

NEW SOUTH WALES.

Legislative Assembly.

MINUTES OF EVIDENCE

TAKEN BEFORE

THE SELECT COMMITTEE

ON THE

ELECTRIC TELEGRAPH.

TUESDAY, 2 DECEMBER, 1856.

Present:—

Mr. COWPER,
Mr. FAUCETT,

Mr. PARKES.

Mr. HAY,
Mr. MACARTHUR,

HENRY PARKES, ESQUIRE, IN THE CHAIR.

Edward J. Spence, Esquire, called in and examined:—

E. J. Spence,
Esq.

2 Dec., 1856.

1. *By the Chairman:* You arrived in the Colony in connexion with one of the gold companies? Yes, the Colonial Gold Company.
2. How long ago? About five years.
3. Have you been in connexion with that kind of enterprise ever since your arrival? Entirely so.
4. Your attention latterly has been directed to the proposal for constructing an Electric Telegraph in this Colony? I have given the subject a good deal of consideration for some months past.
5. Will you have the kindness to state what circumstances first directed your attention to the subject? It was in consequence of a visit to Melbourne, where I became acquainted with Mr. McGowan, the Superintendent of Telegraphs in Victoria, and also with a gentleman who has been the importer of all the material used in the construction of the Victorian lines of telegraph.
6. When was that? Some six or eight months back.
7. Had you any previous acquaintance with the working of Telegraphs before you left England? None, except from ordinary observation.
8. Lately you have been making some explorations to test the practicability of constructing a line of telegraph between Sydney and Melbourne, with the view of, in some manner, engaging in it yourself? I have recently travelled over the whole ground, being desirous to ascertain if it were practicable to construct it at any moderate cost, and I entertained the idea of undertaking the construction, if I could see any advantage in doing so.
9. When did you leave Sydney on this excursion? On the 10th October last.
10. Up to that time had you taken any particular steps with a view to the same object? Only making ordinary inquiries, and ascertaining what had been done in other colonies. I had frequent interviews with Mr. McGowan, and also with Mr. Todd, the representative of the South Australian Government, on this subject, when he came over to Melbourne.
11. And also with gentlemen in Sydney? Yes.
12. All prior to leaving for Melbourne in October? Yes.
13. Will you have the kindness to state to the Committee what course you took, and the result generally of your experience in making this overland journey to Melbourne? The course we took was along the post line of road, through Camden, Goulburn, Yass, Gundagai, and to Albury.
14. Who accompanied you? Mr. Saul Samuel and Mr. Lecapleine.
15. Did these gentlemen proceed with you with a view to embarking in the undertaking with you if circumstances warranted you in so doing? I believe that was their object. They felt the same interest in the matter as I did myself.

