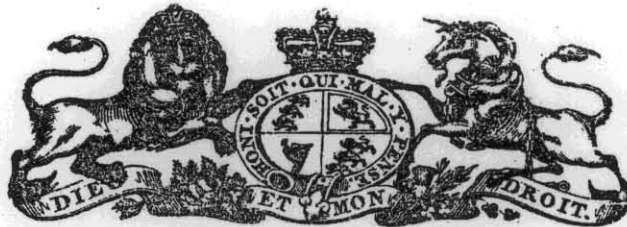


(No. 99.)



1882.

TASMANIA.

HOUSE OF ASSEMBLY.

STRAHAN TO HEEMSKIRK TRAMWAY:

REPORT FROM THE SELECT COMMITTEE, WITH MINUTES OF
PROCEEDINGS, EVIDENCE, AND APPENDIX.

Presented by Mr. N. J. Brown, and ordered by the House to be printed,
September 5, 1882.



SELECT COMMITTEE appointed on Wednesday, 16th August, 1882, to consider the item in the Public Works Proposals "That the sum of £38,000 be appropriated to defray the Cost of Construction of a Tramway from Strahan, Macquarie Harbour, to the Tin Mines at Mount Heemskirk," with power to send for Persons and Papers.

MEMBERS OF THE COMMITTEE.

MR. MINISTER OF LANDS.
MR. BIRD.
MR. BURGESS.
MR. GELLIBRAND.

MR. HART.
MR. PILLINGER.
MR. N. J. BROWN. (*Mover.*)

DAYS OF MEETING.

Thursday, 17th August; Friday, 18th August; Tuesday, 22nd August; Wednesday, 23rd August; Thursday, 24th August; Friday, 25th August; Friday, 1st September; Tuesday, 5th September.

WITNESSES EXAMINED.

J. Fincham, Esq., Engineer-in-Chief.
Alexander Ingleton, Esq., Mining Manager.
Alexander Riddoch, Esq., Capitalist.
E. B. E. Walker, Esq., Agriculturist.
J. E. Risby, Esq., Saw-mill Proprietor.
J. C. Climie, Esq., C.E.
Charles P. Sprent, Esq., Surveyor.
J. M. Dooley, Esq., M.H.A.

Edward Hawson, Esq., Legal Manager Cumberland Tin Mining Company.
Captain John Reid, steamer *Amy*.
C. A. Guesdon, Esq., Legal Manager Orient and West Cumberland Tin Mining Companies.
C. E. Featherstone, Esq., Local Director Montagu Tin Mining Company.
Captain H. J. Stanley, R.N.

WITNESSES' EXPENSES.

	£	s.	d.
J. C. Climie, C.E.....	7	10	0
C. P. Sprent, Surveyor	7	10	0
E. B. E. Walker	3	0	0

MEETINGS OF COMMITTEE.

No. 1.

THURSDAY, AUGUST 17, 1882.

Present.—Mr. N. J. Brown (Chairman), Mr. Hart, Mr. Pillinger, Mr. Bird, Mr. Burgess, Mr. Minister of Lands.

Witnesses to be examined.—Mr. Thureau, Engineer-in-Chief, Mr. Innes, Mr. Hill, Mr. Risby, Mr. E. B. E. Walker,—Friday.

Mr. Climie to be telegraphed for, to mention the earliest date on which he can arrive to attend the Committee.

Mr. Charles Guesdon, Mr. Hawson, Mr. R. W. Butler, Mr. Featherstone to receive circulars apprising them of the sitting of Committee, and asking them to attend.

Mr. Sprent to be telegraphed for.

The Committee adjourned till 11 A.M. on Friday.

No. 2.

FRIDAY, AUGUST 18, 1882.

Present.—Mr. N. J. Brown (Chairman), Mr. Hart, Mr. Burgess, Mr. Pillinger.
 Witnesses examined.—Mr. Fincham, Engineer-in-Chief; Mr. Alexander Ingleton, Manager of Montagu Mine; and Mr. Alexander Riddoch (commenced).
 Committee met at 11 A.M., and adjourned at 1 P.M.; met again at 2:30 P.M.
Present.—Mr. N. J. Brown (Chairman), Mr. Hart, Mr. Bird.
 Committee further examined Mr. Ingleton, and commenced Mr. Riddoch's examination.
 Committee adjourned at 3:55 P.M. to 11 A.M. Tuesday, the 22nd August.

No. 3.

TUESDAY, AUGUST 22, 1882.

No quorum.

No. 4.

WEDNESDAY, AUGUST 23, 1882.

Committee met at 11 A.M.
Present.—Mr. Hart (Chairman in absence of Mr. N. J. Brown), Mr. Burgess, Mr. Pillinger, Mr. Hart.
 Minutes of previous meeting read and confirmed.
 Mr. N. J. Brown here entered and took the chair.
 Witnesses examined.—Mr. Riddoch's examination was resumed and finished. E. W. E. Walker, Esq., Agriculturist, was examined.
 Committee adjourned at 1 P.M.
 Committee resumed at 2:30 P.M.
Present.—Mr. N. J. Brown (Chairman), Mr. Bird, Mr. Burgess, Mr. Hart, Mr. Pillinger.
 Witnesses examined.—Mr. J. E. Risby, Saw-mill Proprietor; Gustavus Thureau, Esq., Geologist and Inspector of Mines.
 Witnesses to be summoned for Thursday.—Mr. Climie, at 11 A.M.; Mr. Sprent, at noon; Mr. J. M. Dooley, at 2:30 P.M.

No. 5.

THURSDAY, AUGUST 24, 1882.

The Committee met at 11 A.M.
Present.—Mr. N. J. Brown (Chairman), Mr. Hart, Mr. Bird, Mr. Burgess, Mr. Gellibrand, Mr. Pillinger.
 The Minutes of yesterday's meeting were read and confirmed.
 Witness examined.—J. C. Climie, Esq., C.E., was under examination until Committee adjourned at 12:55 P.M.
 Committee resumed at 2:30 P.M.
Present.—Mr. N. J. Brown (Chairman), Mr. Bird, Mr. Hart, and Mr. Pillinger.
 Witness examined.—Charles Percy Sprent, Esq., Surveyor.
 Witnesses to be summoned for Friday.—Mr. J. M. Dooley, 11 A.M.; Capt. Reid, *Amy*, 11:30 A.M.; Mr. Hawson, 12; Mr. A. A. Butler, 12:30 P.M.; Mr. C. Guesdon, 2:30 P.M.; Mr. C. E. Featherstone, 3 P.M.

No. 6.

FRIDAY, AUGUST 25, 1882.

The Committee met at 11 A.M.
Present.—Mr. N. J. Brown (Chairman), Mr. Bird, the Minister of Lands, Mr. Hart, Mr. Pillinger.
 The Minutes of yesterday's meeting were read and confirmed.
 Witnesses examined.—J. C. Climie, Esq., C.E., recalled; J. M. Dooley, Esq., M.H.A.; Mr. Hawson, Legal Manager of Cumberland Tin Mining Company.
 The Committee adjourned at 1 P.M.
 Committee resumed at 2:30 P.M.
Present.—Mr. N. J. Brown (Chairman), Mr. Bird, Mr. Hart, Mr. Pillinger, and the Minister of Lands.
 Witnesses examined.—Capt. John Reid, of steamer *Amy*; C. A. Guesdon, Esq., Legal Manager of the Orient and West Cumberland Tin Mining Companies at Mount Heemskirk; and C. E. Featherstone, Esq., Local Director of Montagu Tin Mining Company.
 Witnesses to be summoned for Friday, 1st September.—A. A. Butler, Esq., 11 A.M.; Engineer-in-Chief, noon.
 Committee adjourned to Friday, 1st September, 11 A.M.

No. 7.

FRIDAY, SEPTEMBER 1, 1882.

Committee met at 11 A.M.

Present.—Mr. N. J. Brown (Chairman), Mr. Pillinger, Mr. Burgess, Mr. Bird, Mr. W. St. P. Gellibrand. Minutes of last meeting read and confirmed.

Witnesses examined.—Mr. J. Fincham, Engineer-in-Chief, re-called and examined; and Capt. H. J. Stanley, R.N.

The Committee adjourned at 1.10 P.M., to Tuesday, 5th September, at 11 A.M.

No. 8.

TUESDAY, SEPTEMBER 5, 1882.

The Committee met at 11 A.M.

Present.—Mr. N. J. Brown (Chairman), the Hon. the Minister of Lands and Works, Mr. Hart, Mr. Pillinger, Mr. Burgess, Mr. Bird.

The Chairman brought up the draft Report, which was read paragraph by paragraph, discussion ensuing on some of them, but ultimately, after some trifling amendments, the Report was unanimously adopted on the motion of Mr. Hart, seconded by Mr. Burgess, and it was ordered to be prepared for presentation to the House.

The Committee adjourned at 1 P.M. *sine die*.

R E P O R T.

YOUR Committee have the honor to submit their Report and the Evidence taken on the matter referred to them for investigation. After careful consideration of the evidence of the witnesses examined, your Committee have arrived at the following conclusions:—

- 1st. That the prospects of the tin mines near Mount Heemskirk are of the most encouraging character, and are such as to warrant your Honorable House in giving favourable consideration to proposals of expenditure on public works to assist in the development of the mines and to facilitate access to them.
- 2nd. That Macquarie Harbour must be considered as the only safe and permanent shipping-place for these mines.
- 3rd. That, judging from the present prospects of the mines, it is probable that a tramroad or railroad from Macquarie Harbour to the mines at Mount Heemskirk and North Mount Heemskirk will be necessary in the near future.
- 4th. That, when such tramroad or railroad is constructed, it should be laid with iron rails and adapted to be worked by locomotives.

Your Committee are unable to recommend that the vote for a wooden tramway at a cost of £38,000, as submitted by the Honorable the Minister of Lands and Works, should be agreed to by your Honorable House, both on account of the opinion above expressed as to the advisableness of laying down iron instead of wooden rails, and also because of the evidence before them as to the expediency of carrying the line, if possible, further inland than the route surveyed by Mr. Climie, with the object of affording easy access to timber, which will be largely used by the mining companies.

