case the line has been extended for a distance of thirty miles, on the ground that this country for a distance of thirty miles must be served by the central railway. As lines at fifteen miles limit, of course, they are necessarily somewhat arbitrary, and in some cases indeed will include, and others exclude, country which would be served by either of the two lines. As the limit is made the same in both cases, it will equally apply. With regard to the areas and the character of the country, I have myself personal knowledge of the central line—of the whole of it, with the exception of some half-dozen miles. With regard to the other, I can only speak from personal knowledge of the two end portions for short distances, and, consequently, the information which I have given on this map has been derived from various sources—from the best available—from Government surveyors and others. I have given on the map some figures respecting the areas which are affected by the two lines. I will premise what I have to say on the subject

by stating that the country suitable for settlement is such that it might be subdivided into areas up to 2,000 acres. Any country which is suitable for subdivision into areas of 2,000 acres we consider to be settlement country, the rest of it will be pastoral country, which varies a good deal in its character; and none of it, in my opinion, is first-class, or rather very little of it is first-class. If you take the Stratford route, the Crown owns at the present time 256,100 acres of settlement country, 86,600 acres of pastoral country—a total of 342,700 acres. There are under negotiation for purchase by the Government for settlement 316,000 acres. There are Native lands—340,600 acres—suitable for settlement; for pastoral settlement, 12,000 acres; and already in the hands of private individuals, 137,000 acres. These figures when totalled up show that there will be for settlement purposes 1,050,500 acres; pastoral, 98,600 acres; and the total area which will be affected by the line will be 1,149,000 acres—that is, all with reference to the Stratford line. We now come to the central route. Of Crown lands suitable for settlement there are 281,900 acres, pastoral land 144,000 acres: total, 425,900 acres. Under negotiation for purchase under the head of settlement lands 247,000 acres, pastoral 335,000 acres: total, 582,000 acres. Native-owned land suitable for settlement 509,600 acres, Native-owned land suitable for pasturage 543,000 acres: total, 1,052,600 acres. In the hands of private individuals 414,000 acres of settlement country, 80,300 acres of pastoral country: total, 494,300 acres. The total quantity of land, pastoral and settlement country, affected by the central route will be, therefore, 2,554,800 acres. The quality of the soil varies a great deal in various parts. Speaking of my own knowledge, the southern end of the trunk line passes through some remarkably fine country as to the character of the soil, but it is very broken and all covered with forest—I allude more particularly to the Awarua Block. In the Rangitikei Valley there is as fine land as can be found anywhere in the inland districts of the North Island. When we come to the central part of the country, through the Waimarino, we still have good land, but inferior in character to the Awarua. A considerable portion of this block is very broken, and could only be occupied in good-sized areas—say up to 2,000 acres. Some of it, however, is more level than is usually found in the central district, and nearly the whole of it is covered with forest. With regard to the lands on the other route, I apprehend that you will have expert evidence as to their character. My evidence will be hearsay to a great extent, derived from various reports which have been received by me, sometimes in writing, sometimes verbally. This is the general character which I gather from these reports: the whole of the land right away through as suitable for settlement in somewhat large areas. The basis of the country is what is called papa soil, which invariably takes grass excellently. The country is forest right away through, and, as already referred to, is, generally speaking, of a broken character. There is a lot of open country on the north end of the line—perhaps some eighteen or twenty miles along the line down to the Ohura Valley. That country I can speak of personally, and I know that the land itself is very good indeed in the valley. I understand that in all cases the land in the valleys right away through is particularly good, but the hills are not so good. The whole country, however, is capable of taking grass, and there are here and there belts of shelly limestone, which, of course, makes most excellent grass-country.

30. *The Chairman.*] You refer to the land about the Ohura Valley being of excellent quality; would that land be opened up by the central line—would it be brought within reach for a workable distance over the central?—Yes, every part of the valley would.

31. Then, speaking in general terms, which of the two routes would carry the largest population, as far as your knowledge extends?—As I have not a personal knowledge of the Stratford route, my opinion on the subject is possibly not of very great weight, but my impression is that the central line would carry the largest population.

32. According to the figures you have given, it would render accessible a much larger area of land?—It would certainly render accessible a larger area of land.

33. *Mr. Carncross.*] It has been shown that there would be a much larger portion of land served by the central route, but, notwithstanding, it is quite possible that the land on the Stratford line would carry a much larger population?—If the land were superior on the Stratford route, no doubt it would carry a larger population notwithstanding the lesser area of land.

34. Were the calculations as to the land served by the central line included in land served by the line from Marton to Hunterville?—No.

Mr. WILLIAM H. HALES, sworn and examined.

35. *The Chairman.*] You are Engineer-in-Chief?—Yes.

36. Are you acquainted with much of the country through which the rival routes are proposed to run?—No; I know a part of the country that is common to both routes, and portions at each end of the central route.

37. Will you indicate to the Committee how much of it you are acquainted with below the point of divergence?—I have been along the line from Te Awamutu to Taumarunui.

37A. On the Ngaire line?—I have never been on that route.

38. Would you state what is the quality of the land between Mokau and Taumarunui—is it land fit for settlement?—It is land fit for settlement, but it is not good land—not what I would call first-class land.

39. Would you call it second-class land?—I should say it would make good grazing land when cleared. It is open country generally, and a portion of it is fair soil. A great deal of it is pumice sand, and some of the hills are trachyte formation, with clay at top. On the slope towards Taumarunui the soil is light, but tolerably good.

40. Leaving that part of the question, you are head of the Public Works Department—have any estimates been prepared as to the cost of the construction of the two routes?—Yes.

41. Can you state them?—I can supply them.

42. Are those estimates framed after detailed surveys have been made, or are they mere approxi-

mations?—Part of them are from detailed surveys, and the bulk of them are average estimates, but some of them pretty close.

43. I understand that a detailed survey has been made of the whole of the Ngaire survey?—Not a detailed survey sufficient for construction purposes, but a very careful trial survey.

44. What officers in your department can speak as to the general character of the country traversed by these routes?—Well, Mr. Holmes surveyed the greater part of the Ngaire route, and also a portion of both ends of the central route.

45. Any other officers?—I do not think there are any officers in the department now who did any survey work on these lines.

46. *Mr. Carncross.*] Have you a knowledge of the quality of the land on the Stratford route?—No; I have not been over that route.

47. *The Chairman.*] You have some knowledge of the land on the Marton end of the line?—I have.

48. Can you state to what extent—how far beyond Marton?—Along the line of railway; I have not been over any very great length of it—about thirty miles.

49. Well, such land as you have seen, is it first-, second-, or third-class land?—It is first-class land all the way for the distance I have named.

50. Suitable for small settlements?—Yes; it is very good land, principally bush land. Some fifteen or sixteen years ago I explored a road through the Murimutu Plains, as far down as Wanganui.

51. Is that an open road?—Yes; the road has been made, and a great deal of the country is settled. It is good land all along there.

52. From your knowledge of the country, could the tunnel which has been made at Poro-o-tarao have been dispensed with without involving heavy works of another character?—No.

53. It could not?—No; it is an unbroken range, and there is no way of getting a railway with the grades required except by tunnelling. There are two streams that lead up to the watershed, and the tunnel is made through the lowest and narrowest part of the dividing ridge.

54. It has been stated that it could have been avoided by a few miles' divergence?—I have heard that statement, but I could not find the place mentioned.

55. It is not true?—It is not correct so far as my knowledge goes.

56. You could not find any ground where a railway could be constructed dispensing with the tunnel?—No; that question has been talked over for a long time, but I never could find anybody who could give me any information on the subject—that is, reliable information.

WEDNESDAY, 14TH SEPTEMBER, 1892.

Mr. R. C. BRUCE, M.H.R., sworn and examined.

1. *The Chairman.*] Perhaps you would prefer to make a statement first?—I may say, gentlemen, that I have been over this central route several times. I have started from Hunterville on horseback, travelling north on one occasion to Waimarino. I then struck away in a north-east direction towards Taupo, coming back on the east side of Ruapehu through Rangipo, lying between Ruapehu and the Kaimanawa Ranges. I have, on another occasion, gone north to Waimarino and on to Taumarunui, which is on the Wanganui River, and on again to Poro-o-tarao, so that I have a very tolerable acquaintance with the interior of the country. I may also say that I have been across the country to the eastward of the Rangitikei River, and near the Ruahine Ranges, the whole of which district will be served by the central line. I have, therefore, a fair acquaintance with the character of the country on the east side of the river. On the west side I have also a knowledge of the character of the country, having gone right through it on several occasions from the coast line on the Wangaehu River. This wide area of pastoral country will be served by the central line coming to the open plateau in the interior. I make this preliminary explanation to show that I ought to know what I am speaking about when I refer to this large tract of country. I cannot give you general averages. I presume they will be supplied by the department. I wish particularly to speak in reference to the character of the country that will be served by the central line. I may say there is a large tract of country lying between the Rangitikei River and the Ruahine Ranges which is all good pastoral country. A good deal of it is undulating country, but it is all good until you reach the pumice plateau. I may perhaps say that this pumice plateau has been the result of the upheaval of these mountains. The pumice shower has been deposited all round, least of all to the west. As to the quality of the land east of the Rangitikei River, I would put the carrying capacity of that country at two sheep to the acre when cleared, and it is being rapidly cleared, settlement going on at a great rate. When you get into the interior to the north you come to an open limestone country, which you may call excellent, north of wooded country. This is a really magnificent country until you touch the country where the pumice has fallen. I am now going to say a little in reference to the west side of the line. This is country that I am well acquainted with. I have been through it. I live in it. It is of papa formation, which is an estuarial deposit, and contains a good deal of lime in a varying percentage. It is a wooded country. Perhaps the land is not of such good quality as that on the east side. The carrying capacity would be about equal, as the climate is colder the nearer you approach the Ruahine Ranges. I now come to the west side. This is also on the west side of the line. It is a wooded, pastoral, and hilly country, having the carrying capacity which I have already indicated until it gets to the open plateau which skirts the pumice country. On the east side it is a pumice country. Again, on the west side of the line, you come to what is called the Waimarino Block, and, so far as I am able to judge, though I have not been through it except on the line, it is very fine country. I have heard that from reliable

men who have been through it. The line just touches the skirt of the pumice. As far as Waimarino I would say that the land on the west side of the line is some of the best land for pastoral purposes in this Island.

2. That is in the Wanganui Valley?—In the basin of the Wanganui River. Having said this much, I might say further that my knowledge of the country north of the Waimarino is of a very imperfect character. I have ridden along the route there. It goes through country which appears to be somewhat of an inferior character. There is a very valuable totara forest between Waimarino and Taumarunui. It is alleged to be 25,000 acres in extent. The country on the east side of the line between Waimarino and Taumarunui is not, I think, of a very high class. It is hilly; it is pumice as well. From all that I was able to observe of the country on the west side of the line, it is good pastoral country, and towards Taumarunui it is especially so. There is a good deal of good land for pastoral purposes on this side of the line. On the east side, north of Taumarunui, there are some fair pastoral hills; not rich, but still fair country—as good, I would say, as that on the west side. I may also notice that it is a peculiarity of this country, contrary to that which obtains generally, that the valleys are the poorest. This appears to be a consequence of the pumice drift that comes from the interior. The hills on either side appear to me to be fair second-class pastoral hills. I cannot say anything of the country north of Poro-o-tarao. Starting from Hunterville, and going as far as Turangarere, or a little further north than that, the line will open a large extent of country, and, so far as I am able to judge, some of the very best in this country. Hautapu Valley is a fine piece of country, with a forest alleged to be 3,000 acres in area. There is very valuable timber in it. Once you pass the river you get into very fine open limestone country stretching away eastward towards the backbone of the Island. I do not think I can say much more on this subject. A question has been discussed about the witnesses to be called to give evidence before this Committee. The names of several gentlemen have been suggested to me as persons who, if called upon to give evidence, could give valuable information to the Committee. The opinion which I have heard expressed to the effect that the Committee would not summon a cloud of witnesses before them, who would be simply repeating each other's testimony, has induced me to refrain from submitting any list of persons who are well acquainted with the country along the line for the same reason. But I would recommend that Mr. Cicely be called; he has an intimate acquaintance with the whole of this country. I should also like that Mr. A. Harris, a very intelligent man, who has land in this Waimarino country, should be summoned. He has taken up land for special settlement there. He could give the Committee information as to the character of the country west of the line opposite Ruapehu. The character of that country, it appears to me, has been very much misrepresented. I would make to the Committee one other suggestion. There is in the Rangitikei district a Mr. Simpson, who has an intimate acquaintance with all this country. He was our Sheep Inspector for twenty-five years. He could give valuable evidence respecting the carrying capacity of that country. His judgment would be considered thoroughly reliable on a question of that kind. There is a further suggestion I would make, with due deference to the Committee. I should like if the Committee would procure from the Railway Commissioners returns of the traffic of the line at the southern, and also at the northern end. That would give the members an idea of the traffic already at this southern end; it is a traffic that is yearly increasing by leaps and bounds.

3. *The Chairman.*] When you speak of the country in the Awarua district as being good pastoral country, capable of carrying two sheep to the acre, is it of a character fit for settlement in small farms?—Yes; the country lying east of the Rangitikei River between Rangitikei and the Ruahine Ranges is more undulating than the country on the west side. It is, on the whole I think, fit for small holdings—that is to say, relatively. A good deal of it will eventually become agricultural country.

4. You say that about Ruapehu the central route skirts the pumice country lying to the east: have you been through the country on the west so as to be able to speak with precision on that point?—No; I said when I was making my statement that I had not been through that country, and that I was speaking only partially from what I saw—that is to say, looking over the country from a vantage point, I could see from the character of the timber with which it is clothed that it must be a good country. Those who are experienced know from the character of the timber the quality of the country. Speaking generally I should say that the whole of this is good land. I may say in connection with this that small-farm associations, after spying out the land, have taken land right up to the line, showing that it must be good country having been examined.

5. As to the general character of the country for railway construction, is it a very rugged class of country; or, how does it compare with the country between here and Manawatu, for instance?—I will endeavour to answer that question: when you leave Hunterville, proceeding up the Porewa, a tributary of the Rangitikei River, you go up the valley a little way and cross a low saddle descending again into the valley of the Rangitikei. The first engineering difficulty is where it descends into the valley, where you have to cross the Makohine Gorge. After that is crossed the line meets with few engineering difficulties up the valley of the Rangitikei. When you leave the valley you ascend the Hautapu, which is a tributary of the Rangitikei. No engineering difficulty presents itself on this part of the line. The first engineering difficulty is on the west side of Ruapehu, where there are deep gorges. There must be expensive bridging there. When you get away from Waimarino you keep descending until you come to the Wanganui River itself. I would not say anything of the line past that, for I do not feel able to say anything with the accuracy I should like.

6. *Mr. Carncross.*] Have you any knowledge of the other route?—I have not, except that I passed the point of junction. It appears to me to be second-class pastoral country. I cannot give you any other evidence on the subject, as I have not been over the proposed line.

Mr. R. W. HOLMES, sworn and examined.

7. *The Chairman.*] You are a Civil Engineer in the employment of the General Government?—Yes.

8. I understand you are personally acquainted with both the central route and that which is known as the Ngaire route?—I am acquainted with the whole of the Ngaire route, but only partially acquainted with the central route.

9. Perhaps it would be more convenient if you would make a statement as to the character of the land on both routes so far as you know it, taking the land along the Ngaire route first from the point of divergence?—The first few miles of that route is covered with pumice principally; then the country gradually improves, until at about twenty miles it is good land fit for settlement; that continues right away through to Ngaire, except that part of the country along the Tangarakau, which is too rough for settlement.

10. You mean the central part?—Yes; about sixteen miles of it. I should say about one-sixth of the whole distance is too rough for settlement; and about ten miles from the north end, which would be about a tenth of the whole distance, would be poor country; the balance is all good land; with the exception of this one-tenth, the soil is good over the whole of it.

11. With the exception of that sixth part you refer to, is it fit for small-farm settlement?—Yes.

12. What are the general characteristics of the country; is it very rugged; are the valleys of any great width, or are they narrow?—They get narrow towards the top ends; they widen as they descend.

13. What would be the width of the widest valley on the route?—About a mile and a half I should think.

14. Are there many a mile wide?—They vary.

15. You are speaking of the average?—Yes; that is about the average.

16. Would there be many valleys that would be half a mile wide?—Yes; about three-fourths of the whole of them would be about that width.

18. When you say three-fourths of them are so wide, let me ask you how far you include up the hill-side?—I have always reckoned that you could settle the land to about half way up; the ridges get steeper and steeper as you ascend.

19. Then, on this three-fourths of the number of valleys cultivation could be made half way up the hill?—Yes.

20. Beyond that would the hill be too steep for cultivation?—Yes; I think so, as taking the bush off would cause slips.

21. Can you state what the character of the bush is on this route?—White pine, rimu, matai, mairi, and hinau.

22. Does the timber continue up to the hill tops?—Yes; except in Tangarakau. On some of the ridges there the pines are replaced by birches.

23. Over what length of country would that be?—Ten miles, perhaps, at the summits of the highest ridges.

24. Not more than that?—No; not more than that.

25. Now, tell us what you know of the central route?—I know from Marton up to Kerioi.

26. What is the distance?—Eighty miles from Marton junction.

27. You only know the north end, where it is common to both?—Yes.

28. State what you know of the character of the country from Marton?—As far as the Muri-mutu Plains it is all good country; but the open country, on the plains themselves, is poor.

29. Is Kerioi on the plains?—Yes.

30. How does the country from Marton to Kerioi compare for quality and adaptability for settlement with the land you have described on the Ngaire route?—It is much about the same; there is not much to pick and choose between the two; both are very much the same in character; that character extends clear across from the Ruahine Range to the sea-coast at Taranaki.

31. *Mr. Rhodes.*] Would there be the same difficulty in both as regards slips?—Yes.

32. *The Chairman.*] If I understand your evidence rightly, out of 103 miles on the Ngaire route there would be about seventy-six miles of country quite as good as that between Marton and Kerioi?—Yes; it would compare very favourably with that on the central route.

33. You have stated that the country from Marton northward is as good as that on the Ngaire route?—Yes; it is about the same.

34. *Mr. Blake.*] Take it from Marton to Rangatira?—It is good land.

35. *The Chairman.*] Do you say there would be seventy-six miles on the Ngaire line of as good land as that between Marton and Turangarere?—Yes.

36. In your judgment would the difficulties of railway construction be greater on the Ngaire route than on the central?—They are easier on the Ngaire route.

37. You say that the Ngaire route is more favourable for railway construction than that on the central route—from Marton northwards?—Yes.

38. Have you been engaged on any of the sectional surveys?—Yes; I had charge of the surveys of the Ngaire route as far as the Ohura Valley from Ngaire. That included the whole of the difficult part of the line. I have also located a portion of the central route.

39. What portion?—About eleven miles south of Turangarere: that is on this side of Murimutu.

40. That is on the proposed extension beyond the present work?—It is all located ready for contract up to Turangarere.

42. *Mr. Rhodes.*] Will you tell us the position of the railway at the present moment?—The line is open for traffic to Rangatira; that is eighteen miles from Marton junction. There is a further length of four miles under construction that will be open for traffic by Christmas time. Then there is a further length of eleven miles under construction.

43. *The Chairman.*] By contract?—No; it is being carried out under the co-operative system.  
 44. Have you made any estimate of the average cost of construction per mile on the Ngaire route?—Yes; full quantities and estimates for culverts, bridges, everything, even detailed estimates, have been prepared. A survey almost equal to a working survey was made.

45. *Mr. Rhodes.*] On this four miles that will be opened for traffic at Christmas there is a big gorge, is there not, that will require an expensive bridge?—Yes; it is estimated at about £30,000. It is about a mile and a half beyond where the line will be opened for traffic at Christmas.

46. Do you know much about the adjoining country on the Ngaire route?—Yes; I have been over it to the coast.

47. That is a similar country in respect of character?—Yes; it gets rougher as you go to the coast.

48. Did you ever see coal in that country?—Yes, at Tangarakau.

49. How far up the Mokau River is there coal found from the coast?—About twenty-five miles. I have seen coal in several places between Tangarakau and the place where it is being worked on the Mokau River.

50. What is your knowledge of the country east of the line—that is, between the line and the Wanganui River?—I have not been very far that way; not more than a couple of miles. We had no object in going in that direction.

51. Seeing that estimates are being prepared relating to various subjects in connection with this line, would you furnish the Committee with those you have made?—Yes; they are all in the Public Works Department.

Mr. E. M. SMITH, M.H.R., sworn and examined.

52. *The Chairman.*] You are the member for New Plymouth?—Yes.

53. Will you make a statement as to what you know of the relative merits of the Stratford proposed route and the central route. Be good enough to tell the Committee what personal knowledge you have regarding the Ngaire route—that is, of the land it will serve between Eltham and the point of junction?—This is a question that I have taken a great deal of interest in. I brought the question before the Government, and the Government agreed to have a track cut over the proposed route which we propose. The fact is that the people of New Plymouth object to the line being made from Stratford at all. We say that any person living in Waitara or New Plymouth—these being the two chief ports in the district—would have to come thirty miles to Eltham towards Wellington before he could branch off for Auckland. The shortest route, opening up the best country and tapping the coalfields, would be to connect the railway half-way between Sentry Hill and Waitara. Mr. Donkin, the Engineer, can give you all the estimates in connection with this proposal. He gave evidence to the Committee which sat in 1884.

54. You are not opposing the central line or the Ngaire line, but you are advocating a convergent line?—We say the people of Auckland are wrong. If they want to connect with us they can do so better by the route we now propose than by a line from Stratford. We want the Committee to take this into consideration. We say this proposal of ours will be the shortest, will tap the coalfield, and be the most convenient.

55. You are not advocating a line from Taumarunui in opposition to the central route, but as a sequence to it?—We say we can, if our proposal were carried out, get coals to Waitara for 10s. a ton; that we could get coals to other ports at 10s. a ton; that we could get them to Palmerston at 12s. a ton. You have simply to ask the coal engineer, who will be able to give you every information as to distances and cost of conveyance.

56. Putting your new proposal aside for the present, what information can you give us respecting the land along the Ngaire route?—I have never been over the line. I have no opinion to offer on that subject, but I can give you the opinion of experts.

57. *Mr. Rhodes.*] Have you been over this newly-proposed line?—No, I have only been along it some little distance.

58. Do you know whether there has been any official report made on the subject?—No.

59. I should like to know the feeling of the people of New Plymouth and Waitara: whether they are in favour of the Ngaire line?—All the district admits that the Ngaire line is no good to us; it will be simply madness to have to go to Eltham before going on to Auckland.

60. *The Chairman.*] Putting aside the question of reaching Auckland, would a line from Taumarunui to Waitara open as good a class of country as effectually as the Ngaire line would do?—I only know that it is all good country. It would be the shortest distance. We say that if this proposal were carried out nothing further would be required. It would serve the Stratford people quite as well. Except a good metal road of about six miles, the Stratford route will merely skirt the coalfield. The Stratford people will get quite as much accommodation by our proposal. Mr. Donkin was engaged to conduct the survey right through. He says there is but one small tunnel to make to get into the actual coalfield. The fact of there being a coalfield there requires a railway.

THURSDAY, 15TH SEPTEMBER, 1892.

Mr. BRUCE, M.H.R., further examined.

*Mr. Bruce:* It may be remembered that yesterday I stated that a great deal of misapprehension existed in reference to the quality of the land immediately contiguous to, and on the west side of, the line in the vicinity of Ruapehu—immediately west of Ruapehu. I yesterday alleged that, to the best of my belief, for reasons which I then gave, the line merely skirted a pumice country—I mean the central line between Kerioi and Waimarino. As a proof of the validity of my contention, I have brought this map [produced] here to-day for the members of the Committee to look at. They will there see that the small-farm associations to which I alluded yesterday, and experts going over

the country, have made their selections immediately contiguous to the line: Marton No. 5, 10,000 acres; Marton No. 3, 10,000 acres; Marton No. 4, 10,000 acres; military settlers' block, 6,000 acres; Waimarino Special Settlement, 7,200 acres; and there is another settlement—Bulls, the acreage of which is not given, but I think it is 8,000 acres. These are in the immediate vicinity of the line, and I think prove most indisputably that the character of the country in the immediate vicinity of the central route is good. I do not desire to give any further evidence; I merely wish to furnish this map as a corroboration of my statement made yesterday.

Mr. JOHN FREEMAN SICELY, sworn and examined.