- E. J. Spence, Esq.
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16. Mr. Lecapleine was an Engineer? He was a Civil Engineer of experience in England.
17. Did you cross the Murray and proceed to Melbourne? We crossed the Murray, and proceeded in the first instance to Bendigo along the line of road that we supposed the Telegraph would be carried by the Victorian Government; and afterwards we took another route to Melbourne by way of Kilmore, instead of the usual line by way of Castlemaine.
18. Did you see any indications of steps being taken on the part of the Victorian Government to construct the Telegraph to Albany? About one mile on the other side of the Murray we met the surveyor, who was marking out the line and fixing the sites for the posts.
19. By Mr. Comper: Have you not heard whether the Victorian Government have not entered either actually or conditionally into a contract for carrying on the Electric Telegraph as far as Albany? The contract has not yet been entered into. The line originally thought of has been abandoned. They first intended to have connected the line from Sandhurst with the Murray by following a cross country route, but now they intend to bring it direct from Melbourne by way of Kilmore and the M'Ivor Diggings to the Murray. The tenders will be called for this month, with a view to open them in January, after the Victorian Parliament shall have decided on the money vote.
20. Then the subject has yet to be brought under the consideration of the Victorian Parliament by the Government of the Colony? Yes, as far as the money question is concerned; but the whole of the information has been obtained, and the tenders will be given in, but not opened till then. That is all that has been yet done.
21. By the Chairman: Will you have the kindness to state to the Committee what impression you and your friends have come to as to the best means of constructing the Electric Telegraph to Albany on our side? If it is to be constructed at any moderate cost, I think it will be necessary, in many instances, to make use of the forest trees. There is a great difficulty in obtaining timber for posts for a very large proportion of the distance, and the ground is also exceedingly hard in many places. There are greater difficulties in this respect on this side the Murray than there are on the other.
22. You think that to make use of the trees would be a better and more economical course than erecting posts? It will certainly be more economical, and I believe it will be equally efficient in every respect.
23. Does the face of the country offer any serious natural impediments to the operation? There is no serious impediment to carrying out the work, but the difficulty is in obtaining suitable timber for posts. It would have to be conveyed a considerable distance through the bush, if posts were used along the whole line of road.
24. But in the event of the trees being used that difficulty would not exist? No.
25. If you undertook the construction of the line, would you carry it along the post line of road? As near as possible. Some slight deviations might be allowed where distance might be saved, or to take advantage of facilities offered by trees.
26. What do you suppose the expense would be of constructing a line from here to Albany? I think, you have before you an estimate of Mr. McGowan's, in Victoria. I think I recognize the paper. My opinion is that his estimate would be too low, unless you adopted the forest trees.
27. I have an estimate here, but I do not know whether it is Mr. McGowan's or not, in which the cost is set down at £85 a mile from Melbourne to Sydney. The estimate is put thus:
- | | | | |
|-----------------------------------------|---------|---|---|
| 600 miles of line at £85 per mile..... | £51,000 | 0 | 0 |
| Instruments, &c., for ten stations..... | 1,000 | 0 | 0 |
| Office furniture and fittings | 1,000 | 0 | 0 |
| Contingencies..... | 2,000 | 0 | 0 |
| Total..... | £55,000 | 0 | 0 |

What is your opinion as to that Estimate? I do not think you would effect any saving over that estimate, even if you used the forest trees instead of posts, between Sydney and Albany.

28. How many miles is it to Albany? The post makes it 367 miles from Sydney to Albany. I do not know whether it has been measured.

29. Can you state any facts, that are within your recollection, of the result on the longest established lines of Electric Telegraph, in Victoria? I believe the Geelong line is remunerative. Mr. McGowan's impression is that the lines will pay. I believe you have the estimate before you in which he calculates that 12 per cent. should be realized per annum, besides leaving a surplus to meet contingencies, and I have the opinion of some gentlemen extensively engaged in mercantile matters, who think he has not overrated the returns.

30. The abstract statement of Mr. McGowan gives this result:

Total yearly revenue for the transmission of messages...	£19,500	0	0
Salaries and working expenses for year.....	11,324	0	0
Dividend at 12 per cent., on £55,000	6,600	0	0
Surplus fund	1,576	0	0
	£19,500	0	0

This estimate, I presume, has been present to your mind for sometime—you have often thought it over? Yes; I have been aware of it for some time.

31. From your consideration of the subject and your knowledge of the Colony, extending as it has done over five years, do you think this estimate would be borne out if the line were constructed? I dare hardly venture to express an opinion on that point, because I have not been engaged in mercantile matters here, and it is entirely a question as to the number of messages to be transmitted.

32. I merely desired to know whether you had formed an opinion? My opinion was favorable to the estimate, because I have taken the opinion of mercantile men who seem to think he has not overrated the number of messages.

33. This is his estimate of the revenue :

Fifty messages, daily, between Melbourne and Sydney, at 8s...	£22	10	0
Fifty " " Sydney and Melbourne, " ...	22	10	0
Twenty " " Melbourne and Beechworth, at 5s.	5	0	0
Twenty " " Beechworth and Melbourne, "	5	0	0
Twenty " " Sydney and Beechworth, "	5	0	0
Twenty " " Beechworth and Sydney, "	5	0	0

Total daily revenue.....£65 0 0

I believe this is only an estimate of the mercantile business which he supposes would be done, exclusive of all communications in connexion with the Press, which would form no inconsiderable item? I believe so. There is another point you may also consider, that the intermediate stations along the line are not put down. I conclude that there will be several stations between Sydney and Albury, as there will be also between Melbourne and Beechworth.