With the view of ascertaining whether such an alteration of the route is practicable or not, your Committee would recommend that a further examination be made, at a cost not exceeding £10 per mile, for about 10 or 12 miles southward from the proposed terminus of Mr. Climie's line near the Montagu mine towards Macquarie Harbour.

With regard to the probable cost of a light railway to meet the immediate requirements of the mines, and the probable expense of working such a line, your Committee would direct attention to Mr. Climie's answers to Questions 181 and 212.

Although the question of providing other means of communication, besides the proposed tramway from Macquarie Harbour, was not directly submitted to your Committee, yet their enquiries have been necessarily extended in that direction; and they beg to submit the following recommendations as to works of pressing and urgent necessity, which, in the opinion of your Committee, ought to be completed as far as practicable during the approaching summer:—

1. It is the opinion of your Committee that the construction of a good macadamised road from Trial Harbour to the table-land near the Montagu mine should be proceeded with as rapidly as possible. It appears from the evidence that a route can be found for such a road on a much easier gradient than the present Zigzag road. The road need not be more than 12 feet wide, and can, according to the evidence, be completed for whatever distance may be desirable, that is, from two to three miles, at a moderate cost. From the end of this road your Committee would recommend the commencement of a line of road running northwards towards North Heemskirk, and south-eastwards towards Macquarie Harbour. Such line of road to be so surveyed and laid out that the gradients will be suitable hereafter for a light railway; the portion running in a south-eastern direction to be laid out with a view to its forming a part of the proposed light railway to Macquarie Harbour; and the northern portion to be extended to Glenora (now known as Granville), and, should circumstances warrant it, to Milne or Granville Harbour. Your Committee believe that the immediate requirements of the mines will be met by the expenditure during the approaching summer of from £5000 to £6000 on the lines of road indicated.

2. With regard to Milne or Granville Harbour, the evidence of Captain Reid and others would indicate that it is much superior as a shipping-place to Trial Harbour, but that, like Trial Harbour, it cannot be rendered safe in all weathers except at an enormous expense. There is no doubt, however, that it will be used more or less as a shipping-place for some time to come; and your Committee would recommend that any companies agreeing together to construct a "pack-track" from the harbour eastwards towards "Donnelly's Look-out" should be subsidised, at the rate of £1 for every £1 expended by them in constructing such a track, up to the amount of £200. It would further appear necessary to lay down moorings and erect a small jetty at Milne or Granville Harbour, as recommended by Captain Reid (*vide* Captain Reid's report appended).

3. As to Trial Harbour, your Committee would recommend the erection of a strong crane, equal to lifting five tons, and the placing of a punt there, to be constructed so that it can be drawn up on the beach on iron rails by means of a winch (*vide* evidence of Mr. J. E. Risby, p. 5, Questions 136 to 139); but all works constructed at this harbour should be executed at the smallest possible expense, and can only be regarded as serving a temporary but, at the same time, a very urgent and necessary purpose.

NICHOLAS J. BROWN, *Chairman of Select Committee.*

Committee Room, 5th September, 1882.

EVIDENCE.

FRIDAY, AUGUST 18, 1882.

MR. J. FINCHAM, *Engineer-in-Chief, examined.*

1. *By the Chairman.*—Have you visited the West Coast tin mines? I have been at the West Coast, but not with the view of visiting the mines.
2. What part of the West Coast have you seen? I have travelled through from Corinna to Macquarie Harbour.
3. Then you know something of the proposed route of the tramway? I cannot say that I do, except from a general bird's-eye view of the country.
4. From such opportunities, as you have had of observing the country between Macquarie Harbour and Heemskirk, what facilities did you observe for constructing a tramway, and what opinion did you form as to the facilities for constructing such a tramway? I thought it would be a very easy work.
5. What is the distance from Macquarie Harbour to the proposed terminus at Mount Heemskirk? Twenty-two miles.
6. What would be a fair and reasonable time for effecting a survey of 22 miles? It is impossible for me to say with reference to the West Coast country, not having been on the ground to see the difficulties reported by Mr. Climie. I believe he had to traverse miles of the line four times over in order to find a practical way through it at all.
7. What would be sufficient time to effect a survey of 22 miles in any ordinary or average country? From three to four months to complete an engineering survey by one surveyor. I say this from actual experience (he having a sufficient number of men).
8. Can you produce Mr. Climie's plans of the proposed tramway? I can. (Plans produced and critically examined by the members of the Committee.)
9. For what description of tramway was that survey designed and the estimate made? That would be best answered by referring to Mr. Climie's report.
10. Were those plans and estimate for a railway or tramway estimated to cost £70,000? Mr. Climie was to lay out a railway or tramway with grades and curves in all respects suitable for locomotive traffic at a future date.
11. Are these plans produced by Mr. Climie in accordance with those instructions? and what was the estimated cost of such a railway? His (Mr. Climie's) estimate for a railway worked by locomotives (without including engineering supervision, office expenditure, or contingencies,) was about £80,000.
12. Was Mr. Climie instructed to give an estimate for an inferior class of tramway? He was asked to give an estimate for a railway or tramway with a narrow gauge on the same gradients and curves, and the amount he named was £38,000, as submitted by the Minister of Lands and Works to the House of Assembly (about £1750 per mile).
13. Do you know anything of the cost of constructing wooden railways or tramways in other parts of the country? The cost of the Mount Bischoff tramway was about £1000 per mile.
14. Does that include rolling-stock? I do not know; but in any case the cost of stock for a horse tramway would be comparatively small as compared with one worked by locomotives.
15. Do you know anything of ordinary bush tramways, such as are used at saw-mills? I have observed them in different parts of the country.
16. What do such tramways ordinarily cost? I have had no experience of them, and do not know.
17. Are there any peculiar conditions in regard to the country through which the proposed tramway will pass which would render it exceptionally difficult to construct a tramway or railway? Nothing more than would be common to any other unoccupied portion of the country.
18. What is your opinion as to the probable traffic on a tramway on the West Coast from Macquarie Harbour to Heemskirk? I think that for the first two or three years the traffic would be small.
19. After the first two or three years what is your opinion as to the probable traffic? That would depend entirely on the success in the future of the mines now being opened.
20. Can you give the Committee any information as to the quantity of agricultural lands, and the extent of timber of a marketable value, which would be tapped by the proposed tramway, independent of traffic from the mines? I have no information except that which Mr. Climie has supplied in his report.
21. What was the result of your own observations as to the general character of the country, independent of the tin mines? The country passed through by the road usually used is utterly barren.
22. Do you know anything of the timber in the vicinity of Macquarie Harbour and the Henty Rivers? The timber near the crossing of the Big Henty and the fording-place, and for a little distance above, is of a miserable description. I cannot speak as to the timber near the Little Henty, as I did not examine it.
23. Can you inform the Committee what would be a fair charge per ton and per passenger from Strahan (Macquarie Harbour) to Heemskirk on the three different schemes of line? I will furnish the information to the Committee.
24. *By Mr. Hart.*—What is your opinion of Trial Harbour as a place for landing goods? Utterly unsuited, in my opinion.
25. Did you visit the harbour called "Milne" Harbour? It was only just discovered, and I have not visited it.
26. Is not a large portion of the goods at present landed at Trial Harbour? Yes.
27. Is there not a recommendation for a road from Trial Harbour to Heemskirk, and at what cost? Yes; I believe at £2000.
28. Is it your opinion that machinery could be landed at Trial Harbour and carted on the proposed road? Certainly.
29. What is the lowest gradient on that proposed road? My last answer is based on the assurance of Mr. Climie that he can find a gradient of 1 in 20. That would be the lowest gradient.
30. What is the gauge of the proposed railway, to cost about £80,000, and the wooden tramway, to cost £38,000? The locomotive railway would have a gauge of 3 ft. 6 in.; the wooden railway, worked by horse-power, would have a gauge of 2 feet to 2 ft. 6 in.

31. Does the £38,000 include any stock on the railway? It does.
32. Any jetty accommodation at Macquarie Harbour? No; a jetty is already constructed.
33. *By Mr. Burgess.*—What would be the probable annual working expenses of the three different descriptions of line, viz.—a locomotive line of 3 ft. 6 in., to cost £80,000; a trainway of 3 ft. 6 in., worked by horse-power, costing £70,000; and a wooden tramway costing £38,000,—say carrying 20 tons freight and 12 passengers daily? I will furnish the information to the Committee.
34. Was there any other description of line considered by Government? if so, what was the nature of the line, and estimated cost? I wish to defer my answer.