1. *The Chairman.*] You are a surveyor?—Yes; an authorised surveyor, land valuer, and agent, residing at Marton.

2. Are you acquainted with the country that the North Island central railway route is proposed to cross?—Yes, from Marton to a little beyond Kerioi.

3. That is about sixty miles north of Rangatira?—Yes.

4. Have you any knowledge of the country that the Ngaire route will traverse?—No, I have not. I have surveyed blocks near there, but I have never been on the actual route itself.

5. Then your evidence will practically be limited to about eighty miles north of Marton?—Yes, eighty or ninety miles north of Marton.

6. Will you tell the Committee what you think of that country as suitable for settlement?—The Paraekaretu Block, containing 46,975 acres, was purchased from the Natives for £9,328 15s. 5d. The present value is up to between £8 and £9 per acre.

7. *Mr. Rhodes.*] Is the increased price the result of the railway or of insufficient original purchase-money?—At that time the price paid was considered fair.

8. *The Chairman.*] The present value must be the result of public works expenditure and the opening up of country for settlement?—Yes, the facilities offered by the construction of the railway line.

9. *Mr. Rhodes.*] Has there been much money spent?—About £2 an acre would represent the value to the owners themselves. Then the Rangatira Block, 7,500 acres: that was obtained for 14s. 3½d. per acre. The Hapopo Block, 12,000 acres, was purchased for 14s. 9d. an acre. That land has since gone up to £7 or £8 an acre.

10. *The Chairman.*] In both these blocks?—Yes. The Otairi No. 1b Block, 12,560 acres, purchased for 6s. 4½d. an acre; Otairi No. 2b Block, 3,938 acres, purchased at 7s. an acre. Some of that land was recently sold for £4 an acre, and resold directly afterwards at £5 10s., owing to the railway. There were 3,000 acres sold at £4 an acre. The Otairi No. 1e Block, of 9,175 acres, was bought for 7s. 2½d. an acre. Part of this land has been resold for between £3 and £4 an acre. The Otairi No. 3 Block, 3,772 acres, bought for 9s. 4½d. an acre, is worth about £8 an acre now.

11. In general terms, state how many years have elapsed since these blocks were purchased from the Natives?—Well, from 1880 up to the present time; they have been purchased for ten or twelve years, and only recently some of them have been improved.

12. Consequent upon the construction of the North Island Trunk Railway?—No; being bush lands, they have all been more or less put down in grass.

13. How far are these lands removed from the present terminus?—The railway-line runs through two or three of them.

14. How far distant are most of them?—About ten miles.

15. *Mr. Rhodes.*] Would you advise all construction of railway to be stopped until after the whole of the Native land was purchased?—I would advise the line being formed to the south boundary of the Awarua Block.

16. *The Chairman.*] That is about twenty-five miles from Hunterville?—Six or seven miles beyond the proposed viaduct. [Plans of the Ohingaiti Township, situate twenty-six miles from Marton, produced.] That land was purchased for about £2 an acre. It was afterwards sold for an average of £140 an acre.

17. During the present year?—Yes.

18. Is there any other information you would like to furnish to the Committee?—Yes. The railway would enormously enhance the value of the Crown lands.

19. In what blocks?—Otamakapua, Waimarino, Maungakaretu, and Mangoira-Ruahine Blocks. The most of this land has been recently taken up by the small farmers' associations. Five or six of them have taken up blocks of land in Otamakapua and Mangoira, the traffic on which will drain into the line by the proposed Otara Bridge. About nine associations have taken up land in the Waimarino Block. The railway would also drain traffic from the Awarua Block. At the present time the Natives have 107,700 sheep and 700 head of stock running there. By extending the line on to Taumararui it would tap a magnificent totara forest, estimated to comprise 30,000 acres, and valued at £25 an acre.

20. The Awarua Block has not yet been acquired from the Natives?—The Natives have just made an offer to sell 100,000 acres, or about one-third of the whole of it to the Government.

21. The block, as shown on the map, is about 205,000 acres?—Yes.

22. And 100,000 acres of which they offer for sale to the Government?—Yes; the land which they offer to the Government comprises the southern portion of the block. The price has yet to be arranged.

23. As the price is not yet fixed it would hardly be wise to extend the railway until after the price has been agreed to?—Only to the boundary of that block.

24. If you extend the railway even to the boundary of the block it must greatly enhance the price ultimately to be paid?—As a matter of fact, the line at the present time is under construction.

25. Not to the boundary?—Yes; under the co-operative system. The line itself is being constructed at the present time.

26. The earthworks are being formed?—Yes.

27. Under the co-operative system?—Yes. The line under construction at the present time extends to the south boundary of the Awarua Block. I think the distance is about thirty-two miles from Marton.

28. In the interests of the colony do you not think the further extension of that railway should be stopped until the purchase is completed?—I think it would be a good business investment to erect a viaduct and have a station at the Ohingaiti, and to build a bridge at Otara to induce traffic.

29. Until the purchase is negotiated and completed with the Natives, every mile you advance the railway must enhance the price that they will require to be paid?—They see the earthwork there now, and they know the line will go on sooner or later. I should like to supplement my evidence by stating that south of the Kerioi, for several miles, the line skirts good land. What I wish to convey to the Committee is this: that although the line between Turangarere and Kerioi runs across rather inferior country, directly south and in the near vicinity there is a large area of good land, the traffic from which would feed the line.

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Mr. MORGAN CARKEEK, Authorised Surveyor, sworn and examined.

30. *The Chairman.*] Dr. Newman requested that you might be called early this morning—that you were waiting in Wellington. Will you give the Committee, in brief terms, what information you have bearing upon the prospects of either the central trunk line or the Ngaire line, for the purpose of settlement?—Yes. Starting from Stratford, the first twenty-five miles is through very good country for settlement—good timber, well watered, good soil for sheep and cattle, nice low hills. I have not been there for five or six years, and then there was a good deal of timber suitable for sawing purposes. From that point up to 40 miles, the land is not quite so good, but still fit for settlement purposes. From there to the Tangarakau belt, which would make the distance sixty miles, is the rough part of the line—that is, from the 40 to the 60 miles. It is birch hills and rough country. There is coal there; it cropped out in the bed of the river in large quantity. It was very black, very light, and burned with a white smoke. It is good for camp-fires, and is very similar to the Mokau coal. I should say there is a large deposit of coal there. I have no doubt it is the same coal that runs right through to Mokau. From the distance of 60 miles, the land improves and continues fairly good over to the Ohura. Then up the Ohura River it is a level country. There is a good deal of open country not far away; but the soil is not very good on the open or higher land. In the valley it is fairly good. The line I explored diverged at about seventy-five miles and went through the Mokau, which is a limestone country.

31. We do not wish to restrict your evidence, but, from former inquiry, I think the Committee are pretty well of opinion that the Waitara route is quite out of consideration?—This is not the Waitara route. I am still of opinion that the Ngaire route, if diverted from the 75-mile peg, should be diverted by the Mokau River, and then to the present terminus of the Auckland line. The proposed divergence would take the line through good country; I mean the line as explored by Mr. Holmes and myself.

32. You state, speaking of the valley, that the land would be fit for settlement; would that apply to the land on the hill-tops on that route?—Yes, for the first twenty-five miles. They are better hills than those around Wellington, which I consider very good sheep hills.

33. To what portion of the route would it not apply? How great a portion of that distance is occupied by hills that could not be cultivated?—The hill-tops are not so good as on the first section mentioned, but they would still do for sheep.

34. And beyond that?—The section from the 40-mile peg to the 60-mile peg, the land is good for nothing. The coal deposit is in that distance. The land itself I do not think is of any value.

35. Are there indications of minerals on the country which your proposed divergence would cover?—Yes; I found coal between Ohura and Mokau.

36. Apart from coal, is it what you would consider a mineral country?—I should not think so. I have not had much experience in prospecting for minerals, and should not like to give a definite opinion. The country becomes better, and you get into limestone in the Mokau.

37. What information can you give us regarding the central route?—I have merely travelled through it. I have done no work on it. I have travelled down from Te Kuiti to the Waimarino Plains. I left the line and joined it again near Turangarere. I can give no information about the intervening distance.

38. As to the country between Te Kuiti and Waimarino?—The country at Te Kuiti is very good. It seems to grow crops very well, and also good grass. Soon after leaving Te Kuiti the country becomes very poor, and gets worse all the way down until you reach Taumarunui. From Taumarunui, after crossing the Wanganui River, the country is somewhat better, and there is a valuable totara bush. You get into bush country, and we passed through about seven miles of good totara bush country. I do not think the soil is very good, but it is very hard to judge of its character while the bush is standing on it.

39. Would you expect to find good totara forest on poor land?—Well, strange to say, there was pumice stone close under the surface. I should always say in the Wellington Provincial District that the land was good where I saw totara, matai, and red-pine growing; but I saw some of the trees blown over, and the pumice stone was quite close under the surface, so that I should not like to say that it is good soil.

40. Looking at the class of timber, without reference to what you saw blown over, would it, in your judgment, indicate good soil?—If I had not seen the pumice stone I should have said that it was good soil.

41. Well, then, did you ascertain what the depth of pumice was below the trees?—No, I did not.

42. You could not see whether it was a few inches or a few feet —No, Sir, I could not. What I have referred to brings us up to ten miles south of the Taumarunui. The next portion of the bush to the Waimarino Plains, for a distance of about fifteen miles, is through a rather rough bush country. The land is not so good, and the timber is not good there. On the Waimarino Plains itself the portion I saw I should say was almost valueless. It was covered with tussock grass, and there were many wet patches. The clumps of bush were nearly all birch. There were fine streams of water running through the land. I do not think the land is of any value at all.

43. To what extent of the route would your last remark apply?—Well, to the last seven or eight miles that we rode over, before we left it to go on to the Taupo track. I joined the route again near Turangarere, and from that down to Hunterville is a totally different country; it is beautiful sheep country, with some of the finest soil I ever saw. There is a totara bush—not very much—we did ride through some very fine totara. On the flats some totara trees are very large. The soil is very good for gardens or for any kind of cultivation. I should say it is a limestone and papa rock country. Sometimes you would see limestone cropping up, and in the streams you would see papa rock.

44. As to the ruggedness or otherwise of the country on the two routes, which would you consider the most favourable for a line of railway?—Well, there is nothing very rough on the portion of the central line I saw, except from Taumarunui to the Waimarino Plains. I do not think the grades stated in the original reports could be got there. I am only speaking from riding through, and not from actual survey.

45. Is the country generally, on the central route, as easy for the purpose of railway construction as on the Ngaire route?—Well, there is a rough piece close to Hunterville. It would be heavy work there. The line was in course of construction while I was there, and there is a very heavy piece of work there.

46. Would there be any portion on the Ngaire line as heavy?—In the Tongarakau section there would be heavy cuttings and some tunnels, I should think.

47. Then, apart from the general quality of the soil, which line would open up the greater area of land fit for settlement—we come now to the quantity and not the quality?—I think the central line would open up a greater quantity of land.

48. The quantity on the Ngaire route would be apparently limited by the watersheds to the westward, and the Wanganui River to the eastward?—There would be really no connection between Upper Waitara lands and the railway, as there is a high range which cuts it off.

49. Then the strip of country to the west of the Ngaire route feeding the line would be a narrow one?—Yes, it would be a narrow belt of country. On the south-eastern side again there would be no connection with the Wanganui River.

50. There would be a limited area on both sides?—Yes, but when that section reaches the 75 miles to the Ohura Valley, it would open that up just as well as the central.

51. Would the central open up that country?—Yes, that portion of it just as well as the other line would.

52. *Mr. Rhodes.*] As far as the colony is concerned generally, which line would you prefer?—My opinion is it would be better to make neither line, and open the country in a different way.

53. I should like your opinion as to what you think?—That is the opinion I have always expressed. The best way, in my opinion, to open up the country would be by a road from Turangarere to Tokaanu, at the south end of Lake Taupo; and by a ferry boat or steamer to the north end of the lake, and thence on to Rotorua; and from Rotorua by rail to Auckland. From Turangarere to Pipiriki by a good road; and from Pipiriki to Wanganui by river steamer.

54. From Turangarere, a road to Pipiriki would serve that part of the country?—Yes; from the Waitara a good road could be made to Awakino, on the west coast; from the Awakino up to the Upper Mokau, which is a good country; and thence on to Te Kuiti terminus. That would give through communication in two days from Wellington to Auckland, without going to sea at all, and it would open up the best part of the North Island now remaining unoccupied. A very small proportion of the money that would be required to construct either line of railway would make both of the roads referred to right through.

55. *Mr. Blake.*] Would a line from Sentry Hill, New Plymouth, to the Taumarunui cross very high and rough country?—Yes, it would cross very high country at the watershed, at the head of the Waitara.

56. Would that be a favourable route for the construction of a railway to join the central?—I think it would be quite out of the question to get a railway through.

FRIDAY, 16TH SEPTEMBER. 1892.

Mr. JOHN SKINNER, sworn and examined.

*John Skinner:* I am a private surveyor and valuer for land-tax purposes. I know most of the country traversed by the Ngaire route—not along the line itself, the whole way, but the country all around it, from side to side.

1. *The Chairman.*] Have you any knowledge of the central route?—Not a great deal: from Taumarunui northward, and for a short distance south.

2. Will you state briefly to the Committee what you know of the quality of the land on the Ngaire route, and of its fitness for settlement, starting from the point of divergence?—There is one portion I do not know—from 70 miles to 90 miles. I know the country from the 70-mile peg to

Ngaire, and also beyond the 90-mile peg to Ongarue. From the 90 miles onwards I consider very poor pumice land—about third-class at the best. South from 70 miles the land is good grazing land.

3. About what portion of the land on the Ngaire route is fit for agricultural purposes?—About 25 per cent., and 65 per cent. more for grazing. About 10 per cent. is too rough to pay for felling the timber; it is valueless, except as a forest reserve.

4. What width would you include on each side of the route?—The whole of the land from the coast to the route and between the route and the Wanganui River. I would take about 50 per cent. of that as being grazing land, beside the agricultural land. There is no large area of agricultural land on the east side, with the exception of the Ohura Valley, near the Wanganui River, from north of about the 50-mile peg.

5. What do you reckon is the width of the Ohura Valley?—About a mile, or a mile and a half at the most, near its junction with the Wanganui. I do not know it near the route.

6. Is the land such as you would personally select for settlement?—I would only be too pleased to have land there; but it should not be divided into less than 500-acre allotments.

7. Assuming that the Ngaire route were not made, would not the northern part of that district be served by the central route?—No, not at all. The trade would go by the road from Stratford or from the sea-coast by the Mimi Road or Tongaporutu, and the northern portion by the Mokau River or to Auckland by rail.

8. Would the traffic from the eastward side tend towards the railway for more than five or six miles in width?—I think it would extend more than ten—fully twenty miles in places. It would extend the whole way to the Wanganui River on the eastern side.

9. You know nothing of the land on the central route?—Only that up the Retaruke River, in the Waimarino Block. About seven miles from the Wanganui River the valleys are of pumice sand. Some of the high lands are very fair; this will be eight or ten miles from the central route. The pumice country is within ten miles of the Wanganui River, at the junction with the Retaruke. The land that is not pumice is very fair grazing-land. It is two extremes. The whole of the land that I have been over tends towards the Stratford route. There are a number of blocks east from Stratford that are being settled, some of which have been taken up as special settlements, and the land is very good indeed. Pohokura, thirty miles from Eltham and twenty-five miles from Stratford, carries three sheep to the acre. Forty miles from Eltham there is a block selected for a special settlement. The Mimi route is also through very good land. It is tolerably rugged, but it is heavy clayey land, and could be brought under grass. There are several special settlements selected on this block. The land that I consider the worst part is the lower Tangarakau Valley. I have been through the country east of Stratford as far as the Wanganui River, nearly the whole of which is of good quality, suitable for grazing, and a large portion is agricultural land—by agricultural I mean land that would be suitable for ploughing and cropping. All this land tends to the Ngaire route, and is being rapidly occupied, and so far has proved excellent sheep country, having a large percentage of lime in it. This is the district now being opened by the East Road.

MR. CHARLES WILSON HURSTHOUSE, sworn and examined.

*Mr. Hursthouse:* I am a road surveyor in the Government service. I have been in the Government service for about thirty-four years, but not in the Survey Department all that time. I was a Public Works man from the beginning of the public works until about eighteen months ago.

10. *The Chairman.*] Have you an intimate knowledge of the country that is traversed by the Ngaire route and central route?—Yes; that is to say within a short distance of each line. I cannot say that I know the country intimately between the two. I have a general knowledge.

11. But you have travelled over each route?—Yes.

12. Perhaps you will start with the Ngaire route, and tell the Committee what you know of that part of the country as to suitability for settlement and facilities for railway construction?—Well, beginning at the northern end. As regards the land at the point of divergence and for some ten miles along the Stratford or Ngaire route, it is not first-class by a long way. The hills are fairly good and would carry stock. The flats are of pumice drift, which overlies the old formation. You can see the papa rock at the bottom of the rivers, which have worn through the pumice drift. From about the point marked 95 on this map—ninety-five miles from Eltham—from that point right through to Eltham the soil is very good.

13. What are the general features of the country?—The country is broken, but the features are not very large. There are no hills, speaking from memory, more than 1,100ft. or 1,500ft. high. There are no mountains, speaking from a New-Zealand point of view. I estimate there is 25 per cent. of the land that is ploughable agricultural land, 50 per cent. is good stock-grazing country, and 25 per cent. that is too steep and rugged for anything but commons, forest reserves, and that sort of thing.

14. Will you look at the coloured map on the wall, supplied by the Surveyor-General, and tell the Committee how much of the land on either side of that route would feed the railway?—I would certainly say that the railway-line would enhance the land for fifteen miles on either side.

15. That it would draw the traffic of all that country?—It would depend on what the traffic is, and what the produce is. It would induce settlers to go on the land.

16. But if these fifteen miles brought us to the sea-coast, would the traffic from that locality be brought to the railway?—No, it would be absurd to do so; because, if you notice on the map, the distance from Pukearuhe to the railway-station at Waitara is short. The sea is not to be thought of, because there is no landing.

17. Now, how much of the land to the westward of the Ngaire route would be likely to bring traffic to it?—I think that probably there would be very little from the westward of the Waitara River.

18. About half of the country to the westward of the Stratford route would include land that would bring traffic to the railway?—Yes.

19. And where would the other half find an outlet?—That is already supplied by the road through Ngatimaru, and that road will no doubt be continued.

20. Then, on the east side of the Ngaire route, how much of the traffic from the district between the two routes would flow to the central route if the other were not formed?—I think that all the land, practically speaking, that is coloured would go into the Stratford route, or all the land between the Stratford route and the Upper Wanganui River. That is hardly as much as is coloured, but it is near enough.

21. Of course, a portion of that is traversed by the central route?—Yes; that between the Ngaire route and the Upper Wanganui River to within fifteen miles of the central route would go to the Ngaire route, and from the Wanganui River in a south-west direction, keeping about fifteen miles from the Ngaire route. The average of the land is quite as good as the hill country around Eketahuna and Pahiatua. I was up there a month or two ago at both places, and saw a great deal of the clearing going on. The hill land lying between Eketahuna and Alfredton is about on a par with the land on the Stratford route, so is the hill land at Pahiatua.

22. How does it compare with the land in the Hawera district?—Well, there is no comparison with the open country at Hawera—that is all flat. I should say that the soil in this country is equally rich and lasting. I would rather have it as a permanent thing than the Hawera land; it is safer country. I have never gone into the hill country at the back of Hawera. The average is just about as good as the people have been taking up within the last few years east of Stratford. People have taken up land about thirty miles from Stratford, and are felling the bush on the hills, and are well satisfied.

23. It is adapted to carry a large population?—Yes; as we look at it in the colony. I dare say in the future it will be very densely populated, because I believe it will be a great fruit-growing district. The nature of the soil and climate point in that direction. I would not be afraid to take up a farm of 300 or 400 acres there, and make money out of it.

24. Perhaps you might pass to the central route and tell us what you know of the country on that route, starting from the same point?—Well, starting from the point of divergence, there is no first-class land on the central route until you get to a place called Ohakune. It is seventy-five miles on the lithographed Public Works plan—that is, just about sixty miles from Ongarue. There is a block there a few miles in extent—I do not know how far it goes east and west; it is very good country. Then, from Ohakune to Kerioi is very fair land, I think. Then, from Kerioi to Turangarere is very inferior land as regards quality of soil. From Turangarere to Huntville is beautiful country—very good, indeed. It is all forest land, but I do not think you can beat the soil in New Zealand.

25. Then we are to understand that the land from Turangarere to Huntville is superior to anything on the Ngaire route?—Well, I should say that it is about a tie, taking it all in all. I think the quality of the soil would be found to be just about the same.

26. You have referred to there being no good land between Ohakune and Taumarunui?—There is no good land there except Ohakune.

27. But how far on the east or west of the line does your knowledge extend?—It does not extend west at all. I have only been along the line on the east. I have been over the country from Rotoaira Lake, near the south end of Taupo, to the Upper Wanganui River. I have been from Tokaanu to the Pungapunga, a tributary of the Wanganui River; it runs in just about 120 miles by the railway line from Rangatira. I have been from Tokaanu, at the south end of Taupo, to Kerioi by the east side of Ruapehu, about forty miles, and know the country pretty well. I have not been on the west side, excepting down the Wanganui River. I have not been through the country. I have been down the Wanganui River from Taumarunui to the sea.

28. What is the character of the land bordering on the Wanganui River from Taumarunui to Pipiriki?—The soil is very good. You cannot see it, except the hills, when on the river. The country is broken evidently, but it has the appearance of land that will carry a great deal of stock some day when it is cleared.

29. Does it carry forest or good bush?—Yes, most of it is forest. A good many patches along the immediate river bank are old Maori clearings, on which the scrub and bush has grown again.

29A. *Mr. Blake*: What is the nature of the land about Taumarunui?—It is not really good land—not first-class. There is some very fair land—good second-class land.

30. *The Chairman*.] Then as to facilities of railway construction on the two routes. You will have a fair knowledge of the facilities offered by the character of the country on the two routes. As a surveyor, to which of the two would you give the preference?—It is much easier to make the Eltham route than the central route, provided that the grades are allowed to be a little steeper. That is one thing. I do not think that there is any definite information that warrants the assertion that you can get a 1-in-70 grade along the central route. It was said in the report from Mr. Rochfort that you could get a 1-in-70 grade. If that is so there is no difference in the two routes in regard to grades. The preliminary survey of the Stratford route by Mr. Holmes is more reliable. This lays down the grades as 1 in 50, I think. There is not the slightest doubt that it could be made easier and cheaper. If the grade must not be steeper than 1 in 70, then I do not think you could make the Stratford route. It would be an immense work, Sir; but if you are not wedded to a 1-in-70, then there is no comparison. This Stratford route could be made very much easier than the other—easier than a 1 in 50 on the central route. There are steeper grades than 1 in 70 in the Manawatu line.

31. *Mr. Blake*: Would the grades be the same over to Eltham from Marton?—No; they are not so easy—1 in 35 or 1 in 40.

32. *The Chairman*.] Would the country opened up for settlement on the Ngaire route be equal in extent to that opened up by the central route?—Yes; it will exceed that. I think it is of little use

in your opening up pumice land. You open up more space in opening the central, but it is useless space. I would put it in this way: take mile for mile of railroad, you would have a great deal more on the Stratford route.

33. Then you would have the Committee believe that 103 miles of railway from Eltham to Ongaruhe would open up more land for practical settlement than 103 miles of the central route from Hunterville northwards?—I have not the slightest hesitation in making that statement. One line being longer it opens up more country, but much of it is barren patches of no utility. By making the route from Eltham to the point of divergence you would be able to put two settlers along that line to where you could only put one on the other.

34. *Mr. Blake.*] Your general remarks go to prove that the principal part of the land is to the northwards of the Wanganui River?—Yes; I do not wish to say anything about the Waimarino Block. I do not know it.

35. It seems that all this land northwards of the Wanganui is still to be taken up?—Yes.

36. It seems by your evidence that it is principally good land to be taken up?—Yes.

37. *The Chairman.*] Are you acquainted with the Awarua Block?—No. I know where it is, but I have not been on it at all, excepting where the railway route goes along one side of it, I believe. The country about Turangarere on the central route is, as I have said already, very good; I also think that the Moawhango Block is very good.

