

1900.
NEW ZEALAND.

NORTH ISLAND MAIN TRUNK RAILWAY COMMITTEE

(REPORT OF).

(MR. JOHN STEVENS, CHAIRMAN.)

Report brought up on the 16th October and ordered to be printed.

ORDER OF REFERENCE.

Extract from the Journals of the House of Representatives.

WEDNESDAY, THE 22ND DAY OF AUGUST, 1900.

Ordered, "That a Select Committee be appointed, with power to call for persons and papers, to consist of Mr. Field, Mr. Fisher, Mr. Hogg, Mr. Lethbridge, Mr. Massey, Mr. Napier, and the Mover, three to form a quorum, for the purpose of obtaining information and reporting to this House,—(1) The amount of money still unexpended on actual construction of the work out of the original sum borrowed for the purpose of completing the North Island Main Trunk line of Railway *via* the Central route from Auckland to Wellington; (2) the length of line fully or partially constructed, its cost and productiveness, as also the loss of interest to the colony on those portions of the line which are still uncompleted; (3) the probable amount of settlement which is likely to take place along and near the line, and the value to the colony of the timber-forests proposed to be made accessible for milling purposes by the completion of the line; (4) the probable time within which railway communication will be established between Wellington and Auckland at the present rate of progress, and also the approximate time within which such communication could be established if a sufficient sum of money were devoted to the work for the purpose of having it expeditiously and vigorously carried on, either under the co-operative system of work or by contract, or either or both of these systems; and to make such recommendations to the Government as the Committee may deem best in the interests of the colony, and to report the result of its deliberations to the House within two months from the day of the date of the Committee's first sitting.—(Mr. STEVENS.)

REPORT.

I HAVE the honour, by direction of the Committee, to report that Mr. H. J. H. Blow, Under-Secretary for Public Works, has given evidence of an exhaustive and valuable character relative to the various routes proposed and under construction, the length of line at present in progress, the approximate time within which the Makohine and Mangaweka Viaducts are likely to be completed, and the further period required to extend the line to Ohakune. Mr. Blow estimates that the line will be completed as far as the latter point within three years from the present date.

From the evidence of both Mr. Blow and Mr. J. W. A. Marchant, Commissioner of Crown Lands, your Committee is of opinion that the suggested route from Ohakune to Ongaruru, *via* Ohara, is impracticable, and that no deviation should be made from the line already surveyed.

The report of Mr. Murray, Surveyor to the Lands Department, who made a careful inspection of the vast forests in the Waimarino, shows that there is an area of 91,000 acres of good milling timber. This extends about twenty miles along the line, and, as the country is fairly level and the timber area is within six miles of the line on either side, the construction of the railway as proposed will greatly help the sawmilling industry, and render the forest timber an extremely valuable asset to the State.

Mr. Blow estimates that the value of the milling timber, at 1s. per 100 ft. royalty, would pay for the construction of the line twice over.

The amount expended on the railway between the junction at Marton and Te Awamutu is £692,300, and the estimated amount to complete the work is £1,165,000.

It is considered that at the present rate of progress the Makohine Viaduct will be completed within a year. This will enable the line to be finished as far as Mangaweka.

The estimated cost of altering the curves and grades between Marton and Stratford, for the purpose of making that line equal to the Central line, is £271,130.

The Committee are of opinion that the Central route is by far the best and most suitable for the following reasons:—

1. It is the shortest by fifty-one miles.
2. It avoids the heavy grades of open line from Turakina to Waitotara, and the lesser grades between the latter place and Hawera.
3. The rises and falls are reduced by 1,128 ft.
4. The journey between Wellington and Auckland can be performed in a very much shorter time, because (a) the distance is shorter; (b) there are fewer rises to haul trains up; (c) the line is a better running one, as the grades and curves are easier, thus allowing of greater speed.
5. The grades are flatter over the greater part of the distance.

6. It passes nearly through the centre of the North Island, thus opening up the interior, which can only be effectually accomplished by a railway.

7. The country is excellent on both sides of the line up to the sixty-first mile from Marton, and is capable of supporting a line without regard to through traffic. The country is good to the westward of the line for the remainder of the distance; while to the eastward, although inferior, it is capable of providing considerable freight, such as wool, &c.

8. It is the only means of tapping the large forests in the Waimarino Block.

9. The royalty derivable from these forests, if properly conserved, will pay for the cost of construction.

10. These forests will be a perpetual source of revenue.

11. It will enable country between these forests and the Wanganui River to be suitably settled, which would otherwise remain to a great extent unproductive.

12. It will enable the San Francisco mails to reach Wellington and the South Island in the shortest possible time. The construction of this line is indispensable for the purposes of defence in the case of invasion by a foreign enemy.

Mr. Marchant in his evidence shows that the country that will be opened up comprises 620,675 acres of Crown lands, valued at £318,200; Native, 843,355 acres, value £699,800; leasehold, 190,400 acres, value £39,600. This land being unimproved, it will be observed, is capable of being increased in value fourfold at least, after the timber growing upon it has been utilised, as the values here given represent no part of the value of the timber.

The land lying between Mangaonoho and Paengaroa is subdivided into areas averaging about 300 acres in extent. This affords unquestionable evidence of its suitability for close settlement.

From Paengaroa to Ohakune the land is of good quality and well suited for settlement in areas of about 400 acres for each holding. That portion, however, lying to the east of the line as far as Waione railway-station is generally of a light character and suitable only for grazing sheep.

Mr. Marchant, in his description, states that the land for some distance along the eastern side of the line is of light quality and only suitable for sheep; but it does not pass through a desert, nor does it touch the desert at all. There is a large dairy-factory at Raetihi, and a creamery at Ohakune. He looks forward to a very extensive development of the dairying industry, and it is believed that many hundreds of thousands of acres of land will become thickly settled, and so provide a large intermediate traffic for the line.

Your Committee are of opinion that, so soon as the line has been completed to the Waimarino Plain, there will be a tourist traffic created between this point and the Tokaanu, where there are valuable thermal springs, and at which place an excellent sanatorium can be established. Such a place will be convenient for residents in the southern portion of the North Island and the people of the South Island, the distance from Wellington being about half of that to Rotorua.

Mr. J. W. Ellis, of Otorohanga, has supplied the Committee with some information respecting the character, suitability for settlement, and extent of the forests lying along and near that portion of the Central line between Poro-o-tarao and the Waimarino Plains, a distance of about fifty miles. Mr. Ellis, who has been residing in the King-country during the last twenty-six years, has an expert knowledge of land, and thoroughly understands the art of breaking in and grassing country. He says: "From the present terminus of the Central route at Poro-o-tarao to Waimarino Plain, a distance of about fifty miles, I know this country well. I have been over all the main tracks, both east and west of the proposed railway-line. Generally the land in the immediate vicinity of the line is poor country; but it runs almost on the western edge of that class of country, and a very short distance takes you into good country, the bulk of which is papa formation, and it is therefore good grass country. I have sown down about 800 acres of this country in grass near the Okuru River, about twenty-five miles from the railway, and the result has been most satisfactory. It is surrounded by a large area of Crown land of equal quality, and it may not be out of place to suggest that your Committee should draw the attention of the Government to their large estate in this district, and to suggest that, as the rails are expected to be laid as far as Kawakawa within a year hence (where the Okura road leaves the Main Trunk Railway), it would be in the interests of the line if some of this land were opened for settlement in the near future, so that it may be opened for disposal as soon as the line has been opened to that station, from where a good dray-road extends for thirty miles into the Okura country. On the eastern side of the line the country is of a mixed character, but there are some large blocks of useful country, more especially about the Pureora and Puketapu hills. There is also a good deal of papa on this side. Since I first saw it large areas have become grassed simply by stocking. The chief value of this side of the line consists of the timber forests. I am satisfied that there are large and valuable forests easily accessible from the line, and I feel assured that the intermediate traffic from this country will warrant the construction of the line independently of the through traffic."

Your Committee are pleased to observe that the Government have determined to prosecute the construction of this important colonial work with greater rapidity than has hitherto obtained, believing as your Committee do that the work will be fully justified by the vast tracts of land which will be made accessible and opened up for settlement. It therefore trusts that every reasonable expedition will be used in securing the early completion of the line. This should be accomplished within four years from the present date.

In conclusion, your Committee desire to tender their thanks to Messrs. H. J. H. Blow, Under-Secretary for Public Works; J. W. A. Marchant, Commissioner of Crown Lands; and Mr. J. W. Ellis, settler, Otorohanga, for the valuable evidence tendered by them, thus enabling a report to be drawn up which, it is hoped, will be of some service in showing that the Government were justified in determining to construct the Marton-Te Awamutu Railway on the Central route.

JOHN STEVENS,

Chairman, North Island Main Trunk Railway Committee.

MINUTES OF EVIDENCE.

TUESDAY, 18TH SEPTEMBER, 1900.

Mr. H. J. H. Blow, Under-Secretary for Public Works, examined.

Mr. Blow : Mr. Chairman, I shall make my statement very brief, but, of course, if there are any questions that the Committee would like to ask, I shall be very pleased to answer them. The total length of the North Island Main Trunk Railway from Marton to Awamutu is 210 miles. Of this length there is open for traffic sixty-nine miles and a quarter, and rails are laid on a further two miles. The formation is practically completed on an additional nineteen miles, and is in hand on a further fourteen miles, making a total length finished or in progress of 104½ miles. The line is quite ready for opening to the Makohine Viaduct, and we are using it for our own purposes, but there is no other traffic. As regards the remainder of the distance, the final survey has been made on ninety-eight miles, and the balance of seven miles and three-quarters will be surveyed immediately. We cannot carry on the survey work advantageously in the winter, as so much time is lost through bad weather; but the survey party is under instructions to resume work the first week in October. The amount expended on the line up to the 31st March last was £692,300; but the whole of the loan specially raised for the construction of this railway has some time since been expended.