MR. ALEXANDER INGLETON, *Mining Manager, examined.*

35. *By the Chairman.*—What is your occupation? Mining Manager of the Montagu Tin Mining Company at Heemskirk.
36. How long have you been acting in that capacity? Eighteen months at the Montagu.
37. Have you any knowledge of other mines there, and are well acquainted with what mines? I am acquainted with the Cumberland, the West Cumberland, the Orient, the Prince George, the Montagu, the Montagu Extended, the Empress Victoria, and the Cliff.
38. How many of these companies are at work? Those I have mentioned are all at work, excepting the Prince George.
39. What is your opinion generally as to the prospects of tin-mining on the West Coast? The prospects are exceptionally good.
40. Do you think there is any prospect of as much tin being obtained from the mines you have mentioned as is now obtained from the Mount Bischoff mine? I think so, after machinery is erected. I speak of the whole of the mines.
41. Have you had much experience in tin-mining? I have had considerable experience in gold and lead mining. They are exactly similar to tin-mining.
42. What is the greatest depths at which lodes have been struck at Mount Heemskirk? The Montagu at 103 feet; the Cumberland at 100 feet; the Empress Victoria at 64 feet; and the Orient at something about 60 feet. (The witness produced a number of fine specimens from the workings of these companies.)
43. Referring to the Montagu lode at 103 feet, what is the width of the lode and percentage of tin? When the lode was first struck it was two inches wide, and when driven out to 80 feet widened to 24 feet. I should say the average going down the underlay is 2½ feet wide. The average percentage of tin, at 103 feet deep, is about 4 per cent.
44. What is being done with respect to procuring machinery on the Montagu claim? I am proceeding to Melbourne with respect to procuring machinery now.
45. How do you expect to get the machinery to the claim? Up the Zigzag road from Trial Harbour, a distance of two miles.
46. Do you expect any great difficulty in getting the machinery landed and taken up to the mine? I do not.
47. What is your opinion of Trial Harbour for landing heavy machinery and cargo? My experience is that it is exceptional when a vessel cannot get in. My reason for saying so is that the *Amy* has made twenty-one trips, and on one occasion she had to put back to Macquarie Harbour, and on a second occasion she put back twice.
48. Do you think that the other companies in the vicinity of Mount Heemskirk would be able to get the machinery they require immediately conveyed by road to their claims? Yes, if roads were made branching from the Zigzag.
49. Would the construction of these roads be very costly? The two miles of road up to the Montagu claim, made by the companies, with the assistance of Government, cost about £320 per mile.
50. Would that be above or below the average cost for any further extension of the roads to the various claims? I think it would be a fair average for the Orient, but above the average for some of the other companies. My reason for saying so is that the Zigzag is all macadamised. The soil is very rich and soft at the Zigzag. The high land is more of a quartz gravel, through which a road can be made at a smaller cost.
51. *By Mr. Burgess.*—If a crane or any necessary appliance for landing heavy goods were placed at Trial Harbour, and a road constructed to the table land on an easier gradient than the Zigzag road, do you think that the requirements of the companies for the next twelve months would be sufficiently provided for? My reply to an almost similar question to my legal manager was, that I could land any weight up to two tons with the present appliances, and take same up to the Montagu mine, with the present road.
52. Do you know if any boilers will be required at the West Coast mines? Yes, I am sure there will.
53. What would be about the weight of the boilers? The smallest would be about 4 tons, but there would be no difficulty in getting larger ones up in pieces and riveting them together on the ground.
54. *By the Chairman.*—Do you consider that the £2000 proposed to be expended by Government on a road from Trial Harbour would be sufficient for the purposes of the companies you have named? I think the £2000 would be best spent on roads branching from the Zigzag road on to table land out towards the Gap.
55. Would that road be of any use to companies south and east of the Montagu claim? No: a separate road would be required for the Orient, Mount Heemskirk, and Agnew companies.
56. When do you expect to have your machinery on the Montagu claim? In December next.
57. Supposing that you have your machinery on the ground in December next, how long after that time would it be before you will turn out tin? About four months.
58. *By Mr. Hart.*—What size battery do you intend to start with? A ten-head battery.
59. What amount of dressed tin, according to assays you have had, do you expect to turn out weekly? From four to six tons.
60. *By Mr. Bird.*—Supposing the proposed roads were carried out, how long would they serve the purposes of the different companies? Such companies as have water-power on their grounds would be provided for for two or three years. Those companies who require steam-power would require tramroads to get mining timber and firewood.

61. Is the facility for getting timber to these mines the chief reason for which you would advocate the construction of this tramroad? It is.
62. You would not think the tramroad necessary to Macquarie Harbour solely for the purpose of bringing the mines in connection with a shipping-place? Not absolutely necessary, but it would lead to taking up more mineral ground at present inaccessible. I think it is all a mineral country as far as the Big Henty River. There is a fair quantity of good agricultural land between the Orient mine and Henty Rivers.
63. Would a tramroad or other road from the mines towards Macquarie Harbour answer the purposes of the companies, without being extended to Macquarie Harbour? It would, if carried to a distance of six miles.
64. Could such a road be made on the course surveyed by Mr. Climie? No, it should be further inland than Mr. Climie's line.
65. Do you think a short tramroad into the timber country towards Macquarie Harbour, in addition to the construction of roads connecting the mines with Trial Harbour, would serve the purposes of the District for several years? Yes, if the road proposed to be constructed towards North Mount Heemskirk is a tramroad.
66. *By Mr. Hart.*—Is there any timber between Trial Harbour and Mount Heemskirk? Yes, there is some on the brow of the hill towards the beach.
67. The tramroad which you speak of—going out towards Macquarie Harbour, higher than Mr. Climie's line—would it be an expensive work? could it be constructed on the surface, or would it require all the usual cuttings of a permanent tramroad? I think it would require the usual formations of a permanent tramroad.
68. If the line was made to Macquarie Harbour, as proposed by Mr. Climie, would it be sufficient for procuring the timber you speak of? and what would be the probable cost? To a much more limited extent than if the line were further inland. I could not say what the probable cost would be.
69. *By Mr. N. J. Brown.*—Have you had any experience of short tramroads? Only of short ones about the mines.
70. From your experience of these short tramroads, which would you be in favour of, iron or wooden rails? Most decidedly, iron.
71. Supposing the tramroad was made from Mount Heemskirk to Macquarie Harbour, would you recommend wooden or iron rails? Decidedly, iron rails.
72. Do you know the difference between the draught on wood and iron rails? I believe if a horse can draw one ton on wooden rails, on a dead level, he could draw ten on iron rails.
73. *By Mr. Bird.*—Are any of the mines finding a difficulty in getting timber for mining purposes? Yes, there are several,—the Empress Victoria, the Cliff, the Montagu Extended, the Prince George, and several smaller companies not named.
74. What length of tramroad do you think would be necessary to meet the requirements of the claims to procure timber during the next three years? About ten miles would do.
75. Could a tramroad for timber purposes be constructed over the Gap at a less cost than that towards Macquarie Harbour? It would cost just about the same.

ALEXANDER RIDDOCH, *Esq.*, examined.

76. *By Mr. N. J. Brown.*—Have you visited the West Coast? Yes, I visited the West Coast in February last.
77. Did you visit many of the mines in February last? Yes, I visited the greater part in which work was going on. In succession I visited the West Cumberland, the Cumberland, the Montagu, the Orient, the Mount Heemskirk, the Heemskirk and Agnew, Empress Victoria, the Cliff, and the Cornwall.
78. What opinion did you form of these mines generally? I formed a very favourable opinion of the future prospects of the mines.
79. Did you see Trial Harbour? I visited it, and stayed about two days there.
80. What is your opinion of it as a shipping-place for small vessels? I can scarcely call it a harbour at all, and formed a poor opinion of it as to its capacity for shipping.
81. Did you see the operation of landing any cargo there? I did not; but it seemed to me to be well characterised as a hole in the rocks. I do not think it can ever be made a safe harbour.
82. Are you of opinion that it would be possible to land machinery required at the mines at this harbour? It is possible, but it seemed to me very unsuitable for the purpose. I do not, however, think that the bad harbour will prevent the companies from making the attempt.
83. Are you of opinion that the prospects of the mines at Mount Heemskirk are sufficiently good to warrant the expenditure of any large amount of money in securing connection with a safe harbour at Macquarie Harbour? Yes, I certainly am.
84. Did you travel southward from Heemskirk to Macquarie Harbour? I travelled some part of the distance, and saw the whole country from the high ground, and Macquarie Harbour in the distance.
85. From what you saw of the country, did you think it a difficult country to make a tramroad through? I should not think it was until within two or three miles of the principal mines, where the country seems more broken, but for the greater part of the distance there should not be any difficulty.

WEDNESDAY, AUGUST 23, 1882.

A. RIDDOCH, *Esq.*, further examined.

86. *By the Chairman.*—Did you see anything in the course of your observations of the mines at Mount Heemskirk to warrant you in believing that the output of tin from those mines will be equal to that from Mount Bischoff after the erection of machinery? I certainly thought that eight or ten of them would equal in the whole that from Mount Bischoff. I mean with their first machinery, which will be erected within 12 months.

87. What would you consider necessary to enable these companies to get machinery on to their claims? Roads from Trial Harbour.
88. Do you think that the construction of roads should be proceeded with independent of tramway? Yes.
89. Would those roads be of any service to the mines after the tramway was constructed? Certainly; but I look upon the roads as necessary for present requirements.
90. *By Mr. Hart.*—Did you notice if there was any alluvial tin to any extent? I saw a good deal of alluvial ground, but could not say whether it would be payable, and principally at North Heemskirk, about eight miles from Heemskirk.
91. Can you give any idea what crushing-plant would be required to obtain 200 tons per month from those mines? I am not in a position to answer that.
92. *By Mr. Pillinger.*—What distance are these mines you have visited from Trial Harbour? The furthest I have visited at Heemskirk I should think is about 4½ or 5 miles.
93. What mines have you visited at North Heemskirk? I visited several of the sections taken up at North Heemskirk. They were not then named.
94. How far were they from Trial Harbour? At least 10 miles.
95. What distance from the harbour known as Milne Harbour? I was not at Milne Harbour, but I should judge about four or five miles; that is, the sections I refer to.
96. What is the distance of the mines at South Heemskirk from Macquarie Harbour? Twenty miles, and 30 to North Heemskirk.
97. Could tin not be put on board as cheaply at Trial Harbour as at Macquarie Harbour? By the proposed roads the distance is less, but the shipping difficulties would be greater; and only small vessels can load at Trial Harbour.
98. Do you think that the sea-line of the West Coast is sufficiently known at present to warrant putting down permanent works? I think there is sufficient known of the West Coast to warrant this expenditure.
99. *By Mr. Bird.*—Do you think that the construction of roads in the vicinity of the mines and Trial Harbour would meet the requirements of the district for some years? No, I do not. I think there is an urgent necessity for the tramroad to connect the mines with Macquarie Harbour.
100. Would the tramroad to Macquarie Harbour be needed chiefly for the purpose of getting machinery on to the grounds and supplying the mines with timber, or for the purpose of shipping tin? This road would more immediately be required to get machinery up, and hereafter for shipping tin and getting supplies.
101. Do you think the companies are likely to wait for getting up testing machinery (that is sufficient to work temporarily) till the tramroad is laid? I believe the companies will get up machinery whether the tramroad is made or not.
102. If a light tramroad were constructed along the course of the mines whereby timber supplies could be procured, would that, with the road communication to Trial Harbour, meet the more immediate requirements, leaving the extension to Macquarie Harbour subject to the development of the mines? I think in view of the immediate requirements of the mines for timber, it would be as well to commence the tramway at the mines, and carry it southward towards Macquarie Harbour; but certainly not with the view of stopping short of Macquarie Harbour.
103. Would you recommend the permanent tramway to be erected on the higher or lower estimates of Mr. Climie,—that is, on the cheaper, or more expensive plan? Certainly on the higher estimate, of iron rails of 3 ft. 6 in. gauge.
104. *By Mr. Burgess.*—Do you consider that Parliament would be justified in proceeding with the construction of the tramway at once, or would you recommend that the construction be deferred till the mines are more fully developed? From all I saw, I think there is everything to warrant the tramway being constructed at once.
105. *By the Chairman.*—Can you give the Committee any information with respect to agricultural lands and quantity and quality of timber in the vicinity of Mount Heemskirk and the mines? I have every reason to believe there is a considerable extent of land suitable for agricultural settlement between Heemskirk and Macquarie Harbour, as well as good timber country; and if the line were carried inland, it would open a large extent of mineral lands.
106. Looking at route of tramway marked on plan by Mr. Climie, do you think it is the best that could be adopted for general purposes? It would be more advantageous if carried further inland.