38. Your remarks as to the Ngaire route carrying two settlers to the central route's one must be qualified to a large extent by your want of knowledge of the central route?—Well, you can put it that way if you like. I do know a great deal of the land on the central route. If you would look from Turangarere to the point of divergence—I know that country on the east side—the soil will not carry settlers. A man to make a living there would want 800 or 900 acres, and then he would probably have to file his schedule. That takes about seventy miles out of the central route that I know about, one-half of which is no use.

39. The distance from Rangatira to Ongaruhe is 140 miles. You can only speak positively of the bad land on one-half of one side of that distance—about one-fourth of the country along the central route beyond Rangatira?—We can say one-fourth.

40. Did you give any evidence as to the central route in 1884?—Yes.

41. As to the Stratford route also?—Probably I did. I was engaged on the exploration of that route.

42. Have you seen much of the country on the Stratford route since 1884?—Oh! yes. At that time I had seen very little of the land. I had been exploring for a railway-line down the valley of the Awakino River, so when I came down to give evidence in 1884 I knew little or nothing about it. I am speaking now with a much more intimate knowledge. I have been from end to end of it.

43. Would you indicate what part of the country you alluded to in 1884 as only having 10 per cent. fit for agriculture?—That was the country in from the coast up to Tongaporutu Stream. It is fearfully broken country, and the worst piece of land is up this river. By 10 per cent. being fit for agriculture, I mean it is ploughable.

44. So that you speak with more knowledge now when you say that the Ngaire route has about 25 per cent. of agricultural land?—Oh! yes. I admit that I was very much surprised at the quantity of useful land. I did not think the country nearly so good.

Mr. HARRY MAY SKEET, sworn and examined.

*Mr. H. M. Skeet:* I gave evidence on this subject in 1884. Since then I have acquired a much better knowledge of the country, having been over all of it. I do not know the central route, except from the Porotarau Tunnel to Taumarunui. I have very little knowledge of the central route, except the land on the Wanganui River. I am a district surveyor in the Government service.

45. *The Chairman.*] Were you engaged on any part of the survey of the Ngaire route?—Not beyond taking the railway men over portions of it.

46. Have you a better knowledge of that country than you had in 1884?—Yes.

47. State what your opinion is of that country as regards fitness for settlement and construction of railway, and what advantages or disadvantages it has over what is known as the central route.—Well, so far as the central route is concerned, it is a question I cannot deal with. I have no knowledge of the central route, except the land contiguous on the Wanganui River. I am not competent to speak on it. The only part I have been over is from Taumarunui to the Porotarau Tunnel.

48. Well, then, starting from the northern end, will you briefly describe it—from junction of central line to Eltham?—From Porotarau to Taumarunui I should say is a mixture of open country with hills and small flats near streams, with slight patches of bush. Great quantity of pumice. Unfit for settlement except in very large blocks. From the junction of the Stratford and central routes the first 10 miles, towards Stratford, to the 90 miles has a great deal of pumice. In the Ohura Valley the hills on the west side are mostly covered with bush, and the ground is a great deal better—good pastoral country. From the 90 miles to 80 miles a mixture of open valleys and hills and bush; all good country for settlement. The hills are of low elevation, from 200ft. to 700ft. high above the valleys. When I speak of settlement I mean small holdings.

49. Is it suitable for settlement in small areas?—Yes, I should say not less than 200 acres, and that only in the better portions. This particular piece of country stretches on both sides right across to seven miles on each side of the route—all available. From 80 miles to 70 miles the country is slightly better. It is all forest, with better soil. I may explain that in the open country there have been so many bush fires that the soil is so burnt that it would require many years of cultivation to bring it back to its proper quality.

50. Is it not the practice to burn the bush on much of the land in the North Island previous to

sowing grass?—Yes; but this soil has been burnt so often. It is only necessary to burn prior to sowing grass, not after. We find that the oftener the land is burnt the worse it becomes. From 70 miles to 60 miles, with the exception of about two miles on the west side, is good country—hilly, but good valleys. From 60 miles to 50 miles the line goes through a piece of very rough country immediately contiguous to the line, birch-spurred, very rough. But two miles back from the line the country is better and fit for settlement. From 50 miles to the 40 miles the country is fit for settlement—hilly, with bush, but all suitable country. The land around the upper Wangamomona, a tributary of the Wanganui River, is very good. From 40 miles to 30 miles we get into another watershed. It is rough country, which would go into larger blocks. It is mere pastoral country. There is very little level land in this portion. The highest land is past the 35 miles, and from there on to Stratford it is good land for settlement. There are sheep runs in it. From there down to Eltham it is all occupied.

51. How does the quality of the soil on that route compare with that of some of the settled parts of the colony? Is it as good as the land in the Manawatu Valley, near Palmerston?—Oh! no; it is not so good.

52. Is it as good as the Rangitikei?—I do not know that there is much difference between the Rangitikei and the Manawatu land.

53. What part of the colony can you name as about equal to it?—It is difficult to say. This soil is peculiar to its own. It is equal to the Whanganui country within a radius of ten miles of Wanganui. The Wanganui country is all papa country; the Manawatu land seems more clayey. With the exception of the black-birch ridges it is all fit for settlement of some kind—agriculture eventually, when it is all felled.

54. How much is fit for small-farm settlement?—Only about 25 per cent. is fit for settlement on the 200-acre principle. It is country not fit for 200-acre sections. There are blocks that are suitable, but, taking it as a whole, it is too small; 500 acres up to 2,000 acres is about the farm which the average of the land would require. The timber in many places is suitable for milling purposes. There are no minerals other than coal to be found on the route. Coal is to be obtained in any quantity.

TUESDAY, 20TH SEPTEMBER, 1892.

Mr. C. W. HURSTHOUSE, re-examined.

1. *The Chairman.*] Will you proceed to give us further information, Mr. Hursthouse, in reference to this matter?—I do not think I can give you more than will bring in what has already taken place—as to quality of land and so on. I think there is more in this than I thought when I left off the other day, but if not out of order, I would suggest that some members of the Committee should go over the country themselves, because I am perfectly sure that the evidence will be very conflicting as to quality of the land, and probably some members of the Committee are judges of country.

2. But you see every man judges of land according to his own standard; that is the difficulty about it?—Yes; but if he sees both parts of the country he can compare them regardless of his standard. That is all I have to say, excepting that if my opinion is worth anything I would say that I do not see the least necessity for either railway at present. I think it would be far better for the colony to open up the country by roads, which would carry settlers along with them. No doubt that will delay the question at present, but I think there is not enough evidence to warrant anybody in settling which is the best route to pursue—that is, with regard to the engineering difficulties.

3. You mean the surveys are not sufficiently complete?—The exploration, to begin with, is not sufficiently complete. It would be perfectly absurd to say that either route is laid out on the best plan, because the country has not been perfectly explored, and it would take many years to do it. The country is of a broken nature on both sides for a great distance, the ground being covered with a dense bush. No man could see more than 50 yards at a time, and it is like feeling around with a stick in the dark. You can see nothing distant. If roads are made approximately to where the lines are at present, in a few years the country would be known, and then would be time enough to say which would be the best line. We can open up along the Stratford route—there is nothing done to it as yet—in the way of a bridle-track. We can make a very good track through the bush for about £15,000 to connect the road already going to the eastward from Stratford with the bridle-track at Ongarue. We could get a very good stock-driving road for about £15,000. That would include felling bush 3 chains wide so that grass could be had all along the line. The money would be well spent, because it would be the precursor of a permanent road. The expenditure of £15,000 would be quite sufficient for a year or two.

4. Your estimate does not contemplate any wheel traffic?—No; not for £15,000—horses and cattle, and so on; but I think that probably for about £8,000 or £10,000, perhaps less, the road could be completed, but not metalled.

5. That would make it possible to drive through?—Yes; I think so; and that estimate includes grassing the 3 chains, sowing it with grass as soon as the bush is burnt off.

6. The evidence has up to now been generally in the way of eliciting points of advantage on the two different routes. I would like you now to give the Committee what you think of the disadvantages. If you look at the section on the wall behind you, that indicates some high land for seventy or eighty miles on the central route, is that of a character fitted for settlement?—Well, it is not so high as to be unfitted; it is not the matter of height that would go against it, but the quality of the soil. Waimarino Plain is very bad soil. The good land would begin about here—Taumarunui, that is good land; but I must say that this [indicating on the map] is not good land, it is forest from Waimarino to Taumarunui. It would be all very well for a few years, but after that it would be worn out.

7. The soil is not strong enough to carry permanent pasture?—It is pumice sand. There is some splendid totara growing on it, but directly you get below the surface 6in. or 7in. it is very light sand like soft brown sugar. You can stick your finger in it without doubling it up, although any one riding through the bush and looking at the luxuriant growth would think it beautiful land.

8. If you were about to select a block for settlement to make a home upon, which would you prefer, the low land on the Ngaire, or the high land on the central?—Oh! the low land, most decidedly; but not because it is low—the elevation has nothing to do with it.

9. It has something to do with the climate?—Not enough to make it worth considering. There is no snow on the Ngaire Road, or any part of it. You get a little at Waimarino, but I doubt if there would be any more frost at Waimarino than in many parts of the Ngaire Road.

10. If a statement is made with reference to the disadvantages of Turangarere that gardens are at a discount in this country, as only those vegetables will grow that will stand frost all the year round, would you consider that a fair description?—That description would equally apply to both lines, Sir. Frost all the year round? Oh! no.

11. Do you consider from your knowledge of the country that that statement is very much exaggerated?—Well, I should say it was very much exaggerated, if the expression conveys to me what it would to the general public. If you say frost all the year round I should imagine the statement would convey the impression that there was frost once or twice a week at least during the whole year. I think, as a matter of fact, that you cannot find any place on this Island where it would run that, unless on the snow peaks of some of the mountains, but at this place as a rule there is no frost between November and March.

12. So far as climate is concerned, you think that should be no bar to settlement along the central route?—Not the least, as regards climate.

13. *Mr. Rhodes.*] Would they be liable to be blocked in by the snow?—I think not. When I say that, I would add that it might be necessary to use a snow-plough occasionally.

13A. No very great danger of it?—No, I do not think so.

14. *The Chairman.*] Have you experienced a winter in that region?—I have been travelling there during the last winter. On the opposite side of the railway-line is where I have been. They have had about 2ft. of snow last winter on the east side of Ruapehu. I have been living at a place called Te Kuiti [indicating position on map]. The climate there, I have no doubt, is about the same as all along that country.

15. Along the Ngaire?—As regards frost, yes; not rain.

16. Do not let us mix up the two routes in the matter of climate.—I do not think you can, because the climate is practically the same.

17. Notwithstanding the difference in altitude?—Notwithstanding that.

18. Much stress is laid upon the value of the Ngaire route as a means of communication between Auckland and the district to the south of Mount Egmont. Do you think there is any special value in that respect?—Of course, it would be a means of very good communication; but I do not think the fact of opening up communication between that district and Auckland would be of very great practical benefit—the benefit would be in opening the intervening country for settlement. What I mean is that settlers and people to the south of New Plymouth do not want anything particularly from Auckland, and Auckland does not want anything particularly from there.

19. Or if they should, they would get it probably more cheaply by sea than by railway?—Far cheaper; and there is a curious fact about that. I do not know whether it is so now, but a few years ago it was so, that Auckland merchants only some 120 miles from New Plymouth could not compete with merchants residing in Lyttelton, Wellington, and Dunedin, who were from two to five times the distance away. That always struck me as being a very strong piece of evidence; for if they cannot compete by sea then they cannot do so by rail, because a ton of goods by rail would cost three or four times as much as by sea.

20. So that the particular value of the line would be as a means of permitting settlement and opening up country for cultivation?—Of course, it would be an advantage to have quick land communication from one end of the Island to the other, but I do not think that it is worth the money. It is a luxury we cannot afford yet.

21. Assuming that the district is occupied and cultivated, what would be the ordinary nature of the exports?—The exports would at first be live stock and dairy produce—that would be at first; eventually, of course, there would be considerable quantities of fruit and other small stuff.

22. *Mr. Rhodes.*] Would fruit stand the railing?—I think so. I was just going to say the traffic of all this country would come south. Whichever line is made I do not think they are going to drive it from here to Auckland.

23. *The Chairman.*] You think that south of Taumarunui the whole traffic would tend towards Wellington?—Yes. I do not say it would all come to Wellington, because there are several other ports, such as Wanganui, Patea, and Waitara, and New Plymouth, all of which are open to interprovincial traffic. Not much intercolonial traffic has taken place as yet, that I know of, from these ports. If this Stratford route is made, the stuff from the point of divergence, at Ongarue, at any rate, will all go to Eltham—it is not going to Auckland, a distance of 158 miles by this map.

24. *Mr. Rhodes.*] How long would it take anybody to go over these two lines?—Well, it would take you ten days or a fortnight [witness pointed out the route on the map]. You would get a good knowledge of the country by going along there about thirty miles, then take rail to Hunterville. During the coming summer I think there will be a coach right through to Taupo. [Witness then pointed out on the map the course he suggested should be taken to Auckland.] That would take a fortnight, supposing you started from Wellington, doing what you could by rail, then by steamboat and horseback.

*The Chairman:* That would not allow time to travel over the Ngaire route.

*Mr. Rhodes:* You cannot do it. You would have to walk through the bush.

*Witness:* I went through last summer with Mr. Cadman and others; it took us five days' walking; but any one would get a very fair idea of the country by doing as I have said.

25. *The Chairman.]* Have you had any experience in surveying railway routes, Mr. Hursthouse?—Yes.

26. What part of the country?—I did all the preliminary survey of the railway from Nukumarua to Waingongoro, and from Waitara to New Plymouth. I have set about five or six miles of line on the Main Trunk line, and I have explored what was originally called the Mokau route—I think it was in conjunction with this Main Trunk Railway—and I have been constructing railways and roads for about fifteen or sixteen years of my life.

27. Then, going back to the question of the commercial aspect of the business, is it not a fact that Auckland at the present time divides the trade with Wellington as far south as Palmerston?—Well, I do not know; I do not think so.

Mr. JOHN STEVENS, sworn and examined.

28. *The Chairman.]* The Committee understand that you are able to give them some precise information as to the quality of the land on the central route, more especially of the Waimarino Block?—Yes.

29. Be good enough to tell us what you know of that part of the country?—I could point it out better on the map. [Map produced.] With respect to the Waimarino Block the land from Ohakune, right away through to very nearly Taumarunui on the lower side—that would be on the south-west side of the land—is principally bush. The country is hilly with a great deal of flat on it, and in parts is as rich as any land I have seen in New Zealand. The Natives there have cultivated largely in the Manganui-o-te-ao Valley. There is a tremendous lot of cultivation going on there in the shape of wheat, oats, and so forth.

30. How far from the Wanganui River?—It is a tributary of that river, Sir.

30A. How far distant?—From the edge of the Wanganui River, about twenty miles up to where the good land is.

31. Then it would be within five or six miles of the railway route?—Not by the river, but as the crow flies it would be shorter.

32. The total distance from the Wanganui to the railway route is under thirty miles direct?—Yes; that is so, perhaps, but following the river it would be about twenty miles in one direction and thirty in another.

33. About midway?—Yes. There is another block there [pointing to map] containing about 20,000 acres. This is Government land, not Native land. From the Manganui-o-te-ao River, up the Retaruke River, and right away up to about twenty miles to Taumarunui, the soil is comparatively good; but when you get to Taumarunui there is pumice land in some places, and in other places very good land. Between Taumarunui and Waimarino Plains there is a totara forest about 30,000 acres: it is the finest totara in New Zealand. The railway-line runs through the edge of this forest.

34. Have you any knowledge of the soil beneath the forest?—Yes; I should say the soil is of fair average quality; it is not very rich land. You will find small terraces there with complete changes of soil. For example, I saw the Natives at Waimarino digging for worms for fishing, and the soil turned up was in some places very good, but the character of the soil changes, certainly, in a great many instances. Take this totara forest, for example—30,000 acres. It is estimated to value £750,000. It was estimated at that value by Mr. Rochfort, Mr. Blackett, and the late Mr. McArthur.

35. Purely for mill purposes?—Yes; then coming from that land to the Waimarino land—the railway-line, particularly—the land is very light as compared with that low down on the Retaruke Stream.

36. You have given us, in reference to that forest, the estimate of a gentleman who is dead and two others. Can you give the Committee your own estimate—are you prepared to confirm what they say?—I am quite prepared to confirm their estimate from what I saw myself. I must say I did not go into the calculation. I did not measure the country, but it was measured by Mr. Rochfort, who surveyed the land, and I was with him while I was purchasing the Waimarino Block for the Government. It was my business to go to every Native settlement for the purpose of obtaining signatures to the deed of sale, and for that reason I have a better knowledge of the block than people who merely travel through the country.

37. Naturally. How many days did you spend in that country?—I spent four months and a half in, and about the Waimarino country, constantly moving to and fro amongst the Natives. No matter how far out of the way any Native settlement might be it was necessary for me to go there to obtain the signatures to the deed of sale.

38. Assuming that country to be cleared of forest, do you think half of that entire block fit for settlement?—I think as much as two-thirds well fitted for settlement. As an example, there have been forty odd thousand acres sold by the Government to small-farm associations and in other ways. That forty thousand odd acres have been sold for more money than the total cost of the block. The total cost was some £41,300 odd, and there have been forty odd thousand acres sold, and are now occupied.

39. Occupied?—That is to say, occupied to this extent: They have made the selections and the people are beginning to fell the bush. The total area of the block is some 384,260 acres, *plus* 25,000 acres.

40. That is to say, four hundred and nine thousand odd acres?—Yes.

41. *Mr. Carncross.*] And 40,000 acres have been sold, and realised more than the cost of the entire block?—Yes, that is so.

42. *The Chairman.*] When you say sold, you mean allotted for special-settlement purposes?—Yes, but if the Government are receiving interest on the capital value of the land I presume that is as good as being sold.

43. *Mr. Rhodes.*] Who pays the cost of the survey?—The Government.

44. *The Chairman.*] How much has the Government spent on roading?—I could not say; they have made a road through Waimarino suitable for horse traffic and dray traffic part way from Ohakune to Pipiriki.

45. That is along the line of the central railway?—Yes; with that exception and a road to Pipiriki, which road does not go all the way through Waimarino, but only on the very outskirts.

46. Do you think that the climate in this district is such as to favour settlement?—I think so. I have seen crops of apples growing there very luxuriantly, and the finest of fruit in the Manganui-o-te-ao Valley. Nearly the whole of the land to the eastward or north-eastward of the railway-line is practically useless.

47. We have abundant evidence on that subject, but we understand that you had special knowledge of the Waimarino country?—Yes, so I have, as I have said.

48. *Mr. Rhodes.*] Would not the land spoken about along the banks of the Wanganui, which appears to be nearer the Ngaire route than the central route, would not that land be better served by this route than by the central?—The difficulty of getting communication from Retaruke Stream or Manganui-o-te-ao—these are the two principal streams—to the proposed Eltham junction would be very great, because the country on that side of the Wanganui River is very hilly and broken: hilly right along the banks of the river—precipices, in fact, some 50ft., 60ft., or 100ft., high. I do not doubt that the land would be better served by that line if the communication was not so difficult, but it would cost more than the country is worth to make roads through it.

49. *The Chairman.*] Whichever direction the traffic might take you would require roads from that district, whether to the central route or the Ngaire route?—That is clear, Sir; but there are no such difficulties to contend with as the crossing of the Wanganui River. You would have to make roads to get down to the bed of the river and up again to the normal level. I am not sufficiently informed to say what the cost would be, but the difficulties in the way would be very great indeed.

50. On the other hand would you not have a very large ascent to make to the central route?—Not so, Sir, because the highest country is near the edge of the river, although the general altitude of the country is higher than at the edge of the river in some places, still for some miles back the country becomes lower as it falls from the river.

51. The lower part of the river runs through a deep gorge?—Yes, that is so; the highest hills are on the edge of the river.

52. Yes; but the whole fall of the watershed is away from the central route across the Waimarino Block down to the Wanganui River?—Yes, that is the general watershed of the country, but you will find, if the altitudes of the hills are given on the trig. surveys, that the highest are on the edge of the river. There is another point that I think would be of great advantage in the course of a few years to come, if the central were made from Marton up to Taumarunui, as shown here. In the first place the traffic for tourists would be to make use of Tokaanu and Ketetahi hot springs, and in about twenty miles you get from Waimarino to the very finest sanitary stream—a stream running along the side of the mountain which the Natives use for curing a disease known as ngere-ngere.

53. What is the nature of the disease?—Leprosy. The scenery on the Upper Wanganui River is of the most beautiful description. I have not got an eye for the beauties of scenery myself, but I am told by those who should be judges that it is the finest in New Zealand. Nothing could be lovelier than the scenery from the river. Tourists could go down the river in canoes from Taumarunui to Wanganui; and then the canoes could be put on the railway trucks and taken back again to the starting-place. The traffic there will be very considerable in years to come. As an instance, too, of the suitability of the country for settlement, I saw at the edge of a Maori settlement outside Ohakune a crop of oats which I estimated would yield forty bushels to the acre. I never saw a better quality of grain in my life. I happened to mention it to someone who went there, and when they came back two years afterwards they brought some down in a hand-bag to show the quality. Then, coming back again, Sir, further towards Marton, we have there about 275,000 acres of Native land through which this line will run, and nearly the whole of it very good land. Comprised in this block are a number of smaller ones. I think that land would be most suitable for settlement, and I would undertake to buy from the Natives 100,000 acres of that within six months.

54. The Committee understand that negotiations are in progress for acquiring land there?—The Natives have told me that they have placed under offer 100,000 acres of the best of the land to the Government.

Mr. HUGH MUNRO WILSON, sworn and examined.

55. *The Chairman.*] What is your occupation, Mr. Wilson?—Civil engineer, and County Engineer for Waitemata.

56. Are you a land surveyor?—Yes.

57. You have travelled over what is known as the Ngaire route?—Yes; known as the Stratford route.

58. Have you also travelled the central route?—Yes, I have, with the exception of about thirty miles between Turangarere and Kerioi. I missed that part. I did not go over some parts of it, but sufficient to pretty well know the nature of the country.

59. How much of the country on the Stratford route do you regard as fit for settlement?—Well, after you get out of the pumice country, about ten or twelve miles down the Ohura Valley, very good country; right away to Stratford, good grass country, broken in parts, and of calcareous rock formation.

60. Is there much of it that you would class as agricultural land?—No; I should say about 20 per cent. was ploughable, if that is what you mean.

61. How much did you see of the country on either side of the route?—About five or six miles. You can get an idea by that. I should say that 50 or 60 per cent. more was good grazing country.

62. And you think that applies to at least five miles on each side of the route?—So far as I am able to judge. The balance—about 20 per cent.—consists of razor-backed spurs and precipitous cliffs.

63. Then, as to the central route, starting from the point of divergence at Ongarue, how much of that is fit for settlement?—I should say the productive power of the country between the point of divergence and Taumarunui almost nil; it is wretched country, of pumice formation. A very poor class of country like that, extending across the Island from Rotorua—rhyolite rocks cropping up to the surface—is a sure indication of poor land.

64. We are not dealing with Rotorua: if you can, limit your information to the district served by the railway. What is the character of the country from Taumarunui southwards through the Waimarino Plains?—There is table-land extending from the base of Ruapehu; very poor, covered with pumice, rendering it pretty well unfit for agricultural purposes. Towards the Wanganui the land gets better.

65. How are you able to judge of that?—I have travelled about from Ohakune down to Pipikiri.

66. You are aware, of course, that in describing the country from there you are describing a very small portion of the Waimarino Block—the bulk of the block lies altogether to the north-west of that?—Any portion of the block that the railway goes through is pretty well pumice; the good land lies towards the Wanganui River. There is certainly a lot of fine land on the Waimarino Block, but it lies to the westward of the railway-line.

67. Do you think that settlement would proceed rapidly if the railway were carried through the Waimarino Block; is it country calculated to foster settlement; would it be readily taken up?—They have taken up about the best of the land; I think the rest is very poor—only fit for sheep—the land being allotted in 2,000-acre holdings.

68. Is it not very near all forest?—Yes, at the present time.

69. Well, from your knowledge of the country, which line do you think would be most profitable for the country to undertake?—Well, I think, as regards the central route, it has gone now to a point where it will be productive. It is really good land so far as Murimutu Plains. It will tap all the good country; but to go any further would, I should think, be a waste of money. A succession of viaducts would be required to be constructed, beyond the power of the colony to carry out, they would be so expensive. They have been passed over lightly, but they will be found to be a big undertaking.