1. *Mr. Field.*] What is the amount of that?—The whole of the loan specially raised for the construction of this railway has some time since been expended. The amount of the loan was £1,000,000. The rents received from the land purchased out of a portion of the sum amounted to £17,581, making a gross total of £1,017,581. The amount expended out of this on railway construction was £564,078. That is not the total expenditure on railway construction, but is the portion spent out of the £1,000,000 loan. All the money expended on the line since the loan was exhausted has been provided in the same way as for other lines. There was also expended in roads giving access to the railway £161,156. The departmental expenditure was £20,572; costs and charges of raising the loan, £51,788: that is a total of £1,017,581.

2. *Mr. Hogg.*] I think there is expenditure on land purchase?—Yes, I omitted that; the amount was £219,987. The railway works are actively in progress at both ends. At the north end they extend from the completed railway at Poro-o-tarao to Ongaruhe.

3. *Mr. Field.*] About what distance is that?—The distance is thirteen miles and a quarter.

4. *Mr. Lethbridge.*] That is at the north end?—At the north end. I have already stated that at the south end two miles of the line has been completed as far as Makohine, and the work is in progress from Makohine to Paengaroa. That is twenty-six miles and nine chains.

5. *The Chairman.*] From Makohine to Paengaroa?—Yes. Between six hundred and seven hundred men are at present employed on the line, and the number is increasing every month.

6. That is at both ends?—At both ends.

7. As regards the part unsurveyed: of the seven or eight miles of which you speak between Waimarino and Taumaranui. Is there any special engineering difficulty along this part which is unsurveyed?—No. From Waimarino to Taumaranui the line is falling; there is a nearly continuous 1-in-50 grade for twenty-five miles, and the part unsurveyed is the lower portion of that grade.

8. *Mr. Field.*] Is there any proposal to alter the route from that originally intended, so as to place it on lower ground and nearer to the Wanganui River?—It is out of the question. The same proposal was made years ago, and the department spent considerable time and money in testing the route. But the report showed that it was not practicable. The line would be longer and much more difficult and costly.

9. Does it extend into bad country?—The main object in suggesting a diversion was to avoid the rise from Waione over the Waimarino saddle; but, instead of accomplishing this, we found that the deviation meant rising to a greater height than the saddle. Then the cost would be much greater, and a large part of the Waimarino Forest, which should be one of the chief feeders of the line, would be missed.

10. *The Chairman.*] Have you any estimate of the timber forest that would be tapped by the line on its completion?—There is a great deal of information about this in the Public Works Statement of last year. Amongst others there is a report by Mr. Murray, the Road Surveyor to the Lands Department, who was specially sent to examine the Waimarino country and report upon the forest. Mr. Murray's report read as follows:—

In the Waimarino country the quantity of valuable timber is enormous. The labour of preparing this land for grazing purposes is very great, and, as a rule, the soil and climate do not allow of sufficient grass to make this labour remunerative. The cost of felling the bush is from £1 15s. to £2 5s. per acre. The timber is so large and so durable, and there is such a quantity of it, that the ground is littered with logs, and it takes many years to make a good clearing.

A very large area of this fine forest has been already taken up by settlers—in the great majority of cases in areas of 200 acres. Most of the settlers are working-men, and can barely contrive to comply with the clauses of their leases, which compel them to improve so much a year—*i.e.*, to destroy so much timber every season. After it is destroyed, the settlers have not the means to stock or fence their clearings; still, hundreds of acres are being felled and burnt every year.

The timber is acknowledged to be the most valuable crop the land will ever produce. On an attached sheet I show results of measurements actually taken to ascertain the number of trees per acre, their size, and variety. In its natural state, on Crown and Native lands combined, I reckon there were approximately as follows (*vide* attached tracing): Good milling timber, on flat and easy land, 62,700 acres: good milling timber, on undulating land, 11,600 acres; fair milling timber, on easy ground, 17,500 acres: total, 91,800 acres.

This block extends along the line of the proposed railway for about twenty miles, and no part of it is more than six miles off the line, with almost level access to it. The greater part of this area has been allotted to settlers, but a very large portion of the allotted land has not been occupied at all, or thrown up after a short occupation. Some is Crown land yet unallotted, and the remainder is Native land not yet acquired. The Native land is the Raetihi Block and Pakihi (17,450 acres), of which 13,640 acres contain good milling timber.

What I would suggest is that all sections containing good milling timber which are unallotted or forfeited should be reserved, as well as all Crown land of similar value; also, that all Native land suitable for milling should be reserved as soon as it is obtained. On all these lands the timber should be put up to tender only when the line reaches them; after being cut out they should be disposed of for grazing purposes.

There is plenty of rough land unsuitable for milling, but even more fitted for settlement than the heavy flat bush, that may be opened by pushing on the Raetihi-Ohura Road. This country, though rough, is covered with light, good-burning bush, and is much warmer than the flats. The timber on the coastal districts is being rapidly exhausted. The most important assets to the trunk railway are the Waimarino forests, and, if the bush is allowed to be destroyed in the present manner, by the time the railway reaches them much of the best timber will have disappeared.

I may mention that Mr. Perrin, of the Victorian Forest Department, was much struck by these facts.

Wanganui, 20th August, 1897.

G. T. MURRAY, Road Surveyor.

That is the end of Mr. Murray's report, but the Lands Department states, on exactly whose authority I am unable to say, that the estimate of the quantity of timber on this land is about 180,000 superficial feet per acre. If this estimate of the area of the timber-carrying land and the quantity of timber per acre is correct, then a royalty of 1s. per 100 ft. on this timber would pay for the construction of the whole of the North Island Main Trunk line several times over.

11. I understand it would mean £8,000,000 of money?—Yes, rather more; but, allowing a good margin, this forest alone would pay for the whole of the line from end to end twice over. The amount spent on the railway has been £692,300, and the amount required to complete it is £1,165,000.

12. *Mr. Hogg.*] The amount of the royalty would come to £4,000,000?—It would come to much more, but I am allowing a considerable margin.

13. *Mr. Lethbridge.* But if the settlers are going to fell the timber, by the time the railway reaches there the bush will end in smoke.

14. *The Chairman.*] Do you think, Mr. Blow, it would be possible to let small contracts to the settlers about Waimarino, Raitahi, and other places for the felling of the bush for a certain width, in order that it might be burnt and sown with grass, so as to open up the line, instead of laying down a road, and making a bush clearing on one side, which would make it so much easier for the survey work?—Where there has been no risk of injury to the adjoining forests, that is the course adopted. Of course, the totara stumps must be rooted out.

15. But on the occasion of the small timber being burnt up would it not save a great deal of labour by having the bush burnt in the ordinary way after felling, as if you were going to sow for pasture?—Where there is no risk of injury to the adjoining forest, I think that is the mode ordinarily employed.

16. Except that it has not been employed anywhere between Taihape and Mangaweka?—I cannot speak from actual knowledge of that.

17. I have travelled several times along that route, and have remarked that if the bush is cleared in the year preceding it does, in my opinion, save a great deal of labour, and the work is made so much easier. I understand that there is to be a road where it is practicable?—But the probabilities are that the road would not follow the same route as the railway. It is much easier to make the road separately, as you need not make the same grades and curves as you may be obliged to make on the railway.

18. Take the bush from Karioi through to Waimarino, the road in that case would not run alongside the railway?—I understand: it would be where it is now.

19. Is it necessary to clear the bush for the railway-line?—Certainly.

20. But in steep country you can clear it wider?—Three chains is the usual width unless the country is very rough indeed.

21. I am not asking this for the purpose of suggesting or dictating to your department, but in the interests of the settlers. There is a large number of settlers there who have a great deal of difficulty in making a living until they obtain connection with the railway, and if they could have the small contracts of, say, two miles, for the purpose of felling the bush, so that grass may be sown down right through, it would open the country and throw light into it; and I think it would be found that the work could be carried on so much easier than if it was carried on in the usual formation?—As regards felling bush before the formation-works, so as to admit of its being burnt in the ordinary course, I concur with the suggestion. But to have small contracts going on, so as to allow of the land being cleared and grassed, I am not sure you would be able to keep the scrub down by merely grassing it, and if you did not you would have to commence the work again.

22. If you grassed it properly there would be no scrub?—As regards the interests of the settlers, the department was advised some little time ago that there were some settlers in Karioi applying for this particular work, which was authorised; but on the Engineer going up there he found there were no needy settlers, and no one particularly wanted to take the job.

23. Of course, the same representations were made to me when I was up there, and they were very anxious indeed that they should be employed?—It was probably correct then, but on an officer being sent up specially to look into the matter last month he reported that there were no needy settlers there. It is proposed to put the work in hand shortly, however, whether there are needy settlers or not. If the local settlers do not care for the work, we can send men up there.

24. *Mr. Field.*] What do you mean by saying that the grass would not keep the scrub down?—I do not speak as a farmer, but am giving my own impressions—that merely grassing the land would not be sufficient.

25. *The Chairman.*] There is a man named Punchon who has 180 acres, all felled and sown in grass, upon which he put cattle, but they did not go on the grass. There is no question about the efficiency of grass in keeping down the scrub?—I do not see much advantage in bushfelling being put in hand a long time before the formation-works are likely to start, as long as it is done sufficiently before the formation to admit of its being burnt in the ordinary way.