34. As to the working expenses as they are estimated here——? I believe they are ample as estimated there.

35. I will just enumerate them :

Salary of Superintendent.....	£800
Travelling expenses of do.	200
Accountant	400
Assistant Accountant	300
Two Station Masters, at £350.....	700
Eight do. at £300.....	2,400
Two Assistant do. at £250.....	500
Five Line-men, at £200	1,000
Four Messengers, at £100	400
Eight Messengers, at £78	624
Expenses of maintenance and repairs to line	1,000
Rent of offices	2,000
Lights, fuel, stationery, &c.....	1,000

Total.....£11,324

This estimate you have seen? I have.

36. You think it is quite ample? Yes. I thought the rent of offices was rather in excess.

37. What are the line-men mentioned in the estimate? Men to traverse the line between the different stations, to see whether there be anything imperfect.

38. In the event of this Government determining upon the construction of a line of Electric Telegraph between Sydney and Albury, are you aware whether any persons would be ready to come forward to tender for its construction at once? I believe there would, immediately.

39. You are aware that there are persons who have already turned their attention to it?

Yes, I am aware that persons in this Colony have done so, and there are likewise contractors in the other Colony who would most probably tender.

40. Then I gather from you, that, having carefully gone over the ground with a view to this particular work, you are of opinion that the line could be constructed within the estimate given here, or, at all events, for something under £100 a mile? It certainly could be, provided you modified the specification to the extent of using the growing trees, where practicable, instead of poles; but if the contractor were obliged to obtain poles of certain dimensions, and to undertake to perform every thing under the terms of the contract as in the printed forms, I question whether it could be done for the money. If you adopt a line of forest trees there might be a considerable saving on that estimate of £100 a mile.

41. In what time could the line be constructed from here to the Murray? If it were commenced during the summer season, so as not to be interfered with by floods or bad weather, and carried along a line of trees, it might take six months; but if you decide upon having posts, it would require nearly twelve months to complete.

42. Are you aware whether the necessary material could be obtained in Victoria? I could obtain the whole material within one week, instruments and all.

43. Would there be much difficulty in getting persons to take charge of it? I put that question to Mr. McGowan, and he replied that he could supply men who have been educated, in fact, under his own eye.

44. Then you think that a line of Telegraph could be constructed by the middle of next year from Sydney to the Murray, in a state of complete efficiency as to superintendence and fully at work, for a sum something under the rate of £100 a mile? I fully believe it, if you adopt the forest trees instead of the posts stipulated for in the printed specifications.

45. Or, in other words, it might be constructed the whole length of the line to Melbourne for £55,000? Very nearly so.

46. During your connexion with the Colonial Gold Company, you were resident in the western districts? Principally.

47. Would an Electric Telegraph be of any substantial advantage from here to Bathurst? I think if it be once started in the Colony it will be required by all the principal towns. There is no question as to the advantages that would result from it.

48. Do you think that an Electric Telegraph from here to Bathurst would be remunerative in the course of two or three years, from your knowledge of the growing importance of that district? I believe it might be.

49. By Mr. Cowper: According to your idea, a considerable additional income would be realised by the communication to Goulburn? Yes. I believe two or three stations might be made remunerative on that line, the distance being so considerable.

50. The estimates quoted by Mr. Parkes allude only to Sydney and Beechworth, but there are Goulburn, Yass, and other places where stations might be established? Precisely. I think you might have several stations along the line of road.

E. J. Spence,
Esq.

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51. Have you made up your mind as to the points where those stations should be fixed? I could only suggest them. I presume you would require one at Parramatta, and all the important Railway Stations, such as Liverpool and Campbelltown, and certainly at Goulburn, Yass, and Gundagai.

52. *By Mr. Macarthur*: In what parts of the line do you consider there would be great difficulty in obtaining timber for posts according to the specification? On the greater portion of the line between Goulburn and Albury. There would be no difficulty, in this respect, between Sydney and Goulburn. But there would be great difficulty in making the line through some of the dense forests that exist between Goulburn and Sydney, if it were necessary to clear the large space of ground usually stipulated for in the contract.

53. You allude to Bargo Brush, I suppose? Yes. It would be very expensive to clear twenty feet on each side of the line in that dense brush.

54. *By Mr. Hay*: You were talking of attaching the wire to the trees—I suppose, in that case, it would be necessary to lop all the branches? All overhanging branches, and, in some instances, to take the top of the tree off.