70. Can you indicate one or two of them?—I refer particularly to three or four on the Waimarino Plains.

71. Can you give them any names?—Wangaumotonu and Mangitoto. The country there is of very broken character. In parts there are precipitous gorges, sometimes as deep as 150ft. below the table-land, and of course they would have to be bridged.

72. You referred to a succession of viaducts: you have only indicated two?—Well, there are three I know that would require viaducts; the others would be required to be bridged.

73. Will any of these viaducts be as expensive as Makohine? We have some knowledge of the cost of that work?—They would run into between £30,000 and £60,000, each of them.

74. Then, as to the district from Waimarino Plains to Taumarunui, what is the country like?—It is pumice.

75. I mean, as to its character for railway construction?—The land is about thirty miles in length between the Waimarino Plains and the Wanganui River, and it will require grading. There is a fall of 2,000ft.—something like that—and it would require a uniform grade. They would have a very great difficulty in getting a grade there; the country has not been explored properly yet.

76. You think the difficulty will be greater than the department anticipates?—Yes; I do not know of any gullies or anything of that sort crooked enough to get a grade of the prescribed limits. I am sure they would have a great difficulty in getting a grade; but it is not an impossibility. The country falls away towards the Wanganui River.

77. Would it, in your opinion, pay the colony to open up the Ngaire route by means of a railway?—Well, I should think it would warrant the expenditure either by rail or road, because there is a big patch of fine country lying there unimproved which should be opened up by some means or the other.

78. Would it be sufficiently served for settlement purposes with a good road?—Well, hardly; it is a long distance. They could only use it for grazing purposes; they could never grow any crops to pay.

79. *Mr. Blake.*] It would be some years before they could grow crops?—Yes, it would; but by means of a road they could never grow crops that would pay.

80. How long would it take to clear?—I dare say the roots would rot out in fifteen or twenty years, but settlers as a rule stump a few acres for cropping purposes immediately after the bush is felled.

81. *The Chairman.*] And in the meantime the product of the country would be principally cattle and sheep. Could it be used for grain growing?—No; for grazing purposes only it would be good country.

82. And there would be no difficulty in driving stock along a moderate road?—No; good roads open up country, but a railway is better.

83. Is it not the fact that large quantities of cattle are driven from Waikato to Auckland in preference to sending them by rail?—I do not think fat cattle are ever driven; they drive store cattle through to Waikato sometimes.

84. *Mr. Blake.*] They would drive cattle the other way, from the good country to the bad?—Not exactly.

85. *The Chairman.*] Is there any other information you think desirable to give?—It seems to me the Stratford line is the more inexpensive one to make. Fifty-seven miles less to construct, or there was before the extension was made.

86. Where are you dating from—from Marton?—Yes. Thirty-seven miles from Rangitira; and I am sure it can be constructed for considerably less money, because there are not such great difficulties to contend with. There is no doubt the country warrants the expenditure of money for road or railway.

87. Would the one hundred miles from the point of divergence to Eltham carry more settlement than the one from Taumarunui towards the central line?—Yes, five times. On the central line there are eighty miles of pumice stone country: no getting over that fact. On the tops of the hills it is pretty good, but to no extent. The pumice covers the flats; there is only a little mania grass and ti-tree growing. When you get past the Murimutu Plains the country gets good—as good as anything on the Stratford route. The only argument in favour of running it further than Turangare is for the tourist traffic, which cannot be considerable.

88. *Mr. Carncross.*] What is the estimate for the three viaducts?—From £30,000 to £60,000 each.

*Mr. Blake.*] That one over the Makohine Stream is estimated to cost from £30,000 to £40,000.

89. *Mr. Carncross.*] Which is the easiest of construction?—I consider the Ngaire one the least expensive. They should have a thorough survey of both lines, and then they would have seen which was the easiest to construct.

90. You know of three viaducts?—I do not know of any more; they might have to construct a few smaller ones.

91. I hear some witness speak of an outcrop of coal?—There is a seam at Mungaroa. It has been shown to an expert, who declares it to be good household coal.

92. A lignite?—A good household coal is what he said it was, but I do not know about its being a steam coal. There is a 5ft. seam showing: but coal is showing all about there in the Mokau basin.

93. You saw no evidence of coal on the central route?—No, Sir; different country.

WEDNESDAY, 21ST SEPTEMBER, 1892.

Mr. WILLIAM H. HALES, Engineer-in-Chief, further examined.

WITNESS stated: Referring to the North Island Main Trunk Railway, the central route, south end, as far as surveyed, 39 miles, from 22 miles 40 chains to 61 miles 40 chains, Hautapu Falls Section, as follows:—

Tunnels.		Bridges.		Viaducts.			Earthwork.	Ballast.
Number.	Length.	Number.	Length.	Number.	Length.	From Level to Lowest Foundation.		Per Mile.
11	Lin. yd. 3,131	4	Ft. 824	1	Ft. 766	Ft. 247	Cubic yd. 2,150,000	£ s. d. 300 0 0
...	...	...	...	1	660	112	...	...
11	3,131	4	824	2	1,426	...	2,150,000	...

1. *The Chairman.*] The next portion is from Turangare to Waimarino. There are no accurate surveys complete on this section which would enable you to make calculations as to earthwork?—No. Certain sections have been taken at the crossings of the gullies, but it is possible in the final survey that some of these viaducts may be cut out and some of them reduced in size. Calculation as follows:—

Tunnels.		Bridges.		Viaducts.			
Number.	Length.	Number.	Length.	Name.	Mileage.	Length.	From Level to Lowest Foundation.
1	Lin. yd. 154	7	Ft. 1,810	Hapuawhenua	M. ch. 28 44	Ft. 560	Ft. 130
...	...	...	...	Mangaturatura	31 60	350	110
...	...	...	...	Manganui-o-te-au	36 58	450	105
...	...	...	...	Makatote	38 60	267	150
...	...	...	...	...	...	525	130
1	154	7	1,810	Total number, 5 ...	...	2,152	...

Referring to the third length, that is, from Waimarino to junction of routes, there are no tunnels in that section as far as we know on the present survey—that is to say, of the present trial-survey given of this line.

2. In that case also you are not prepared with information as to the earthworks?—No, there is no information obtainable that would enable us to get anything approaching correct quantities. Calculation on the Waimarino to the junction of routes is as follows:—

Tunnels.		Bridges.		Viaducts.			
Number.	Length.	Number.	Length.	Name.	Mileage.	Length.	From Level to Lowest Foundation.
	Lin. yd.		Ft.			Ft.	Ft.
...	...	5	1,440	Piopiotea Stream	...	280	90
...	...	...	...	Mangapuri	...	300	96
...	...	...	...	Waikoikoi	...	330	70
...	...	...	...	Te Puri	...	462	60
...	...	...	...	Te Awakino	...	450	100
...	...	...	...	Viaduct	...	590	120
...	...	...	...	"	...	600	60
...	...	...	...	Piopiotea	...	660	50
...	...	...	...	...	...	640	110
Total number, 9					...	4,312	...

NGAIRE ROUTE.—Details of Principal Items of Works, as follows:—

Subdivision.	Tunnels.		Bridges over 50ft. long.		Lofty Viaducts.		Earthwork.	Ballast.		
	No.	Length.	No.	Length.	No.	Length.				
		Lin. yd.		Lin. yd.		Ft.	Cubic yd.	Average Cost per Mile.	M.	ch.
Ngaire Section	6	1,165	7	940	...	...	1,109,132	£580	38	73
Tangarakau Section	12	1,410	21	2,263	1	437	1,327,762	£440	26	00
Heao Section	9	1,006	6	745	..	*	716,688	£332	10	70
Ohura Section	4	547	13	1,773	...	*	879,952	£347	27	25
...	31	4,128	47	5,721	1	437	4,033,534	£425	...	...

\*Maximum height of piers, 97ft.

There is only one lofty viaduct on this line. We begin at Eltham.

3. Mr. Hales, is the information which you have supplied all that you were asked for on the 16th?—Yes, except with regard to the other line between Marton and Eltham. I think there is something in your letter about that.

4. In addition to this, I should like you to tell the Committee what has been the cost of the completed portion of the central line from Marton to terminus?—The total cost of the opened railway from Marton to Rangatira was £103,597.

5. And the estimated cost of the next section?—The contract for the next section is £26,499; distance, 3 miles 70 chains in length.

6. That stops short of the Makohine viaduct?—Yes, it is about two miles from the site of that viaduct.

7. Do the figures which you have given represent the finished cost?—All with the exception of the rails, sleepers, and station-buildings for the last section of 3 miles 70 chains.

8. Will you give us the present estimate of the cost of the next section, which is about 16 miles, I think?—I do not think I can give that just now.

9. Take any point you choose. You have given us the cost of 3 miles 70 chains; can you give us the cost of the next 14 miles?—The next section,  $13\frac{1}{2}$  miles in length, will cost about £181,000. This amount includes the viaduct at Makohine, and is one of the heaviest sections on the line.

10. As to the 19 miles which cost £103,597, can you state what the original estimate was?—No. There is an estimate of that; it could be put in. [Estimate furnished: 19 miles, at £5,693 per mile, £108,167.]

11. Will you put it in when correcting your evidence?—Yes.

12. I am referring to the original estimates which were prepared eight years ago?—Yes, I know.

13. Upon which the estimated cost of £1,293,134 for the entire line was based?—Oh, yes, I can get that, but it will not refer specially to that particular section, which is a more easy section to construct than some of the other portions.

14. In the estimate which you furnished on the 15th of this month you state the cost from Mangaonoho, 22½ miles north of Marton, to Ongarue will be about £1,283,450: can you say how much has been expended on this central route, in addition to this present estimate of £1,283,450, since the inquiry was held in 1884, on both ends of the line?—At the south end the total expenditure and liabilities to date are £160,878. The other end I have not got, but I will put it in.

15. You understand that I require it from the point of the finished railway when the inquiry was made in 1884?—Yes; the total expenditure at the north end and liabilities to 31st August amount to £266,398.

16. There is a large portion of this central route as to which the information is very incomplete. Now, in the interests of the colony, do you not think it would be advisable to have a little further exploration of the whole of the neighbourhood of this route before the line is located?—Yes, certainly, a good deal of exploration before the line can be properly located.

17. As to the Ngaire route, estimates of which you have furnished, are they based on actual survey?—Yes; the railway-line is not located for construction, but is sufficiently near to admit of accurate estimates being made.

18. You mean surveys that enable you to say that whilst the cost may be less, it is not likely to be more?—Yes. The line is not pegged throughout, but all necessary details for estimating quantities are provided.

19. You have not ascertained either the worst or the best as to the central route?—That is so; it may be better or worse.

20. *Mr. Duncan.*] Does that answer you give cover the whole of the route?—Yes.

21. *Mr. Wright.*] Is there any statement you would like to make to the Committee bearing upon this question?—No, sir, I do not think there is any statement I can make that would enlarge at all upon what has been already reported by Mr. Blair and others.

22. You have no personal knowledge yourself of the central route?—No; except between Te Awamutu and Taumararui at the north end, and from Marton to Hautapu at the south end of the line.

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THURSDAY, 22ND NOVEMBER.

Dr. A. K. NEWMAN, M.H.R., sworn and examined.

1. *The Chairman.*] You are the member for the Hutt District?—Yes.

2. Will you briefly give the Committee such information as you can with reference to the merits of the two railway routes for the North Island Main Trunk Railway? First, have you any knowledge of the Ngaire route?—No, only of the two ends. One great advantage of the central route, as its name implies, is that it does not come into competition anywhere with water carriage, in thus being unlike most of the coastal railways of this colony. The Committee will see that it goes through the widest part of the North Island, and therefore it drains a great breadth of the country. It opens up a very much vaster area than the Stratford route. I should like to put in before the Committee this map [produced], showing the large extent of area drained within twenty miles of the route as compared with that on the Stratford route. Starting from the Marton end of the central route for about fifty miles to Turangarere, and for four or five miles beyond that point, the whole of the land is of first-class quality.

3. Although somewhat rugged?—But, though some of it is rugged, there is a fair proportion of flat land through which the railway runs all the way up. It is all bush country until you get to Turangarere; there it is open country. The whole of the country from the Ruahine Range right across to the bend of the Wanganui River is all the same kind of country: all a papa country. Waimarino, with the exception of the western boundary, is a papa and limestone country. I might say that all the Crown land has been taken and settled as far as the Kawhatau; it is all occupied by settlers on both sides of the line. At Moawhango there is a large amount of Maori settlement. The Maoris there are occupying their land, and run a large quantity of sheep on them.

4. Merinos?—There are a few merinos, but the bulk of them are cross-bred Lincolns now. When you get to Turangarere you arrive at a big district called Inland Patea. It is the country north of Turangarere; it includes part of the Murimutu Plains. The eastern section is first-class land, and the upper Rangitikei, that is a limestone slope. In Inland Patea there are upwards of 250,000 sheep along the line; the whole of that wool, if the railway were pushed on a little bit, would come down along the central line—along the Government line to Wellington.

5. When you say you pushed on a "little bit," what would you have the Committee to understand by that phrase?—The end of the railway work is about nine miles beyond the Makohine Gorge; from the end of the Makohine Gorge to Turangarere is but a small distance. Taking nine miles from the Makohine Gorge, where the unemployed are now at work, to Turangarere, you have the exact number of miles on the map.

6. Then the railway works must be already on Native land?—No.

7. If the works extend nine miles beyond the Makohine Gorge it must be within the boundary of Native land. I should think it would be no more than five miles?—I have been told they were nine miles beyond the gorge.

7A. We wish to be clear about this: as to whether the railway is being constructed on Native land or not. If the works extend nine miles beyond the gorge they must be?—I understand the works are all through on Crown land.

8. And not outside?—I am not aware of it.

9. I understood you to say that if the line were finished to Turangarere that would require another forty miles?—You should remember that twenty-two miles and a half of that is done.

10. The forty miles would be required from the present terminus?—This line will begin at 22½ miles beyond the present terminus. That will drain a very large country—the Inland Patea—which has become a country of great importance. The wool grown there, which now goes along to Napier and other places, if this railway be carried on thirty miles further, will come down here. I would ask the Committee to recommend what we have already asked the Government to do—namely, that they would bridge this Makohine Gorge; that being done, and the railway going up to the 30-mile post, would bring down the whole of the Inland Patea trade. It would bring in the wool from Kerioi. The Committee will see there is a large amount of good land to the east of this railway which will drain into it. All the Crown land is occupied up to the Kawhatau River, which is a tributary of the Rangitikei River.

11. It is all occupied by settlers up to there—up to the Awarua Block?—Yes; Inland Patea is a very large district. It runs back to the Kaimanawa Ranges. That will all drain down to the central line.

12. In other words, Wellington would get the benefit instead of Napier?—As a matter of fact, carrying wool to Napier from Kerioi means £8 a ton. In fact, they scour all their wool because of the cost of carting it. I would like to point out that if the railway were extended to Hautapu there is the finest white-pine forest in all New Zealand there. Nowhere else are the trees so big as in the Hautapu forest.

13. Have you any knowledge of the estimated cost of five miles of progression through the Hautapu Valley?—[*Mr. Blake*: That is beyond 30 miles.]—What I know is that Mr. Rochfort surveyed the whole of this line very loosely. He laid off the line of road at the head of the Hautapu Valley. Since then the Government have cheapened and shortened that road by three or four miles. Instead of thirty miles, it is so much less to Turangarere. They have shortened the grades, lowered the heights, and cheapened the line generally. Before the railway gets to the end of that thirty miles the survey ought to be extended. A detailed survey ought to be made to shorten this piece.

14. Do you think that is practicable?—I know that the road has been considerably cheapened and shortened. At the time Mr. Rochfort's survey was made this was an unknown land. That is nine or ten years ago.

15. *Mr. Blake*.] Have you any notion as to what it rises from the 30 miles? The sections show 700ft. I only point this out to show that you could not shorten that so as to get 1 in 70.—I would like to say, as regards the land, that the Government are in treaty to purchase 100,000 acres of the Awarua Block. A clause in the Bill passed only last night allows the Government to buy. The Natives are quite ready to sell. They have been down here this session about the sale of the land. Within two months after the House rises the Government will probably purchase 100,000 acres of this Awarua Block.

16. *The Chairman*.] But in the interests of the colony you would not advocate any further extension of this railway until after the land has been acquired?—Only the Makohine Gorge: this will take two years to do. I would hesitate as to the rest for a while. The whole of the land on the west, with the exception of the bit from Turangarere to Ohakune, which runs across the edge of the Murimutu Plains, is papa country. Every acre of it will carry sheep—it is, indeed, a large sheep and cattle country.

17. Then you have a good road from Ohakune to Pipiriki?—I was coming to that. All that land is good land with the exception of the bit from Turangarere to Kerioi across the plains.

18. Would not a large portion of it drain into the Wanganui River?—From Turangarere to Ohakune, that is a long way from the river. It will never go near the river. That country will not drain into the Wanganui River, but will drain into the central line.

19. That country about Kerioi?—Yes; and south of it. From Hautapu and Pohunui-a-tane is the southern basis of the western country. The whole lying west of the central route of the Waimarino is a papa and limestone country until you get to the Ruapehu plateau. You will see a place on the map called Raetahi. There is a hill there 2,800ft. in the air. The proof that all this is a limestone country is to be found in the fact that shells are found deposited on the top of that and other hills. The country in the bend of the Wanganui River lying west is a limestone and papa country. The land from Ohakune to Pipiriki north is a good papa country. There have been lately formed at Waimarino four special settlements, all taken up by general settlers. They are all delighted with the land at Ohakune.

20. Are we to understand that you consider the water carriage of the Wanganui River of no value?—I consider that the water carriage from the Wanganui River has been “bulled” (to use a stock-exchange phrase) for the purpose of “bulling” the one steamer that travels up it. It is always subject to droughts, and when they occur the river goes low. Several times the traffic has been broken down from this cause. There has been a good deal of snagging done, and snagging does not always improve the value of a river's capacity for water carriage. Snags form a kind of weir, so that when you remove the weir the line of water runs away and shallows the river. As a matter of fact, the Wanganui River from Pipiriki to Wanganui might do for a certain amount of light traffic, but never for the heavy traffic that must be carried by the central railway. I would like to say that all the Waimarino beyond, say, two or three miles west of the railway-line, is good land, with only the exception of this two or three miles contiguous to the line.

21. Are you speaking from your own knowledge?—Yes; I have been twice there.

22. Then you left the ordinary road-line, and travelled through the Waimarino westward?—No; I have been on a number of heights along the road. You can see across the whole of the Waimarino for a great many miles. In fact, it lies at one's feet; you can see it is all one country by the foliage, by the trees, by the sculpture of the tract.

23. You are pronouncing upon the quality of the land from a distant view of its character and position?—It lies at one's feet; it is not distant.

24. Well, it is thirty or forty miles across; that is a considerable distance?—I have heard a good deal about it from people who have been all through the eastern side.

25. You are not able to speak from your own knowledge?—I have not been down to Pipiriki. I had to go on from Ohakune to Taumarunui, that is the other edge of the Waimarino. Some of the land from Ohakune to Waimarino, where the train gets up very high, is poor. But when you go up further, you get into an immense totara forest.

26. That is the extreme north, is it not?—No, about fifteen miles; it comes to within a moderate distance from Taumarunui to the southward.

27. The whole length is from sixty-five to one hundred and twenty-five miles; the totara forest is at the north end?—Before you get through, it is chiefly forest. There is an open clearing at Waimarino. Another place, of which I forget the name—Pupuatea. The land in the bend of the Wanganui River is also very good land. There are large Native clearings about there. Then, to take the other side of the line, east of the line from Ohakune: there you are on the edge of the Ruapehu, on the outlying spurs. Ten or twelve miles from there—Ohakune—you reach Waimarino, you come on to the edge of the pumice. In the Waimarino from the line to eastward is poor land.

28. Will you indicate on the map what you consider to be the boundary between the Inland Patea District and the land you are now describing as poor land?—From Turangarere to Kerioi is part. Kerioi is the western limit of it you will see up to Kaimanawa.

29. Is it good land?—I will not venture to say that all this to the north is good, but it will carry sheep. I hold that this country about Ruapehu, Ngauruhoe, and Tongariro will bring as much revenue to the railway as really good land. The large amount of tourist traffic that will go to the hot lakes must prove to be a large source of revenue to the line. We expect not only to have a large tourist traffic, but a sick-people traffic. A coach will be ready to bring them by easy stages from the line to the hot springs. Tokaanu will be to Wellington what Rotorua is to Auckland.

30. Is the country favourable to a coach-road from Waimarino to Tokaanu?—Yes, it is a beautiful road. You branch off to the south of Rotoaira Lake.

31. Where will it run to the south?—Round by the Waikato River to Tokaanu.

32. You are speaking of the road from Waimarino to Tokaanu?—Yes. I may say about this road that we have agitated until we expect this year to get a coach to run from Hunterville to Tokaanu before Christmas.

33. How long do you expect it will take to do the distance?—Two days to start with; one day later on.

34. That would be a distance of 120 miles?—Two days will be ample. I would say that from Taumarunui north to the junction is pumice. The pumice extends some few miles from Taumarunui westward.

35. We have evidence that it extends from eight to ten miles west; and we have also evidence that it extends eight to ten miles west through the north-east portion of the Waimarino Block, which does not appear to accord with the statement you made just now, that the pumice only extended two or three miles west of the railway?—You will see a stream marked on the map, the Retaruke. I understand that that country is all free from pumice.

36. Towards its junction with the Wanganui River?—I would like to say further, that if the central railway is made, the map will show that it will serve the Ohura Valley just as well as the Stratford line would. It will take in nearly the whole of the Ohura Valley district.

37. But the Ngaire line passes through the valley; the central route is some miles away on the other side of a range of hills. Is it not so?—It is a very easy road down the Ohura Valley to the junction.

38. Then the traffic from the Ohura Valley would not be on the direct route of the central line?—It is on that road.

39. If that means it is to travel up the valley to the point of junction, it would be a rather circuitous way of reaching the central line?—It has no other outlet than through the central line. I would like to say a word to the Committee about the settlement on the central line.

40. Before we leave that point: Of course, the traffic from the Ohura Valley could find its way to the central line, but you can hardly contend that it would be equally favourable to the traffic of that country as the Ngaire route?—The country is a narrow valley; you can look down it two or three miles at the outside. The end of it comes to the central line; therefore, the central line taps one end of the Ohura Valley.

41. Which is about thirty miles long apparently; from the upper end, where it is near to the central route, to the lower end, must be at least thirty miles?—I would like to say further, as regards the land from Taumarunui junction on towards Lake Taupo lying to the north, although that is poor land it is intersected with good land. As there is no water-carriage or other road carriage, all that extensive country from Lake Taupo to the railway will drain into the railway. The sections shown operate unfavourably as against the central route.

42. They are both exaggerated, but they are in proportion one to the other?—I would like to say a word to the Committee upon two or three other things. I wish to protest as a Wellington member against any diversion of the moneys that are now in hand. Of course, the total money raised for this purpose is outside of any recommendation the Committee might make to the House.

43. Is not that a subject outside of the province of the inquiry relegated to this Committee?—If you take it as applicable to the money, the balance of the loan which is yet in hand, I think the Wellington members would have the right of protest against diverting that money from the purpose for which it was raised (the construction of the central line) to making the line from Stratford.

44. You think that would be an im proper diversion of the money?—The Committee are going to bring up a report; I want to prove that the Committee cannot divert the balance of this loan to any part of the Stratford line.

45. For what reasons?—The question is an open one as to which way the Committee is going to report.

46. But you make the assertion?—Under “The Railways Authorisation Act, 1884,” it says the railway shall go “from a point at or near Marton to Te Awamutu *via* Murimutu, Taumarunui and the Ongarue River valley.” Two years afterwards we passed an Act with this clause in it—the North Island Main Trunk Railway Loan Application Act. [Clause 3 read.] After stating that loan money shall be carried to a special account it adds, “and it is hereby expressly declared that it shall not be lawful for the Governor to recommend to Parliament the appropriation of any part of the moneys so authorised to be borrowed to any other purpose than the construction of the said railway as defined by Act.” Then it is provided that the moneys are to be carried to a separate account, and that it shall not be lawful for the Government to recommend the appropriation of any of the moneys for any other purpose. Therefore, I submit, with all due deference to the Committee, that no recommendation of this Committee can divert the balance of this loan to the Stratford line of railway.

47. Is it not a fact that a large portion of this loan has already been diverted to other purposes?—Only to the purchase of Native land and giving roads for access thereto.

