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PARLIAMENT OF TASMANIA.

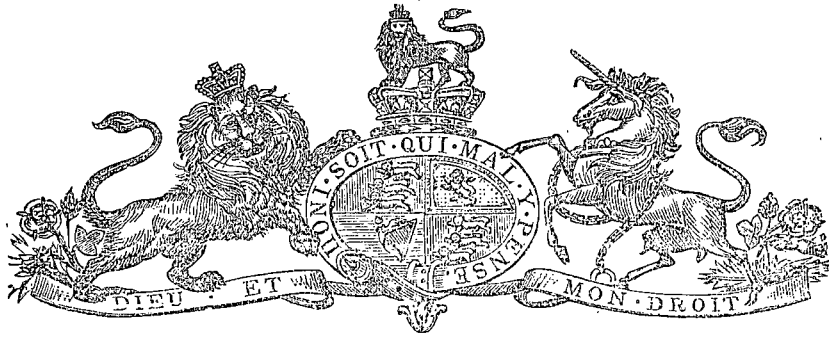
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THE FINGAL AND MATHINNA TRAMWAY ACT :

REPORT OF SELECT COMMITTEE, WITH MINUTES  
OF PROCEEDINGS, AND EVIDENCE.

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Brought up by Mr. Davies, and ordered by the House of Assembly to be printed,  
October 2, 1891.



*SELECT COMMITTEE appointed, on the 26th August, 1891, to enquire into and report upon the Private Bill to authorise the Construction of a Tramway from Fingal to Mathinna.*

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MEMBERS OF THE COMMITTEE.

MR. DAVIES.  
MR. DOBSON.  
MR. MACKENZIE.  
MR. BARRETT.

MR. VON STIEGLITZ.  
MR. W. BENNETT.  
MR. CONWAY.

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DAYS OF MEETING.

Thursday, August 27; Friday, August 28; Wednesday, September 2; Friday, September 4; Friday, September 11; Thursday, September 17; Friday, October 2.

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WITNESSES EXAMINED.

C. E. Hogg, Civil Engineer; Mr. F. H. Wise; Mr. Fred. Back, Manager Government Railways; Mr. W. Noakes, Civil Engineer.

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MINUTES OF PROCEEDINGS.

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THURSDAY, AUGUST 27, 1891.

The Committee met at 3·30 P.M.

*Present.*—Mr. Dobson, Mr. Mackenzie, Mr. Von Stieglitz, Mr. Bennett, Mr. Conway, Mr. Davies (*Mover*).

Mr. Davies was unanimously voted to the Chair.

Resolved, That the Petitioners be heard by Counsel.

The Chairman laid on the Table the Petition praying for leave to introduce the Bill. (Appendix A.)

The Chairman laid a Chart showing the route of the proposed line of Railway upon the Table.

At 3·45 P.M. the Committee adjourned until 10 A.M. on Friday, the 28th inst.

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FRIDAY, AUGUST 28, 1891.

The Committee met at 10·30 P.M.

*Present.*—Mr. Mackenzie, Mr. Von Stieglitz, Mr. Bennett, Mr. Davies (*Mover*).

Mr. C. E. Hogg, Civil Engineer, was called in and examined.

Mr. Hogg withdrew.

The Committee adjourned at 3·50 till 2·30 A.M. on Wednesday, the 2nd September.

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WEDNESDAY, SEPTEMBER 2, 1891.

The Committee met at 2 P.M.

*Present.*—Mr. J. G. Davies, Chairman, Messrs. W. H. Bennett, Mackenzie, Dobson.

Mr. Frederick Henry Wise was called in and examined.

Mr. Wise withdrew.

Mr. Frederick Back was called and examined.

Mr. Back withdrew.

The Committee adjourned at 3·40 P.M. till 2·15 P.M. on Friday, 4th September.

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FRIDAY, SEPTEMBER 4, 1891.

The Committee met at 2·30 P.M.

*Present*.—Mr. H. Dobson (Chairman), and Messrs. Bennett, Mackenzie, and Von Stieglitz.

Frederick Back was recalled and examined.

Mr. Back withdrew.

The Committee, at 4 o'clock, adjourned *sine die*.

FRIDAY, SEPTEMBER 11, 1891.

The Committee met at 2·45 P.M.

*Present*.—Mr. Von Stieglitz, Mr. Bennett, and Mr. Conway.

In the absence of the Chairman (Mr. Dobson), Mr. Conway was voted to the Chair.

Counsel was admitted in support of the Bill.

W. Noakes was called in, and placed a model of a portable railway line on the Table.

Mr. Noakes, having given evidence, withdrew.

The Committee adjourned at 4 P.M. until a date to be hereafter determined by the Chairman.

THURSDAY, SEPTEMBER 17, 1891.

The Committee met at 2·30 P.M.

*Present*.—Mr. Von Stieglitz, Mr. Mackenzie, Mr. Bennett, Mr. Conway, Mr. Davies (Chairman).

The Minutes of the last Meeting were read and confirmed.

Counsel (Mr. Curzon Allport) was called in, and addressed the Committee in support of proof of the Preamble of the Bill.

Counsel withdrew.

The Preamble was then considered, and accepted as proved.

The Committee adjourned at 3·20 P.M. until 2·30 P.M. on Friday, the 2nd October.

FRIDAY, OCTOBER 2, 1891.

The Committee met at 10·45 A.M.

*Present*.—Mr. Mackenzie, Mr. Barrett, Mr. Conway, and Mr. Davies (Chairman).

The Minutes of the last Meeting were read and confirmed.

The Draft Bill was then considered, and agreed to.

Resolved, That the Chairman do present the Report to the House.

The Committee adjourned *sine die*.

## R E P O R T.

Your Committee, having taken evidence in support of the allegations contained in the Preamble of the Bill, have the honor to report that the said Preamble has been proved to their satisfaction.

Your Committee having agreed that the Preamble should stand part of the Bill, then considered its several Clauses, all of which were agreed to without amendment.

Your Committee recommend the Bill to the favourable consideration of your Honourable House.