MR. E. B. E. WALKER, *Agriculturist, examined.*

107. *By the Chairman.*—Have you visited the West Coast, and when? I visited the West Coast about this time last year. I was there for about two months.
108. Can you give the Committee any information as to the prospects of the mines there? I think the prospects are very good.
109. Are they good enough, in your opinion, to warrant the expenditure of any large amount of public money in affording facilities for developing the mines? Quite good enough.
110. Would you mention any mines which, in your opinion, are likely to be successful? The Orient had an exceedingly good show, as well as the Montagu, the Cumberland, the Empress Victoria, the Montagu Extended, the Prince George, and Cliff. These are all mines that seemed to be likely to pay.
111. Are you interested in any of these mines? I am interested in one of them.
112. What is your opinion of Trial Harbour as a shipping-place? I think it is well adapted for a vessel of about 100 tons; but that vessel must be a steam one. It would require a jetty to land goods on; and that jetty I should recommend to be what is known as a "bird-cage jetty," so that the sea could wash through it. A crane, capable of lifting four or five tons, would also be required. There should also be some person appointed to look after the present moorings and keep them clear of kelp, which occasionally sink the buoys. I only consider the harbour useful for the present purposes of the mines, which otherwise would have languished. The *Amy* has been about 50 times into Trial Harbour. There is nearly two fathoms of water at low water in Trial Harbour. There is a rise of tide averaging three feet.
113. Supposing what you have mentioned with respect to the jetty were done, do you consider it would answer the requirements of the mines as a shipping-place for the next 12 or 18 months? I think it would, as it must necessarily do so, inasmuch as if the tramway was commenced at once it would take over 18 months to finish it.

114. The existence of Trial Harbour does not then render the tramway unnecessary? No; decidedly not.
115. Do you know anything of the agricultural land and timber about the mines and between Macquarie Harbour? Not from personal knowledge, but from report. There is some good agricultural land, but not to any great extent.
116. *By Mr Hart.*—Do you consider the Zigzag road the best route that could have been selected for a road from Trial Harbour to the Mines? No; a much better one could have been found.
117. You have yourself surveyed roads in rough country? I have.
118. You laid out the road for the North Bischoff Valley Company? I did.
119. Is there any timber between Trial Harbour and the mines suitable for mining purposes? None in the immediate vicinity.
120. Are you acquainted with the country between Macquarie Harbour and Mount Heemskirk? I am not.
121. Do you know where the termini of the low-level and high-level tramway are proposed? I do.
122. Which line would you recommend being carried out? The high-level one.
123. *By Mr. Pillinger.*—If facilities were given at Trial Harbour and sufficient roads, would there be any difficulty in getting machinery to the mines? No, there would not.
124. There would then be no difficulty in shipping tin by the same means? No, for the present.
125. Would you recommend the commencement of a permanent tramway before further development of the mines? Certainly, the show there warrants it.
126. *By Mr. Bird.*—For what reason do you hold the tramway to Macquarie Harbour necessary? Because large vessels can get in there, and as the mines are developed more ore would be shipped and larger supplies needed; it is also a timber country, and that would aid the mines.
127. How soon do you suppose that vessels of more than 100 tons would be required for the purposes of the West Coast? I consider that it would be some time before larger vessels are required, but on account of the dangerous nature of Trial Harbour it would be advisable to construct the tramway to Macquarie Harbour so as to obtain a safe and accessible harbour.
128. Can you say how often the *Amy* has not been able to get into Trial Harbour? I cannot say how many times, but I have known her to run back several times from stress of weather.
129. *By Mr. Burgess.*—Have you had any experience in the working of wooden and iron tramways? I have been in the vicinity where both were at work.
130. What do you consider the most suitable for the West Coast? Undoubtedly, iron.
131. Have you any special reason for that? The traction is so much less on iron rails than on wood, and iron rails are more permanent and would answer for a locomotive. I do not think there is suitable wood for rails in the vicinity of the proposed line.

MR. J. E. RISBY, *Saw-mill Proprietor, examined.*

132. *By the Chairman.*—How long have you known anything of the West Coast? About 35 years, and have been in connection with it ever since.
133. When did you visit the West Coast last? Last February. I visited Macquarie Harbour, Trial Harbour, and the Pieman.
134. Did you visit any of the mines on that occasion? I did not. I know nothing of the mines.
135. Will you give the Committee your opinion of Trial Harbour and Macquarie Harbour as shipping-places? As to Macquarie Harbour, I should call it a good harbour for vessels, drawing, say, 8 feet water; on the last occasion I went up Macquarie Harbour I was surprised to find 12 feet on the bar, which was reported by Captain Riddle in his survey. I sounded it myself. I think it arises from the continued fine weather. I think the bar silts up in continued westerly gales. Thirty years ago, I came out with the *Spray* schooner, and the schooner *Agnes and Elizabeth* came out at the same time, drawing 7 feet 6, but she bumped at that. There was then smooth water. With respect to Trial Harbour, it is a much better shipping-place than I anticipated previous to visiting it. As a rule with these outside inlets, you can very often lay with a vessel when you cannot land with a boat, but such is not the case with Trial Harbour. When a vessel can lay at Trial Harbour they can always land their cargo by boat.
136. Would it be possible to land heavy goods at Trial Harbour? Yes, with proper conveniences, say, a suitable punt, and gear for hauling the punt up on a tramroad.
137. Would not a jetty be required? Yes, a jetty would be required, but I do not think one could be erected to stand.
138. Would a crane be necessary? It would be necessary, to unload the punt after she was hauled up.
139. Do you speak of this as a makeshift for present requirements, or a permanency? I should say suitable for requirements of present time. I look to Macquarie Harbour as the permanent shipping-place for any large amount of traffic.
140. Would you consider it necessary to connect the mines with Macquarie Harbour by railway or tramway? Yes, if the mines prove permanent.
141. Have you had any experience of wooden tramways? Yes.
142. What is the average cost per mile? Say, from £200 to £300 per mile; on level country much cheaper.
143. Do you know enough of the country between Macquarie Harbour and Heemskirk, either by report or otherwise, to enable you to give the Committee an opinion as to the probable cost of a tramway between those places? I should think, from my experience of the coast from observation, that it consists of sand hummocks, which would render it expensive according whether you went over them or round them.
144. Do you know the difference of draught on wood and iron rails? Cannot say; but would recommend iron as the cheapest in the end.
145. *By Mr. Bird.*—Would the arrangements you suggest for landing goods at Trial Harbour meet all the requirements for two or three years to come? Yes, certainly.
146. Do you think it necessary to construct a tramroad at once to Macquarie Harbour, or wait the development of the mines? Wait the development of the mines.

MR. GUSTAVE THUREAU, *Inspector of Mines and Geologist, examined.*

147. *By the Chairman.*—You have visited the West Coast? Twice: the last occasion about a month ago.
148. Did you visit most of the mines? Yes, I did. My observations were, however, confined to the mines in the vicinity of Mount Heemskirk.
149. Will you give the Committee your opinion as to the permanency of the mines at Mount Heemskirk? As to the permanency of the tin deposits at Mount Heemskirk, I am of opinion that some of the lodes have every appearance of being permanent. The deepest workings on some of these lodes exceed 100 feet in depth. They are equally as strong at that depth as at the surface. The ore occurs between regular walls, and is more or less rich. The deposits are subject to variations.
150. Compared with what you know of tin deposits in other parts of the world, are those on the West Coast any different as to richness? They are about on an average.
151. As to facilities for working (especially as regards water power), how are they situated? The mines are well situated for working. I may say some of the companies have secured water-power; others are at a loss, and must either employ steam or the tail-water from other companies.
152. If they require to use steam, how will they be situated for fuel? There is no fuel in the neighbourhood of those companies who will require to use steam. They will have to bring in timber from towards the Little Henty. This is the nearest point, being a distance of about 5 miles.
153. When machinery is required at the mines, do you consider that Trial Harbour, with some conveniences, such as a crane and a jetty, would be sufficient for landing the machinery required? It is not a fit place for landing heavy machinery.
154. Although not a fit place, as you say, do you think it would serve the purposes of the companies who require machinery immediately? It would serve that purpose temporarily; but I consider Macquarie Harbour must eventually be the chief harbour.
155. Then do you consider that for the purpose of developing the mines, both for conveying machinery and other mining appliances, as well as for the supply of timber, a tramway will be necessary to Macquarie Harbour? Yes.
156. Do you think that any delay in constructing this railway or tramway will seriously retard the development of the mines? Yes, I think so.
157. Do you think the prospects of the West Coast are such as to justify the Government spending a large sum, say of £80,000, in constructing a railway from Macquarie Harbour to Mount Heemskirk? I do not think the Government would be justified in spending such an amount, but if a narrower gauge was adopted the line could be constructed for less money. I have seen in California a line of 19½-inch gauge, 60 miles in length, specially constructed for carrying ore, which, after five years' running, gave a profit of 7½ per cent. on the outlay. I consider a line of this character would answer all the purposes of the mines.
158. *By Mr. Hart.*—Would you recommend iron or wood for rails? Certainly, iron.
159. From what you know of the lodes, what average of ore per week might we expect within 12 months from a ten-head battery from each of the five or six companies likely to be at work soon? About five or six tons each per week. I could not undertake to say what would be obtained from porphyritic dykes, as that would depend upon the appliances used.
160. You are aware that two distinct lines of tramroad have been surveyed: would you recommend the lower or higher level? The higher level, decidedly.
161. *By Mr. Pillinger.*—What requires doing at Trial Harbour to enable companies to land their machinery? I do not expect a jetty would stand. Mr. Gardiner, of the Cornwall Company, has his machinery ready, and is erecting a temporary jetty for a crane of his own, which he has offered to the Government after he has done with it. I am afraid money spent at Trial Harbour on a jetty would be thrown away.
162. Have you travelled over the country between Macquarie Harbour and Heemskirk? Yes, on the first occasion.
163. Do you consider it a difficult country to construct a tramway through? The only difficulty I saw was the bridging of the two Hentys.
164. Could you give a rough estimate of a 2ft. 6in. wooden line? I cannot, not having been over the line surveyed.
165. *By Mr. Bird.*—Do you think the prospects of those mines that have neither water nor wood are such that they could be profitably worked? Some of them are.
166. How can the necessary timber be best procured for those mines? By tramway.
167. If the mining companies united in the construction of a tramway for timber purposes, would it render their mining unprofitable? It would be a very large outlay out of their capital. If the Government constructed a line into the timber, the companies would have to construct branch lines to feed the main line.
168. If the companies had to depend on their own expenditure for getting timber, do you think they would incur the expense? I think there is sufficient inducement for them to go to that expense.
169. If the mines succeed according to your anticipations, how long do you think it will be before there is any large output of ore for shipment? That depends upon the erection of machinery. I should say that at the end of two years there will be a regular output of ore.
170. If facilities for shipment at Trial Harbour were increased, and a line of tramway for timber purposes along the course of the mines were constructed, would that be sufficient for the next two years? It would be a temporary help.