48. Within what limits? The boundary limits were not carefully defined. Then it was open to spend the money any where within the limits of the coasts, east and west?—We in this province are very anxious for two things: First, that this Makohine Gorge contract should be let, as otherwise it will delay the progress of the railway; secondly, I would further submit, that if, in the course of two or three months, this 100,000 acres in the Awarua Block is purchased by the Government, there will then be a large tract of Crown land from the south of the Awarua Block to Taumarunui, available for settlement. I submit that this opens up an enormous area of Crown land, or Native land recently alienated for special settlement. I should like to say further that special settlers have already taken up several pieces of this block.

49. At what stage do you think in the progress of this central railway would it be available for the settlers of that district?—When it reaches Taumarunui.

50. Not before?—Perhaps five miles short of that. I would like to say further, that while we have this large amount of settlement on the central railway, with the exception of the first twenty miles out of Stratford there is no settlement whatever.

51. Is not that rather from want of facilities; the land is Native land, without roads?—Possibly; besides the 100,000 acres I have referred to, we on the central line have Crown land up to Taumarunui.

52. More or less?—A good deal “more” than “less;” when the Awarua land is bought it will be all Crown land.

53. But all the Natives are not prepared to sell?—The reason of that is that many of them are closely occupying the land themselves; they are running upwards of 100,000 sheep there. I submit that for the purposes of this railway this 100,000 sheep running on good land is as valuable to the railway when opened, whether they are owned by Maoris or white men. It might almost be looked on as private land, because it is closely occupied.

54. As this Awarua land is not yet purchased, do you think it a wise policy to be pushing the railway up to the boundary before the purchase is complete?—I think it would be wiser to have let the Gorge contract, which will take two years to complete, and left the remainder in abeyance until the land should have been purchased.

55. Must not the extension of the railway works to the boundary of the block rather increase the amount of the purchase-money to be paid?—Possibly; but I submit that the letting of the Makohine contract would not be open to that objection, while the objection is specially applicable to the north end.

56. Is not the progress of the line rather against the acquisition of the land at a moderate price?—The Natives are aware that it must go on till it reaches the Awarua; they have come down to Wellington this session with a view to selling their land, and the Hon. Mr. Cadman expects to complete the purchase inside Christmas.

57. If the transaction were your own, and you were seeking to acquire 100,000 acres, would you push on the railway to the boundary of the land you wanted to purchase, or would you stop until the purchase should have been completed?—I should not push on the railway until the land was bought; but in view of this, for the last five or six years Wellington members have been agitating to buy this land. We have had the Native Land Court sitting for months at Marton; still, for the last nine months we have pursued this active negotiation until the Awarua is now within our grasp.

58. But you are at this moment short of having determined the price?—Yes, but that will be determined in a week or two. I am also aware that the Natives will sell this land—and will sell at a reasonable price. I should like to say that the railway traffic, as far as it has gone at the southern end, justifies its further progress. Mr. Maxwell will give you further information as to the traffic of the line so far as it has gone. He will be in a position to prove that it has gone on very satisfactorily, and will continue to go on satisfactorily.

59. We have the weekly returns before us?—I would also like to state that if the line goes a little further, and the Rangitikei River at Otara bridged, it would drain the country lying between the river and the Ruahine Range.

60. Is the Rangitikei River bridged?—The bridge which is to be kept in view: its site is above the Makohine Gorge. All the land is now held in special settlements. If it goes a little further the whole of the traffic will go on to the railway.

61. I want the position of the bridges to fix this matter. If the position of this bridge, which is to be kept in view, is fixed, then it would appear that the extension of the line abreast Otara would meet all requirements; so that ten miles would serve the whole of these people?—Yes; but it would not open Inland Patea.

62. *Mr Rhodes.*] As to the point to which you said you would take the railway: would there be any great expenditure necessary for roads to bring traffic to it?—Generally if you get to Turangarere the roads there are in a very favourable state of progress. The roads there radiate in all directions; that is one reason why we want that as the starting-point.

63. The road traffic would not compete with the railway traffic?—It could not possibly compete with the railway traffic.

64. *The Chairman.*] It would reach a point where several roads converge?—Yes.

Mr. R. W. HOLMES, further examined.

65. *The Chairman.*] In page 13 of the report sent in by you on the 26th of November, 1889, there occurs the following paragraphs: "Owing to the severity of the climate, sites well sheltered on the southern side must be chosen for these habitations, otherwise the occupants may occasionally find themselves snowed up during the winter." And again, "Gardens are at a discount in this country, as only those vegetables will grow that will stand the frost all the year round." The Committee would like to hear from yourself the ground upon which you based the above conclusions?—On my observations during the time I was engaged there.

66. How long were you engaged there?—About fifteen months altogether.

67. *Mr. Blake.*] Were you up there in the winter?—Yes.

68. *Mr. Duncan.*] Were you more than one winter there?—No, I was there only one winter.

69. *The Chairman.*] Have you any reason to suppose that winter was one of exceptional severity?—No, it was a mild winter.

70. And still you felt justified in making those notes?—Yes.

71. Can you give the Committee briefly the facts upon which your observations were made; also, what was the degree of frost you experienced, and whether there was much snow falling?—We had a good deal of trouble with the snow on several occasions; our tents being broken down. Once or twice we had to turn out at night to scrape them down occasionally during snow storms.

72. Have the Natives there much difficulty in growing potatoes?—Yes.

73. How do they manage?—They generally grow them under the shelter of trees on the edge of the bush.

74. What particular part of the route are you referring to?—About sixty miles from Marton junction.

75. Can you state at what altitude that is?—From 2,000ft. to 2,600ft. above the sea.

76. What grounds, then, have you for saying that that was a mild winter?—From what the inhabitants about there informed us while we were there.

77. Are there any other residents there than Natives?—Yes; there are a few Europeans.

78. *Mr. Blake.*] What is the occupation of the Europeans up there—grazing?—There is a man named Adamson there; he does a little grazing. There are white people living in the Moawhango Valley. About ten miles to the east there are a few storekeepers; also shepherds, who are employed by the runholders.

79. *The Chairman.*] On page 2 of your report, speaking of the Hautapu Falls, you say the distance across to Paengaroa in a straight line is 5 miles 42 chains, while the route by the railway is 10 miles 75 chains; so that there is a loss of efficient distance of 50 per cent. Is there no escaping from this position?—We had to go round to get the 1-in-70 grade; we were bound to. [The following is the paragraph referred to: "The net length of the 1-in-70 grade is 9m. 22ch. The distance in a straight line from 0m. 0ch. to 10m. 75ch is 5m. 42ch., so that there is a loss of efficient distance of 5m. 33ch. or 50 per cent."]

80. Could the distance have been materially reduced by adopting the 1-in-50 grade?—Yes; over that distance the line rises 700ft. We had to get in 10 miles of line to rise 700ft. with the 1-in-70 grade.

81. What was the chief error in the survey made by Mr. Rochfort over the same ground?—He just followed round by the Hautapu River and obtained some distance; but the line would not follow the same course owing to the natural features of the country interfering.

82. You mean that it was impracticable?—Yes.

83. On page 10 of your report you say, "It would be a most convenient place for an engine-station," &c. Is there any particular difficulty in getting a convenient place for an engine-station at any other point along the line?—No; but a lighter engine would work the line to Waimarino. [Paragraph referred to: "Also, it will be the most convenient for an engine-station, it being about 61½ miles from Marton Junction, and practically the summit of one section of long and heavy grades."]

FRIDAY, 23RD SEPTEMBER, 1892.

Captain RUSSELL, M.H.R., sworn and examined.

1. *The Chairman.*] You are member for Hawke's Bay district?—Yes.
2. And are acquainted with some portion of the country through which the North Island central railway is proposed to go?—I have been over the central route.
3. Do you know anything of the Stratford route?—I know nothing of the Stratford route.
4. Will you be kind enough to tell the Committee what you know about the country that is traversed by the central route—as to the quality of the land and its suitability for settlement?—I have travelled the Northern Trunk route from Turangarere as far as the head of the Mokau, and undoubtedly the greater portion of that country immediately adjacent to the line was very light indeed. We went through some valuable timber through a considerable portion of the line, and a few miles before coming to Taumarunui we passed through an extremely valuable totara forest—an excessively valuable forest of totara. I may also add that the country between the Rangitikei River and Turangarere, on the road from Napier to Turangarere, is, most of it, of fair quality of land—a light land, but a fair quality of land.
5. That is the upper portion of the Awarua Block?—No; it is to the eastward, I should say, of the Awarua Block. It is not that block I am speaking of. The piece of land I am alluding to is not in that block. The land I rode over from Birch's Station, near Moawhango, until we reached the homestead at Kerioi, was also a fair quality of rather light land.
6. Open land or bush?—Open land, suitable, I should say, for growing oats, or grass, or turnips. Well, from Kerioi we rode through forest land, most of it covered with pumice dust; but in the deeper cuttings of the bridle-track in many instances papa cropped out, and there were indications of shelly lime. The opinion I formed, and it was only an opinion, that westward the country would in all probability improve; that is to say that the pumice dust would get finer and lighter, and would never overlay the good land at a depth sufficient to do harm. The forest was so dense that it was impossible to really know what the soil was like. Then, from Ohakune to Waimarino the same remarks will apply; but on the Waimarino Plain and open country the land was of very poor quality indeed. From Waimarino to Taumarunui, when once off the open country, again there was light pumice dust overlying at varying depths a good quality of soil. The timber seemed to me, in most localities, to be valuable. Approaching the Wanganui River above Taumarunui the country improves a good deal, and shortly before striking the river we passed through a large area of the finest totara I have ever seen—a most excessively valuable block of totara. From Taumarunui up to Poro-o-tarao, along the Ongarue Valley, there were small plots of land of good quality, but the surrounding country was undoubtedly, for the most part, light pumice land capable of growing inferior kinds of grasses. There were large cliffs from which you might almost have believed to be basalt, but which were in reality nothing but compacted pumice. From Poro-o-tarao, on to the vicinity of the head waters of Mokau, the land was of indifferent quality—pumice. Then from Taumarunui I went down the Wanganui River, and, so far as it was possible to judge, the water of the river being very considerably below the level of the surrounding country—but, so far as one could judge, it justified my belief that all the country as you get westward from the railway-line steadily improves—in other words, that the Northern Trunk Railway line runs on the edge of a pumice plateau, but that directly you get away from the edge to the west of that plateau the country improves. That is an opinion formed after actually seeing the land, and from the surrounding circumstances.
7. What season of the year was it, Captain Russell, when you travelled over that land?—I think it was in April; it would be about the end of April.
8. Have you any knowledge of the climate over this central route?—I should imagine that over the southern end, near Turangarere, there are light snowfalls occasionally.
9. Only occasionally?—Three or four times in the winter I should think, but I do not fancy it ever lays over a couple or three days, if so long.
10. Is it a part of the country that you think likely to attract settlers?—In the immediate vicinity of the railway certainly it is not suitable, I should say, for small settlement, with the exception of the land between Hunterville and Turangarere, and I imagine that all the country to the westward of the railway is of a similar character to that between Hunterville and Turangarere. For instance, I have been on the Ruanui Run to the westward of Turangarere, and it is a piece of land of remarkable fertility.
11. That is freehold land?—No, it is Maori lease; but I know it is capable of carrying two sheep to the acre in a moderately improved condition, and carries the English grasses well.
12. *Mr. C. H. Mills.*] How many miles did you go down the Wanganui River?—I went from its source to the sea. We went right up the Ongarue Valley—the main branch of the Wanganui River.
13. Is there much open country going down the river?—I should say not, but I could not give you really an opinion. You see the country when you get below Pipiriki; but I believe it to be all bush country.
14. *Mr. Rhodes.*] Do you think there is any necessity for taking the line beyond good country? Would not good roads be suitable to bring the traffic at present?—My own belief is now, and always has been, that it is unnecessary expenditure of money to complete either line of railway. I should like, if I may, to state that, from my own point of view, the central route is the more suitable for the country generally, inasmuch as the eastern coast would participate hereafter in the benefit of that line of railway; in other words, it brings many more portions of New Zealand in communication with Auckland than the coast or western line.
15. Would you advocate some other line to connect Napier with the central ultimately?—Yes, undoubtedly.

16. Where would you commence?—I should imagine that it would go to Turangarere.

17. *Mr. C. H. Mills.*] Is the Wanganui River suitable for navigation?—No; only as far as Pipiriki.

18. *The Chairman.*] Do you wish to make any other statement?—I could give you my opinions, but they are not really evidence.

The Hon. Mr. RICHARDSON, sworn and examined.

19. *The Chairman.*] You are member for Mataura?—Yes.

20. The Committee wish to have what information you can give them as to the suitability of the country along the rival routes for settlement, and generally your view of the utility of what is known as the central line?—The land along the central route varies from good to fair settlement-land up to Turangarere. Some of it is very good. You then get into the pumice belt, but not very far from the edge of it. The greater portion of the Waimarino Block, which would be opened by this line, is, however, good to fair settlement land.

21. The greater portion of the block?—Yes; the greater portion of the Waimarino Block.

22. The greater portion of the block lies a considerable distance from the line. What is the character of the soil immediately along the line?—You may say that the line, after you enter the bush from Kerioi is clear of the pumice belt, with the exception of the Waimarino Plain, where the pumice belt extends to the westward of the line for some short distance. After entering the bush again, going to Taumarunui from the Waimarino Plain, you are practically outside the belt of pumice. From Taumarunui to Te Kuiti almost the entire distance is over pumice country—that is to say, that all the flats and terrace lands consist of greater or less depths of pumice. The sharp hills covering, perhaps, a third of the area, are mostly free from pumice, and are good land.

23. That part of the country is common to both routes?—No. Well, a great part of it is.

24. The greater part of it is?—Yes, the greater part of it is. From Taumarunui to Te Kuiti, or thereabout, there is good country westward of the line, and I should think probably from ten to twelve miles away from it. There is none near the line. From ten to twelve miles away you get into the limestone country of the Upper Mokau. Taking the Stratford route, you would have to go through some miles of this poor country before you reach land suitable for settlement.

25. Have you been over the Stratford route?—Not through. I have been up from Stratford a certain distance—as far as the Government were then carrying on road-construction; and from what I saw, and could see ahead, it appeared to me—in fact I have no doubt—that the whole of the land along that route, until you reach pumice, which would probably be within ten miles of the central line, is all more or less suitable for settlement, that is from good to fair. It is largely broken country.

26. And country at a low elevation?—All low enough for settlement. As a rule, throughout the whole of that central district, when you reach an elevation of about between 1,500ft. and 2,000ft., even though the land is covered with bush, the character of the land is inferior. It turns largely into birch, and will at best be only second-class land. I may add that even the pumice country I have spoken of seems capable of some improvement. The surface-sown English grass appears to take fairly well, and the Natives succeed in getting reasonable crops from small cultivations.

27. What class of crops?—Well, all I know of, I think, are potatoes. I think they make a clearing, and use the ground for one or two seasons, and then make a fresh clearing. I think the whole of this pumice country is capable of occupation, but probably for many years will only be developed into what you might call healthy but poor pastoral land.

28. Do you think the soil is strong enough to hold the grass—that the sheep would not pull it out by the roots?—Most of the country is covered with snow-grass tussock, with silver tussock, and with a little blue tussock mixed; and English grass takes, not in the same sense that we speak of low-lying bush land; but the natural grasses seem to me to be capable of considerable improvement by surface sowing. The winters are long on this high inland plateau, and the frost severe. In the end of November there was more than  $\frac{1}{2}$  in. of ice in the morning on the top of a bucket of water we had outside the hut in the Waimarino; but I do not think that any of the land can be considered to be valueless, or classed as barren.

29. On the other hand, you would scarcely rank it as land attractive to settlers?—No; I am now speaking of the inferior pumice country—land in the pumice district. The pumice districts of the interior seem to vary—that the pumice land near and about the line of central route, near the mountains, seems to me, for some reason, to be very superior as pumice land to, say, the Kaiangaroa Plain, between Galatea and Rotorua, and for a considerable distance between Rotorua and Taupo. All these pumice lands are of an inferior character to that adjacent to the North Island Main Trunk line. [Witness refers to the map, and explains to the Committee why the line diverges so much to the eastward—about ninety-five miles.] That it is the commencement of the fall down to the Wanganui River at Taumarunui. You are then leaving the plateau and descending into the valley of the Wanganui. In the same way, at Ohakune, the land lies pretty nearly level for the first twelve miles, and in the last ten miles you have the whole drop of about 1,500ft.

30. Inasmuch as we are given to understand that the good land in the Waimarino Block lies in the western part of it, would it be possible to make a divergence with the railway to the westward, instead of eastward, and in that case would it not run through better country?—It would, no doubt. The more you go to westward the further you get away from the heavy pumice deposit; and I am satisfied, from what I saw, that the line as laid out from, I think I may say, Ohakune to Taumarunui, must be further explored. There is plenty of distance to obtain good easy grades, but the way they have gone now they have nothing to hang the line upon, and the consequence is that they have adopted rather steep grades. I believe that with further exploration it would be quite possible to get a much better route. The two worst points of the line are the viaducts between Ohakune and the Waimarino Plain.

31. There appears to be altogether fifteen large viaducts between Turangarere and Taumarunui?—There are only three which can be called large. I am only judging from the ground over which I have travelled.

32. *Mr. Rhodes.*] Would it be advisable to continue to construct the line prior to the purchase of the Native land?—This, of course, can only be a matter of opinion. My opinion is that at the north end it has been carried very many miles more than it should have been until the line had been acquired from the Natives. I think at the south end no further work should be done until the Awarua Block is purchased.

33. That is, so much of it as the Natives would sell?—Yes. I may say that if the line is constructed for a short distance above the junction of the Hautapu and Rangitikei Rivers, a distance of about twenty-five miles, that would give ample access for the settlement of the block; and I do not think the line should go further for some considerable time.

34. *The Chairman.*] Assuming that neither the central nor the Stratford line should be proceeded with for some considerable time, do you think it expedient to open up a dray road between Stratford and Ongarue?—I have very strong opinions on this point, Sir. I think it would be very much in the interest of the colony if most of these railways were stopped, and the money which would otherwise be expended upon them spent upon roads. It would go so very much further, and with good roads all necessary access would be obtained. The Stratford Road would give access to the Upper Waikato, which would be joined by the Inglewood Road, about twenty miles from Stratford, and it would be joined further by the Mimi Road perhaps another twenty miles further up.

35. *Mr. Blake.*] Even supposing the country were settled, it would be many years before it would produce anything but stock and dairy produce. There would be no agricultural produce?—No; the character of the country would lead to its being used for grazing or for dairying. The Stratford Road and branches being completed, with the Hunterville—Tokaanu on the east side of the mountain, and both metalled properly through the bush, I believe this portion of the interior would be sufficiently opened for some time to come.

Mr. ALFRED HARRIS, sworn and examined.

36. *The Chairman.*] You are a settler, living at Bulls, Rangitikei?—Yes.

37. What knowledge have you of the country the central line is intended to travel over?—There are special reasons why I possess a good knowledge of that part of the country. I obtained a detailed knowledge of it through being appointed by the Waimarino and Clifton Land Associations to prospect for a block for settlement.

38. You selected land for settlement?—Yes.

39. What land did you travel over in making your selection?—I did not come prepared to give evidence, having only yesterday received your notice; but I have a rough copy of a report which I made for that association, in which there may be some information of interest perhaps to the Committee.

40. Tell us what your experience was of the part of the country you travelled over in search of this land for selection, and what you found?—I may say, with regard to the country from Hunterville to Adams', Turangarere, I have only passed over the road. I prospected the country generally further north-west. I went up Hale's track from Fordell, and found the land to be settled as far as Bald Hill, adjoining Studholme's Ruanui Station. I was surprised to see the quality of the land. Although so rough, it would carry three sheep to the acre up to Bald Hill. Then we descend into much lower country to the westward, to the Ruanui Station, where there are 13,000 acres of land, all in English grasses. It is Mr. Studholme's small run. From there the manager for Mr. Studholme, Mr. Macdonald, guided us out to the Murimutu Plains. After leaving the station we passed through a totara bush—all very good undulating land, until we came to a Maori settlement called Rakatapama, at the head of the Turakina River.

41. We do not want a minute description of every mile you travelled; it will be more convenient if you can describe the country in general terms—the country that you went over?—Then we came to the plains. I was surprised to find the plains to be of a kind of light-red, decomposed, volcanic soil, with fine pumice underneath—or a sort of soft red sandstone in places.

42. Will you pass on to the ground you selected for the association?—With regard to the plains, it has been said the country would not grow English grasses. I saw English grasses growing there—also potatoes and oats. I saw grain yielding 40 bushels to the acre growing at Kerioi. From Kerioi we got into the bush again, at a distance of three miles, on to the Rangataua Block. We fully prospected that block for selection. In passing along the railway route, any one is deceived by the quality of the soil, because of the fringe of red-birch. For about half a mile from the surveyed railway route the land is very different. We made a selection for one association in this block, on the left-hand side.

43. What extent?—We selected 7,000 acres, which I consider first-class land—equal to Palmerston land, irrespective of the climate.

44. The climate would not be quite so good?—No; it is very cold, in consequence of the altitude.

45. What other blocks did you select?—We also went into the Waimarino Block, and we travelled in a number of directions for several days, camping in the bush. I found 30,000 acres of level land, mostly alluvial loam.

46. Covered with forest?—Yes; a dense bush, with tremendous trees 120ft. in height, growing closely together. It is the heaviest timber I have ever seen in New Zealand. The country as you go further towards the Wanganui River is hilly, but I think the soil is even preferable to that on the flats, because it is stronger.

47. Did you travel close up to the Wanganui River?—No; we did not go right up to the Wanganui River, as it was too rough; but I consider that the land will carry three sheep to the acre, because the climate is better. The sections there would be larger.

48. Do you consider the land at the highest elevations suitable for small settlements?—Yes. We selected in all 15,000 acres. On the Makotoku Block (shown on the plan) we selected 7,200 acres.

49. What was the number of that block?—I could not say; it was unsurveyed land.

50. Did you make any other selections?—Yes. We saw land beyond that—a very large extent of alluvial and undulating land—which I suggested to the Marton Association to select from when I returned. They have done so. Then, we looked over the Raeiti Block, of about 30,000 acres; but the purchase of the whole of it has not been completed by the Government. Twenty thousand acres I estimated to be level, and I selected since 3,000 acres out of that block for the Clifton No. 2 Association. That was the only portion of which the title was complete. Then I went on the Taumarunui track as far as the Manganui-o-te-ao River, and found the land was very good and level, except on the Raeiti terrace. I did not select that land because of the altitude. We did not go farther in that direction than the bridge.

51. When you were selecting blocks of 20,000 or 30,000 acres, what means had you of ascertaining the acreage?—We had a surveyor with us. There were Government surveyors on the ground who gave us assistance afterwards—Mr. Mansford and Mr. Lewis. There are two more blocks we looked at—Taparau, of 5,000 or 6,000 acres of mostly open land, and Otuahe (Native owned), all bush and very good.

52. What season of the year was it when you were through that country?—It was in October, 1891.

53. What experience had you of the climate?—That is the latter end of winter. The lambing season had just set in.

54. What kind of weather did you experience?—It was very wet the whole time, with cold sleet and snow.

55. How long were you there?—We were there a fortnight. I estimate there are over 60,000 acres of practically level bush-land fit for small settlement in that neighbourhood, and the timber would be very accessible and profitably used for sawmilling.

Mr. ROBERT KIRKPATRICK SIMPSON, sworn and examined.

56. *The Chairman.*] What is your occupation?—I am a sheep-farmer.

57. Residing where?—Near Marton.

58. Have you any special knowledge of the country which the central line of railway is intended to travel over?—I have been through the country twice, and once into the interior. I have not followed the present railway-line; it was not laid off the last time I was through there.

59. How far did you travel north?—I went down as far as Taupo, round Lake Taupo, and back again. I travelled all the country between Rangitikei River and Kerioi.

60. The country about Lake Taupo is very wide of the route of the railway?—It lays on both sides of it. Kerioi is not very far from the railway. I have travelled over the country in that direction.

61. Do you know anything of the character of the land on the Waimarino Block?—No; I have not been there.

62. Then your knowledge is practically limited to the country between Marton and Kerioi?—Yes.

63. That is good settlement country, is it?—Yes; I should think the whole of it is good. Getting over on the Murimutu Plains, beyond the railway-line, the land becomes lighter—I mean on the east side of the railway-line.