J. G. DAVIES, *Chairman*.

*Committee Room, House of Assembly, 2nd October, 1891.*

# EVIDENCE.

FRIDAY, AUGUST 28, 1891.

CHARLES EDWARD HOGG, *called and examined.*

1. *By Mr. Allport.*—What is your name? Charles Edward Hogg.
2. You were Engineer on many large lines of railway in New South Wales? Yes; I was a Railway Engineer in the Northern District and other parts of New South Wales for 11 years.
3. And you have had experience in other parts of Australia? Yes, in Broken Hill.
4. I think you are associated with the promoter in reference to this line? Yes.
5. And you have been called on by him to prepare an estimate, and also to report upon the expediency of this class of line it is proposed to construct? Yes.
6. Will you explain to the Committee your views upon the subject? I think any other gauge than that we propose to adopt would end in a financial failure. It may be a new departure in Tasmania, but there are thousands of miles of this sort of railway in use in India and other parts of the world, and I believe they will prove of the greatest advantage in opening up the outlying districts of this Colony. The line we propose to construct is what is known as Greig's Patent Steel Railway, and I made an estimate for a gauge of 2 feet 6 inches. Assuming the ground to be formed, with hardly any cutting, and allowing for every reasonable contingency, I estimate the cost at £1374 per mile. That includes rolling stock and everything. Sir John Fowler is the principal manufacturer of these lines. They run up to 15 miles an hour, but 12 miles would be a safer limit, with seven miles as a minimum. I believe Mathinna is a small place, where there would be no need yet for higher speed. The Company, no doubt, would go as fast as they reasonably could. Seven miles an hour is the rate fixed for the New South Wales Tramways, which are in many respects on the same principle as those I am speaking about. I also went into the question of the interest this line would be likely to return. Taking what I understand the population and mining industry of the locality to be, one may fairly look for about 15 tons of goods and 10 passengers per day. That would pay about seven per cent.
7. *By Mr. Dobson.*—On the tolls mentioned in the Bill? Yes. One shilling per mile is the maximum toll mentioned, and that is not unusually high.
8. *By the Chairman.*—What is the length of this proposed line? Fifteen miles; but it may be reduced to 13 miles.
9. *By Mr. Mackenzie.*—Do you know of any other tramways in the Australian Colonies upon which the same toll is made? No; I don't know of any private trams.
10. *By Mr. Dobson.*—What are the rates upon the New South Wales trams? I was referring to the passenger trams in the City of Sydney. One shilling a mile may seem high, and perhaps it is; but you must remember that the place is out of the way. If it appeared that one shilling was too high it could be reduced to ninepence.
11. *By the Chairman.*—If you put one shilling a ton on coal the mines will never be able to use it? The promoter would, of course, fix the tariff so as to make a profit out his business, and that profit would depend upon the encouragement of local industries.
12. At present you can get coal carted to Mathinna for 10s. a ton? If so that would at once control the rates. It would be about 9d. a ton per mile. I dare say we may look upon 9d. a ton as a fair thing. I certainly feel that if Mr. Wise went in for a line on the Government gauge it would never pay. I may point out that one consideration in favour of the proposed tramway would be the enormous saving in the cost of the maintenance of roads in that district. I have suggested 20 lb. steel rails for this line, equal to 30 lb. or 35 lb. iron rails. The sleepers are, as a rule, of steel, and coupled to the rails; but I should prefer to see timber ones made use of in the Mathinna district, because I understand that timber is very cheap. The steel-coupled sleepers can be laid at the rate of a mile per day, and up to 20 miles an hour can be travelled upon them. If this system of line-making is once adopted in Tasmania, you will soon see it become a general thing. The metal sleepers act both as ties and sleepers, and, in some places, are much cheaper than wooden ones. I advised Mr. Wise that he should not ask for any grade of more than 1 in 40. There is no difficulty in loading from a truck into a truck upon another gauge; it is simply a question of cost. I would not recommend this form of railway but for the fact that this district is a small one and wants developing. When it develops, of course a more permanent line of railway can be laid.
13. *By Mr. Dobson.*—Supposing they wished to convert this line to the 3 ft. 6 in. gauge, could the works upon it be utilised? The formation and culverts only would be. I would suggest that the Promoter be bound down to make culverts and bridges that would be suitable for a permanent line of 3 ft. 6 in. gauge.
14. What do you think is the cheapest possible form of tramway that it would be wise for a man to put his money into? There is nothing better than the one we propose to construct. It is what I would like to see at Dundas and Zeehan. The lines that they are going in for there are too extravagant. I spoke against them, but had to give in.
15. But we have our Government railway in the vicinity? That is a difficulty, I admit, but it has been found in trans-trucking that these tip-trucks only add from 3d. to 6d. per ton to the cost. The biggest break of gauge is from the narrow gauge of South Australia on to the broad gauge of Victoria, and the

[Mathinna Railway Bill.]

trans-trucking is done for nothing. It has been found that it is not worth while to make any charge. The South Australian Government used to charge us 1s. per ton for Broken Hill produce, but it was abolished. The narrow gauge would simply run up above the broad gauge, and the truck is tilted over, and discharges its cargo into the truck below. Of course, valuable goods, such as timber, are not treated that way; but 6*d.* a ton for trans-trucking does not add much to their cost.

16. And this is really the cheapest form of tramway you can recommend anyone to put money into? Yes, by far.

17. There is nothing to be gained by using iron rails? No; steel rails are a little dearer in the first instance, but they are very much cheaper in the end. I would never recommend iron rails.

18. You recommend that no grade be more than 1 in 40, and no curve less than 5 chains? I would like to suggest that the minimum curve be reduced to  $2\frac{1}{2}$  chains radius. There seems to be a fascination about 5-chain curves in this Colony. A  $2\frac{1}{2}$ -chain curve on this line would be equal to a 5-chain curve on a broader gauge.

19. Can you give us any experiences in regard to the working of these lines? Yes. In constructing railways in New England we used to lay these lines ahead of the permanent line to carry our material up. 1 in 40 was the steepest grade we used, but some of our curves were  $1\frac{1}{2}$  chains.

20. *By Mr. Mackenzie.*—The narrower the gauge, the more danger I suppose there is in a steep grade? Yes; and the engine power is deficient. You don't get the weight of the engine as a traction force.