J. C. CLIMIE, Esq., *C.E., examined.*

171. *By the Chairman.*—You were employed by the Government to survey a line of Railway between Macquarie Harbour and Mount Heemskirk? Yes, I was.
172. At what date did you receive instructions to proceed with the survey? The 12th January, 1882.
173. How long after that date was it before you commenced the work? On the 28th January, when I reached Mount Heemskirk.

174. At what date was the survey completed? It was completed outside in June. I left Heemskirk about the 5th day of June, and afterwards had to complete the details. I handed in the plans on the 27th July, 1882.

175. Were you continuously employed upon the survey from the 28th January to the 5th June? I never left the district, and was constantly employed, with two assistants and a strong party of men.

176. How do you account for the length of time employed in surveying and completing the survey? The great difficulties I met with,—in fact it is the most difficult country I ever surveyed in my life. I have surveyed some thousands of miles of railways in other countries, and never met with such a difficult country to survey; and yet it is represented as a level country. It is a country without a watershed. There was no unnecessary delay on my part; in fact it was a contract, and therefore I used my best speed. I simply delayed so as to select the very best line the country would afford.

177. What was the cost of constructing the Mount Bischoff tramway? Over £1000 per mile.

178. How do you account for the difference in the cost of that, and what you have named for the Macquarie line (£1750 per mile)? Increased quantity of earth-work, increased cost of timber, and increased cost of labour.

179. You surveyed two lines of railway from Trial Harbour—one called the higher and the other the lower level? Yes.

180. What is your opinion as to the relative merits of the two lines as affording accommodation to the mines? Unquestionably the upper line, as giving fuller accommodation to all parties.

181. From your observation of the prospects of the mines at Mount Heemskirk, do you think they are sufficiently good to warrant the construction of the more expensive line which has been spoken of, viz., the £80,000 one from Mount Heemskirk to Macquarie Harbour? I do. I am thoroughly satisfied of the permanency of the Mount Heemskirk district, not only for our present time but for generations to come, and as a proof of my belief I have invested a large sum of money in the district; at the same time, I think a line sufficient for the present requirements, and as permanent, but of 2 ft. 6 in. gauge, without ballast, could be constructed for a sum of £58,000. That is with steel rails and a locomotive, but to travel at a slow speed, say 5 or 6 miles per hour.

182. Have you furnished the Government with an estimate of that description of line? No. The estimate I gave was for a line complete.

183. Have you furnished any other estimate besides the £80,000? Yes, I furnished one for iron rails and horse-power, also for a wooden line; but I do not think I furnished one for this line at £58,000.

184. Was the £38,000, named by the Government for a wooden line, your estimate? Yes. It was for a 2 ft. 6 in. gauge.

185. What is your opinion as to the use of iron and wood rails on any description of line? Wood I consider most objectionable, except merely for tramroads to saw-mills, both on account of the cost and draught. Wood for railways I consider the most expensive material that could be used. I consider the life of wooden rails about 2½ years. The cost of each renewal would be £310 per mile (rails, keys, and labour). I speak from actual knowledge of the Mount Bischoff road. It has been found so expensive that the Company are now laying down an iron road, with locomotives, at a cost of £65,000.

186. Is the supply of timber available for the Bischoff line greater or less than that which would be available for the West Coast tramway? Greatly in favour of the Bischoff line.

187. Were you instructed by the Government to obtain information as to the extension of this line of tramway northwards towards the Gap? Yes, and I proceeded with the work as far as possible under the circumstances; but I was pressed to get the other line completed, and returned here to get all things finished.

188. On what grounds do you state in your report that "the line from this point can be extended to the Gap and North Heemskirk with reasonable gradients and cost, to give easy access to every mine in the neighbourhood"? I have examined the district personally in three different directions, and tested the ground simply by aneroid; in fact, I obtained all the information that could be obtained except from an actual survey.

189. *By Mr. Gellibrand.*—Would the wear and tear on this line be greater than ordinary tramways on account of its steep gradients? Yes; and it applies to all tramways constructed of wood.

190. You recommend iron or steel rails from your practical experience? Yes; and from their ultimate cheapness.

191. Would the timber have to be taken there, or is there timber on the spot? There is no timber whatever at Macquarie Harbour. It would all have to be taken by sea.

192. Would this tramroad open any good land? It would open some very rich land between the two Hentys. I cannot say the extent, but I passed through about 2000 acres of rich vegetable soil. There are heavy gums and teatree. The timber would be very valuable.

193. Could the line be constructed from the survey you have made? Yes.

194. Without any further survey? Yes; the plans are complete working plans, and contain every necessary particular.

195. Might the marks on the ground become obliterated if the work is delayed? No, I think not, not for many years. I carefully avoided all bare sandhills and kept in the scrubby country.

196. *By Mr. Pillinger.*—Are the mines likely to await the construction of the tramway? No, I think not; they would not come to a standstill. In fact, at the present time we are sending down machinery, but we are uncertain whether we shall be able to get it up on the mine. I refer to the machinery for the Empress Victoria, which has been shipped per *Fleetwing*.

197. Where do you propose landing it? At Trial Harbour.

198. What are the facilities for landing there? None whatever. I have suggested putting up a derrick to land the heavy goods; the boiler will float ashore.

199. What would you propose to facilitate the landing of goods? I strongly recommend the Government not to spend a shilling there (Trial Harbour).

200. Does that objection also apply to making roads in that direction? No; roads must be made to Trial Harbour. The mine-owners are improving the Zigzag. If the tramway is not made, a new road to Trial Harbour must be made.

201. I suppose on the same route, but on a better engineering plan? A road of easier gradient could be constructed to the mines from Trial Harbour, the gradients being about 1 in 18.

202. What would be the probable cost of a road up to the table land? About £700. That would take the road about 1½ miles, and then each mine would construct their own road to that.

203. Would that enable the mines to carry on for another 18 months? Yes, but it would not give any relief with respect to getting into the harbour.

204. *By the Chairman.*—Supposing that road was made, would it be required to still form portion of the tramway to get timber? Yes, there would be a large traffic in timber.

205. Can timber be got in any other way than by the tramway? The tramway will be a great relief to the companies, but if not constructed they will have to do the best they can. I think the mines will never be a success until the tramway is constructed to Macquarie Harbour.

206. *By Mr. Bird.*—Could a practicable tramroad be constructed from Trial Harbour to the mines? Yes, but it would be at the expense of length.

207. Did you examine the country to any distance inland, and eastward of your proposed route to Macquarie Harbour? Yes, at both Hentys; I should think I went up about 2 miles or more. I also examined the country from Macquarie Harbour to the Big Henty. I followed the valley of Tully River about seven miles. I spent about 5 or 6 weeks in examining the country in this neighbourhood. There is some very excellent land and good timber on the eastern side of the Tully River. The western side is sandy.

208. Between the Hentys and the Heemskirk could a tramroad be constructed more inland than your high-level road? Yes.

209. Would such a road be more suitable for timber purposes for the mines than the proposed road? No; because by crossing the River Henty at the proposed place, all the timber on higher lands can be brought down the Henty.

210. Would a line further inland be better for the mining interests generally? I do not think it would.

211. How is it that the renewal of wooden rails would cost £310 per mile? My estimate is based on prices actually paid on the West Coast at present by myself and others. I estimate timber, 22,000 feet delivered on the ground, £220,—that is at 20s. per 100 feet, or 4s. 6d. less than we are paying at the present time; keys (3000 to a mile) at 2½d. each; and labour, taking up and renewing the road, £88 per mile.