26. *Mr. Field.*] It has to be something more than a year, I think, but at least four or five years after starting the road before it is of much use?—Clearly then we cannot take advantage of the suggestion under these circumstances, because I understand the railway is to be completed in about four years.

27. *The Chairman.*] When you fall bush you clear it away; you cut away the supplejacks and vines, and put them on one side instead of burning them, and in my opinion there is about 25 per cent. more work than if you burn it?—I concur that burning is cheaper than hand-clearing; but, as regards the increased cost, the cost of bushfelling on the railway, compared with the other works, is so small that any small saving therein would scarcely affect the total cost of the line. It is only right, of course, to be as economical as possible in all works, but still the saving in this matter would be very trifling.

28. *Mr. Hogg.*] If the present rate of progress should continue, when would you be able to complete the Makohine Viaduct?—The present rate of progress is as rapid as is possible. For some time past the work in the workshop has been vigorously pushed on night and day, with three reliefs of workmen, and erecting operations are being carried on during all the hours of daylight. It is impossible to carry on this work at night. At the rate of progress prevailing now, and allowing for even greater progress when the days lengthen, we expect the bridge to be ready for the passage of trains within a year. As the members of the Committee are aware, the bridge consists of two short land-spans, then two long spans, and a central cantilever span. The long span in each case is supported at the end by a concrete pier, which is already finished, and the concrete abutments at the shore end of the land-spans are also finished. A number of workmen are employed on the two main piers, and of these one—pier D—is almost completed. Pier C has been commenced and erected to a quarter of its height above the concrete base. The concrete has been completed for some time. There are over 12,000 tons of concrete in this structure, all of which has been in position for some considerable time. The height from the bed of the creek to the rail-level is practically 250 ft.—more than three times the height of the tops of the chimneys in the Government Buildings.

29. *The Chairman.*] What length of time will it take for the completion of the proposed viaduct north of Mangaweka? Is the greatest expedition being used?—We cannot go on any faster than we are going.

30. *Mr. Field.*] How long would the work at Makohine take if you used the electric-light and carried on the work of erection night and day?—The electric-light throws so deep a shadow, and in other respects would be so unsatisfactory in a position like this, that the risk to men working at a height of 250 ft. from the ground would be greater than I should care to advise the Government to take.

31. *Mr. Hogg.*] What length is the viaduct or bridge at Mangaweka?—That is 13 chains.

32. What is the height?—The height at Mangaweka is about 150 ft. But the style of the structure is totally different. At Makohine the foundations were of a treacherous character, and we had to avoid putting in piers as much as possible, and therefore had to use long spans. At Mangaweka we adopted 80 ft. spans, consequently there will be more piers; but so much less will depend upon them that the construction is comparatively easy.

33. *Mr. Lethbridge.*] Are you getting any material at Mangaweka?—Yes, the foundations have been commenced, but the manufacture of the iron-work is not yet in hand. We have only one workshop, and to duplicate the shops would increase the expense without any commensurate benefit. The work of manufacturing the iron-work for Makohine is nearing completion, and the iron-work for Mangaweka is on order, and will be delivered shortly, and the idea is that the work for the Mangaweka Viaduct will be proceeded with when the other is finished.

34. *Mr. Hogg.*] How long do you say it may be before the Mangaweka Viaduct is completed? You say the present work is likely to be completed in about a year?—I think the Mangaweka Viaduct should be completed in two years.

35. *Mr. Field.*] What is the distance?—Eleven miles.

36. *Mr. Lethbridge.*] Is the formation beyond Mangaweka near completion?—A good deal of it is, but not all of it. There are several tunnels on this section, and some of these will be some time before they are finished. When a tunnel has to be constructed there is usually a considerable quantity of work to be done before we can get to the tunnel at all. The approach cuttings have to be made, and these sometimes extend to a depth of 30 ft. or 40 ft.

37. Is it started at both ends?—You refer to the tunnel before you get to Utiku, I presume? This is started at one end; another approach cutting at Utiku end is in hand, but not complete. The excavation of the tunnel at this end will be started the moment we can get at it, and will be worked with three shifts.

38. If the Makohine Viaduct is completed and this tunnel still under way, you do not get any further on?—We cannot have the whole of the line ready for opening on one day. But the viaduct at Mangaweka will not be completed for two years. The tunnel will be completed before that time.

39. *Mr. Hogg.*] Has not the platelaying been done beyond Makohine?—Not at present, but we are making preparations for laying the rails beyond Makohine. A large number of the sleepers

required are already on the ground, and contracts are let for the remainder, and all the rails are stored in Wellington and ready to be sent up at a moment's notice as soon as the road between Mangaonoho and the flat beyond Makohine is hard enough for heavy carting. The line can be laid through to Mangaweka by the time the Makohine Viaduct is finished.

40. So that there may not be any difficulty in forwarding the material for the Mangaweka Viaduct?—Just so. The district would also have the benefit of this eleven miles of line as soon as it is completed.

41. Can the rails be taken across the Makohine Ravine on a wire?—We have gone into that, and we find the cartage a little cheaper. There would also be considerable risk in slinging material over in mid-air with numbers of workmen employed underneath. We can cart them for 7s. a ton.

42. I would like to know whether it is usual to charge for roads to give access to lines as against a railway loan. I see there is only £564,000 of this railway loan devoted to construction, while the rest is made up of roads, departmental expenses, and purchase of land, &c.?

43. *Mr. Lethbridge.*] That was done in the amending Act?—The £1,000,000 was borrowed exclusively for railway construction. The loan was raised for the purpose of the North Island Main Trunk line, but the Loan Act, or subsequent amending Acts, stated that the money was available for the construction of roads to give access to the line and the purchase of blocks of land it would pass over.

44. *The Chairman.*] With respect to this £17,581, which you say has been received as rent from the land purchased, is that the total amount of the rent accrued up to the present time from the time the land was let?—I have no information upon that subject. The lands purchased out of the North Island Railway Loan are administered by the Lands Department. This amount has been received from the Department of Lands as rent, but I am not in a position to say whether that is the whole amount of rent that has been derived from the land purchased, but the officers of the Lands Department can give you the information.

45. You have no information whether this is the total rent accrued as rent, or whether it is only a portion?—No; I have no information on the subject, but the Secretary of the Lands Department can furnish you with full particulars.

46. *Mr. Lethbridge.*] Is it not a fact that some of this money was spent in snagging the Wanganui River?—The Act, I think, provided that the Wanganui River should be deemed to be a road to give access to the railway; and as a matter of fact it will probably be the best road for our purposes by-and-by. It gives access to the upper portion of the railway, and when our construction works are further advanced I believe we shall use it.

47. But you take your materials along the railway?—Whatever we take over the railway we have to pay freight on. If we find the carriage by land is much more than the carriage by river, it is probable we should take the river carriage.

48. *The Chairman.*] Do you contemplate proceeding by co-operative labour or contract?—That is a question of policy which should be addressed to the Minister of the day.

49. But, so far as you are aware, you have no intention of altering the system that has been carried out from the commencement of the work?—We have no instructions to depart from that system.

50. *Mr. Hogg.*] Can you give us an idea of the amount that this Makohine Viaduct is likely to cost by the time it is finished?—I did not come prepared with figures of that kind; but the original estimate of the cost was £40,000, and as the price of iron and steel has gone up about 50 per cent. since the estimate was made, probably the total will now be over that estimate.

51. But you do not think it will much exceed the original estimate?—Not very much, considering all the circumstances.

52. You invited tenders for the work?—Yes.

53. What was the lowest tender as far as you can recollect?—I can get you the exact figures, if you like. I think it was something over £48,000.

54. Then the costly co-operative labour only very slightly exceeded the amount of the lowest tender?—The amount of the lowest tender was to carry out the work according to the plans; but when we came to make the excavations for the foundation, we found the ground more treacherous than we had imagined, and we had to make the foundations many feet below the depth shown on the plans. The contractor would have had to be paid for all this extra depth, so that the extras would have amounted to not less than £4,000 or £5,000. Allowing for that and the greatly increased cost of the iron and steel, I do not think the cost of carrying out the work by the department will very materially exceed the amount of the lowest tender.

55. *Mr. Lethbridge.*] You practically paid for most of your iron before the rise took place?—No, our order for the machinery reached England just before the great strike took place, and the orders for the material followed the order for the machinery at suitable intervals. But a great rise in prices had taken place, and there has been a considerable further rise since.

56. But, as a matter of fact, this is not carried out under the co-operative system?—It is carried out by day labour under the supervision of an experienced mechanical engineer and overseer.

57. *Mr. Field.*] An opinion has been expressed outside that the department would have done better by filling in the valley instead of constructing the viaduct, as they had sufficient material from the excavation of the tunnel, and it would have cost less money. Is there any engineering authority for that?—The material from the tunnel would not have formed 5 per cent. of the total required. There is no precedent in the world for the construction of a bank 250 ft. high, and the settlement that would have taken place with ordinary filling materials would have been such that we should not have got a solid bank for ten years, and with the materials available we should not have been able to make a bank at all. Some of the material from the tunnel was run into a spoil-bank. The water got into it, and it travelled a very considerable distance, overwhelming one or two houses, and the department was mulct in damages. The quantity of material in that spoil-bank would

not have been more than 2 or 3 per cent. of the quantity required for this huge embankment, and the risks involved in its construction would have been proportionately greater. Even if an embankment had been possible, the cost of making it and the very large culvert to take the Makohine stream would have been as great as the cost of the present work.