21. *By Mr. Dobson.*—What is the cost of this tramway in comparison with the line to Dundas? Less than half. The other lines require a great deal of heavy ballasting. This line requires very little ballasting. If there are wooden sleepers, 2 feet apart, 3 or 4 inches of ballast at the outside would be all that would be required. These light lines are very largely used in the northern part of India, principally for military purposes, and enormous quantities of stores and provender are carried by them. I read that during the Roberts' Expedition one of these lines carried 20,000 troops, with all the necessary appliances. There is a line in Wales, the Festyniynog, which is only 1 ft. 11 in. gauge, upon which they travel up to 25 miles an hour, and carry 80 to 90 tons a trip, besides a large number of passengers. They use the Fairlie engine—that is, two engines rivetted together back to back.

22. What is the grade there? It is not steeper than 1 in 40, I believe.

23. Can you tell us the tolls? No.

24. Can you tell us the tolls on any of the Indian lines? No; they are nearly all military lines.

25. But there must be parts of the world where cheap tramways are used? Yes, they are very generally used, but for private purposes. In America there are hundreds of miles of them. There must be rates fixed somewhere, but where they are I do not know. I think we might adopt the rates recently passed by the House in other cases, allowing them to be raised up to 1s. per mile, if it is found reasonable. This line is experimental to the promoter, and I cannot help thinking that it will be a very good experiment for the Colony.

26. Where are you going to fence? Where it is asked for—that is only reasonable. It will be a very heavy item if the whole line has to be fenced. In Sydney, with its 400,000 inhabitants, the trams run through the principal streets at the rate of 9 miles an hour without accidents, while in the Mathinna District there may not be a man to the square mile. The Zeehan and Mount Read Railway Bill, lately passed, appears to me to be a very satisfactory one, and I would suggest that the Committee adopt the main principles of that Bill, and embody them in this one. There is one Clause in that Bill that is not in this one, and that is in giving compensation for taking private property on the betterment system. I think that system ought to be used all over the country, as it is most just. In New South Wales we were black-mailed most terribly until that system was introduced.

27. *By Mr. Von Stieglitz.*—Would you recommend 9*d.* per mile as the maximum? Yes, and if it is found to be insufficient let it be raised to 1s. 9*d.* is liberal if the place is worth a tramway at all.

28. *By Mr. Dobson.*—What is your opinion as to the deposit? The three months in the other Bill is a monstrous thing; it should be six months. On the line up the Derwent Valley they don't give us time to look at the country. If the Committee would adopt the same *pro rata* as on the Derwent Valley to Zeehan line there would be no objection—that is, £5 per £1000.

29. *By Mr. Von Stieglitz.*—How much deposit was asked in regard to the Mount Read Tramway? About the same. The estimated cost was about £60,000 or £70,000.

30. *By Mr. Dobson.*—There are two lines mentioned here,—one to Mathinna, and one to Mangana—and the conditions are that the Mathinna line is started within two years, and the Mangana line within four years? Yes. I would feel inclined to suggest that the promoter leave the Mangana line out, and if subsequent inducements leads him to go there he will have the prior claim to the construction of the line, as it will be a branch of his existing line.

31. Do you think it would be fair that the Government should have the right to cancel the concession after giving the promoters of this line six months' notice to proceed? Yes, that would be a fair thing.

WEDNESDAY, SEPTEMBER 2, 1891.

FREDERICK HENRY WISE, *called in and examined.*

32. *By Mr. Allport.*—What is your name? Frederick Henry Wise.
33. You are one of the promoters of this proposed line? Yes.
34. I think you are chairman of the New Golden Gate Company at Mathinna? Yes.
35. And of several other mines in that district? Yes.
36. And one also at Mangana? Yes.
37. You have been a merchant here for many years? Yes, I have.
38. And you have had considerable experience in regard to machinery, and, latterly, in regard to mines? Yes, that is so.
39. I will ask you, first, some questions relating to the particular district of Mathinna. Do you know the length of time that it takes to get from Fingal to Mathinna under the present conditions? Yes; the present road is about 17 miles long, and it takes about three hours to travel it in the coach.
40. And by the construction of tramways the distance would be shortened? Yes, the distance would be materially shortened, and, of course, a very great deal of time would be saved.
41. At the last meeting of the Committee Mr. Hogg was asked some questions relative to the weight of the engines on the proposed tram-line, and he stated that he would obtain particulars. Have you made enquiries on the subject? I have been informed by Mr. Bath, one of the contractors for the Fingal line, that for a line similar to the one we project an engine of from 8 to 10 tons would be required.
42. *By Mr. Bennett.*—For what gradient? The heaviest gradient mentioned in the Bill is one in forty, but upon the line itself I do not think that you will find one of one in sixty.
43. Would an engine of that weight suffice for a grade of one in forty? Mr. Bath said so.
44. *By Mr. Allport.*—At last meeting the Chairman made a statement to the effect that coal could be taken from Fingal to Mathinna for 10s. a ton. Is that the case? The New Golden Gate Company pay 29s. a ton for cartage, and that is the rate all the year round.
45. *By Mr. Dobson.*—And what do you pay for coal? It is impossible to take coal there at present. The cartage rates are prohibitive.
46. *By Mr. Allport.*—Twenty-nine shillings a ton is the rate that is current now? Yes; and for heavy goods and machinery we have to pay a great deal more.
47. Labour has been scarcer at Mathinna since the West Coast broke out? Yes, there is more mining employment.
48. And the rates for labour have increased in consequence? Yes; where we had to pay 7s. a day before, we are now paying 8s. 4d. to 10s. a day.
49. You have also a difficulty in letting contracts? There is not the facility there was before, and we have to pay a higher rate.
50. Do you agree with Mr. Hogg's estimate of 7 per cent. as the interest this line will earn on the contemplated rates? I do not think that it could earn 7 per cent. if the rates were anything lower than one shilling. I have had something to do with traffic, and there is not enough in that district to make the line pay at a lower rate.
51. Have you made inquiries as to the number of persons in the district? Yes. According to the census returns there is a population of 426 in the township of Mathinna, and from the district around, from which we would contemplate drawing passengers, I could only make up 438, or a total of 864, we could hope to derive passenger traffic from. That does not, of course, include the people who may go to Mathinna.
52. *By Mr. Mackenzie.*—Would the traffic be likely to increase if greater facilities were given? We hope so; but, of course, we must base our estimates on the present number of people there.
53. *By Mr. Allport.*—At present the New Golden Gate Company is the only mine in that district that is actually yielding returns? Yes, it is the only one that is paying dividends.
54. There are many other mines there that are preparing to erect machinery? Oh, yes, there are seven or eight poppet-heads at work and in course of erection.
55. Will it be an advantage to these mines to have tramway communication with Fingal? Yes, it will be a decided advantage, as it will cheapen and quicken transit.
56. I presume that you and your party think that you ought to have some say in the class and the character and expense of the work to be done? Yes. From all the enquiries we have made there is nothing to justify us in going in for an expensive class of work. At present it is only a pioneer line.
57. And unless it can be done in the form proposed you would not go on with it? No; I could not advise those associated with me to go on with it.
58. With regard to the character of the line you are dependent upon expert evidence? Yes.
59. Can you tell us anything about the settlement at Evercreech? Yes; there is a growing agricultural population there. At present the surroundings of the township of Mathinna cannot supply it with anything near its requirements. They even get imported mutton from Launceston.
60. Is not fuel getting very expensive? Yes, it is increasing in price very much lately, partly owing to the scarcity of labour, and chiefly to the distance one has to go for it.