212. *By Mr. Burgess.*—Will you give the Committee the particulars of the line you have referred to in your answer to question 181. I supply the information required, as follows:—The line to cost £58,248 would be a 2ft. 6in. gauge with iron or steel rails, to be worked by steam locomotives. This price would include 2 locomotives, 2 passenger carriages, 20 goods trucks, 1 brake-van, and all necessary stations, buildings, and workshops, and water supply. The engines would be capable of hauling 40 tons up an incline of 1 in 40 (train load). The weekly working expenses would be about £58, and cost of maintenance about £30. The estimate I make of traffic is 30 tons of goods daily, at 20s. per ton, equal to £180 per week, and 6 passengers per day, at 5s., or £9 per week; total earnings per week, £189, against £88 per week expenses. The haulage and maintenance per week I put down at 9s. 9½d. per mile, or 5½d. per ton mile. The speed of this line, it not being ballasted, would be low,—about 5 or 6 miles per hour. To ballast it so as to attain a higher speed would cost about £12,000 additional. A similar line to be worked by horse-power would cost, including price of 18 horses, £52,783. The weekly expenses would be £102 12s., against £189 earnings. The haulage and maintenance would be 11s. 4½d. per ton, or 6d. per ton per mile.

CHARLES PERCY SPRENT, *Esq., Surveyor, examined.*

213. *By the Chairman.*—How many years have you known the West Coast? Six years.

214. Is the favourable opinion you expressed some five years ago as to the prospects of the mining there still maintained? It is.

215. Have you seen anything in the development of the mines lately to warrant a more favourable opinion than you formerly expressed? The indications of the mines promise a most favourable future.

216. What works do you consider immediately necessary to assist in the development of the mines? Principally good communication with Macquarie Harbour by road, railway, or tramway.

217. Which of the three would you consider sufficient, and warranted by the present development of the mines? A first-class macadamised road would answer all purposes.

218. Would a first-class macadamised road cost more or less than a tramway? A first-class macadamised road could be constructed for £25,000, or about £1200 a mile.

219. How would you provide for the cost of maintenance of that road? I would make it a main road, to be provided for as other main roads are.

220. What is your opinion of Trial Harbour as a shipping-place? It is unfit for a shipping-place, especially for shipping away cargo. I say this because, on account of the dangerous nature of the place, if there is an output of tin at all equal to Mount Bischoff, (say 3000 tons yearly), it could not be shipped from Trial Harbour.

221. Can heavy machinery be landed at Trial Harbour with any degree of safety? Not at present. It would be necessary to erect a wharf and put a crane on it.

222. Supposing machinery landed, can it be got to the mines by road? Pieces up to three tons weight could be got up by the Zigzag road.

223. Could a better line of road from Trial Harbour to the table-land near the Montagu mine be found? A much better one, at a gradient not exceeding 1 in 20.

224. Do you consider that if such an improved road as you have mentioned, and two or three branch roads to the principal mining centres, were constructed, that would be sufficient for the present requirements? No; for when the mines produced tin there would always be an uncertainty about shipping it from Trial Harbour.

225. Then you would consider these roads only temporary? The expenditure on them would be lost when communication was completed with Macquarie Harbour.

226. Independent of shipping or landing goods, would any work be necessary on the table-land to enable the Companies to procure fuel and timber for mining purposes? Yes, they would require a tramway into the nearest forest, to the south-east, east, and north-east of Mount Heemskirk.

227. Would any part of the line surveyed by Mr. Clinie (looking at the plan), serve the purposes of the mines for timber purposes; or would you suggest a line further inland? I cannot say if this line would supply timber; I do not think a line could be constructed further inland.

228. Is there not an abundance of timber on the Big Henty? There is a limited extent, and that could be supplied by the tramway.

229. *By Mr. Hart.*—Do you know anything of what is called "New Harbour?" I have reported on it.

230. What is your opinion of that harbour? It is a much better harbour than Trial Harbour. It is sheltered from all winds except the west and south-west. Inside it is sheltered from all winds.

231. Could vessels of any size lay there? I am not acquainted with the entrance, but vessels of any size could lay inside.

232. *By Mr Bird.*—What is the nature of the country between Milne Harbour and the mines? There is about $\frac{1}{4}$ of a mile of forest. The rest of the country is low heathy flats, unsuitable for agriculture.

233. Is the forest nearer the shore or the mines? It is on the shore.

234. What is the distance from Milne Harbour to the Cumberland Mine? About 14 miles.

235. Can a practicable road be obtained from Milne Harbour to North Heemskirk? Yes; but a tramroad would be very expensive.

236. Would a macadamised road on that route be very expensive? It would cost about £800 per mile.

237. Would a macadamised road from Macquarie Harbour to the mines answer mining requirements as well as a tramroad? I think so.

238. *By the Chairman.*—How long is it since you were in the vicinity of Mount Heemskirk? I was there last April.

239. Will you inform the Committee what was being done by the various Companies? Those that were at work were sinking shafts; they were prospecting their mines by means of tunnels and shafts. On far the greater number of sections no work was being done; a few were getting out alluvial tin. I do not think there is any large amount of alluvial tin. It will not last very long.

240. Do you think the capital at the command of the various Companies sufficient to enable them to work their mines? I am not in a position to answer that.

241. Are the Committee to understand that you do not think the present prospects of the mines warrants the expenditure of from £50,000 to £80,000 in constructing a railway or tramway from Heemskirk to Macquarie Harbour? I do not think that the mines are sufficiently developed to enable me to answer that question. I do not think the proposed tramway would meet the requirements of all the Mining Companies. It would require to be extended some nine miles further, and through a country bristling with engineering difficulties. If a macadamised road was constructed it could be extended in any direction where it may hereafter appear necessary.

242. What is the distance of the nearest mines to Milne Harbour? Five miles (the Latrobe Tin Mining Company).

243. What material is there available on the line for a macadamised road? There is abundance of material, except for a distance of five miles, near the Big Henty, where the course is of a sandy nature.

244. Would that require a corduroy road, or metalling? You must bring metal on to it. That five miles would cost about £1500 per mile.

245. Can you inform the Committee as to the quantity of good agricultural land and valuable timber between Mount Heemskirk and Macquarie Harbour? There is between 2 and 3000 acres of good land near the Big Henty. There is abundance of good timber in forest reserve east of the Orient. There is more timber further south, but not accessible from the road. It would be cheaper to get timber brought down the inlets and landed at the terminus at Macquarie Harbour. There is also plenty of timber (myrtle and stringy-bark) to the north west. There is no gum on the West Coast.

246. Have there been any discoveries of coal near Macquarie Harbour? A few prospects, but nothing of any importance.

247. *By Mr. Bird.*—Do you think the mines could be worked profitably without the expenditure of money on a road to Macquarie? No. You must have communication with Macquarie Harbour.

248. Do you know anything of the country between Heemskirk and the Derwent Valley? Not from personal observation. From other sources I have obtained information as the basis for examination if required at any time.

249. From that information, do you suppose a practicable route could be found from Heemskirk to the Derwent Valley for a tramway? Not on gradients of less than 1 in 20.

250. Do you know anything of Glover's discovery of a copper lode on the West Coast. That is a long way south of Macquarie Harbour.

251. In speaking of Milne Harbour, is it much superior to Trial Harbour? It is better, but could not be made safe at any moderate expenditure.

FRIDAY, AUGUST 25, 1882.

J. C. CLIMIE, Esq., C.E., further examined.

252. *By the Chairman.*—Have you any further information to give the Committee with regard to timber on the West Coast? Yes. The timber district at the Little Henty is no doubt valuable, but it is limited in extent, so that when the Companies are in full work in two or three years, or less, the timber would become exhausted; and for mining purposes for all time to come we must look to Macquarie Harbour as the source of supply, either from Southport or saw mills at Macquarie Harbour, or probably from King River and other adjacent localities, or on the North West Coast,—Macquarie Harbour, however, being the port.

J. M. DOOLEY, Esq., M.H.A., examined.

253. *By the Chairman.*—You have visited the West Coast? I have; on the 8th June last I crossed the Pieman River.

254. What tin-mining claims did you see? My stay there was exactly one month. I visited several claims in the vicinity of Mount Heemskirk, viz., the Peripatetic, the Amy, the St. Dizier, the Orient, the Queen, the Empress Victoria, the Montagu, the Montagu Extended, the Cumberland, the Cliff, the Prince George, and others.

255. Will you inform the Committee what opinion you formed as to the prospects of tin-mining in the vicinity of Mount Heemskirk? I came to the conclusion, after a close examination of the tin mines, that there was an extensive ramification of tin-bearing lodes, that is, from surface indications generally. In some cases the lodes were cut at a depth of 100 feet, in other instances nothing was done; in others there were cross-cuts put in.

256. Do you consider the prospects of the mines sufficiently good to warrant Parliament sanctioning any large expenditure to assist in their development? I do.

257. What meaning would you attach to the words "a large expenditure"? I think that about £5000 for construction of roads would be sufficient,—say from Trial Harbour up to table-land about 2 miles, and from thence north-westward, *via* the Gap, to Glenora or North Heemskirk; thence to Milne Harbour, a probable distance of 4 miles. The total distance from Trial Harbour to Milne Harbour, *via* the Gap, being 12 miles. The reason I assign for such a small amount is, that a narrow road of 12 feet wide would suffice for present requirements, and for the purposes of making this road there is sufficient material (a decomposed granite rubble) along the line to construct it.

258. Do you think that such a road could be laid out so that if at any future time a light railway would be warranted, that road would be available for the purpose? Yes, I think so; and I think it is necessary to at once determine such a grade for this road as would be suitable for a railway hereafter.

259. Then you do not concur in the statement which is in evidence before the Committee, that the country between the Montagu mine and North Heemskirk "bristles with engineering difficulties"? I could not agree with that term altogether; but the first eight miles from Trial Harbour to North Heemskirk is a nest or series of undulating little hills, requiring time and ingenuity to select the best route through. It is an open country, and this may be done easily by an expert professional man, but certainly not by an amateur surveyor or roadmaker. I mean he should be a thoroughly competent and practical engineer or surveyor.

260. Can you inform the Committee as to the relative facilities for shipping at Trial Harbour and Milne Harbour? Yes, I can. Trial Harbour has been tested, but Milne Harbour not at all. I have, however, a very high opinion of Milne Harbour, and think it will meet all the requirements of the Heemskirk mines for a long time to come; perhaps for all time. Milne Harbour is well situated as regards all the mines. It gives the nearest and easiest access to most of them. It is protected from the storms of the sea, excepting winds from due west; and extends from the mouth due east. There is apparently a very good channel due east for about half a mile. It is landlocked all round, with a rocky shore. At the shore end there is to my view every facility for forming a jetty for vessels to moor and load at; and if on further examination the channel is found free from rocks, it will be a far superior harbour to Trial Harbour in every respect. On my return to town I requested the Minister of Lands to have a survey made, with an accurate coast line and soundings taken and charted.