58. *Mr. Hogg.*] The line has been formed to Paengaroa. How much further has it to go to reach the splendid timber?—The Waimarino Forest will be reached first from the Auckland end.

59. How much further will you have to form the line at the Auckland end so that the timber will be available? I cannot at the moment give that exactly; the reason being that the survey of this line is carried on from both ends, and the mileage is not continuous throughout. Without the map to guide me I cannot say exactly how many miles it is from Ongaruhe to the edge of the Waimarino Forest. (After reference to papers.) From Ongaruhe to the bottom of the Waimarino grade is fourteen miles, and to the top forty-seven miles, and the forest lies between these points.

60. What time will elapse before the fourteen miles is constructed?—That is not difficult construction. The fourteen miles is fairly easy, but the section upon which we are engaged at present is rather difficult. I do not think the rails can be laid to Taumaranui in less than two years.

61. *The Chairman.*] What Mr. Hogg wishes to ascertain is when the timber can be made available, but he does not mean specially this forest, but from Paengaroa to Ohakune?

Mr. Field: It is sixty miles between Taihape and Waimarino. It is sixty-two miles from Mangaonoho (the end of the present completed railway) to Ohakune.

63. *The Chairman.*] What is the distance from Mangaonoho to Paengaroa?—The length of railway between those places is a little over twenty-eight miles.

64. And from Paengaroa to Ohakune?—Thirty-three miles.

65. That is open country?—Along the Taumaranui Section the work is principally in the bush, but the remainder is comparatively open.

66. What distance would the Taumaranui Section be?—There would be six or seven miles of heavy work. The whole length of the section is nearly eleven miles.

67. Then, if that distance of heavy cutting were completed from the end of that section, from Taumaranui to Ohakune, there will be some of the easiest construction of the whole line?—Yes, it is practically level; but some little grading will have to be done to get down from Waiouru to Karioi.

68. *Mr. Hogg.*] What distance does the line penetrate this forest?—I presume you refer to the Waimarino Forest. About twenty miles.

69. *The Chairman.*] Perhaps Mr. Blow will give the final reply to this question. The object was to ascertain how soon the line will tap the Ohakune Forest? You say it will take two years to complete the Mangaweka Viaduct. How much longer would it take to have the line completed to Ohakune?—I presume you mean if the department were at once instructed to put the work in hand as rapidly as possible: I think another year would probably suffice.

70. You consider it would be three years before the line could be put through to Ohakune?—Yes; quite three years.

71. *Mr. Field.*] And by that time the line would be done from the other end?—I think not; there are some formidable obstacles to be overcome.

72. You think it would be easier to get it through from this end?—Yes; as far as Ohakune.

73. *The Chairman.*] Is the Manganui-o-te-Ao the largest river to be bridged between Paengaroa and Waimarino?—No, that is not the largest bridge; but it is a considerable one. It will consist of two spans of 122 ft. each, on masonry piers 90 ft. high.

74. Have the designs been altered since Mr. Rochefort's time?—Yes; the route has been considerably altered since his survey was made. We adopt his route in the main, of course, but we have improved upon it in detail.

75. Then the idea of diverting the line so as to take it down to Pipiriki you think would be quite impracticable?—Quite impracticable at reasonable cost; and the Waimarino country would not be as well served by that route as by the present route.

76. Of course the lands for settlement we shall get from the Lands Department, and the area of land that will be made available by the construction of the line?—Yes; but I have given you some information on that subject in the booklet which I have furnished you with containing data supplied by the Lands Department.

77. It has been stated by various public men with respect to the North Island Main Trunk Railway, that it passes through "a howling desert," and that the land is absolutely unsuitable for settlement. Have you had any representations to that effect?—If the land has been so described, I think the description is exaggerated. As far as Turangarere, at the south end, the land is of excellent quality. From there to Waiouru it is much lighter, and on the Murimotu Plain it is very light, tussocky country. All of it carries sheep, but exactly how many I am unable to state.

78. *Mr. Lethbridge.*] It might, perhaps, be put this way: How many acres to the sheep?—I believe most of it carries about half a sheep to the acre. The land that is covered with forest is probably carrying the best crop now that it ever will grow, and I should advise that it be continued as forest country. I think the best way to treat it would be either for the Government to act as millers, and to replant the bush as it is cut out, or to let contracts for cutting subject to the condition that the land be replanted by the contractors as the trees are cut out. If this were done the land would continue growing its most suitable crop, and there would be a perpetual source of revenue in freights for the railway.

79. *The Chairman.*] But perhaps you are not aware that the forest land in that locality is very excellent dairy country, and that the dairy established there is a very fine one indeed?—At Raetihi the land is of excellent quality.

80. Immediately you enter the forest the land becomes good?—Yes, it improves.

81. Most of the bush land is capable of carrying two sheep and a half to the acre?—You are alluding, I suppose, to the land near Raetihi. Is it quite as good at Ohakune?

82. I am speaking of bush land that is felled and sown in grass?—The land near Ohakune certainly improves the further you get into the bush, and where the bush has been felled it is being utilised for dairy purposes. I was referring more particularly to the Waimarino Forest, which is the great forest along this line. When I speak of forest lands I speak more particularly of that forest.

83. *Mr. Field.*] When you speak of replanting, what trees would you plant?—I do not speak as a forester, and my evidence on this point will, I fear, not be of any great value; but, amongst others, I should plant ironbark, jarrah, and the blue-gum, all of which timbers, I believe, would stand the climate and thrive.

84. *The Chairman.*] There is also American redwood, which is a valuable timber for texture and durability?—I have heard of it, but it is not a timber we are using for public-works purposes. I am therefore not acquainted with it. If the Government decided to plant, the advice of experts would, of course, be taken.

85. *Mr. Field.*] You would suggest making inquiries at an early date in order to be ready to plant this area and other similar country?—That would be my plan, and I believe the Lands Department is doing so now. Private lands have been planted by persons in New Zealand, and they are doing well.

86. *Mr. Lethbridge.*] You do not get totara close to the sea?—There are large totara forests not far from the sea in the districts north of Auckland. It grows to a large extent at Dargaville.

87. *Mr. Field.*] Going through Wanganui I found the gum-trees were not doing well?—Possibly sea-water gets to their roots.

88. *The Chairman.*] Gum-trees will grow in pumice. Now, Mr. Blow, with respect to the rival routes, have you had a complete survey made of the route *via* Stratford from Ongarue?—Yes. That survey was completed some time ago.

89. What is the estimated difference of cost per mile by that route compared with the Central route?—That is given in the paper I have submitted to you.

90. I am asking you the question because, as this evidence is very valuable, I want to have it all under one head?—The average cost per mile is lower by the Stratford route than by the Central route. The total estimated cost of the former between Stratford and Ongarue is £865,997, and the length is 103 miles 5 chains. That gives an average cost per mile of £8,403. The average cost per mile to complete the Central route is £8,610.

91. That is £200 per mile in excess of the Stratford route?—Yes.

92. What would be the cost of altering the curves and grades from the junction at Marton to Stratford, so as to make it nothing less than ten chains radius, and no steeper grade than 1 in 50?—I can supply the information, but I have not got it with me this morning. It has been published in the blue-books.

93. Approximately, would it be £100,000?

94. *Mr. Lethbridge.*] Eighty thousand pounds has been stated?—I should think it would be more than either. I am speaking from memory only; but I think the amount is nearly £280,000. (It is actually £271,130.)

95. *The Chairman.*] I think that is so, Mr. Blow. Do you consider that the present line from Stratford to Marton would be sufficiently safe to run a fast train over if the line were made to Auckland without any alteration?—It would be unwise to run a faster train over that line than is run at present. The Wellington–New Plymouth express is timed to traverse that distance in about as short a time as is reasonably safe. Time might be saved by omitting stoppages, but the running-time between the stations should not be materially accelerated.

96. In the report which you received from the surveyors who surveyed the line *via* Stratford, have you any detailed information with respect to the quantity of land that would be made available for settlement?—Yes; and the information is in the blue-books. Speaking generally, the land that would be opened for settlement by the Stratford route is of better quality than that on the interior portion of the Central route; but the Stratford route does not serve the Waimarino Forest, or open up the interior of the Island in the same way that the Central route does.

97. Giving your own opinion, irrespective of your official capacity, but as a gentleman who has had a long experience of the public works of this colony, which route do you think would be the better of the two, the Stratford or the Central route?—I think the Central route possesses greater advantages than the other. On page 113 of Appendix F to the Public Works Statement, 1899, Mr. R. W. Holmes gives a dozen reasons for preferring the Central route to the Stratford route, with all of which I agree. They are as follow:—

The following are the chief reasons for constructing this line as the means of communication between Wellington and Auckland instead of *via* Taranaki:—

1. It is the shortest distance by fifty-one miles.
2. It avoids the heavy grades of opened line from Turakina to Waitotara, and the lesser grades between the latter place and Hawera.
3. There are less rises and falls by 1,128 ft.
4. The journey between Wellington and Auckland can be performed in a very much shorter time, because: (a) The distance is shorter; (b) there are fewer rises to haul trains up; (c) the line is a better running one, as the grades and curves are easier, thus allowing of greater speed.
5. The grades are flatter over the greater part of the distance.
6. It passes nearly through centre of North Island, thus opening up the interior, which can only be effectively accomplished by a railway.
7. That the country is excellent on both sides of line up to the 61st mile from Marton, and is capable of supporting a line without regard to through traffic. That the country is good to the westward of line for remainder of distance. That the country to the eastward, although inferior, is capable of providing considerable freight, such as wool, stock, &c.
8. That it is the only means of tapping the large forests in the Waimarino Block.