61. And you could carry coal there on this tramway at a cheap rate? Yes. At present it would not pay to take it there. We would have to classify the traffic, and coal is one of those articles that would come under the low class rates. Some goods could afford to pay a good rate of freight and others could not.

62. I believe that some of the mines contemplate resorting to calcining? Yes.

63. And that would necessitate coal fuel if supplied at a cheaper rate? Yes.

64. I believe that the timber used there has all to be brought from St. Mary's? Yes; it is a most expensive item at present. The cost of cartage of timber from Fingal to Mathina is nearly 7s. per 100 ft. We have to pay 8s. at St. Mary's and rail to Fingal, which brings it to about the same price as it could be landed for from the Huon at Fingal.

65. The route of the line is principally through private property, is it not? Yes.

66. And to reduce the cost of acquiring it is another reason why you should have as narrow a gauge as possible? We do not contemplate that the land will cost us a great deal. If it cost much it will be an insuperable bar to the undertaking. It is timber country, and we must have power to prevent the trees from falling on the line.

67. The mining at Mangana is dormant at present? Yes, there is very little done there at present. The Reunion mine is just starting, and another is contemplating a start.

68. At present there is nothing to warrant an extension of the tramway to Mangana? No.

69. Yet it is included in this Bill with view to meet future requirements? Yes; if the importance of the district ever warrants it.

70. Do you know anything personally of the damage done by floods in that district? Yes. The Esk is one of those rivers that rise very rapidly and extensively, and at Fingal the water flows over the low banks and spreads over a large area of country. On several occasions the traffic at Fingal has been impeded for a week at a time, and the mails have been delayed on several occasions for several days.

71. And besides the delay the floods cause a great deal of injury to the roads? Yes.

72. You think that the rates asked for in this Bill are fair and reasonable under the circumstances? Yes, for first class goods. Of course, other goods would be taken for considerably less.

73. Would the tram be an advantage in carrying explosives? The difficulty with regard to explosives is the trouble experienced in bringing them from Launceston, owing to the high rates charged on the railways. The lowest freight charged is £10, because a separate truck has to be put on.

74. *By the Chairman.*—You say that the tramway will pass through private property; have you been in correspondence with the owner of the Malahide Estate on the subject? The owner is at present out of the colony. The tenant now has a monopoly of the supplies, and gets about three times the price for his grain that you are charged in Hobart, and he sells his beef at the same price that is charged for it in Hobart. While the general public benefit, individuals must suffer by a line like this.

75. *By Mr. Bennett.*—Will there be any objection on the part of the promoter to construct bridges and culverts so that they will carry a 3ft. 6in. gauge? We contemplate constructing them so.

76. *By Mr. Dobson.*—Would the promoters be willing to agree to a scale of tolls being fixed for the various classes of goods? Well, we should hardly like to be bound down by the Government schedule, because I do not call it a commercial one. Many people get things by the railway at a far cheaper rate than that class of goods should pay, and others, again, have to pay more than they ought to. If you work a line on commercial principles you must study the traffic and try to increase it.

77. I should not like to inflict the Government schedule on you, but ought there not to be a schedule of rates for first and second class goods—coke and coal, for instance? It all depends on the quantity you get. If you get a large quantity you can do it for half what you must charge for a small quantity.

78. The Government charge 1d. per ton per mile for coal, and 2d. per ton per mile for minerals. What do you think of that? I am sure 1d. per ton per mile would not do. While it is the duty of the Government to encourage native industries, you can hardly expect a private company to develop the resources of the colony at a loss to itself.

79. What would you suggest? I would hardly like to make a schedule of rates off-hand.

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FREDERICK BACK, *called and examined.*

80. *By Mr. Dobson.*—What is your name? Frederick Back.

81. Have you read the Bill now before this Committee? Yes.

82. Are there any matters in the Bill that you would think it your duty to draw the attention of the Committee to? I hardly know where my duty commences in the matter. I know nothing about the Bill, except that it has been brought under my notice by this Committee.

83. We want your opinion in reference to the gauge, construction, and that sort of thing, and also in regard to the class of line it is proposed to construct? I have made a few notes in reading through the Bill. In Section 3, I notice that the line shall junction with the Fingal Railway at some point not more than two miles from Fingal. I think that this junction should be left to the Railway Department to fix or approve, and that, if necessary, the line of the tramway should be carried right up to the station.

84. You think the junction ought to be under the control of the Railway Department? Yes; and, if necessary, they should run their tram right up to the station if the Department thinks it necessary. I do not say that such is necessary; I am only anticipating what may be required. In the same clause, with

regard to branch lines, I think there should be a defined area in which they are to be constructed. The present clause gives the promoters power to connect with Mount Bischoff or the Tasmania Mine if they like. It will prevent disputes in the future if you have some limitation of this sort.