261. You are aware a survey for a railway has been made from Heemskirk to Macquarie Harbour? Yes. I travelled 2½ miles from Trial Harbour along the line as far as the Little Henty. I know nothing of Macquarie Harbour as a shipping-place.

262. Can you give the Committee any opinion as to the desirability of constructing that tramroad? I think it very undesirable to construct a tramway or any other road along that surveyed line on the lower-level, and I would say that a tramway should not, at present, be constructed on any line from Mount Heemskirk to Macquarie Harbour. It was only after the lower-level line had been surveyed that a deviation from that line was made at about a mile and a quarter from Trial Harbour to get on to the high-level. I think it is probable a better line could be found by leaving the lower-level nearer Macquarie Harbour. It would pass through a timber country if found practicable; and I think the supplying of timber to the mines would be one of the primary objects of the tramway.

263. *By Mr. Bird.*—What would be the heaviest grade from Trial Harbour to Milne Harbour? There would be a minimum grade of 1 in 30,—that would be obtained at the cost of lengthening the route.

264. Why do you recommend a road should be constructed to connect both Trial Harbour and Milne Harbour with the mines? The whole road passes centrally through the mines, and therefore, whichever port is used, it would be easy of access to the mines.

265. Are the grades from Milne Harbour to the mines easier than those from Trial Harbour? Yes, much easier.

266. Since you do not recommend the immediate construction of the road from Heemskirk to Macquarie Harbour, how are the mines to be provided with timber? There is no timber along the road from Trial Harbour to North Heemskirk; each mine would require a private road of its own into small beds of timber in the forest reserves. Many of these companies have sections specially taken up for timber. The construction of a branch road eastward from the table-land above Trial Harbour towards the Orient mine would afford facilities for timber purposes to all mines in that vicinity.

267. *By the Chairman.*—Do you think the road from Trial Harbour to Milne Harbour, and the branch roads you mention, could be constructed for £5000? The branch road of three miles eastward towards the Orient would be additional to the £5000.

268. Does what you have recommended respecting roads depend on Milne Harbour proving a superior one to Trial Harbour? In any case that portion of the road from Trial Harbour to Glenora I have mentioned is necessary, to be carried from thence to Milne Harbour if that harbour is proved equal or superior to Trial Harbour. Milne Harbour, if only equal to Trial Harbour, would prove useful as an alternative harbour when vessels could not enter Trial Harbour through stress of weather, as vessels can enter Milne Harbour when they cannot enter Trial Harbour, and *vice versa*.

EDWARD HAWSON, Esq., *Legal Manager Cumberland Tin Mining Companies at Mount Heemskirk, examined.*

By the Chairman.—The Cumberland Company have expended about £5000 in developing their mine. The directors have placed all the arrangements for procuring machinery in the hands of their consulting engineer (Mr. John Lewis.) The machinery is not purchased yet. I think that the prospects are sufficiently good to warrant the purchase of machinery. About three or four months back the lode was tested to 103 feet, and Mr. Lewis went up to report on the mine. It was thought it would only be waste of time getting the machinery at Trial Harbour in the winter months. We expect the machinery to be at Trial Harbour in all December. We expect to be able to land it there. I think Trial Harbour will afford sufficient facilities for shipping for some time to come. I think a jetty and a good strong crane would afford facilities for getting machinery landed. I can only speak as to the Company of which I am manager. My directors do not consider that connection with Macquarie Harbour is necessary to get the machinery on to the ground, but they do for the purpose of getting up supplies and timber, and also for generally facilitating access to the mines with more certainty. I am not prepared to say if the Cumber-

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land Company would be prepared to join in any guarantee of interest on expenditure on a tramway from Heemskirk to Macquarie Harbour. My opinion is that any money expended at present should be in increasing facilities for landing at Trial Harbour and on roads in the vicinity, so as to enable the different Companies to get their machinery up with as little expense and trouble as possible. The Cumberland Company expect to prove the lode in two months' time at the three hundred feet level, and that would give additional proof as to the permanency of the mines at Mount Heemskirk.

CAPTAIN JOHN REID, of the steamer "Amy," examined.

By the Chairman.—I am in command of the *Amy*. She has visited the West Coast 21 times under my command from Hobart, and 9 times from Launceston. I have only found difficulty in getting into Trial Harbour on two occasions. About five to six hundred weight is the heaviest article of cargo I have landed there. I could get about 4 tons from the *Amy* on to a lighter, and then get on to the beach in about 9 inches of water. To land that on to the beach would require something of a wharf and a crane. Mr. Gardner (the manager of the Cornwall Company) has erected a crane capable of lifting three tons, but it requires a stronger one. With these appliances Trial Harbour would suit the requirements of the mines for some time to come. I have never had any difficulty in getting into Macquarie Harbour. I have furnished the Minister of Lands with a report on Milne Harbour. (Report produced by the Minister of Lands.) That harbour (Milne, now called Glenora,) is a far finer harbour than I anticipated. There is no difficulty in entering it in any moderate weather. Vessels drawing ten feet of water can safely enter and lay there. Only winds from N.N.W. to S.S.W. can affect vessels there. They can lay in gales of wind from north to west all round the compass. The facilities for landing cargo are the same as at Trial Harbour. The land does not rise abruptly from the sea coast. This harbour is nine miles nearer Corinna, the new rush at the head of the Pieman. The harbour could not be made safe in all weathers except at a great expense. There is eight times more space in Milne Harbour than in Trial Harbour.

By the Minister of Lands.—Were more inducements to offer I could run more frequently to the West Coast. If there was sufficient traffic, with a more powerful boat than the *Amy* I could average three trips per month. With such a boat I could take 100 tons of tin from Trial Harbour each trip, if it was there for shipment. The longest detention I have had at Macquarie Harbour through bad weather was five days.

By Mr. Hart.—A jetty could be built at Milne Harbour which would stand all weathers. A road to get away with the machinery could be easily constructed. There is some valuable blackwood timber adjacent.

C. A. GUESDON, Esq., Legal Manager of the Orient and West Cumberland T. M. Companies at Mount Heemskirk, examined.

By the Chairman.—The Orient Company have expended £2300, and the West Cumberland £1600 on their mines at Mount Heemskirk. The Orient Company are anxious to get machinery up, but having no road, cannot. A letter from the manager recently appointed reports that there is plenty of stone ready for a number of years' crushing. The manager is regarded as one of the best men from Sandhurst. He was travelling inspector for six or seven of the largest mines there. He recommends the immediate erection of machinery. I believe that the owners of the *Amy* will undertake, but without risk, to land weights up to five tons; but from what I have seen of Trial Harbour I do not think, without the outlay of a considerable sum of money, that machinery could be landed there safely. I would not undertake to recommend the Directors of my Companies to attempt to land machinery there, unless absolutely compelled. It would be running a great risk, as you cannot insure to Trial Harbour, though you can to Macquarie Harbour. I consider some means of communication with Macquarie Harbour necessary for the development of the mines. I consider that a tramway would be preferable, as the mineral deposits are very rich. Facilities for landing at Trial Harbour, and a road up to the table-land, would answer immediate requirements for landing, but not eventually for exports. In the event of the tramway being constructed from Macquarie Harbour to Heemskirk, it has been suggested that the various companies should unite in guaranteeing a fair rate of interest on the cost for a certain number of years; and from what I have heard I think it is more than likely that it would be agreed to by the several companies.

By Mr. Hart.—Supposing the tramway was undertaken I do not think the companies would wait its completion before taking steps to get machinery up. They would unite to get temporary conveniences. The loss of money by interest would be so heavy that the expense of an immediate outlay would be covered by interest saved. The Orient propose to erect a 10 or 20-head battery. They have an immense body of stone in sight. The heaviest piece of machinery which would have to be landed would be the engine (a portable one); it would be about 8 or 9 tons, but that would be taken to pieces, and the heaviest portion weigh about 5 tons.

By the Chairman.—The Orient main shaft has been sunk 90 feet; a four-foot lode was passed through at 86 feet carrying very good tin right through. A tunnel has been driven on to another lode 230 feet, cutting through a lode at 168 feet, nine feet wide, giving 102 feet of backs, averaging on assay, right through, six per cent. of ore; this same tunnel is being extended to cut through another lode, estimated by levels taken to be 30 feet ahead. This lode is 12 feet wide on the surface, having been proved by an underlay shaft of 15 feet to carry excellent tin. With respect to the West Cumberland, the tunnel has been driven 272 feet, cutting a lode at 230 feet carrying tin and rich deposits of bismuth. This tunnel was abandoned for a time owing to the unsettled state of the country, and another commenced lower down the hill to drive on to the course of the lode cut in the tunnel above, by which we shall obtain 500 feet of backs. The bismuth deposits on the West Coast have been very highly spoken of by all competent judges.

C. E. FEATHERSTONE, Esq., Local Director of Montagu Tin Mining Company.

By the Chairman.—I am a Director of the Montagu Tin Mining Company, and I visited the West Coast in November last. I visited the Montagu mine. The shaft was then sunk to 122 feet, and the manager opened out at 103 feet, leaving 20 feet well to carry off the water. I also visited the Cumberland, the Cliff, the Montagu

Extended, the West Cumberland, and the Empress of Victoria. The prospects on all these mines seemed to me very good. The Cumberland had cut the lode, but not any of the others at that time. I have visited Trial Harbour several times, and I do not think it can ever be used as a permanent harbour, nor do I think it would be of any use spending any large sum of money there. It is merely an open roadstead. I thought it would be useless to erect any jetty, but thought that a punt with a crane would be the best appliances for the present. I think, from the proximity of Trial Harbour to the mines, it will always be used in fine weather to land goods from vessels in Macquarie Harbour. I did not think the Zigzag could be very much improved upon. I consider that the proposed tramway to Macquarie Harbour would be a very reproductive work, for I think that Macquarie Harbour will ultimately be the outlet.