64. Do you know anything of the Awarua land—Native land?—Yes; I have a good idea of the quality of the land there. Although I have not followed the railway-line, I have been on the block.

65. Is it land well adapted for settlement?—I should think it is all very good land; it is land of first-class quality, and not so broken as a great deal of the land already settled.

66. How many sheep to the acre does the average land in that district carry?—All the bush land is the best average carrying-land. There have been from two and a half to three sheep to the acre upon it. I do not think any of the land laid down in grass would carry less than that average.

67. Is the grass permanent pasture?—I should think it is—the grass in the Hunterville district. The earliest is from twelve to thirteen and fourteen years down, and it is still very good, carrying as many per acre as it did at first. There is a request to put a bridge over the Rangitikei somewhere to open up the district.

68. At what point?—There are two points mentioned. [Witness indicated on the map the position where the Otara Bridge ought to be, as affording access to a block of about 100,000 acres of good land.] I may state generally that all the bush-land is of good quality east and west of the Rangitikei River. I might state further that I was deputed by the County Council some twelve years ago to go and decide between two rival routes to connect the west coast with the Murimutu Plains into the interior. I travelled all through this bush, and I took the opportunity of getting the men who were with us to dig the ground in several places with a spade to test the quality of the soil, and I found on the highest ridge of land before going on to the plains beautifully rich soil. I do not know the depth of it. That is land a little to the west, and will be drained by the line.

Mr. FRANCIS HENRY DILLON BELL, Mayor of Wellington, sworn and examined.

69. *The Chairman.*] It has been suggested to the Committee that you have personal knowledge of the part of the country over which it is proposed to carry the Northern Main Trunk

line: have you any special knowledge?—No. I rode through from Hunterville to Taumaranui in company with Captain Russell, Mr. Fergus, and Mr. Macarthur, and anything that I know of the nature of the country is derived from my conversation with Mr. Macarthur as I rode along. I am not a judge of the quality of the soil. I had the advantage of riding in company with Mr. Macarthur.

70. Did you travel as far as Taumaranui?—Yes.

71. Then you might state, in general terms, whether you think that is a class of country that would be attractive to settlers?—From Hunterville to Hautapu—Part 30?

72. Thirty miles from Rangitikei?—Certainly; judging from the fact that the country under bush presents the same appearance as the cleared country between Hunterville and Rangatira, where we saw what stock was being carried on the cleared portions of country. The track itself is overgrown with cocksfoot grass.

73. We have the evidence of a good many witnesses as to that part of the country. I intended my question to apply rather to the land between Turangarere and Taumaranui?—Well, I should say, No; that it was not a country that would be attractive for settlement, until you get to Waimarino. At the point between Waimarino and Taumaranui there is a magnificent totara forest.

74. Whenever that totara forest may be in demand as a marketable article, could the timber not be carried down the Wanganui River?—I thought so; but I did not know that totara will not float, and it certainly would not be possible to raft any large rafts supporting totara-logs down the Wanganui River for some distance from the forest. The lower part of the forest, I believe, strikes the Wanganui River a considerable distance below Taumaranui. You can see the forest stretching away to your left down to the Wanganui River, a very great distance; and, for aught I know, the totara forest probably does reach at its western point the Wanganui River, a great distance farther down; but I should suppose—of course, I am no judge of these matters—that it would not be possible to raft the totara down, as it would not float itself in separate logs. The river is narrow at Taumaranui.

75. That is to say, not float when it is green?—I do not know. I am told it will not float at all. If the totara will float, I have no doubt it can be taken down the Wanganui River.

76. You say if there is a demand for totara?—There is a demand for totara.

77. I say, whenever there may be a special demand for this block, as there are other blocks available?—There is no totara forest anything like it that I have ever heard of or seen. Nobody who has not seen that forest can have any conception of its character. Mr. Macarthur, who was of course very well acquainted with totara-forest bush, told me there was nothing approaching it anywhere else. You can ride a very considerable distance, probably a quarter of a mile, without seeing anything but totara. That is the best example I can give of the totara bush. It is not totara dotted among other bush, but it is other bush dotted among totara.

78. Have you any knowledge of what is known as the Stratford route?—None at all, except what I have read.

79. *Mr. Duncan.*] Do you know anything about the land beyond Taumaranui?—No, not for more than six or seven miles.

80. Is there anything attractive for settlement up in that direction?—No, I should think not.

81. That is all pumice soil?—It is pumice soil, but I fancy the pumice extends a very little distance westward. I should think you would not find that the totara forest is all pumice. As you go down towards the Taumaranui, the track is cut deep into the hillside. You then get down to pumice, but that is close under Ruapehu—close up to the volcanic line. I do not think pumice is on the surface on the westward slope.

82. *The Chairman.*] Did you notice any artificial grasses growing along the track between the Murimutu Plains and Taumaranui?—No, I cannot remember. My attention was principally directed, as far as I was concerned, to the land near my own district (Wellington City), which I was taking interest in. Further on, I was taking more interest in the scenery.

83. Do you wish to make any further statement to the Committee?—You have been asking me what I have myself seen when I went over this country; but, as Mayor of Wellington, I should like to say to the Committee that the people of Wellington consider that the honour of the colony is pledged to the construction of this North Island Trunk line, and that the loan moneys have been specifically appropriated to it—I mean the one million loan—and that the public creditor lent the money for this particular line.

84. I would like to ask you whether you think the public creditor would be in the slightest degree prejudiced if the money borrowed was expended on another line of greater promise; or, if spent to better purpose in any other part of the colony, could the public creditor be in any degree prejudiced?—Certainly; it is a question of promise at the best. You are undertaking to judge for the creditor that it will be a better line. If you are satisfied with it, you are not entitled to judge for him, I should say. Looking at it as if it were a case of a private borrowing, anybody can understand that if A borrowed money from B for a special purpose and spent it on another object, A would find himself, if not in the dock, in some less objectionable position. I do not understand why, because A is the colony, that it should be allowed, or that the colony should have the power to divert borrowed money to any purpose other than the specific object of the loan. I do not see, Sir, what is the object of earmarking the loan in a schedule to the Act if you are going to repeal the Act. My answer to your argument might be put in this way: Are you prepared to spend this money on, say, a breakwater for the Gisborne Harbour, if you happen to think that money so spent would be expended on a beneficial public work?

85. Yes; there is another way of putting it. Did the public creditor lend this money on the special security of certain lands, or upon the credit of the colony?—Oh, upon the credit of the colony; on the faith that the colony would observe its contract.

MONDAY, 26TH SEPTEMBER, 1892.

Mr. CHARLES EDWARD ARMSTRONG, sworn and examined.

1. *The Chairman.*] You are employed in the Public Works Department?—Yes.
2. You were assisting Mr. Holmes when he was surveying the Hautapu Section of the central route?—Yes.
3. You were also engaged with him in the survey of the Stratford route?—Yes.
4. Do you know the country along both routes?—From Marton to Kerioi, on the North Island Trunk line (central route).
5. And on the Ngaire-Stratford route?—From end to end of that route.
6. How long were you stationed in the Hautapu Valley?—About fifteen or sixteen months.
7. Does that cover more than one winter?—Yes.
8. Did the period extend over two winters or two summers?—Part of two summers.
9. What is your opinion of the locality as to suitability for settlement?—I consider the locality is very good if the means of communication were established.
10. What was your experience of the climate?—During the summer months it was very pleasant indeed; but in winter it is excessively bleak, owing, of course, to the high altitude and proximity to the Ruapehu Mountain.
11. What was the duration of what you would call winter there?—Very much the same as in other parts of the North Island. I do not think the extent of the winter is materially different.
12. Do you mean that the climate up there is not different to any other part of the North Island?—Only with the exception that it is much colder during winter.
13. We would like to ascertain how far the exception extends. Is it an exception of any importance, or trifling?—It is, in this way: for cropping of some kinds it would naturally interfere with.
14. Were there any cultivations in the neighbourhood that you can speak as to the nature of the growth?—Yes.
15. Would ordinary garden vegetables thrive there?—They would have to be hardy in kind. Potatoes grow very well when sheltered, but any of the finer sort of vegetation would not do well owing to the severe frost.
16. Are the potatoes grown in sheltered situations?—Yes; in nearly every case the Maoris would plant patches in the outskirts of the bush where available.
17. So that the potatoes are to some extent sheltered?—Yes.
18. Now, how long were you engaged in the survey of the Ngaire route?—From twelve to fifteen months.
19. Did that period extend over part of two summers?—Part of two winters.
20. How did the climate on that line compare with the climate on the Hautapu Section?—It is a more temperate climate there.
21. Which of the two would you prefer to select for a home?—The Ngaire route, as far as climate is concerned.
22. What was the character of the soil along the Ngaire route?—From Stratford to the Wangamomona the land is very good, and quite suitable for settlement. From thence to Heao and Mangaroa the land is exceedingly broken, and the soil inferior, birch growing in a great many places on the ranges. From Heao to Ohura the soil is very fair. From this to the junction of the central route the land is fairly good.
23. You told us that part of the country is very rugged?—Yes.
24. What is the general character of the hills upon the rest of the route which is not included in that description? How do they compare with the hills around Wellington as to the accessibility for cultivation?—It is very hard to compare bush country with open country. I do not think the hills would be any worse than they are between here and Porirua—that, is of course, as far up as Wangamomona.
25. That is, the broken country?—Yes, as far as Wangamomona.
26. Then you have broken country at the northern end?—Yes, at the northern end it is just moderately hilly.
27. Undulating?—It is more than undulating—broken country one would call it.
28. Is it country that can be brought into cultivation?—Can only cultivate parts of it.
29. *Mr. Duncan.*] Have you travelled the country east and west for any distance?—From the Tangarakau to Tongaporutu it is excessively broken country. [Witness indicates the position on the map.]
30. That is on the western side of the route?—Yes.
31. Have you travelled across the eastern side of the route?—Yes. For about five miles towards the Wanganui River the land is very broken.
32. Did you make any exploration of the Ngaire route over the portions that were less broken?—No, because I was not engaged on the survey beyond Ohura.
33. Have you any knowledge of the country between Eltham and Tongarakau?—No; with the exception of what is included between Stratford and Tongarakau.

Mr. WILLIAM HALES, Engineer-in-Chief, further examined.

34. *The Chairman.*] Have you brought with you the plans and specifications of the Makohine viaduct as requested?—No; they are in course of preparation.
35. How far are they advanced in the way of preparation?—They are sketched out, and the design of the viaduct has been settled.
36. If the general style of viaduct only has been sketched out, the estimate which you furnished the Committee on the 13th of this month can only be an approximation?—It is an accurate estimate from quantities carefully taken out.

37. Well, has any viaduct of the same character been constructed by the department?—Yes, except in the matter of detail.

38. Will you specify where?—There is the Waititi viaduct and the Wingatui viaduct, on the Otago Central line.

39. Can you state the general height and length of the Waititi viaduct?—It is about 140ft. high, and about 700ft. long.

40. Then, what are the dimensions of the Wingatui viaduct?—It is about the same height, but it has a longer bridge.

41. The height of the Makohine viaduct is at least 240ft.?—It is 249ft. in height.

42. *Mr. Blake.*] But is it not as long?—It is about 700ft. long.

43. Will you furnish the Committee with the actual cost of the Waititi and Wingatui viaducts?—Yes. Of course the framework of the piers is of the same style, only it is carried higher. The spans are longer, and there are not so many of them.

44. *Mr. Duncan.*] Would not the material require to be stronger in consequence of the extra height?—Yes; we have allowed for that.

45. *The Chairman.*] Can you say what engineer was responsible for the design of the viaducts you have mentioned?—The late Mr. Blair.

46. Were they his own design or the design of some officer in his department?—I cannot say.

47. You are not able to answer that question?—No.

48. Are you now prepared with the information which was asked for in reference to the alteration of the grades on the line between Marton and Eltham, on the New Plymouth line?—Yes, as far as obtainable.

49. Will you be good enough to state to the Committee what length of grade would require alteration in order to bring them all up to the standard of 1 in 50, and what would be the approximate cost?—There are altogether fourteen miles of the line with grades steeper than 1 in 50, these grades ranging from 1 in 32 to 1 in 49.

50. And the cost that will be incurred in reducing these grades to 1 in 50?—I may explain that the line between Marton and Eltham is generally over table-lands, about 450ft. general height. This is cut up by several broad and deep river-valleys, over which the line is taken. These steep grades are at the approaches to these rivers. They are the Turakina, Wangaehu, Wanganui, Kai Iwi, Okahu, and Waitotara Rivers. The line approaches these rivers after being graded along short branch valleys, consequently it would be difficult to alter the grades by deviating the line to any great extent.

51. You mean by deviating the line within narrow limits?—Yes.

52. But is it not practicable, by considerable deviation, to reduce these grades?—I do not think so; the country is so near the same level on both sides of the line for long distances. It would mean making a new line.

53. For how many miles?—For eighty miles.\*

54. You feel quite justified in making that statement?—Yes; that is, if deviation is thought of. If you once get off the line in making deviations, it would be difficult to get back to it again. There would have to be a new line constructed.

55. And you make that statement from your own knowledge of the country?—I have been all over that country. The grades can be flattened by simply lowering the level from the bottom to the top of the inclines on the present line, which would involve very heavy cuttings or tunnelling at the summits.

56. Now we are coming to the practical information which we wanted. Can you form any estimate of the cost of the alteration by heavy cuttings and tunnels?—I may explain a little further. In the bottoms of these valleys are the principal stations and centres of traffic, therefore the levels of the line cannot be raised at these points. There are no long lateral valleys running into these main valleys in the direction of the railway-line.

57. You would therefore be confined to the present line?—And it would also disarrange the traffic arrangement somewhat by making cuttings or tunnels at the tops of these inclines, for the reason that there are stations at nearly every one of them.

58. Then, as to the cost?—I should say £300,000.

59. Now, in the evidence you gave about the state of the work north of Marton—the work under construction—there appears to be a discrepancy between your figures and those of Mr. Holmes. I would like you to state again how many miles are open for traffic?—18 miles and 53 chains.

60. What is the length of the portion under contract?—3 miles and 70 chains. I think I gave this estimate before.

61. Then, as to the extent of the line in progress beyond Makohine, is the distance previously stated correct?—Speaking from memory, I could not say that it was exactly right for a mile or two.

62. Will it be 9 miles or 11 miles?—I make it 9 miles and 40 chains.

63. Does this distance include the tunnel on the south bank of the Makohine?—Yes.

64. Then, if the plan before us is correct, the work must now have advanced inside the limits of the Awarua Block?—I am not quite certain as to the boundary. [Consults the plan.] The works are now within the boundary.

65. Has the country westward of the Rangitikei been so thoroughly explored as to enable you to say that the proposed viaduct over the Makohine Gorge cannot be dispensed with, or, at least, that it would be more costly to divert the line at this stage of the work than to build the viaduct?—Yes; there has been thorough exploration, and every possible route for the railway has been examined and tested. The line cannot be diverted so as to dispense with the viaduct over the Makohine Gorge.

\* Witness, in correction, wishes to say forty miles.

Mr. JOSEPH PRIME MAXWELL, sworn and examined.

66. *The Chairman.*] You are one of the Railway Commissioners?—Yes.

67. And a civil engineer?—Yes.

68. Have you any knowledge of the country over which it is proposed to construct the North Island Trunk Railway, either on the central or the Ngaire route?—I have a slight knowledge of a portion of the central route—not an intimate one, by any means.

69. At which end?—I have been from Hunterville to Kerioi, and round Ruapehu, and to Te Kuiti.

70. I gather from your statement that you are not acquainted with the central route between Kerioi and the Upper Mokau?—No; I have not been through it.

71. Have you any knowledge of what is called the Ngaire route?—None whatever.

72. Well, from your experience of the working railways, would you consider it a profitable venture for the Government to undertake the construction of this Northern Trunk Railway?—I should think that it would be; but it much depends on how it is carried out, and whether the Government have the land, and whether there are people to put on the land. I might take as an example a work that has been carried through successfully—the Manawatu Railway. There was a good population at each end, with land to sell on the route, and people to settle on it. If the Government has the land to sell, and has population to put on it, I think that the North Island Main Trunk Railway is a parallel case, and that it would pay well to carry it out rapidly from both ends, so as to get at an early date the advantage of the through traffic, as well as the local traffic developed on the route by settlement of the land. I have brought with me, to remind the Committee of the position of the population of the North Island, a map of the electoral districts, showing how the population is grouped, and how this population at the south end of the Island would have access to the central and northern district, and *vice versa*. I was led to do this by considering the parallel case of the traffic between north and south railway districts of the South Island. The through traffic which occurs between the southern district, comprising Dunedin and Invercargill, and the northern district, comprising Oamaru and Christchurch, will amount to twenty-five thousand passengers a year—that is, we may say, entirely through traffic; and I do not think we could anticipate a less traffic than that in the case of the North Island. It is manifest that there are very great attractions in this Island which will take people—mere visitors—through from one part of the country to the other. This opinion, however, is based on the supposition that we can obtain reasonable facilities for travelling—that is to say, that the time is not made too long and the distance too great.

73. As between the two extremities?—Yes. When giving evidence on a line which is not laid out or constructed, it is difficult to point to any final conclusions. Everything in this case depends on the skill with which the line is constructed, and the object in view. If we are going to build a line to make as many miles as cheaply as we can, that is one object.

74. With heavy grades?—Yes, and with very bad curves; but if you are going carefully and skilfully to lay out the line which shall be capable of carrying traffic cheaply, and at a good speed, that is another matter. If a line no better than the line from Marton to Eltham is to be constructed, it would be a very indifferent line for either local traffic or through traffic, and in advocating, as I am doing now, the central line in preference to the Eltham route, I am presupposing that a much better line will be constructed; and not only that, but a much better line is capable of being got without any excessive cost. I have read recently the late Mr. Blair's report on this line, and I was struck in it by observing that he states that as  $7\frac{1}{2}$ -chain curves are good enough for the line between Christchurch and Dunedin, they are therefore good enough for the North Island Trunk Railway. Now, I do not think that because a bad feature has been introduced in one case that that is a sufficient reason for introducing it in another. The sharp curves are worst in a general way than sharp gradings, because they curtail the possible engine-power exceedingly; and in laying out this central line too much care cannot be given to questions of this kind—as to what business the line is to serve, and what kinds of features in curves and grades, and their location, should be introduced in the construction. The question, then, of whether we are to get a good through traffic on this central line depends, in my opinion, very much on the way it is constructed, and whether it is constructed with the skill, and care, and attention requisite to enable fast trains to be put on. I should judge, from reading the report, and from seeing a little of the country, that this line ought to be laid out to carry at least 50 per cent. better loads than the coast line—that is to say, an engine which would take 100 tons on the coast line would take 150 on the central line: that is, we should have a line which will carry 50 per cent. more traffic than the coast line.

75. At the same expense?—At the same expense, or less; and, in point of speed, the same results will approximately accrue. I was looking over this question as to what train service could be run from Wellington to Auckland on the alternate routes; and with our weight of rails, and with engines suitable for running through trains—which we have not got at present, but which can be got—we could run from Auckland to Wellington in fourteen hours by the central route; but we could not expect to do it under eighteen hours and a half by the coast route. You have in the central route, if properly constructed, a line which will carry 50 per cent. more traffic than the coast route, and which would save four hours and a half in point of time from Auckland to Wellington. I may say, in addition, that the central line would be of great advantage in giving access to the east part of the Island.

76. Connected with constructed roads?—Yes. In connection with the Taupo district and south of Ruapehu it gives access to the eastern part of the Island, and there is no such advantage to be gained on the Stratford route. I do not think there is anything more that I can add.

77. In attaching value to the central route as making the journey possible in fourteen hours, I presume you have in view tourist traffic as well as the ordinary traffic?—Yes.

78. So far as tourists are concerned, is there any special object in hurrying them through the country?—No, I imagine not.

79. They might as well break the journey somewhere on the route and travel at their leisure?—Certainly; but you would desire to give moderately rapid transit to people coming from the southern part of the Island going north, and *vice versa*. The more tedious you make their journey the less likely you are to be able to compete with the steamers.

80. From that point of view you think fourteen hours has a decided advantage over the eighteen hours and a half?—Yes, very materially. When we get to eighteen hours and a half we should be obliged to provide sleeping-accommodation; in the other case we should not require it.

80A. Then, a principal difficulty in the way of greater expedition by the Ngaire route is in the existing grades on the open line?—The existing grades and curves on the open line are the chief difficulty; but I also gather from the late Mr. Blair's report that this route—Eltham to Mokau—is going to be a very bad one, because he speaks of a succession of ridges, of no less than thirteen grades of 1 in 50. That shows that through that part of the country there would be a succession of ridges to cross, and that is the worst form in which we can have bad grades and curves—namely, distributed over all parts of the railway.

81. It is not to be anticipated that any material improvement can be effected on the open line between Marton and Eltham?—No, for two reasons: the first is the interference with vested interests, and the second is the great cost.

82. *Mr. Duncan.*] We have it in evidence that the central route is not likely to have any close population from about Kerioi to Taumaranui, on account of the land being unsuitable for settlement. How would that affect a paying line as regards traffic, seeing that it would have to travel such a distance through a poor district of country?—From Ohakune to Taumaranui, a distance of about sixty miles, if there is no population, naturally there would be no local traffic arising from this district.

83. Would that alter your opinion of the Ngaire route as against the central route?—No, it would not.

84. *Mr. Carnecross.*] In estimating the probable paying-properties of this line, you laid much stress upon the traffic that may be developed on either route from the terminal points?—The local traffic is of great importance, of course.

85. Then what is the nature of the traffic that would be along this line?—You have from Marton up to Ohakune, a distance of ninety miles, a fairly good country. There would be a great deal of local traffic on that portion of the line now.

86. The evidence so far has gone to show that for several years the traffic would be mainly pastoral: would that bring much local traffic?—No. Taking Mr. Duncan's question and Mr. Carnecross's question together, I would say from Eltham, on the Stratford route, to Ohura Valley, there are ninety miles of country which I am told is susceptible of settlement. I do not know myself that this is so. On the other hand, from Marton to Ohakune, there are seventy miles of country. There is not very much difference, when you consider that you have the advantage of getting access into the eastern part of the Island, which is by no means an inconsiderable gain, although it may be very light country.

87. You cannot say from your own knowledge which line would be likely to develop the largest amount of local traffic?—No, I do not know.

88. *The Chairman.*] As I understand it, your contention is that the facility afforded on the central line for generally developing tourist traffic and traffic to the eastward of that line would compensate for the disadvantage of carrying the line sixty or seventy miles through country unfit for settlement?—Yes; I think it would outweigh the slight advantage of the Eltham route in respect of local traffic, if there is any slight advantage. The central route carrying people from the south to Tokaanu and Taupo will offer very great attractions that the other route does not offer.

89. And would justify the additional expenditure of half a million in the construction of the central line, over and above the cost of Ngaire line?—Not alone. The attractions of the line would not alone justify that expenditure, but the joint advantages of the central line, quick transit, greater traffic capacity, access to the east coast from Auckland and Wellington, and access to Taupo for tourists, I think, would.

90. In your opinion the joint advantages offered by the central route for acquiring communication between Auckland and Wellington and between the northern and southern parts of the Island, and the greater encouragement it would give to tourist traffic, would compensate for the additional outlay of about half a million?—Yes, that is practically what it would be.

91. *Mr. Carnecross.*] Would it be good policy on the part of the Government to proceed with the construction of the line by either of the alternate routes before they have completed the purchase of the Native lands?—I do not think I am able to give an opinion about that. I do not know anything about the question of the purchase of Native lands. I may say generally that I think that the Government ought to possess the land on the routes, but I do not know enough of the Native land question to give any evidence of any value about it. All my evidence has been given on the supposition that the Government have the land.

92. *The Chairman.*] In deciding as to the preference to be given to the Ngaire route or the central route, should not the question of one or the other of them affording a supply of cheap coal have very considerable weight?—The central route will have a supply of the cheapest and best brown coal in New Zealand available in the Waikato, from which place our present supplies for the Auckland railways are drawn; and I do not therefore think that the prospect of opening out another mine on the Ngaire route should materially affect the question. The central route is a matter of colonial interest; the opening out of more brown-coal mines is one of mere local importance. I believe the Taranaki district could get supplies of brown coal by a short extension of the Waitara line; but I do not speak with any personal knowledge on this point.

WEDNESDAY, 28TH SEPTEMBER, 1892.

Hon. Mr. CADMAN, further examined.