85. We have a limit of ten miles in the other Bills: is that too much? I am not prepared to give an opinion on the spur of the moment. I cannot fix any hard or fast area, because I am not acquainted with the district. In Clause 16, the usual provisions in regard to control are wanting. I think that all operations of the Company under this clause should be under the supervision of some constituted authority. In Clause 21, I think there should be a clause to the effect that nothing in this Bill shall over-ride the Railway Acts. It is necessary for the safety of the public that no one should be allowed to interfere in any way with the works upon a railway, unless under the inspection of some competent authority. This clause should not apply within the boundary of any railway unless with the consent of the Minister of Lands. There is also a clause giving power to divert a mill-race or stream at 48 hours' notice. I think that is very hard upon the mill-owner. I think that, under Clause 26, all the works ought to be approved by the Minister.

86. We want your advice as to how far light tramways can be used in this Colony as feeders to the railway lines. The engines used would be small ones of from eight to ten tons? Before you can tell the tractive power of an engine there are three points to be worked out: you want the diameter of the cylinder, the length of stroke, and the diameter of the driving wheel. Roughly speaking, a six or seven ton locomotive would barely haul its own weight up a grade of 1 in 40. Before giving any advice on the subject, I think we should have the particulars of the engines and the gradients.

87. Is 2 ft. 6 in. the proper gauge for a light tramway? It depends so much on the work you want to do that I cannot answer the question. If it is an accepted fact that you are going to have a break of gauge and are going to put up with all the cost of transshipment, it is for the promoters to say what they are going to do. The other Colonies have bought their experience in regard to light railways and tramways. These light tramways are good in an absolutely level country, but in a hilly country the cost of motive power is so great that you will find it cheaper in the end to construct a heavier line; I am giving you this as my own experience in the matter. I have here a list showing what grades will do in reducing the power of an engine:—One of our passenger engines, Class B, weighs in steam 42 tons; it will take 56 tons up a gradient of 1 in 30, 82 tons up 1 in 40, 104 tons up 1 in 50, and so on to level ground, where it will take 497 tons. Our heaviest goods engine will take 108 tons up 1 in 40, and 560 on level ground. The small engine used on the Parattah line weighs 14 tons; it will take 33 tons up 1 in 40, and 260 tons on the level ground.

88. We want to know if the country is suitable for a light railway? I do not know the country. You may take it as an accepted fact that light railways are not suitable for steep grades. There is a general misconception in regard to what is considered an easy grade. In England, 1 in 100 is called a steep grade; here, we have 1 in 40 all over the lines, and when we have got into the habit of running over them we consider them nothing. It costs five times as much in locomotive haulage for this grade as for level country.

89. Supposing the gradients are suitable, would you recommend the construction of a light tramway? You have to consider the amount of traffic. Why not leave the promoter to go in for what he likes?

90. We want to know what you think of the tramway system? Looking at it as a work that has to be constructed by private enterprise, I say let the promoters do as they please. There is looming in the distance the question of its acquirement by the Government, and in that case it ought to be constructed to carry the Government rolling stock. The people will never be satisfied with a low rate of speed on a branch line when they run at a high rate on the parent line. The experience of the other Colonies is, that where feeders of a light character have been constructed to a main line, they have always to be reconstructed of a heavier character.

91. We want you to tell us if we are justified in recommending this tramway to Parliament? I do not think you could act wrongly in allowing the promoters to construct this tramway. There are no compulsory clauses compelling the Government to purchase it.

92. *By Mr. Bennett.*—If we adopt the tramway system, what is the right thing in regard to gauge? That is a matter of indifference; I should leave it to the promoter.

93. Do you think 2 ft. 6 in. would do? I am not prepared to say.

94. *By the Chairman.*—Is 30 inches a good gauge for a tramway? You can make a good road that way. If I was making a line for myself I would make it 3 ft. 6 in. gauge; if it is not worth that it is not worth making. I do not see any objection to any grade the promoters wish, when once the break of gauge is admitted.

95. *By Mr. Dobson.*—What do you think of  $2\frac{1}{2}$  chain curves? They are pretty sharp. They will find out that their nominal tractive power will be reduced 50 per cent., but that is their look-out.

96. *By the Chairman.*—Do you think that curves of that description are safe? Yes, if the rolling stock is adapted to them; but I do not think such curves will pay.

97. *By Mr. Mackenzie.*—If the gauge is altered to 3 ft. 6 in. these curves would be too sharp? Yes, you would have to alter the curves. The rolling stock is constructed according to the kind of work that it has to do; if the line is to have curves of  $2\frac{1}{2}$  chains, the rolling stock must be specially constructed for the purpose, and if a line of that kind is worked for passenger traffic, the Government should have an inspecting officer to see that all is right.

98. *By Mr. Dobson.*—Is seven miles correct as a minimum speed? Yes, I think it is sufficient.

99. Do you approve of the provision in Clause 30, extending the time for commencing the Mangana branch to four years? I cannot advise you on that point, as I know nothing about it; I think it is reasonable that they should have that power.



FRIDAY, SEPTEMBER 4, 1891.

FREDERICK BACK, *recalled and examined.*

100. *By the Chairman.*—Have you considered the questions of rates and charges upon this tramway? Yes. Supposing it to be 15 miles in length, I think it would be fair to allow the promoters to adopt the Government tariff, and multiply it by two. I don't suppose that that would give them much more than seven per cent.

101. But from the promoter's point of view, would not the tolls be ridiculously low? Of course I am taking the minimum of traffic. If there is any traffic at all that ought to give them 12 per cent.

102. That would make coal 2*d.* per ton per mile, minerals 4*d.*, and bricks 2*d.*? Yes; I think, one way and another, it would be a fair thing. There is a minimum of 7*s.* 6*d.* in the case of bricks on the Government lines, and that would give them a minimum of 15*s.* on this tramway. We provide 300 to 330 bricks to the ton, and not more than 2000 to the truck. These regulations of ours are in existence all over the world, and are the fruits of the brains of the best railway men. In regard to coal, that is a special matter not incorporated in our tariff, as it provides that coal in large quantities shall be carried by special arrangement.