9. That the royalty derivable from these forests, if properly conserved, will pay for the line.

10. That these forests will be a perpetual source of revenue.

11. That it will enable the country between these forests and the Wanganui River to be suitably settled, which will otherwise remain to a great extent unproductive.

12. That it will enable the San Francisco mails to reach Wellington and the South Island in the shortest possible time.

98. *Mr. Lethbridge.*] It is stated in reason No. 3 that there are less rises and falls, 1,128 ft. Does that mean you do not go so high by that distance?—No, you attain to a much greater height by the Central route than *via* the Stratford route, but if you add the total rises and falls by the Central route together you have a less total than upon the Stratford route. There is a great difference in the ups and downs.

99. *The Chairman.*] I understand that the difference in haulage between the Central route and the Stratford route would be equal to about eighty miles of extra haulage upon the latter line?—The difference in the way of haulage would be much greater on the Stratford route, for the reason that on the Central line the total rise each way is practically all in one place, and if heavy trains were running the Railway Department would keep an assisting engine at the bottom of each of the two grades to help the trains upwards. But on the Stratford route the grades are distributed over the whole length of the line. The grades on the Central route are no worse than on the line between Dunedin and Christchurch. There are several miles of 1-in-50 grade on that line, and there is nothing worse on the Central route; and that occurs only in one place, and it is a down-hill grade towards Auckland. With that exception, the minimum grade is 1 in 60.

100. *Mr. Field.*] Do you mean to say there are no heavier grades on the Central line than on the Canterbury and Otago line?—No heavier, but there is a greater length, though not so much as might be imagined, and an engine that would be capable of hauling a train five miles up a 1-in-50 grade would also be able to haul it twenty-five miles.

Mr. Blow was thanked for his attendance, and he withdrew.

FRIDAY, 28TH SEPTEMBER, 1900.

Mr. J. W. A. MARCHANT, Chief Surveyor and Commissioner Crown Lands, Wellington, in attendance and examined.

1. *The Chairman.*] At the last meeting of the Committee it was resolved to ask you to be good enough to furnish such information as you can with respect to the area of land suitable for settlement within any reasonable distance of the line, and generally the character and value of the land, its suitability for small settlement, grazing purposes, or otherwise, or with respect to the probable quantity of timber which can be utilised and be tapped by the railway-line?—Perhaps it would be best, in the first instance, to state the fact, doubtless well known to you, that I have already had prepared a statement of the areas, tenures, and values of the lands within twenty-five miles of each side of the line, in accordance, I understand, with a resolution passed by this Committee.

2. If that was prepared it would be in accordance with a resolution of the House, because at the time you prepared that statement the Committee was not in existence?—It was prepared according to instructions issued in July last by the Surveyor-General to an order of the House. I have a copy of the return, but before bringing the items under your notice I may say that I entrusted to Mr. H. J. Lowe, District Surveyor, the compilation of this return. Mr. Lowe has triangulated a great part of the country, and has otherwise been concerned in the subdivision, roading, and valuing the Crown lands. The area of the country of all tenures within the twenty-five miles limit is indicated upon the plan I submit for your inspection, and it is also shown upon this schedule. If you desire me to do so, I will read the items. They are as follows: Crown lands, 620,675 acres, value £318,200; Native, 843,355 acres, value £699,800; leasehold, 190,400 acres, value £396,000.

3. *Mr. Lethbridge.*] Is that leased from the Natives?—No, from the Crown. Freehold, 85,000 acres, value £180,200; Wanganui Harbour Board Endowment, 10,000 acres, value £10,000; State forests, 143,000 acres, value £30,000. This, I may say, only represents the land-value. It does not in any way refer to the value of the timber, which is not included, but will be referred to later on. The next item is: Permanent Education Reserve, 13,243 acres, valued at £18,725; Public Domain, 22,800 acres, value £17,000; National Park, 41,800 acres, value £50,000: I submit for the consideration of the Committee that with such a magnificent position, combining mountain scenery, volcanic country, and natural beauties and thermal springs, it may very well be valued at £50,000. The last item is: Other reserves, 2,135 acres, value £6,444. These are the details relating to the areas of land, and the values placed upon them by Mr. H. J. Lowe, and the Crown Lands Ranger, after careful consideration and inquiry.

4. *The Chairman.*] That is the value of the land exclusive of the timber growing upon it?—Yes.

5. *Mr. Lethbridge.*] Are you aware whether the Government have been in treaty to buy any of that Native land since the return was prepared?—I cannot answer that question. I have no knowledge.

6. The figures you quote relate to the Wellington Land District?—Yes; as shown by this plan.

7. You do not know anything of the Auckland District?—No. I should like to explain that the Murimotu and Rangipo-Waiiau Blocks are held under lease by Messrs. Studholme and another gentleman, and have, to a great extent, been purchased by the Crown, subject to the leases of the gentlemen I have named.

8. *Mr. Hogg.*] About what area is that?—The Murimotu Block comprises 46,801 acres; all but 6,802 acres have been acquired by the Crown. The Rangipo-Waiiau Block comprises 97,616

acres, and there remain now in the hands of the Natives only 8,347 acres. The bulk of these lands are subject to certain leases to Europeans. The leases over the Murimotu Block expire on the 20th August, 1903, and those over the Rangipo-Waiiau Block on 31st May, 1902.

9. Have you been over that country?—Yes; a very great deal of it.

10. What sort of country is it?—The Murimotu Block comprises light, comparatively poor land on the plains, south of Ruapehu, and is suitable only for grazing sheep. The Rangipo-Waiiau runs up into what is called the desert country eastward of Mount Ruapehu, and in that quarter the land is undoubtedly very inferior; but to the eastward and south-eastward it merges into open grazing land, suitable for sheep.

11. Then, you consider that the best of this land is simply adapted for sheep-farming?—Generally so, except the south-east portion of the Rangipo Block.

12. Is it open land generally, or is much of it bush?—It is mostly open country. It is used now in large runs for grazing purposes by Messrs. Studholme and another gentleman from Wanganui.

13. Has any of it been ploughed or cropped?—There has been some ploughing and cropping on a small scale at Waiouru, near the south-eastern boundary of the Murimotu Block.

14. *The Chairman.*] You know the country from Mangaonoho up to Paengaroa?—I do.

15. About what area of land has been settled on either side of the railway line for a distance, say, of fifteen miles on either side?—I cannot answer that without reference to the map and taking the area out. But I am prepared to furnish the information.

16. Of what quality is the land generally there?—It is, I consider, excellent land for sheep-grazing, and, to a certain extent, it is dairying country also. May I amplify my answer by saying that I am aware that on the east side of the Rangitikei River, along the line you mention, embracing the Otamakapua Block, it is closely settled with numerous and prosperous homesteads—it is a very superior class of grazing country. On the western side of the line, taking in Otairi, Makohine, and the south-west part of Awarua Block, the country is more hilly and broken, but it also is good grazing land. It is also in the main occupied by settlers, except to the south of Utiku, which still remains in the hands of the Natives.

17. Speaking roughly, what is the average area of the holdings along that tract of country you mention, approximately—I mean the average area of each holding?—At a guess, I should think about 300 acres. The land was subdivided into small holdings under the farm-homestead system, and in places it was opened for selection in areas of about 300 acres.

18. Now, starting from Paengaroa up to Okahune, taking the country for the same distance—fifteen miles on either side of the line—what is the character of that section of country?—After leaving Paengaroa the line passes through the Ngaurukehu Block, which is nearly all owned by the Natives. Including Ruanui to the westward the land, in my opinion, is excellent grazing country, and is to a great extent open, and already stocked and occupied.

19. In what areas is the land suitable for holdings?—The average I should prefer would be about 400 acres. To the eastward of Ngaurukehu is the Motukawa Block, of which portion near Paengaroa belongs to the Crown; the great bulk of the balance is Native land. The land contiguous to the railway-line, which passes on to Turangarere, is good pastoral country. Further to the eastward the land is not so good, but still it is very suitable, and is already utilised for growing healthy and profitable sheep. The line then enters the Raketapauma Block. Contiguous to the line the land is hilly and high, but to the westward, across the Ruanui and Rangiwaiia Block, it is all superior land, suitable for subdivision for close settlement. On the east, past Turangarere, the Crown owns a portion of the Motakawa Block. This is nearly all bush of a very suitable character for sawmilling; and the land is fairly good. Further to the northward is the Rangipo-Waiiau Block, already described. As I stated it is mostly open grazing land, carrying splendid flocks of sheep. The line then passes through the Murimotu Block, already mentioned, to the Karioi Station—the proposed railway-station is called Waione. All that land is of very light character, and is only suitable for sheep, allowing, I should say, 2 to 4 acres to the sheep. I am speaking subject to correction. After leaving the Waione Station the line enters the great forest at the south and the south-west base of Ruapehu. The land to the eastward is Crown lands. The Rangawaea Block is generally valuable on account of the excellent timber growing upon it. The portion next the line will doubtless be subdivided into small holdings later on.