1. *The Chairman.*] The principal question I wish to put to you is this: Seeing that the land is not yet acquired from the Natives either in the Awarua Block or over a very large portion of the Ngaire route, and that it is now under negotiation for purchase, do you think it is a wise thing for the Government to push forward the construction of the central line, either from the north end or from the south end before the land is acquired?—Certainly it is not a wise thing to push any line of railway through land that you are going to acquire; it must increase the price you have to pay for the land; but I may add that, as far as this is concerned, some of the principal owners of the Awarua Block are agreeable to part with 100,000 acres, and the question of place and price to be arranged in the future. I may say in reference to the Stratford route the Crown interests that are acquired on this line would be equal to about 100,000 acres.

2. Having land under offer and having land purchased are two widely different positions. What I would like you to state to the Committee is this: seeing that the price for the Awarua Block is not yet fixed, would it not be putting up the price to allow this southern railway to proceed any further pending the completion of the negotiations for the purchase of that land?—I do not think that the price will change now that the railway is commenced. The land varies very much in value. Indeed I have seen ten different valuations put on various portions of that block by the Survey Department.

3. If you were negotiating for that property on your own account, and you were at the same time constructing a railway on its boundaries, would you not in your own interests absolutely stop construction of that railway till you had completed the purchase?—If it were my own I would acquire the land before I enhanced its value by a railway.

4. In the same way, the process of construction that has gone on from Te Awamutu has tended to enhance the value that the Government will be compelled to pay for the purchase of Native land in that locality?—No doubt. There is not the slightest doubt. I may say that the agitation of the Ohura Block has thrown difficulties in the way, as we now feel the Natives are not so anxious to sell, and it is not peculiar to this part.

5. Do you think, in order to facilitate the acquisition of these blocks that are under negotiation, that it is your duty to urge upon your colleagues that the railway expenditure in the meantime should absolutely cease?—I do not know that it would make any difference if it were stopped to-morrow. All you could do in twelve months would not make any difference to the value of the land.

6. If the Natives saw that the works were stopped, and given to understand that the works would not go on till the purchases were completed, would that not have a lowering influence on the price of the land?—You must bear in mind that the owners are not all living there on the land. Some are in this town, and know full well the value of that block, and know all about these matters as well as we do ourselves. The principals in this block are men like Mr. Donnelly, Mr. Broughton, and Mr. Blake—one is a European, and his wife is the owner—the others are half-castes. Those mentioned are owners.

7. *Mr. Duncan.*] I do not gather exactly what state the purchase of that block is in?—It is in this position: the block is placed under what is called "restrictions." Those who understand Native Land Court matters will know what this means—that is to say, it has gone through the Court with a provision that no freehold title can be obtained from the Natives except these restrictions were removed, but it could be leased for a term of twenty-one years, and in order to remove the restrictions it is necessary to get a majority in the number of owners to sign a document asking for the restrictions to be removed, after which the matter is sent to the Native Land Court for inquiry. Until that were done this block could not be dealt with, but in the Native Land-purchase Bill now before the House there are provisions put in which enable the Crown to deal with blocks like this, notwithstanding the restrictions that have been made. The suspension of the restrictions by the Act referred to applies only to the Crown; private individuals cannot deal with it.

8. In other words, the Crown has power to set aside the restrictions?—Yes, the Crown only.

9. *Mr. Mills.*] Do you know whether the Crown is negotiating for portions of the land on the Ngaire Block—namely, Maraekowhai Block, Whitianga Block, and Ohura Block?—Yes, we are endeavouring to acquire that land.

10. *The Chairman.*] The Committee wish you to furnish a statement showing the expenditure of the Government and the interest already acquired in the four principal blocks along the Ngaire route?—Yes, I will see that that is sent to you.

11. *Mr. Mills.*] What is the total area of those several blocks and the amount acquired?—I will furnish it in my statement.

*Statement furnished by the Hon. Mr. Cadman.*

Taumatamahoe Block, 150,000 acres.—Interests acquired by Government to date, estimated at 100,000 acres; will be defined by Native Land Court shortly. Land will then be available for settlement.

Maraekowhai Block, 57,000 acres.—Purchase recently commenced. Only three shares out of seventy-nine yet acquired.

Whitianga Block, 35,000 acres.—Not yet passed through the Native Land Court. Cannot be dealt with in the meantime.

Ohura South, 116,152 acres.—Cannot be dealt with until order of Native Land Court declaring extent of individual shares is clear of danger of rehearing.

NOTE.—The three first-named blocks were dealt with by the Land-purchase Department as a whole under the collective name of "Taangarakau" before the titles were adjudicated upon by the Native Land Court.

Mr. RALPH DONKIN, sworn and examined.

12. *The Chairman.*] What is your profession?—Civil engineer. I reside at Mokau.

13. You gave evidence before a Parliamentary Committee of 1884 on the subject of the Main Trunk Railway. Have you any further knowledge of the country since then?—Yes; I have examined the whole of the country since that time.

14. What part of the country have you examined, or do you mean the whole of it on both routes?—I have been over the Stratford route before 1884, and I have been over the northern parts of the Stratford route since 1884, and as far south as Taumaranui on the central route.

15. Have you been over the trial line from Waitara?—Yes, several times, as indicated here. I have cut a track to show this line the whole way through from Urenui to Taumaranui. From the Waitara, instead of going over or through the high ridge as it was surveyed when the Mimi line was surveyed, I propose to follow up the Urenui River and up one of the branches for about fourteen or fifteen miles; then by a short tunnel I get from the Urenui into the Waitara Valley, and thus pass the ridge between the two watersheds; then I follow up the Waitara River on the left bank going up to an old Maori track, and then I join the Stratford route about forty-five or forty-six miles from Waitara—about the junction indicated on the Government plan. After traversing the Stratford route for about ten miles till you reach the Heao; you then leave that route and strike west to the watershed of the Ohura.

16. Then from the point indicated near the Upper Wanganui, your track lies to the left of the Upper Wanganui to Taumaranui, where it joins the central route?—Yes.

17. Have you taken any levels across the country which you have traversed?—No, I have not taken any levels with the exception of those taken by aneroid barometer. It is perfectly easy country to work. The only difficulty in getting from the watershed of the Urenui River to the Waitara River is that it would require a tunnel of 120 or 130 yards.

18. Is the rest of the country suitable for the construction of a railway, and easy?—Yes, well adapted for the construction of a railway.

19. There would be no heavy works?—No heavy work at all.

20. Can you say whether the route has been explored by anybody else?—Only some surveyors have been in a portion of it, but not for the purpose of making road or railway surveys.

21. In crossing from Waitara River to Taumaranui are there no high ridges?—There is only one, and it is a mere nothing to get over; and you follow on the left of the Wanganui from the Ohura River where there is a low ridge; and there is also a ridge from the Waitara watershed into the Tangarakau River easily passed over.

22. When you speak of there being no engineering difficulties, do you speak with experience in laying out railways?—I have been laying out railways all my lifetime. I have been engaged as railway engineer in England and also in the colonies.

23. Can you mention any of the works upon which you were engaged?—I laid off a number of railways for the New South Wales Government.

24. What railways?—From Bathurst to Orange, and from Orange to Wellington.

25. Any others?—I was also upon the Canterbury railways as Assistant Railway Engineer.

26. Under whom?—Under Mr. Warner.

27. What railways did you lay out in Canterbury under Mr. Warner?—Only for a short distance, the line that runs from Oxford to Sheffield. Although not connected as Railway Engineer in Victoria, I was engineer for the water-supply in Melbourne.

28. Were you the Chief Engineer for the Yan Yeen water-supply after Mr. Bullock Jackson?—Yes, after Mr. Jackson. My former employer in England was Mr. J. F. Bateman, of Manchester, and Westminster, London.

29. As you have traversed the whole of the Ngaire route, and some portions of the central route, does the land of the country which you have indicated compare favourably with that, and does it offer greater facilities for settlement?—Yes, it offers greater facilities than either the Stratford or central route, and a railway could be much cheaper constructed; there would also be a saving in distance of about twenty-three miles.

30. When you say a shorter distance, do you mean the connecting of the railway systems from the two extremities of the Island?—Yes.

31. You mean not that it would be a shorter distance as between Wellington and Auckland, but that it would be a shorter length to connect the railway systems of the North Island at Waitara than with the railway at Stratford?—Yes, that is correct; it would be shorter to connect the railway system from Waitara to Taumaranui; there would be a saving of about twenty-three miles less of line to be constructed.

32. With regard to the land on each side of this line, what would it open up?—It would open up several hundred thousand acres of excellent land. It is good land all along the line, and it is not bad land from Stratford to Ngaire, but it is chiefly opened by roads around Stratford. My reason for going from Heao to Taumaranui, instead of the point of divergence near the tunnel, is that Lake Taupo is about twenty-five miles from Taumaranui; and before very long a high road will be made there, and there is already a good horse track.

33. By extending the railway from Waitara to Taumaranui, would that connect the railway system of the North Island without leaving the New Plymouth district in an isolated position, as would be the case if the line branched off from Ngaire?—That is so.

34. Do you wish to make any further statement?—Perhaps I might say something with regard to the cost of the two lines. The estimated cost of the Ngaire line by the Government is £1,166,000; whereas my estimate of the cost to connect Waitara with Taumaranui is sixty-five miles at £8,000 a mile: making a total of £520,000, which shows a net saving of £646,000.

35. You think the railway could be made from Waitara across by the line you have indicated to Taumaranui for about £8,000 a mile?—Yes, Sir, as against £1,166,000 for the construction of the Ngaire route.

36. That is about one-half?—Yes; and it would be a saving of £1,153,000 as against the central route.

37. *Mr. Duncan.*] With regard to this shorter route from Waitara, and the cheapness to which you refer, does it arise from special facilities for ballasting, or is it on account of the formation of the country?—Chiefly on account of the formation of the country.

38. Do you know anything of the minerals?—There is coal and ironstone; and I was the first to discover the coal. Coal is found through the whole of the Tangarakau district, which is traversed by either route, and from Ohura River across to Taumaranui, and so far down this way across towards the central route.

39. *The Chairman.*] There is coal about six or seven miles west of Taumaranui?—Yes.

40. How far distant from the Wanganui River would that be?—It is on a creek, a tributary of the Wanganui River. I do not know the distance.

41. Is there a large deposit of ironstone?—I could not say, but there is a reef, and it is quite a mineral country on the Tangarakau River. But I would add that the Ngairu line would go seventy-seven miles through Native lands, and the Waitara line would only go twenty miles. The Ngairu route, nearly the whole of it, is through Maori lands. I do not suppose there is more than twenty miles in the Waitara line which would go through Native lands.

42. On the line you have spoken of as being an easy one for railway construction, what would be the worst grades and curves necessary?—Excepting in the Tangarakau River, which is common to both lines, there would be no grades worse than about 1 in 70. With regard to curves, there would be none of them less than about 16 chains radius—the very worst.

Mr. EDWARD METCALF SMITH, M.H.R., further examined.

43. *The Chairman.*] Referring to your former evidence, what further information do you wish to give the Committee?—I do not think there is much more. I would like to state, however, that Mr. Donkin has been engaged by myself and others for several years prospecting this country with a view of discovering minerals, and of proving how it might be utilised with advantage by a railway. I have myself delivered a series of lectures in the district, illustrated by maps, and of course detailing information obtained from explorers and surveyors. What I wish to speak to you more especially on is this: there can be no doubt of it that in a very short time we shall have large industries established in New Plymouth and Waitara, and by taking the railway the coal inland will very materially assist these industries. As has been already pointed out, that if the railway was made from Urenui, the Railway Commissioners would be able to obtain their coal from land belonging to the Government; that is, the coal is on Crown lands. I may say that within the last ten days I have been told the Crown Land Ranger has discovered coal himself at a new place which is much nearer to a point of settlement. I am told that another sample found will be sent down. What the New Plymouth people object to is this: they say that if this line was made from Stratford they would have to go thirty miles back towards Wellington before they branched off.

44. Your objection is, that whether the line to Auckland is by the central route or by the Stratford route, the New Plymouth people will be left out in the cold?—Yes, in either case. We maintain that this route of Mr. Donkin's is the shortest that can be constructed; that it opens up the best land, and land containing the largest amount of mineral, and that it is the cheapest to construct in order to connect the railway system of the North Island. Moreover, the minerals on that route will pay all expenses. From Sentry Hill on to Urenui is all open country.

45. You have not traversed the country which was described by Mr. Donkin?—No; but I have taken evidence from the surveyors who have travelled the country, and settlers, prospectors, and others.

46. Do you say that Mr. Donkin was engaged by the Government to cut that track?—Yes; and he has only just completed it. And then I do not think that he made this quite clear to you: at the northern end of this line it is proposed that if the central line was continued on, that it would go straight across to Taumaranui; but if that was not done then he would run into the top end of the Stratford line. We have never ceased to explore this country since 1884 with a view of the railway being made this way, and the coal found on that land is of the same character as that found at Mokau, which is of a first-class character.

47. *Mr. Mills.*] Have you ever been through the country, Mr. Smith, which Mr. Donkin refers to?—No, never; my information has been obtained from others.

48. *Mr. Carnecross.*] With reference to that coal, Mr. Smith, is it steam coal?—Yes, it is the same as that found at Mokau, which is used and acts well as a first-class steam coal.

49. Is this coal in Crown land?—It is either in Crown land or in land that is being acquired by the Crown, and of that portion which is not yet Crown land there is no difficulty in the purchase. I should like to state that, in talking the matter over with the Railway Commissioners, they are in favour of that being done, in order to get at the coal for railway purposes, and Sir James Hector's map shows that this proposed line goes right through the said coalfield.

Sir JAMES HECTOR, sworn and examined.

50. *The Chairman.*] You are the Government Geologist?—Yes.

51. You were examined before a Committee of the House in 1884 on the subject of the location of a railway to connect the north and south railway systems of this Island?—I was.

52. Have you any further knowledge of the district?—Since that date the country has been further examined by the Geological Department, but by no means completely examined. The further evidence which I have to give is chiefly of a geological character. I have here a sketch geological map giving a good deal more information than before. Since the former date mentioned, I have myself personally examined the Waitotara River, and some of the other parts of the country have also been re-examined. My former survey of the Mokau district in 1878 was verified and extended in 1889 by Mr. Park, who was then one of my assistants. The map I produce shows the boundaries of the different

formations in a general way; but I must inform the Committee that it is not strictly accurate, as, owing to the short notice, I have not been able to construct one specially suited for this inquiry. It is the map which was attached to Mr. Park's report which embodied all previous surveys, but it has been amended by more recent explorations. Where it fails is in not showing that certain younger limestone beds extend far into the interior as isolated patches on the hill-tops, and these probably exercise a beneficial effect on otherwise poor soil. For instance, the limestone which forms the coast-line at Waitotara actually reappears on the southern slopes of the Kaimanawa Range, north of Erehwon, at a height of over 3,200 feet. The chief object of the map I have now prepared is to show the area over which coal-bearing formations have been ascertained to extend, and the exact spots where coal outcrops are known to occur.

53. Nearly the whole of that coal formation would be more along the western than along the central route?—Certainly; it is best developed in the upper part of the Wanganui Valley and tributary valleys from the west, and it extends northward into the Mokau Valley, and is no doubt continuous to the Waikato coal basin.

54. I see part of the coal-bearing area is tapped by the central line?—Yes; for, according to Mr. Park, the coal formation represented by green sandstone is found in the bottom of very deep ravines, but no coal-seams have yet been found there. The map is also intended to show the extent of papa rock which commences at White Cliffs, south of Pukearuhe, and from thence towards south-east, occupies a large belt of the country which stretches to the base of the Ruahine Mountains. Its outline is a little different to that shown on this map, which is to be looked on as a diagram of a horizontal section from the sea-level upwards to 1,800ft. Where this papa rock occurs it causes the chief difficulty that has to be overcome by the engineer.

55. Why?—To get through this papa country always presents very great difficulties unless it is possible to take advantage of gravel terraces that skirt the larger rivers.

56. For what reason?—On account of the treacherous slips which take place from the papa rock; it is very bad standing ground in excavations.

57. On the other hand it is valuable as agricultural ground?—It is not first-class land. The surface is generally very broken.

58. Is it suitable as pastoral country?—Yes.

59. It carries cultivated grasses?—Yes; but its surface slopes are very steep. This kind of country is very well known. The belt of it must be crossed by any route which goes up to the interior from the coast-line anywhere between White Cliffs and the Rangitikei. The peculiarity of the Wanganui River is that it enters this papa rock-belt, and, instead of traversing it directly, it has cut a gorge through it lengthways, and emerges from the papa thirty miles to the east of where it entered its northern boundary.

60. What is the character of the country indicated by 3a on the map?—This formation underlies the papa, and is generally more sandy and gravelly in its nature. It contains a considerable abundance of cement-stones, and frequently lies immediately over the limestone which forms the upper member of coal-bearing formation in this district. This formation forms a better class of country than 3b.

61. Better also for carrying a railway through?—Yes; and for settlement. A better class of country still is 3c. It is a formation composed chiefly of shells, blue clay, silt, and soft calcareous sands with hard encrusted bands of limestone formed of broken shells recemented. The old slate rocks, which are the foundation of the country, are found in the Ruahine and Kaimanawa Mountains. There is only one isolated spot where such old rocks are known north-west of that within the map, and they are only exposed over a very small area where the Mokau River has cut through the overlying coal formation at the Waitara Falls. The three shades of pink colour on the map indicate the three different formations of volcanic origin. The darker colour is lava and other ejected rocks from the still active centres of Ruapehu and Tongariro. The next lightest colour is a portion of the great formation of trachyte-breccia, which extends over a large area of the north. It was formed by volcanic outbursts during which enormous masses of stones, sand, and volcanic mud were ejected. The lightest pink is a material derived from volcanic mud or washed down from the pumice or froth lavas by the rivers. These volcanic formations form the interior plateau which has a well-defined margin towards the west, and has an average level of 1,800ft. from the sea. In my opinion the margin of this plateau forms the eastern boundary of the useful country for settlement, except perhaps for tourists' traffic.

63. Seeing that a large portion of the central route is laid in country across that high plateau, do you consider that it is a desirable position for a railway?—I should think such a route should only be adopted if there are overwhelming engineering difficulties in the way elsewhere, or if the facilities are so great that the line could be made at a very much less cost; otherwise an endeavour should be made to carry the line through at a much lower level. It is obvious that all road-making, to feed the railway, should gravitate down towards the railway, otherwise you have all the loads taken up hill. But whether it is possible to follow, as suggested in my former evidence, the great valley of the Wanganui River, which intersects the whole country, I do not know; but I think it is desirable that this should be explored for. I do not mean by the valley the immediate water channel of the river, but the great valley that lies between the Ruapehu and Mount Egmont Mountains.

64. You mean it should follow the lower part of the watershed?—Yes, as far as possible. I know of no survey which has been yet made to test this question.

65. Then your evidence would point to much more extensive exploration on what is known as the central route?—Yes, the result of further exploration might lead to great improvement. There is one point that should be kept clearly in view, and it is a main point: we should endeavour to tap the coal-bearing country by the railway. Without handy coal the railway must work under great additional expense and disadvantage.

66. Can you give the Committee any information as to the climate of this high plateau which

the central line traverses?—I know about Tongariro, Ruapehu, and south of Taupo. I was snowed-up there on Christmas Day, 1869, but I do not actually know that part of the line west side of that mountain. West of the pumice land is a bush country. In some cases, I have known fairly good totara forest growing upon such very light pumice soil, as, for example, at Oruanui, north of Taupo Lake; but such instances are rare. I should judge, from the existence of forest, that there must be abundance of moisture in the Upper Wanganui. Of course, moisture falling from the atmosphere is quite a different thing from moisture retained in the soil. In pumice land all the rain that falls is at once absorbed and sinks into the subsoil 10ft. or 20ft., and is then quite out of the reach of the roots of plants.

67. If you look at the map you will see that the central route for fifty or sixty miles crosses such country at an elevation of over 2,000ft. Do you consider that elevation very favourable to settlement?—No, I should say that there was no chance of settlement along such a line, because above an elevation of 1,800ft., as far as I know, all the country is volcanic, with the exception of a few outliers of limestone, which actually are found up to 3,200ft. In fact, you can see on the southern slopes of the Kaimanawa Range the old sea-shore, large oyster-shells and barnacles now forming incrustations on the rocks there; but, with the exception of this, the bulk of the country, especially to the west of Ruapehu above 1,800ft., is entirely volcanic, and that portion which is coloured light pink on the map could only be settled for purposes connected with tourist traffic, and the like.

68. Is the whole of the country, as far as you are acquainted with it, between the central and the Ngaire routes, equally moist; is it what you would designate a decidedly wet country?—I should think that it would not be nearly so wet as the climate of Taranaki. I must point out that none of the level alluvial flats in the Wanganui Valley are shown on the map, and I believe there must be a considerable extent of land of very fine quality. In former years it maintained a very large Maori population.

69. Upon what evidence do you think it has maintained a large Maori population?—From the Natives at the head of the Wanganui River, and many of the old travellers. For instance, I believe Sir George Grey, Major Parris, and others gave evidence to this effect on a former occasion.

70. It is a locality which the Natives favoured for settlement?—Yes; the Maoris certainly throve there.

71. Of course you cannot give any idea as to the possibility of diverting the line?—No, I should state that a large portion of it I have never seen. From what I have seen I should think probably the worst part of the Wanganui River could be avoided. The Waitotara River, which I examined for a long distance up, looks a frightful country if it is viewed from a canoe; but I also walked a very short distance back from its valley and found a level plateau, and coming down the river in the canoe afterwards, I was surprised at the different impression which the same country produced. It looked frightfully rugged in the latter case, whilst in the former it looked a table land.

72. Is your knowledge of the country sufficiently clear to indicate whether you think it possible that this central line between Ohakune and Taumarunui might be diverted more to the west?—I could not say. I should try to get near the coal, and keep on the low ground, and it would be a very important thing for the whole railway system of the Wellington and Taranaki districts.

73. As to the character of the coal in the Mokau and Upper Wanganui?—It is not a gas coal, but it makes a very useful kind of coke—not a spungy coke, but a hard coke.

74. Is it equal to the Bay of Islands coal?—Yes; as far as steam generating is concerned it is equal to the Bay of Islands coal, but it would not make gas; on the other hand, it is not hurtful to the furnace bars.

75. You are satisfied, as far as its power to generate steam is concerned, that it is equal to the Bay coal?—I think it is approximately as good. It is like the Springfield coal in Canterbury.

76. I understand the Springfield coal in Canterbury is inferior coal?—Yes, now; but it used to be thought very good.

77. Then, it would be a better coal than what is known as Kaitangata?—Yes; more steaming-power.

78. *Mr. Duncan.*] Would it be safe to use in the engine passing through the country in regard to sparks, or is it liable to spark out?—No, not more than any other coal—not more so than other coals now used. The difficulty in regard to sparks is easily overcome by the use of the spark-catcher.

79. I should like to ask you, do you think we have sufficient information to locate the railway without further surveys?—My opinion is that it would be better to get more information. We have too frequently seen the evils of hurriedly-constructed railways. After going to great expense, as settlers grew familiar with the country, it has been frequently, in New Zealand, discovered that the railway should have gone some other way. I do not, of course, say that that would be the result in this case.

80. *The Chairman.*] Can you tell the Committee when the Waimarino Block was purchased?—I do not know anything about the purchase of that block, but I should think some time after the last investigation of the subject, although I am not sure.

81. Seeing that this was acquired by the colony, and is of large area, do you not think it would be wise to have a thorough exploration of that portion of the colonial estate before finally locating this railway?—I certainly think so.

82. From your knowledge of the district, you think the good land in the Waimarino Block would lie well to the west of what is marked as the central route?—Well, it would certainly begin west of the central line, but very probably the line was selected to keep on the comparatively level and hard volcanic land, and to avoid the bush land which is broken in outline.

83. Would you like to say anything further?—I do not think so. The evidence I gave before was pretty full on the subject.

84. *Mr. Duncan.*] Is there any indication of gold-bearing land along either of the routes?—There is a little gold in the Kaimanawa Range, but it has been prospected for in a very desultory manner, and very little obtained.

85. *The Chairman.*] There are no mineral areas of any value that you are aware of other than the Mokau coal?—Not within the limits of the area we have been discussing, except that at the Wairere Falls there is a possibility that some veins or lodes may yet be found. There has been no definite valuable discovery of minerals anywhere in the district. There have been many rumours, but they have never stood investigation. At the same time it is possible in the volcanic areas there may be developments of the same character as at the Thames, but such have not yet been proved.