103. What would firewood be? You would not carry any.

104. What would be the rates for passengers? I think the rates proposed in the Bill will do. They are fair for a short line like this.

105. Are they much more than the Government rates? 33 per cent.

106. You would suggest, then, that the passengers' tolls be allowed to stand as proposed in the Bill, and that, in regard to the other tolls, the Government tariff be adopted and increased 100 per cent? Yes, that is my suggestion. If the promoters could furnish me with information in regard to the traffic, I could give you information in regard to the effect of the tariff in relation to every class of goods carried. I can only go on general principles at present. It is difficult to say what rates will be suitable unless I have some further data to go upon.

107. Would you be in favour of the Governor in Council having the power to review these rates, and reduce them when the Company made a certain percentage? That is a very large question to deal with in a few words, but in this case the machinery would be too cumbersome and expensive for such a small undertaking as this line. In speaking of the probable traffic on this line, there is one great element of uncertainty in my mind, and that is that no mention has been made of what one of its trucks will carry. Upon the data at present before me, I do not think that I am justified in doing more than throwing out the suggestion I have given as some foundation upon which a tariff may be advised.

108. *By the Chairman.*—What would be your idea as to the rate for coal? I would suggest 5*s.* as a maximum rate, but this may rise up in judgment against me at some future date, and therefore I do not care about giving you more than a general indication of the plan upon which rates may be struck. The time may come when 5*s.* is an exorbitant rate for coal, and the promoters may turn round and say to the Government, "Well, your own Manager suggested it."

109. What would be the cost of a ton of coal from the mines to Launceston? About 6*s.* We carry it a certain distance at 1*d.* per mile, and a certain distance at  $\frac{3}{4}$ *d.* As a Railway Manager, however, I consider that these rates are not fair ones, as they are based upon a policy of the Government for assisting local industries.

110. What rate would you suggest for flour? 6*s.* a ton. Flour is carried at a nominal rate all over the world, except in such places as Russia. We allow a single sack to be carried at a very low rate.

111. What about live stock? I think the rates in the Bill are high enough. This is a short line, and therefore you can afford to be more liberal than if it was a long one.

112. What would you suggest as the time after which this line may be purchased by the Government? Well, I would rather not express an opinion on that matter, because the Government adopt a certain policy in these matters with which I have nothing to do.

113. *By Mr. Von Stieglitz.*—In what manner would you recommend that the line be purchased? I have always held that we ought to value the line as a going concern, and buy it as a commercial undertaking. There is no direction to the arbitrators in this Bill as to the lines on which the arbitration shall be made. This line being on a gauge so much smaller than that of the Government railways, there must be a lot of stock and appliances there that would be quite useless to the Government. If the arbitration is on the basis of the cost of construction, the only way to arrive at the cost of construction is to appoint a Commissioner who shall certify to every voucher as it is paid. This Commissioner is really an auditor for the Government, and the Government recognise no charge unless vouched for by the Commissioner. You will also have to have an auditor of stores to see that all the stores are properly applied. In the end you will probably have the same fight and the same trouble as in the Main Line Company. However, in an undertaking of this sort there is a great financial risk, and I should feel more inclined to be liberal in these small matters than I would in the case of a large line where the traffic was a matter of vital importance to the country. The danger of my expressing any decided opinion in the matter is that it may be taken as a precedent for larger undertakings. If this was to be the only line made, I would say that it did not much matter what was done, but where every word is to rise up against me in judgment in regard to future lines, I require to be very cautious in expressing my opinion. The line is a small matter, and may be treated on liberal terms, on the understanding that it is not made a precedent in the case of larger undertakings.

114. *By the Chairman.*—Looking at the smallness of the concern, and upon the basis that it is not to be regarded as a precedent, do you think we should leave the arbitration as proposed in the Bill alone, or go back to purchase at the cost price, with 20 per cent. added? I think you should clearly indicate in the

Act the lines upon which the arbitration is to be based. In justice to both sides it should be taken as a going concern. But it is for you to decide what is to be done in the matter.

115. Would the words "undertaking and work" include the rolling stock? I think it would mean everything.

116. *By Mr. Mackenzie.*—You would not be expected to buy the broken-down locomotives, and so on? If you buy the undertaking, I think it is only fair that you should buy all they have. You cannot discuss the question of arbitration until you are satisfied as to the basis upon which the arbitration is to be conducted.

117. *By the Chairman.*—How many arbitrators should there be? There should be three. And I would like to draw your attention to Clause 47, which I confess I do not understand. It appears that if the Company fails to complete this line, the Minister has to enter, and then compensate the Company.

118. If a forfeiture is made, do you think the Company ought to be compensated? That depends upon the circumstances under which the forfeiture is made.

119. Would you go to the other extreme and say that if a forfeiture is made the Government should take everything and pay nothing? No, I would not go to that extreme, but I think the clause wants modifying. I think the framer of the Clause had a completed undertaking in his mind, but it is possible for the line to be forfeited before it is completed. The fairest way to compensate would be to give the Company the cost price less a certain percentage.

120. If they forfeit and we want to get their work and carry it out, we can compensate them, and if we don't want it, we can allow them to sell and clear out? That is fair.

121. Supposing that the line was sold, could we forfeit from the purchaser? The conclusion I arrive at is that the Company could sell the line to a dummy, and thus be relieved from all their responsibilities. In regard to the question of the rates and charges, I will be only too happy to confer with Mr. Wise and his Counsel on the subject, if they can supply me with any data to work upon. I will be glad to do anything I can to help in the matter. As far as I am concerned, as Manager of the Railways I think this line will be a benefit to the railways generally, and therefore I am anxious to assist it as far as I can.

122. *By Mr. Allport.*—Do you think it is expedient that there should be this means of communication? I think this line will be an advantage in opening up the district and developing its mines. It will also act as a feeder to the railway. There is one little matter that I think should be in all these Railway Acts, and that is a provision for the inspection of locomotives.