By Mr. Bird.—The Montagu Company have got a timber section which will last them for several years. Most of the other companies are bare of timber. I think they look to Macquarie Harbour for their supply. Until the tramroad is completed I should think it would be cheaper for the Companies to get their timber from Southport. The Montagu has called up £7000, and most of that has been expended on the mine, and £4500 has just been raised by sale of reserve shares for the purchase of machinery, and most of those shares were taken up by the present shareholders.

FRIDAY, SEPTEMBER 1, 1882.

MR. J. FINCHAM, *Engineer-in-Chief, further examined.*

269. *By the Chairman.*—Have you travelled along the country from Heemskirk to North Heemskirk over the route proposed for the road or track for which a vote of £2000 is proposed? I have travelled over the country, but not over the exact line to be taken by this road.

270. Is it intended to lay out the track on easy gradients, so that it may be used for a tramroad hereafter? No; it will be laid out on gradients for a cart-road, with a view to the completion of such as a good road if the extension of the tramway to North Heemskirk is not sanctioned, and if such extension is sanctioned the money (£2000) will be well laid out in giving the immediate assistance needed to the mines.

271. What would you consider the steepest gradient admissible on a cart-road? That is always decided by the nature of the country passed through.

272. Can you give the Committee any idea what would be the steepest gradient on the proposed road? I have no definite information, but do not expect the gradients will be at all difficult.

273. What would be the steepest gradient permissible on a tramway to be worked by steam? About 1 in 40.

274. Do you consider that there would be much difference in cost in laying out the proposed track so that it might be available for a tramroad in the future? Not much; the cost would be only enhanced by the extra length necessary to obtain easier gradients.

275. Would it in your opinion meet the requirements of the mines to construct a macadamised road from Trial Harbour to the table-land near the Montagu mine, with extensions northwards towards North Heemskirk, and south-eastwards towards the Orient Company's Claim? Only if you could provide proper landing facilities at Trial Harbour.

276. *By Mr. Pillinger.*—Can you give an estimate per mile to construct a macadamised road from Heemskirk towards North Heemskirk? Probably £2000 per mile.

277. Would it be possible to lay out the cart-road so that it might be available for a tramroad hereafter? Yes, but at an increased cost.

278. What would be your estimate for the present cost of that cart-road to meet the present requirements of the mines, to be used hereafter for a tramway? I am unable to answer that question without proper sections of the road.

279. *By Mr. Bird.*—Can you now furnish the Committee with the information asked for in Question 23? I furnish it in writing.

280. *By Mr. Burgess.*—Can you furnish the Committee with the information asked for in Questions 33 and 34? Yes, I furnish it in writing:—

PROBABLE Annual Working Expenses for a daily traffic of 20 tons goods and 12 passengers, on the following proposed lines between Heemskirk and Macquarie Harbour, together with suggested charges:—

	Annual Working Expenses.			Passenger Fares.		Goods, per ton.		
	£	s.	d.	s.	d.	£	s.	d.
3 ft. 6 in. gauge—Locomotive Railway—Slow speed	2500	0	0	5	0	0	16	0
3 ft. 6 in. gauge—Horse Tramway—Steel rails	2000	0	0	5	0	1	0	0
2 ft. 6 in. gauge—Horse Tramway—Wood rails	4200	0	0	5	0	1	8	0

* Cost of first year's working would probably be about £3600, and this amount would increase, with wear of the wooden rails, to about £4200.

281. *By the Chairman.*—What facilities would you consider necessary for landing heavy goods at Trial Harbour, taking fine weather for granted? A small, but very substantial jetty, a travelling crane, and punt; but I do not consider these suitable or satisfactory.

282. What would be the probable cost of these improvements? If feasible, something about £1000; but I am not prepared to say that I would guarantee the permanency of a work such as I have now described.

283. Are you now in a position to give the Committee any information as to Milne Harbour? I only know of it through Captain Reid's Report, and from that I judge it to be superior to Trial Harbour. I know nothing of its accessibility by road from inland.

284. Is it a fact that the Public Works Department have now men employed in laying out and clearing a track from Heemskirk to North Heemskirk? An overseer and party are employed in improving the worst places on the present track, that is, from Heemskirk to the Gap, as packing had become next to impossible.

285. *By Mr. Pillinger.*—What improvement do you mean to the road by the use of the words "improved track"? Culverts or small bridges and fillings over steep gullies, narrow cuttings on steep sidings, draining and covering boggy places.

286. Does that give horse traffic or foot traffic? Packhorse traffic; but I should propose bridges and culverts to be wide enough for carts, so that at a pinch a cart could be taken through.

287. *By the Chairman.*—Is the overseer qualified to select the best route for the track, supposing any deviation from existing track necessary? He is quite competent to make minor deviations.

288. *By Mr. Bird.*—What would be the probable cost of making a road on the decomposed granite gravel said to exist between Heemskirk and North Heemskirk? Simple flat formations and draining, about £500 a mile, but if culverts were erected, and forcings, &c. made, about £1000.

289. How long do you suppose such a road would last with the probable traffic on it in that neighbourhood? I should think the first year's traffic would turn it into loose sand.

* CAPTAIN H. J. STANLEY, R.N., *examined.*

290. *By the Chairman.*—Have you visited the West Coast? Yes, twice, the last time within the last month.

291. Have you visited many of the mines on the West Coast? Yes, a great number of them.

292. Will you give the Committee your opinion as to the prospects of the mines on the West Coast? I think that the general prospects are excellent, and that we have there a very large field of undeveloped riches. I think that the present prospects justify a large expenditure, but that the outside public will not be prepared to invest their capital in the immediate present, unless facilities are given them for visiting the locality and seeing for themselves what the prospects are likely to be, as well as the mines being enabled by the better accessibility to receive stores and provisions at a moderate expenditure.

293. What works do you consider immediately necessary to meet the requirements of the mines? I think a tramway extending from Macquarie Harbour through the whole Mining District of Heemskirk the only plan for enabling the mines to be developed within a reasonable time. I have no fear that, whether tramways are made or not, but that the mines will eventually secure the co-operation of outside capitalists, but the time will be prolonged should a tramway be not immediately constructed.

294. You have examined Trial Harbour? I have, and Milne Harbour.

295. Can you inform the Committee as to the relative merits of the two harbours as far as you have been able to form an opinion? It is very difficult to give an opinion upon the merits of these two harbours without proper charts, of which none are in existence; but I should think Trial Harbour, so called, to be simply a fine-weather landing-place. It is exposed to the full force of westerly weather, and a landing can only be effected either after a succession of easterly or northerly winds, or with very fine calm weather. Milne Harbour, so called, is more of a harbour, but fails in one important particular to compare favourably with Trial Harbour,—it has no landing-place or sandy beach, which Trial Harbour has, and though known to be rocky, it may even be more rocky than is generally supposed. Milne Harbour is open to exactly the same winds as Trial Harbour. It is slightly more protected to the southward, and undoubtedly could be used whenever Trial Harbour could be, but a landing-place for stores and to enable tin to be taken off would be necessary, and moorings would have to be laid down as at Trial Harbour.

296. Do you think Trial or Milne Harbour such as would warrant any large expenditure for affording facilities for landing machinery and heavy goods? I would far rather see all efforts concentrated in the direction I have already mentioned, viz., the tramway from Macquarie Harbour to Heemskirk. It appears to me impossible to judge of the amount which would be expended in the construction of jetties or landing-places at Trial Harbour; but in the meantime, and until the tramway is constructed, some means, such as a crane sufficient to lift moderate weights, will have to be supplied, or it will not be possible for mining companies to place their machinery on the ground.

297. To meet immediate requirements, would you recommend the construction of a macadamised road from Trial Harbour to the table-land on better gradients than the Zigzag? I scarcely think myself sufficiently conversant with the locality to give an opinion on that point, but if the present Zigzag will enable companies to drag up their machinery I should think it better to confine any expenditure to the tramway.

298. Have you travelled along the route of the proposed tramway? Only a short distance from each end.

299. Would the line indicated by Mr. Climie be the best route for extending the tramway or road northwards from Heemskirk? Yes. I think that by keeping westward of the Gap range will enable all the mines at Heemskirk to take advantage of that route, whereas by carrying through the Gap we should lose a great deal of the freight in consequence of the difficulty of getting up hill to the tramway,—whilst all the mines at a greater altitude and, in fact, every mine on Heemskirk, will be able to utilise Mr. Climie's proposed line.

300. Is there any opposition on the part of the residents of the Coast to the construction of the proposed tramway to Macquarie Harbour? No open opposition, but apparently a desire to retain present communications *via* Trial Harbour by those interested in freights and packing.

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APPENDIX.

S.S. "Amy" 25th August, 1882.

SIR,

IN accordance with instructions received from you, I have made a careful examination of Glenora Harbour, situated off North Heemskirk, on the West Coast of Tasmania, and have now the honor to report the result of my examination (which was made on the 22nd August instant) as follows :—

I find the Harbour easy of access to a steamer of moderate size, but it will be necessary for the Government to lay down permanent moorings, as the bottom being rocky a ship's anchor would not be sufficient. I should advise that an anchor, weighing fully 12 (twelve) cwts., be laid down, with 15 fathoms of $1\frac{1}{2}$ -inch chain attached, with sufficient buoys, &c. to enable a ship to make fast easily, and slip without delay in case of bad weather.

With the length of chain named a vessel could swing all over the harbour with safety.

The Harbour is well protected from most winds, the only winds likely to affect a vessel at anchor being those from N.N.W. to S.S.W.

There is a good landing in the N.N.W. corner, and a wharf could be made there at very little cost sufficient for all the requirements of the Coast either for landing machinery or other goods. The wharf would be sheltered from all weathers.

As instructed, I have taken careful soundings all over the Harbour and marked them on the blank chart provided by your Department for the purpose, and I enclose the said chart herein.

I have the honor to be,

Sir,

Your obedient Servant,

JOHN REID.

To the Honorable the Minister of Lands and Works.