20. Of about what area?—I should prefer about 600 acres. The higher slopes of the mountain are set aside as State forests. South-west of the line the Rangiwaiia Block extends many miles, is all owned by the Natives, and is comparatively open country, improving southward very much as compared with Murimotu, the southern part being good grazing land. Further to the south is the Crown portion of Rangiwaiia Block, which I consider excellent pasturage land, the portion next the Turakina River being equal to some of the best in the lower country; that on the Wangaeahi River is not so good. Further south again is the Mangakaretu Block, which is well known for its proved capabilities as a grazing country. These latter remarks apply to the contiguous blocks, Pungataua and Otumauma. Passing on to the Rangitaua Block, south of the line, the whole area has been subdivided, and is partly occupied by settlers. The country is flat and undulating, and in parts hilly, and portion of the land carries excellent milling timber. The settlers have cleared away portions of the original forest, and the Crown is reserving all the forfeited sections for future milling purposes.

21. What areas was the land cut up into?—It was cut up into areas of about 200 acres. Further on to the south of Rangataua are the Otiranui, Ohotu, and various other blocks, extending right through to the Wanganui River. I consider that the whole of that area, which is now forest land, is suitable in parts for milling, and also splendidly adapted for grazing purposes. I have not yet described the land to the northward of the line. The land to the northward of the

line in Rangitaua, as far as Ohakune, is divided in ownership. The Crown possesses a considerable area of flat, undulating land of good quality and magnificently timbered. The Waiakaki Block is freehold, and the lower portion is described as good land, with splendid timber upon it. On the higher slopes of Ruapehu the land is not so good, nor the bush so accessible. Some of the original settlers still hold portions of the Rangitaua Block east of the line. This brings us to Ohakune.

22. Before proceeding further I should like to take you back again to between Turangarere and Ohakune.

23. *Mr. Stevens.*] It has been stated in the House that the present route of the railway passes through a howling desert; do you know of any desert through which the route passes?—No; except, as I have already said, that the Murimoto Plain land is very light, and, I consider, of an inferior character; but Mr. Studholme's sheep have grazed over that country.

24. What distance is the desert country from the railway-line?—It is at the parting of the waters of the Wangaeahu and the Waikato. The Rangipo desert is about twelve or thirteen miles in a direct line from the nearest point of the railway. The part between the Waikato and the Wangaeahu is about twelve miles, but the desert goes some distance down the Wangaeahu. This map does not show the limit. [Witness pointed out the positions on a map.]

25. It has been said by persons who are in favour of another route that the line runs partly through "a howling desert." What I wish to ascertain in your evidence is, as nearly as possible, to show what exactly does exist. If there is desert country within twelve or thirteen miles of the line, could it be stated that the line runs through a desert, or that a considerable part of the country through which the line runs is a desert?—I have never clearly understood what is understood to be a "desert."

26. A desert I should define as a class of country which carries no herbage?—If you define it in that way I can say that the line does not pass through any extent of country that can be called a desert. It is a country which will carry sheep at the rate of 4 acres per sheep. The true desert is several miles upon the route towards Tokaanu. The line does not touch the desert at all.

27. With respect to the dairy industry, and the settlement generally between Ohakune and Taihape, I should like some information on those subjects?—That is, you want information as to the country on the west side. I think I only described the country as far as Mangaweka. From Utiku up to Paengaroa the line passes through a considerable extent of Native land.

28. Can you tell the Committee how much Native land there is there?—I could by reference to other papers. But it passes also through some land which has been alienated, and a small portion of Crown land. The land to the southward is all forest country, and portions next the line are being milled, and the milling portions may be extended very considerably. The whole area will prove superior grazing land when cleared and brought into grass. Some of it will be suitable for dairying. To the north-eastward, across the Hautapu, the Crown has already disposed of the settled country about Torere and Pukeokahu. I consider this is some of the best pastoral land in the district. The northern part of Awarua, near Moawhango, south-eastward of Rangipo-Waiiau, there is a large extent of Native land said to be carrying at the present time fifty thousand sheep. It is some of the most attractive land I have ever seen, and it is an excellent country for pastoral purposes. Further northward and eastward are Oruamatua and Mangaohane Blocks, to which I ought to add the Owhaiko. These blocks are already occupied as sheep-runs—I believe mostly by the Messrs. Birch and Studholme. I have not a good personal knowledge of these lands: that is to say, I have never been over them. I have viewed them from the surrounding hills, and I believe they serve well for grazing merino and cross-bred sheep. Flocks graze, I understand, far back to the Kaimauawa country. The whole of that country naturally drains into the North Island Main Trunk Line. I find I was in error in stating that the Rangipo-Waiiau is owned by the Messrs. Birch. I should have stated it is in the possession of Mr. John Studholme. I think the description I have given takes in nearly all the country. In the south-east of Awarua the Crown owns a very large block of land, on the south-east side of the Rangitikei River. A strip of country, two miles wide, along the river, will, I believe, prove to be good pasture land when cleared of the forest, and the higher slopes of the Ruahine I hope some day to see conserved as a State forest. There are extensive settlements up the Kawatau and Maungawharariki Rivers east as far as the lower slopes of the Ruahine Range. We have now reached Ohakune, and have to describe the country between this latter place and Taumarānui, on the Wanganui River. After leaving the first-named point, the land passes through the Raetihi Block. I consider this to be a very superior tract of land, as it carries splendid milling timber. The bulk of it is owned by Natives, but the Crown has acquired the northern portion of the block. The line skirts along the slope of Ruapehu, and the Township of Raetihi, in the Waimarino Block, and is separated from the railway route by Native land. Raetihi is the main township of the district, and is the centre of trade. It is bounded on the south and south-west and north by close settlement. The land is good, and carries stock well, as proved by the class and condition of the sheep, and the rapid expansion that is taking place in dairying. There is a large dairy factory already established at Raetihi, and a creamery has been in existence for some time at Ohakune. In passing I may say that I look for a very wide extension of the dairy industry throughout that country. But it is right to say that the considerable altitude of the country and the severity of the frosts in winter will probably curtail the time during which the industry can be carried on each year.

29. What height would it be?—At a guess I should say about 1,500 ft. I now propose to speak of the country further away from Raetihi; it is all Maori land to the eastward and southward. I consider the whole of that country as far as the Wanganui River to be capable, when cleared and brought into grass, of carrying sheep in a most satisfactory and profitable manner. It will be noticed by looking at the map that from Raetihi to Taumarānui the Crown practically owns

the whole country. Considerable extension of settlement is taking place in the Marton No. 3 Homestead Block. The Marton No. 4, Gladstone, and Horopito Blocks were originally subdivided for small settlement; but that operation certainly took place at too early a period, considering the great difficulty of access and the distance from markets. It seems to me to be fortunate, so far as the State is concerned, that the holdings were abandoned, for the reason that it enabled the Government to conserve valuable forests for milling purposes. After leaving Marton No. 4 Block the line passes over the elevated plateau of Waimarino, and then falls by long grades to Taumaranui. In regard to the country contiguous to the railway-line, I have proposed that it shall be created a State forest, to be extended so as to embrace the extensive totara and maitai forests to the westward of Wakapapa River. After deducting these proposed reserves the balance of the Waimarino Block, as far as the Wanganui River to the west, comprises rough, hilly land. The south-west part is of average quality—will, I am satisfied, when cleared, be capable of carrying sheep profitably. The northern portion of this area has been affected by the volcanic discharges from the Ruapehu and Tongariro, and therefore the land is of a lighter and more inferior quality. Fortunately this is counterbalanced by the fact that portions of it carry splendid milling timber. I will now speak of the lands to the eastward of the railway-line, between Ohakune and Taumaranui. I may say it appears to me that the National Park should be extended so as to come right down to the railway-line, and even, as I before indicated, across it, not only on account of the generally inferior character of the land and its great elevation, but because I believe that in the future the forest will be utilised by milling, and because the natural beauty of the country, from a landscape point of view, is among the best in New Zealand, and, with the great attractions of the volcanic ranges, this area is admirably adapted for a great National Park for the people for all time. The Crown already possesses the whole of the area indicated in red on the map, and partial effect has already been given to these suggestions: some of the blocks in their vicinity have been gazetted for reservation. These lands to the eastward which are conserved, or proposed to be conserved, have been used for grazing sheep, but it is not by any means of good quality. Further away to the eastward, and within the twenty-five miles limit, the Natives still hold extensive areas. The country to the south-west, south, and south-east of Tokaanu comprises forest and open land. Tokaanu is well known for the excellent properties of its thermal springs, and it should in the future, owing to its contiguity to the noble sheet of water, Lake Taupo, become a great health and pleasure-seeking resort.

30. Would the construction of the North Island Main Trunk Railway afford greater facilities for people at the south end of the North Island to visit the thermal springs as a health resort?—No doubt, it would do so. By branching off at Waimarino there would be no difficulty in bringing the railway within a few hours' journey of the springs.

31. How far is the Ketetahi Spring from the railway?—I think, in a straight line, it would be about fifteen miles from the railway-line. The spring is on the northern slope of Tongariro.

32. The Maoris say that is the only efficacious spring for the cure of what is supposed to be leprosy?—South-west of the line at this part the Maoris still hold considerable areas of land on the banks of the Wanganui River.