APPENDIX.

NORTH ISLAND MAIN TRUNK RAILWAY.

STATEMENT OF ESTIMATED COST OF COMPLETING THE NORTH ISLAND MAIN TRUNK RAILWAY.

Central Route.

Mangaonoho to Ongaruhe, 133 miles, at £9,650 per mile\* ... £1,283,450

Stratford Route.

Eltham Junction to Ongaruhe, 103 miles 5 chains, at £8,818 per mile £908,819

Ongaruhe to Upper Mokau Station (common to both Routes).

25½ miles ... £210,000

15th September, 1892.

WILLIAM H. HALES.

Cost of Construction, North End.

Opened line from Te Awamutu to Upper Mokau ...	£184,585
Por-o-tarao Tunnel Section ...	54,420
Works in progress, Mokau Section, and liabilities, 31st August, 1892	27,393
	<u>£266,398</u>

Sir,—

Public Works Department, Wellington, 26th September, 1892.

In reply to your letter of to-day's date, I have the honour to inform you that the plans and specifications for the Makohine viaduct have not been prepared yet. The plans are in course of preparation.

I have, &c.,  
WILLIAM H. HALES,  
Engineer-in-Chief.

The Chairman, North Island Main Trunk Railway  
Committee, Parliament Buildings.

CENTRAL ROUTE.

† ESTIMATED PROBABLE COST OF THE PRINCIPAL BRIDGES AND VIADUCTS.

Mangaonoho to Hautapu.

Four bridges...	£12,000
Two viaducts	56,000
	<u>£68,000</u>

Turangarere to Waimarino.

Seven bridges (1,810ft.)	£13,000
Viaduct, 28/44	16,250
" Hapuawhenua	8,000
" Mangaturatura	11,000
" Manganui-a-te-ao	7,000
" Maketoti	17,500
	<u>£72,750</u>

\* Mangaonoho is the end of the railway constructed and under contract, distant about 22½ miles from Marton Junction.  
† No bridges under 50ft. are included in these figures.

*Waimarino to Junction of Routes.*

Five bridges, 1,440ft. ...	...	...	...	...	£11,500
Viaduct, Piopotea ...	...	...	...	...	5,000
" Mangapuri ...	...	...	...	...	6,000
" Waikoikoi ...	...	...	...	...	7,500
" Tepuri Creek ...	...	...	...	...	9,500
" Te Awakino ...	...	...	...	...	14,000
" " ...	...	...	...	...	20,000
" " ...	...	...	...	...	11,500
" " ...	...	...	...	...	11,000
" Piopotea River ...	...	...	...	...	20,000
					<u>£116,000</u>

28th September, 1892.

WILLIAM H. HALES.

SIR,— Public Works Department, Wellington, 8th September, 1892.

*Re North Island Main Trunk Railway.*—I have the honour to acknowledge the receipt of your letter of the 6th instant, requesting to be furnished with a sectional plan showing the different gradients on the alternative routes, known as the central and Ngaire routes, proposed for the above-mentioned railway.

In reply, I am directed by the Minister for Public Works to state that the preparation of the plan in the form suggested has been put in hand, and that the same will be forwarded to the Committee as soon as it is completed.

I have, &amp;c.,

H. J. H. BLOW,

The Chairman, North Island Main Trunk Railway  
Committee, House of Representatives.

Under-Secretary for Public Works.

SIR,— Public Works Department, Wellington, 20th September, 1892.

*Re North Island Main Trunk Railway plans.*—I have the honour, by direction of the Minister for Public Works, to forward to you the accompanying plan showing the respective longitudinal sections of the central and Ngaire routes for the North Island Main Trunk Railway, asked for in your letter of the 6th instant.

I have, &amp;c.,

H. J. H. BLOW,

The Chairman, North Island Main Trunk Railway  
Committee, House of Representatives.

Under-Secretary for Public Works.

STATEMENT showing Monthly Earnings per Mile on Sections Te Awamutu to Mokau, and Marton Junction to Rangatira.

	Monthly Earnings.			Miles.	Earnings per Mile.		
	£	s.	d.		£	s.	d.
Te Awamutu to Mokau ...	78	16	7	35	2	5	0
Marton Junction to Rangatira ...	290	10	1	19	15	5	10

Accountant's Office, New Zealand Railways,  
Wellington, 20th September, 1892.

MEMORANDUM for E. G. WRIGHT, Esq., M.H.R., Chairman, North Island Main Trunk Railway Committee.

THE above is the return of earnings for the four-weekly period ending 20th August, 1892, on the respective portions of railway named.

20th September, 1892.

JAMES MCKERROW,  
Chief Commissioner of Railways.

The ENGINEER-IN-CHIEF to the CHAIRMAN, North Island Main Trunk Railway Committee.

SIR,— Public Works Department, Wellington, 1st October, 1892.

Enclosed I have the honour to send you a corrected statement of the estimated cost, &c., of the alternative route of the North Island Main Trunk Railway.

E. G. Wright, Esq.,

I have, &amp;c.,

Chairman, North Island Main Trunk Railway Committee,  
Parliament Buildings.

WILLIAM H. HALES,  
Engineer-in-Chief.

NORTH ISLAND MAIN TRUNK RAILWAY.  
*Estimated Cost of Alternative Routes.*

	Marton to Te Awamutu (Central Route).	Eltham to Te Awamutu (Stratford Route).
	£	£
Estimated cost in 1884 ... ..	1,293,134	979,178
Expenditure and liabilities, including surveys to 31st March, 1889	335,785	244,662
Estimated amount at same date of further expenditure necessary to complete the railway ... ..	1,672,200	1,165,926
Expenditure and liabilities, including surveys to 31st March, 1892	402,025	264,662
Estimated amount at same date of further expenditure necessary to complete the railway ... ..	1,605,960	1,145,926
Expenditure and liabilities on roads to give access to the whole railway to 31st March, 1892 ... ..	Total, £102,226 8s. 4d.	

30th September, 1892.

WILLIAM H. HALES.

The ENGINEER-IN-CHIEF to the CHAIRMAN, North Island Main Trunk Railway Committee.  
SIR,— Public Works Department, Wellington, 3rd October, 1892.  
In reply to your letter of to-day, I have the honour to inform you that the Waititi and Wingatui viaducts cost as follows:—

Waititi viaduct: 140ft. high, 700ft. long; total cost, £14,913.  
Wingatui viaduct: 154ft. high, 690ft. long; total cost, £22,439.

I have, &c.,  
The Chairman, WILLIAM H. HALES,  
North Island Main Trunk Railway Committee. Engineer-in-Chief.

*Approximate Cost of Paper.*—Preparation, nil; printing (1,450 copies), £35.

By Authority: GEORGE DIDSBURY, Government Printer, Wellington.—1892.

Price 2s.]

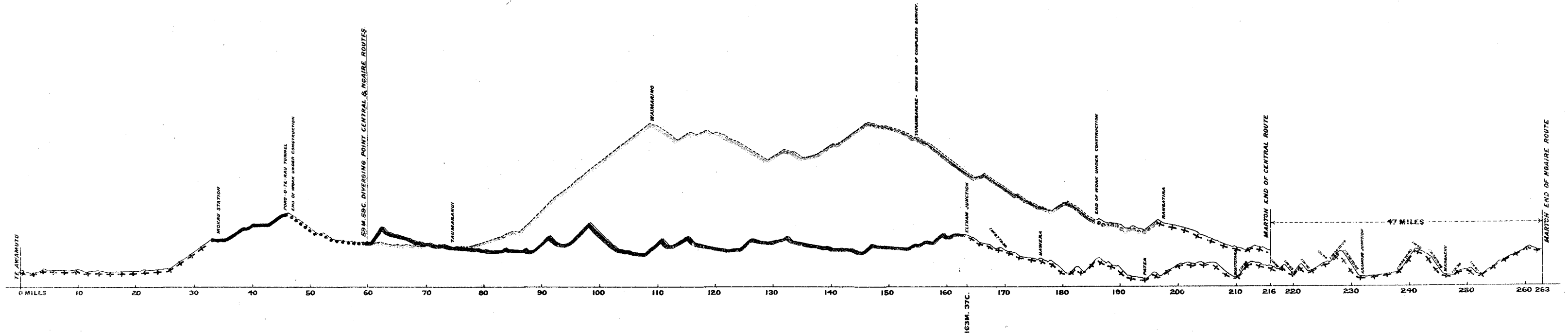




# **NORTH ISLAND MAIN TRUNK RAILWAY.**

Longitudinal sections from Te Awamutu to Marton

Via Central and Ngaire Routes.



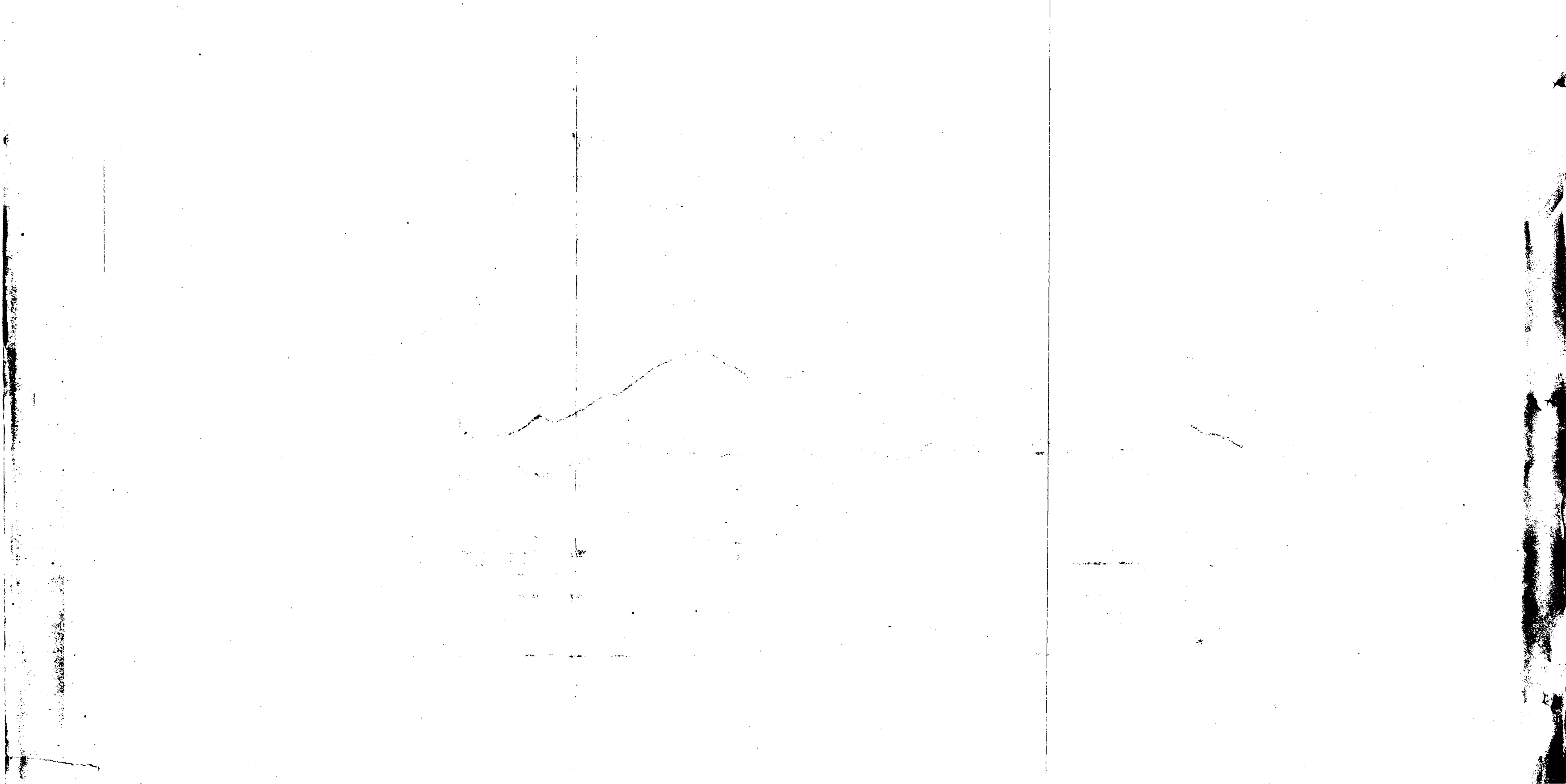
## REFERENCE.

LINES CONSTRUCTED ————— + + + + +  
 COMMON LINE UNDER CONSTRUCTION —————  
 " " SURVEYED - - - - -  
 CENTRAL ROUTE UNDER CONSTRUCTION —————  
 " " SURVEYED - - - - -  
 NGAIRE " " —————

Scales { Horizontal 16 Miles.  
 Vertical 1600 Feet. } To 1 Inch

## ALTITUDES.

NGAIRE ROUTE MARTON JUNCTION TO ELTHAM JUNCTION. RISE 3092 FT FALL 2791 FT			
ELTHAM	"	ONGARUHE	" 2307 " 2441 "
ONGARUHE	"	TE AWAMUTU	" 890 " 1345 "
TOTAL		"	6289 " 6577 "
CENTRAL ROUTE MARTON			
"	"	"	" 5161 " 5449 "
TOTAL DIFFERENCE		"	1128 " 1128 "





S. PERCY SMITH  
Surveyor General

# TARANAKI

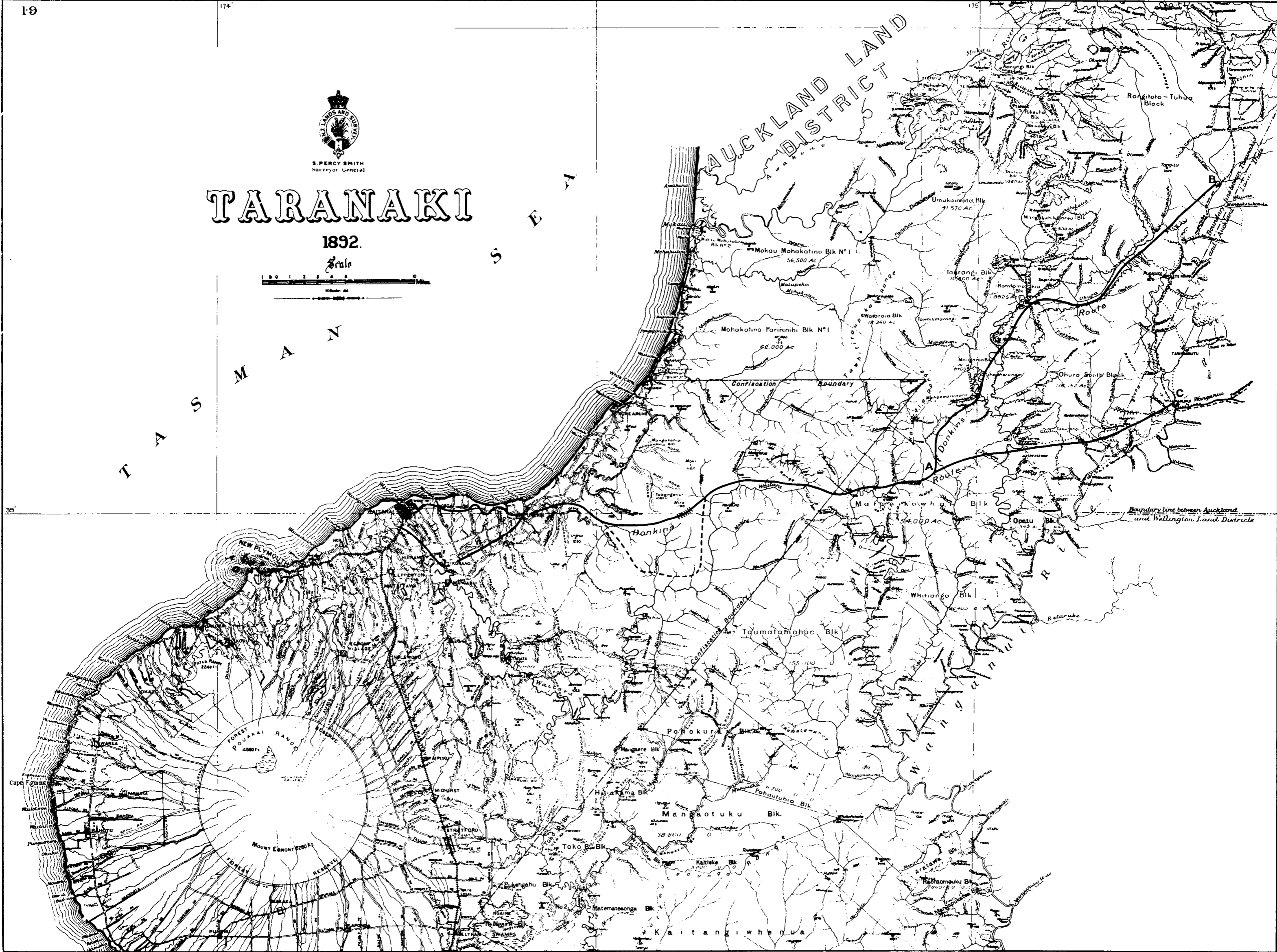
1892.

Scale



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AUCKLAND LAND DISTRICT





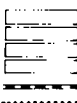


Map

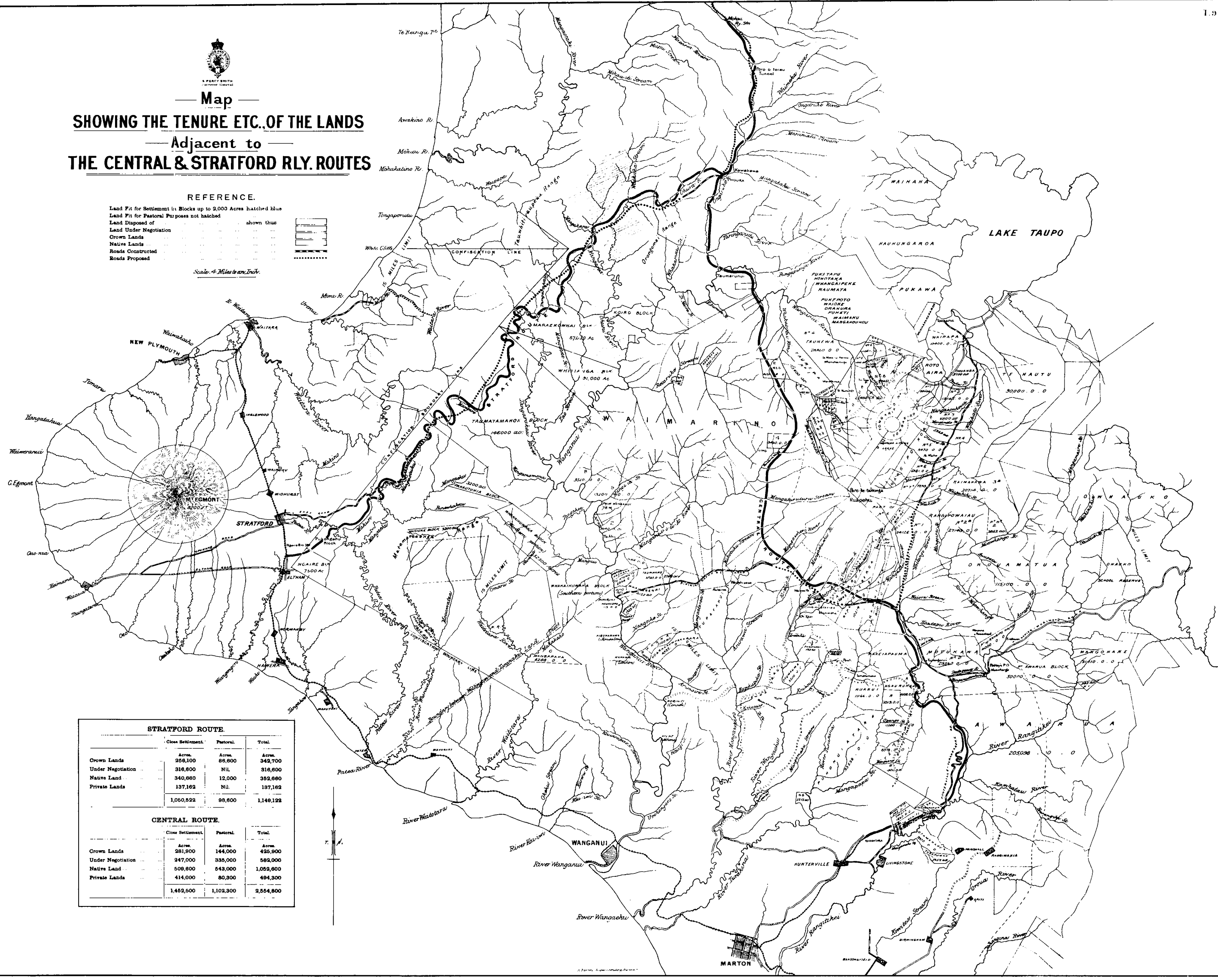
SHOWING THE TENURE ETC. OF THE LANDS  
Adjacent to  
THE CENTRAL & STRATFORD RLY. ROUTES

REFERENCE.

Land Fit for Settlement in Blocks up to 2,000 Acres hatched blue  
Land Fit for Pastoral Purposes not hatched  
Land Disposed of  
Land Under Negotiation  
Crown Lands  
Native Lands  
Roads Constructed  
Roads Proposed



Scale: 4 Miles to an Inch.



STRATFORD ROUTE.

	Close Settlement.	Pastoral.	Total.
Crown Lands	256,100	86,800	342,700
Under Negotiation	316,800	NIL	316,800
Native Land	340,660	12,000	352,660
Private Lands	137,162	NIL	137,162
	1,050,522	98,800	1,149,322

CENTRAL ROUTE.

	Close Settlement.	Pastoral.	Total.
Crown Lands	281,900	144,000	425,900
Under Negotiation	247,000	338,000	585,000
Native Land	509,600	543,000	1,052,600
Private Lands	414,000	80,300	494,300
	1,452,500	1,105,300	2,557,800

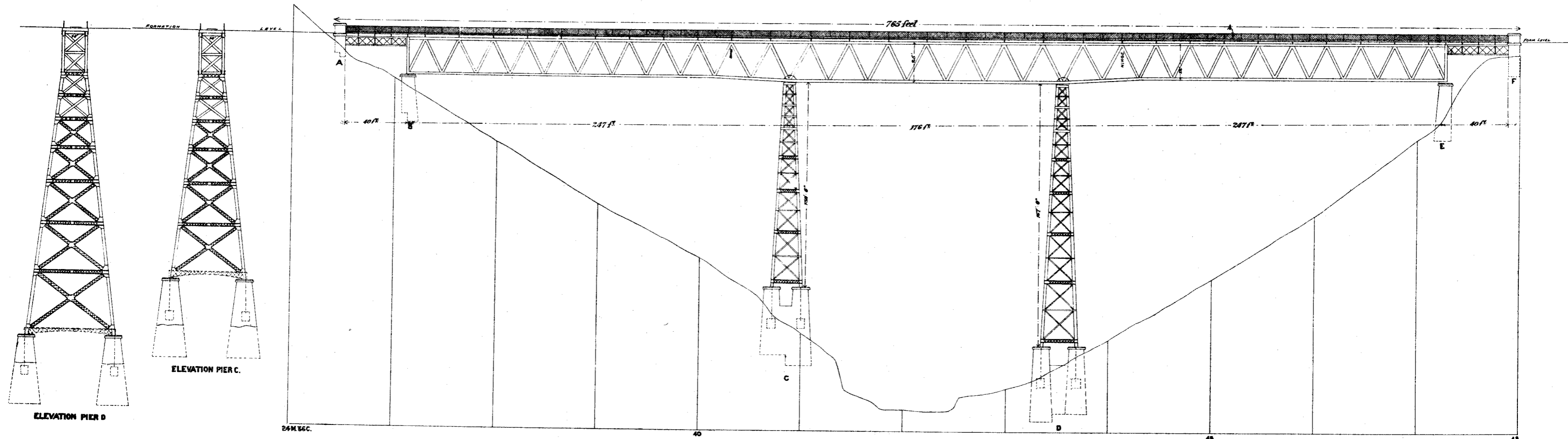


# MAKOHINE VIADUCT

## OUTLINE SKETCH

I-9  
P.W.D. 16989.

Scale 60 feet to one inch  
P. H. HAY M.A.  
W. H. HAY C.E.



Photographed at the Head Office, Department of Lands and Survey, Wellington N.Z. November 1892