123. Is not that under the Inspector of Machinery now? I don't think so. In any provision of this nature you must compel the promoter to give facilities to the Inspector to carry out his duty. From what I have seen of the Main Line Railway, I think it is desirable to have a provision of that nature in all our Railway Acts. I feel a little difficulty in giving evidence in regard to this Bill, because I have not been called upon to give evidence in regard to the other Railway Bills. It appears to me that the big fish have slipped through my net, and I have come down upon the little ones.

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FRIDAY, SEPTEMBER 11, 1891.

WALTER MAPLESTONE NOAKES, *called and examined.*

124. *By Mr. Allport.*—What is your name? Walter Maplestone Noakes.

125. You are from Sydney? Yes.

126. What are you? I am a mechanical engineer and a Member of the Institute of Mechanical Engineers, London, and of the Engineering Association in New South Wales. I am manager for Sir John Fowler and Company in Australia.

127. That is a big engineering firm in England? Yes, I am their representative in these Colonies.

128. They have a speciality, in regard to light railway work? Yes, and are patentees of a railway.

129. Have you not constructed a great deal of this light railway? Yes, throughout the known world.

130. Can you name any places in particular? Yes, in India, Africa, Brazil, and Argentine Republic. They supplied the railway from Suakim to Berber during the Egyptian war. There are more than 300 miles of this railway in these Colonies.

131. Will you tell the Committee the gauges you supply? Yes, they are 16 in., 20 in., 24 in., and 30 in., but more particularly the 24 and 30 in. gauges.

132. Those you have a personal knowledge of? Yes, I was the first to advocate this narrow gauge line in Queensland, and the first to supply it.

133. Can you give the Committee some information in regard to the capacity and powers of these light railways? The capacity depends upon the weight of the rails. We have supplied locomotives of from 8 to 10 tons to run on 18 lb. rails.

134. What weight of rails would be most useful for a 30 in. gauge? For feeders for the Government Railways, I should recommend 25 lb. rails—that is for permanent use.

135. *By Mr. Von Stieglitz.*—What is the heaviest rail you make? From 30 to 40 lbs.

136. *By Mr. Allport.*—Speaking as an expert, are these light railways well adapted to act as feeders to the Government lines? Undoubtedly; my opinion is that for feeding a main line you cannot have anything better. If you lay down one of these feeders on the same gauge as the main line, and run a heavy rolling-stock from the main-line over it, you have nothing but failures. I have never known of

such a line being a success. The branch lines of New South Wales, as was reported last week, do not pay, as two trains a day are run upon them. If they down a light railway of 30 in. gauge, with 25 lbs. or even lighter rails, they could run four or five trains a day and make them pay, because the costly locomotives and rolling stock have not got to be provided. In point of cost, too, there is a great difference. To lay down and equip a 30 in. line with 25 lb. rails will cost about £1500 per mile, while a line with a gauge of 4 feet 8½ inches with 40 or 50 lb. rails will cost £3000 to £5000 per mile. All the dividends are swallowed up in the interest which has to be paid upon the cost of construction of these heavy lines, and consequently they do not pay. Again, with these narrow gauge lines you can get round a curve of 2½ chains radius, or even less. I myself have got round a curve of 130 feet radius. You can thus get easier grades, and the formation costs less. There is a line from Calcutta to connect with the Bombay railway called the Dargeeling railway, which is of a two-foot gauge, and which runs round and round a mountain until it gets to the top. The speed, of course, is not great, being only eight miles an hour, but without that railway they could not connect with Bombay.

137. What weight of engine is used on the 25 lb. rails? They will readily carry a 10-ton or 12-ton engine with 9 in. by 14 in. cylinders.

138. Where it is contemplated that, at some future date, it may be necessary to increase the gauge, what would you suggest in regard to curves? I would suggest that the tunnels, bridges, and curves be made capable of taking the broader gauge. At the end of a certain period it may be found that the narrow-gauge line is not able to meet the requirements of the traffic, and that a broader gauge is required. The narrow gauge can then be shifted on somewhere else.

139. What is your opinion as to the grades that it is best to employ? I have always advocated that the easiest grades should be used. I have run these small locomotives up grades of 1 in 40; but I would advise that the grades be made as slight as possible. They do run in some cases up grades of 1 in 35.

140. Can you give the Committee any opinion as to the advantages of these railways over macadamised roads in opening up new districts? Speaking as an expert, I am decidedly of opinion that they are more economical.

141. And as to the facilities for working and junctioning? Of course, a narrow gauge means a break of gauge and the transhipment of passengers and goods, but I see no more difficulty about that than would occur on a main line having branch lines of the same gauge but with lighter rails. The transhipment of goods can easily be managed by bringing the trucks alongside one another and dropping the sideboards, or by taking the truck to be unloaded upon a raised platform and tipping its contents into one beneath. Of course, there are goods which cannot be dealt with in that way; but, generally speaking, the transhipment is such a trifling matter that it is hardly worth talking about. All the public want is the easiest and cheapest way of getting to a certain point, and this is the best way of doing it.

142. What will be the total cost of a line of 30 in. gauge, fully equipped, assuming that it is constructed across level country? With 25 lb. rails and wooden sleepers, which, I take it, are cheap in this country, such a line can be easily laid and equipped for £1000 a mile. You could land the 25 lb. rails here at £8 a ton; there would be 42 tons of these rails to the mile, which would be £336 per mile for rails; formation, in level country, would cost £50 a mile; making, in round numbers, £400, and the little locomotives, rolling-stock, and timber can easily be supplied out of the remainder.

143. What sort of a line would you suggest for a purely mineral district for carrying ores? I would strongly advocate a 24 in. gauge for that, because it is cheaper. Whatever gauge is chosen, all feeders to the neighbouring mines should be of the same gauge, so that the trucks of ore could pass on to the main line without transhipment.

144. What speed is reached on these light railways? The ordinary rate is 12 miles per hour, but I have travelled 20 upon them.

145. What would be the cost of a mineral railway such as you suggest? I should say it could be laid for £500 a mile.

146. What sort of rolling-stock would you recommend for a 30 in. gauge line? Small locomotives, weighing from 8 to 11 tons in working trim, with 9-inch by 14 in. cylinders. The carriages are small, but of the ordinary type, except that the passengers get in at the tail end instead of at the side.