33. What is the name of that block?—They are spoken of as the Waimarino Native Reserves, and Mr. Lowe, the District Surveyor, who described these lands, possesses an excellent knowledge of the country. To last year's return I ventured to append a note concerning the probable value of the forest within the ten-miles limit. The area was there stated at about 91,800 acres, and it was assumed—it was simply an assumption—that each acre might turn out 7,000 superficial feet. I think £3 6s. per 100 superficial feet would be the cost of converting it into scantling-boards and other suitable building material. The area, which we consider to be mainly milling country within the present limits of twenty-five miles, we roughly estimate at 130,000 acres. No estimate, based upon actual inspection and appraisal, has ever been made to ascertain the probable output of these great forests, and I wish it to be distinctly understood that the figures given are based upon the knowledge one would acquire by merely travelling through the country, and by conversation with members of the survey staff and the Rangers. Of that 130,000 acres it is estimated by Mr. H. J. Lowe that there are 75,000 acres of Crown lands and 55,000 acres Native lands. There are also extensive areas of milling forest upon the freehold and leasehold lands. This estimate of £3 6s. per 100 superficial feet for converting forest-trees at the mill into suitable building materials is considered to be moderate, and has been confirmed by various persons with whom I have discussed the matter. One well-known sawmiller holds the opinion that the cost of the labour for converting forest-trees, based on the average in his district, amounts to about £18 an acre. I have always been struck by the fact that there is no more profitable or superior labour-employing industry than that of converting the forests into constructive materials. The whole of the expenditure, except the erection of the mill, the equipment thereof, and the purchase of some additional materials, goes to pay the labourers who do the work. The labour employed upon the structures, clearing for and laying-down the tram-lines, felling, hauling, handling, and conversion of the trees into building material, practically represent the whole estimate. This does not include carriage to the railway-station, conveyance along the line to the town or place where the timber is required, and the subsequent carriage from the station, handling, and working-up of the material. In fact, there seems to be no industry to compare with it in the utilisation of the natural resources of a country. Consideration of the vast employment of labour and expenditure which would follow on the opening of the Waimarino Forest will, I feel sure, prove a very great factor in the determination of the route of the North Island Main Trunk Railway.

34. You need railway communication to open up this forest?—Yes. You cannot utilise this timber without a railway. Mr. H. J. Lowe, the District Surveyor, has made an estimate of the carrying capacity of the whole area described in the schedule. After the necessary forests have been cleared away either for milling or by the actual falling, burning-off, and cultivation, deducting

the large areas of Crown and Native lands, which I consider suitable for conservation for forest purposes proper, it comes down to a net area of 1,411,000 acres, which, it is anticipated, will carry 1,800,000 sheep. I have, in order to be on the safe side, reduced the number of sheep in the estimate to 1,500,000. I went carefully into Mr. Lowe's figures before doing so. That, of course, takes no account of the number of cows and cattle which may be carried in connection with the dairying industry, or for the production of beef. I hope to be able to lay before the Committee an estimate of the area which may be classed as dairying land.

MONDAY, 3RD OCTOBER, 1900.

Mr. J. W. A. MARCHANT, Chief Surveyor, further examined.

1. *The Chairman.*] When you were last examined you said you would be able to furnish the Committee with a further description of the timber-country; also what is suitable for dairying—close settlement. Are you prepared with information on those subjects?—Before I deal with that may I refer to some of the evidence I gave when I last appeared before the Committee? I wish, with your permission, to make a correction, or, rather, to explain an error I was inadvertently led into. In speaking of the Rangiwaea Block I said it was chiefly valuable on account of the excellent timber growing upon it. I was misled by the small scale-plan in making that statement, because the railway-line through the Rangiwaea Block passes through what is commonly called birch forest. But in the south-western portion of the Rangiwaea Block there is a very extensive area of first-class milling bush. In continuation of my evidence upon the forests within the twenty-five-miles limit, I now furnish the Committee with a schedule showing the localities and the areas of the milling timber upon Crown, Native, and alienated lands. This schedule has been carefully prepared by Mr. H. J. Lowe, and shows that the area of the Crown forests, omitting some minor blocks, is 72,700 acres; the forests on Native lands amount to 54,500 acres; and those upon the alienated lands, 24,000 acres: total, 151,200 acres.

2. *Mr. Field.*] I suppose you include Crown tenants' land?—I include lands leased from the Crown. I presume you would like this subject dealt with in detail. Beginning at the south end in the Awarua Block, there are 18,000 acres suitable for milling. The fuller details are as follow: Motukawa, 5,000 acres; Rangiwaea, 6,000 acres; Rangitaua, 17,341 acres; Raetihi, 15,388 acres; Waimarino, 61,000; Raketepaura, 5,000 acres; Te Hautu, 5,000 acres; Kakaramea and Pihanga, 10,000 acres. The two last areas are in the vicinity of Takaunui. In the Otaranui, the north part of Ohotu, there are about 4,000 acres. Those are the chief areas referred to in the schedule.

3. *Mr. Lethbridge.*] Have you any estimate of the quantity of timber there?—I have already stated that I had in last year's return given the probable quantity of the milling timber per acre at 7,000 superficial feet.

4. How many acres?—Taking the Native and alienated lands, 151,000 acres. On that basis the total output from the whole area of 151,200 acres would be 1,058,400,000 ft. It might be interesting to the Committee if this estimate were compared with other estimates which are accessible to me. In the Appendix to the Journals of 1880, H.—3, Mr. A. Lecoy, in reporting to the Government, estimated the quantity of timber per acre on forest land at 15,000 superficial feet, and stated that about 40,000 acres of forest were annually used up in the colony.

5. *Mr. Hogg.*] In what year did Mr. Lecoy report?—It was in 1880. Mr. Duncan McArthur, in reporting upon the Southland sawmills, estimated that an average of fifteen men were employed by the twenty mills in the district, making a total of three hundred men in all. The annual wages amounted to £36,000, and the gross output of the mills was estimated at 12,000,000 superficial feet per annum. The estimated value of the timber he gives at £50,000. The average area cut over by each mill was 100 acres. Captain Campbell-Walker, who, I believe, was specially invited to this colony to report upon our forests, reported in 1877 that 12,000 superficial feet was the average output per acre of a forest at Okain's Bay, Canterbury; and in further estimates he stated that 15,000 superficial feet per acre might be taken as the average output in New Zealand forests. In estimating the output per acre of the forests along the North Island Main Trunk line at 7,000 superficial feet I have taken into consideration the fact that only the best class of timber would probably be utilised in the first instance, such as totara, matai, and rimu. There can be no question but that when the more accessible forests have been cut out the millers will be forced to utilise timbers which they now pass over. In the back country it might be profitable later on to utilise kahikatea, and the *Fagus* or so-called birch, which is really a beech. There is also a considerable quantity of maire, which is a very heavy and hard timber, but it has not yet been brought into general use. There is a very considerable quantity of the tree called, I believe, kaiwaka, which has the appearance of cedar. Its value is not yet sufficiently recognised, and it will, I think, be extensively used later on. I referred in my evidence on Wednesday to the vast amount of labour that would find employment if it were found practicable to mill the forests along the North Island Trunk route. I ventured to say that the cost in labour per 100 superficial feet would be something like 3s. 6d. This estimate is submitted with great deference, as I have had no practical experience in sawmilling. As I before stated, it has been considered reasonable by practical men. I will now, with your permission, make some remarks upon the milling industry and the variety of trees contained in the forests contiguous to the proposed railway. These are based chiefly on information supplied by Mr. H. J. Lowe. From Mangaonoho northwards for many miles the country is already occupied. There is a mill at Mangaonoho, and another near Ohingaiti; there is one at Mangaweka, and it is proposed to start one in the Kawatau Valley. The mill-proprietors are Messrs. Bailey and Cornfoot; the sites are at Clayton's and Deighton's.

6. That is four mills?—Yes. There is also an old sawmill on a village lot in Mangaweka, but I am not aware that it is working at the present time. There is a mill at Waikari's, beyond Utiku,

and another at Taihape. Further on there is one at Raetihi, and another, I believe, at Ohakune, besides one on the Pipiriki Road, at McLarin's. In the southern part of the district the chief timbers cut are totara, matai, and rimu. About Utiku and Taihape rimu, matai, and totara are also utilised, the mills being chiefly employed in supplying local requirements. This last remark applies also to the mills further north.

7. *Mr. Field.*] There is at present no means of getting it out from the mills further north?—It is too far back to profitably send timber down the country.

8. So they have to rely on local wants for the present?—Yes. The timber on the Awarua blocks is chiefly of the variety already stated—rimu, matai, totara, and kahikatea, with some hinau. The last mentioned, I may mention in passing, is a dark-hearted timber, and, being strong and durable, is very suitable for fencing-posts. There is also some scattered totara in the Rangiwaea Block. The Land Board has already set aside in this block 2,000 acres as a forest reserve, as the bush is of such a heavy and superior quality. The alienated lands in that block provide another 4,000 acres of milling timber. The Murimotu Block does not contain much good timber, it is estimated that there are about 1,500 acres which can be utilised. The southern portion of the Waiakaki Block contains some milling timber, and in the Rangitaua Block the line first enters the great Waimarino milling area. Here there are some 4,500 acres suitable for milling. Referring to the Tawhito, Ariki, and Ongamore Blocks, there are some 17,000 acres of good heavy rimu bush, with matai, hinau, maire, and kahikatea. After passing Ohakune the line enters the Raetihi Block, which is chiefly level and undulating country, magnificently timbered with rimu, matai, maire, kahikatea, and scattered totara, and in the future it will become the busy scene of extensive milling operations. There are also in this forest miro, tawhero, kahikatea, and yellow-pine. Mr. Lowe has advised me that yellow-pine exists in these forests, and, that being the case, it lends additional value and importance to the proposal to mill the timbers. The yellow-pine is used very extensively on the west coast of the South Island in lieu of totara for piles and sleepers.