147. What breadth are the carriages? On a 30 in. gauge they would be about 6 feet wide.

148. And the waggons would be ordinary ones adapted to the gauge? Yes.

149. Is fencing necessary on these lines? No. The Sydney tramways, which I call railways, are not fenced, but yet they run at a good speed through the city. I would not go to the expense of fencing on these lines.

150. And in going through an estate, that would avoid cutting one portion off from the other? Yes.

151. Would you erect stations on a line of this nature? No; I would just stop where the passengers happen to be. There is no need for a platform, as the floor of the carriages is only 18 inches above the ground. In India 70 miles of this railway is laid along main roads.

152. There is no difficulty in laying them upon ordinary roads? None at all.

153. What amount of ballasting is required? Many of these lines are not ballasted at all, but I believe in ballasting if you are going to make the line a permanent one.

154. No expense is necessary for stations and terminal buildings? No; there need be no expense at all in that respect.

155. These lines are just like an omnibus? Yes; they are called omnibus lines, but they are capable of carrying not only passengers, but goods and anything ordinarily carried upon railways. I have carried a 7½ ton boiler on a 24 in. gauge, with 18 lb. rails, at a speed of six miles per hour. There is no difficulty in carrying heavy weights if you distribute the load.

156. As an expert, your general opinion is that these lines are of great value in developing a country, especially such a country as Tasmania, in the present condition of her mines? Yes. If you once adopt these lines in Tasmania they will soon come into general use here. I think they are the only means of opening up a country economically.

157. You would also suggest their use as branch lines to mines along the route of a main line? Yes; as an expert, I would recommend that.

158. *By Mr. Bennett.*—The cost of the line would vary according to the contour of the country? Yes. In 1877 the Cape Copper Mining Company laid 70 miles of a 30 in. gauge line at a cost of £1720 per mile, but the prices have materially decreased since then.

159. Have you laid any of this line at £1000 per mile? No. I put down 12 miles for the Great Cobar Copper Mining Company at a cost of £2000 per mile. This line can be laid very fast if you use the steel sleepers; in fact, on a military line, where there is no lack of men, quarter of a mile can be laid in 10 minutes.

160. *By Mr. Von Stieglitz.*—What speed would you provide for in fairly level country? I would compel the promoters to run 10 miles an hour; but the speed depends largely on the load carried.

161. Can this line be laid on boggy country? Yes, we have special sleepers for country of that kind

162. *By the Chairman.*—There are different kinds of sleepers for different kinds of country, I suppose? Yes, we supply sleepers to meet the requirements of every kind of country. If I was laying down a road I would use gauge sleepers, three to every 21 feet length of rail, with wooden sleepers between them. They always keep the line in gauge, and would save a great deal in maintenance.

163. Would the prices you have quoted include turntables? Yes, it would include a turntable and locomotive; but where you have plenty of space you do not need turntables at all.

164. *By Mr. Allport.*—Do you wish to lay any papers upon the table? The only one I can leave is "Catalogue of the Light Railways." I can send a sample of the sleeper we use for boggy country in about a fortnight.

165. You have come down at the suggestion of the promoter to give evidence? Yes.

166. *By the Chairman.*—What are the smallest curves you can use?  $2\frac{1}{2}$  chains radius is an easy curve, but the less the curve the better it is for the locomotive and rolling-stock.



## APPENDIX A.

*To the Honorable the Speaker and Members of the House of Assembly of Tasmania, in Parliament assembled.*

The humble Petition of Frederick Henry Wise,

## SHOWETH :

That, within three months previously to the presentation hereof, notice of the intention of your Petitioner to apply for a Private Bill was published, as is by the Standing Rules and Orders of your Honorable House prescribed, as follows ; that is to say—

In the *Hobart Gazette* on the seventh day of July, the fourteenth day of July, the twenty-first day of July, and the twenty-eighth day of July last past ;

In the *Mercury*, being a public newspaper published in Hobart, on the eighth day of July, the fifteenth day of July, the twenty-second day of July, and the twenty-ninth day of July last past ;

In the *Launceston Examiner*, being a public newspaper published nearest to the District affected by the Bill, on the ninth day of July, the sixteenth day of July, the twenty-third day of July, and the thirtieth day of July last past ;

which said notice contained a true statement of the general objects of the said Bill as hereinafter set forth.

That the general objects of the said Bill are—

To enable your petitioner to construct a Tramway from a point at or near to the Station of Fingal of the Fingal Railway to a point at or near the Town of Mathinna, as may be found convenient, with power also to extend the said Tramway if it shall be thought proper at a future time to a point at or near to the Town of Mangana, and to work, maintain, repair, and alter such Tramway, together with all proper and convenient roads, ways, crossings, bridges, culverts, cuttings, tunnels, embankments, junctions, telegraphs, sidings, stations, and buildings, and other works and conveniences that may be used or worked in connection therewith.

To provide by the incorporation of the Lands Clauses Act with the said Bill, and otherwise, for the purchase, rental, and acquisition of any lands, stone, timber, or other material for the purposes of any of the before-mentioned works.

To provide for the construction of such Tramway of the same gauge with the Railways belonging to the Colonial Government.

To authorise the use of such motive power upon and over the said Tramway as may be deemed convenient by your petitioner.

To enable your petitioner to demand and take tolls and charges for the carriage of passengers and goods upon such Tramway.

To provide for the sale of such Tramway and works to the Government of the Colony after the expiration of such period, and upon such terms as may be agreed upon.

To provide for the due working and management of such Tramway and other works, and for the making of By-laws and Rules in relation thereto, and to the traffic and business thereof, and for the infliction of penalties upon persons infringing the provisions of the said Bill, By-laws, or Rules.

The said Bill will also contain all Clauses usual in Bills of a like nature or deemed proper for enabling your Petitioner to carry out the before-mentioned works.

Your Petitioner therefore humbly prays for leave to introduce the said Bill.

And your Petitioner will ever pray, &c.

FRED. H. WISE.