9. Has that tree got a distinctive Maori name?—I do not know the Maori name.

10. Is there any pukatea in this forest? That is a timber of some value?—I do not know that there is. It generally grows in low swampy country, and is an indication of magnificent soil. Between the Raetihi Block and the Waimarino Plains the forest may be described chiefly as comprising rimu, matai, rata, maire, kahikatea, with more or less of the kaiwaka already mentioned. Leaving the Waimarino Plains and passing northward the forest is principally rimu. That is following down the course of the Pihopihotea and the Wakapapa Streams. Matai and totara are the principal trees near the plains as you approach Taumarānui.

11. Is not most of that totara about Taumarānui growing on Crown lands?—Yes. This map shows the Crown land tinted pink. The milling area is indicated upon the plan by green borders. The bush I have just been describing between Waimarino and Taumarānui is estimated to contain 20,000 acres of milling forests. The other great forest in this part of the country is that in the vicinity of Ohakune and Raetihi. I think I have generally indicated the localities and reported on the varieties and qualities of the timber. I will touch upon the area that might be considered suitable for dairying. Regarding the area of country along the North Island Main Trunk lines in the Wellington District suitable for dairying, I submit for the Committee a schedule of blocks, showing the area in each which Mr. H. J. Lowe estimates as suitable for dairying: this totals 120,000 acres. In making this estimate only the flat, undulating country, and lower hills along the route have been included. Generally, the area comprises all the land contiguous to the line about Mangaweka, Kawatau, and the Maungawairiki Valleys, and a very extensive area of country on both sides of the Rangitikei, Mowhango, and Hautapu Rivers. Te Kapua, which is the Somerville Association Block, would furnish about 5,000 acres of dairying land. The northern portion of the Hunterville Association Blocks would contain about 7,000 acres; Raketepauma, Motukawa, and Rangiwaea comprise 20,000 acres. In Ohotu and adjacent blocks, including some Maori lands south of the railway route about Raetihi and Ohakune, 12,000 acres would be suitable for carrying cows. The dairying area near Raetihi is set down at 13,000 acres, and further off from Raetihi there are 10,000 acres. These are the principal areas which are believed to be suitable for dairying. The industry, as I have already stated, has been initiated. There are factories or creameries eastward of Mangaweka, at Rangiwaea and Ruahine. Companies have been formed, and steps have been taken, to establish a factory at Taihape, and a creamery at Tarere, near Utiku, and it is understood that the Hautapu Village settlers, and those in the Somerville Block, are also moving in the direction of establishing a creamery in their midst. At Raetihi a splendid dairy factory has been running for some time. A creamery exists at Ohakune, and another at Mr. McLaren's, on the Pipiriki Road. Taking what I consider to be a safe and moderate estimate of the carrying-capacity of these 120,000 acres, I see no reason to doubt but that 30,000 cows will ultimately be carried on the lands, and when the forests have been completely removed, and additional feed can be provided, this number will be very greatly exceeded. Regarding the number of holdings, which under the direction of the Crown and the administration of the Land Board have been established on the route, I produce a return showing that they amount to 665. Taking the order in which they appear here, the principal settlements are in the Marton, Waimarino, Wanganui United, and Clifton Farm-homestead Blocks. Contiguous to the Pipiriki Road there are 26 settlers; in the Rangiwaea Block, 23; the Ponuiotane comprises 65; Somerville, 31; the Palmerston Knights of Labour, 48; and at Awarua there are 151 holdings. I have no information as to the total number of people which occupy these blocks.

12. *The Chairman.*] There is one question I should like to ask, but before putting the question I wish to state that it has been urged that the present line of railway should be diverted from Ohakune, *via* Raetihi, to Pipiriki, and from thence to Tongarakau. What is your opinion of the suitability of that part of the country for settlement, and what is its accessibility? Is the country

suitable generally from an engineering point of view, speaking of the general contour of the country?—On the route you have indicated the first twenty-seven miles would practically be along the present coach-road to Pipiriki, which takes in some of the dairying and grazing lands already described, and a considerable portion of the splendid milling forests about Raetihi. Nearer Pipiriki the country is rougher and more broken, but would, when cleared of the forest, be suitable for sheep-grazing. The alternative line you have indicated would, I presume, necessarily be confined to the Wanganui Valley, or gorges northwards from Pipiriki, thence up the Tongarakau to connect with the proposed Taranaki—Auckland route. I have not been over the country between Pipiriki and the head of the Tongarakau, so that I am unable to speak particularly of the character of the land. The second part of your question refers to the practicability of the route. To deflect the line from Ohakune south-west to Pipiriki would take the line into the Wanganui basin, and appears to me to present no advantage over the Waimarino route, and, if I may venture an opinion, it would bring the railway—if it were found practicable to construct it—along the course of the Wanganui into competition with water-carriage. This route would also have the very grave objection of cutting off the interior country on the east side of Wanganui River from reasonable access to the railway. Leaving out of consideration the capabilities of a great portion of the land for pastoral purposes, the Pipiriki route would avoid altogether the great bulk of the forest country which it is proposed shall be milled at the northern end.

The Chairman: After the clear and exhaustive explanation and description which Mr. Marchant has given to the Committee respecting all the questions that have been addressed to him, and the valuable information regarding the North Island Main Trunk line, I move, That this Committee desires to place on record its high appreciation of the careful, able, and exhaustive manner in which Mr. Marchant has given his evidence.

Mr. Marchant: In thanking you, Mr. Chairman, for the compliment you have been good enough to pay me, I desire to repeat what I have already endeavoured to bring out—namely, that I am indebted for a great deal of the information I have laid before the Committee to Mr. H. J. Lowe, District Surveyor, Mr. Lundius, Crown Lands Ranger, and other officers of the staff, who have kindly co-operated in compiling the information for the Committee.

The Chairman: I move, That the vote of thanks to Mr. Marchant be entered on the minutes of the meeting.

LETTER FROM J. W. ELLIS, Otorohanga, N.Z., to J. STEVENS, Esq., M.H.R., Chairman, Main Trunk Railway Committee, Wellington.

DEAR SIR,—

6th October, 1900.

As requested by you I now forward a few notes *re* the country that will be served by the Central route from the present terminus of that line at Porootaroa to the Waimarino Plain, a distance of from fifty to sixty miles south from the end of the rails. I know this country well, not only along the main road, but I have been over all the main tracks both on the east and west of the proposed line of railway. Generally the land in the immediate vicinity of the line is poor, pumice country, but it runs almost on the western edge of that class of country, and a very short distance to the west takes you into good country, the bulk of it being of papa formation, which, of course, is grand grass country. I have put about 800 acres of this country into grass on the Ohura River about twenty-five miles from the railway-line, and the result has been most satisfactory; it is surrounded by a huge area of Crown land of equal quality, and it may not be out of place to ask you to draw the attention of the Government to their large estate in this district, and to suggest that as the rails are expected to be laid to Kawakawa inside of a year (where the Ohura Road leaves the Main Trunk Railway), that it would be in the interests of the line to have some at least of this land prepared for settlement at once, so that it could be offered for disposal soon after the line is opened to that station, from where a good dray-road extends thirty miles into the Ohura country.

On the eastern side, while a good deal of the country, especially on the flats, is smothered in pumice, there are large blocks of useful country, more especially about the Pureora and Puketapu Hills, and there is also on this side a good deal of "papa" country, and since I have known it a considerable slice of country on the Taringamutu River has come into good pasture simply by stocking, and without any grass being sown; but the chief value of this side of the line lays in the timber. As a sawmiller I have given particular attention to the timber resources of this part. It is generally believed that the rails will have to be extended some thirty miles before any good milling timber is opened up; this is a mistake. I am quite satisfied that every station south of Parootaroa, with perhaps one exception, will be a large shipping centre for timber, although anyone not acquainted with the country and seeing little timber close to the line may doubt it. The principal timber-trees are rimu, totara, matai, and kahikatea, and they are generally well-grown useful-sized trees; on the Waimarino Block they are extra large on the northern end of the block, and this is one of the finest lots of timber I have seen. As to area, I understand that Mr. Marchant estimates the acreage of good milling timber on the Waimarino Block at 30,000 acres, and I think I am quite safe in saying that the milling timber outside of that block and between it and the Tunnel is of quite equal extent, although most of it lays some distance back from the line, but there is no other outlet for it.

Mr. Holmes, who surveyed that part of the line, told me that he has picked up pieces of coal in the head of the Retaruke River, within two or three miles of the line as located by him, and, as it has long been known that coal existed lower down on the same river, the chances are that there is a large deposit close to the highest part of the line and within a moderate distance of the Taranaki and Wellington markets, to say nothing of its value for railway purposes.

In conclusion I may say that, although the length I have referred to is considered to be the poorest on the line, I am satisfied that when it is opened up and settled the traffic will prove that a railway was required and will pay independently of the through-traffic. The tapping of the Wanganui River at Taumarunui, and the opening-up of the Ruapehu and Tongariro Mountains, and the thermal wonders there and at Tokaanu, will certainly induce a large stream of tourist traffic.

It may not be known to your Committee that the road from Stratford towards the Main Trunk Railway (known as the East road) is now fit for coach traffic for fully eighty-five miles out of a total of 103 miles, and coaches are now running on it for a distance of over fifty miles from the Taranaki end, and it would greatly help the railway traffic if the central part of the road (some eighteen miles, and on which some work is now on hand) was pushed ahead at once, so as to have it completed by the time the rails reach the point of divergence at Kawakawa.

I have been living in and about the King country for the past twenty-six years, and have had very considerable experience in breaking in new country, and consider myself a judge of country in its natural state.

I am, &c.,

J. W. ELLIS.

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