55. Do you not think that unless the branches were removed from the trees near the line, accidents would be continually happening from their falling? Great care should be taken in the selection of the trees, and they should be only of certain sizes. I would not have a tree with a large overhanging top, that would be liable to be overturned with the wind.

56. Are you aware how far, in constructing the lines of telegraph in South Australia and Victoria, they have thought it necessary to clear the ground on each side when the line was carried through forest land? They did not appear to me to pay very particular attention to the clearing. The line has been constructed along the main road, and, therefore, one side is comparatively clear; but on the other side they only lopped off the branches.

57. *By Mr. Cooper*: What lines have they constructed in Victoria? One to the Heads by Geelong, and also to Ballarat, and another to Sandhurst.

58. *By Mr. Fanelett*: Having gone over this line to Albury, have you seen a sufficient number of suitable forest trees for making the line? In many places it will be necessary to put up a few posts between the trees when the distance is too considerable; but there are trees along the whole line of road that might be made use of, though you could not make use of them entirely.

59. Then, as I understand you, the forest trees would only partially assist in making the line? The use of these trees would be very considerable; posts would be the exception.

60. But still the posts would form a very large exception? Very large.

61. Have you considered what the additional expense would be in consequence of supplying poles wherever requisite—how much would it exceed £100 a mile? I conceive that if you allow the contractor the option of using the forest trees, you will have the line constructed for a less sum than £100 a mile.

62. *By Mr. Cooper*: Are there any particular parts of the line where there are many miles of plain on which there is no timber at all—is there any portion of the line where no timber is to be got without carrying it many miles? I could not tell you what distance the poles might have to be conveyed, because we did not go into the bush to make observations. We only made our observations along the main line of road, and inquiries at different places; and I presume, from what we were told, that on a considerable part of the line between Goulburn and Albury the posts would require to be conveyed perhaps twenty-five or thirty miles. In some places it will be necessary to put posts entirely, because there are no trees at all.

63. *By Mr. Fanelett*: Taking all these circumstances into consideration, the spaces where there are no trees, and allowing the contractor the option of using poles or trees wherever he found the trees available,—the cost, in your estimation, would still be under £100 a mile? It would.

64. That would include the expense of conveying the poles to the different places where they might be required? Yes.

65. *By the Chairman*: Of what size would it be necessary to have the poles? According to the usual specification, they should be about six inches in diameter, and twenty-five feet in length, seven feet being sunk in the ground.

66. *By Mr. Hay*: I suppose it is not necessary that they should be quite straight? No, it is not. Many of the poles in Victoria are not perfectly straight. It is only a question of appearance.

67. Can you mention any part of the line where you would have to cart such timber twenty-five miles? At several places our inquiries led to that conclusion, and I ventured to name that distance as a sort of average conception of what we might have to do along the line of road from Goulburn to Albury. In some places where there are ridges, timber might be obtained close to the line; but there is a great deal of flat country between Albury and Goulburn, where none of the ridges afford suitable timber. There were very few isolated places where we could see suitable timber.

68. You might not have seen it from the road, but it does not consist with my knowledge of the country that there are many places where you would have to cart it twenty-five miles? We did not receive satisfactory information to the contrary, from a great many people of whom we inquired.

69. *By Mr. Macarthur*: Are you aware whether, in any part of the Victorian lines, they have substituted growing trees for poles? Mr. McGowan informed me that he had done so, when he wished to throw the line to a greater elevation; but the specifications are for poles only. He said that the line might be made equally efficient by means of forest trees.

70. *By Mr. Hay*: Have you taken into account the necessity of charring the posts before placing them in the ground? Yes.

71. What is the distance from post to post? There are thirty posts to a mile; that is about sixty yards apart.

72. Do you know to what distance on either side the trees are cleared away, in carrying a line of Electric Telegraph through forest country in America and elsewhere? I think the specifications usually mention twenty feet on either side the line; but you must be aware that twenty feet would be very little protection if a tree were to fall.
73. Or even in a gale of wind when branches might fall? Every branch that threatens danger should be removed.
74. By falling perpendicularly? Or by being blown a short distance. Twenty feet is a very short distance, but the expense would be excessive if you were to require much more.
75. *By Mr. Finckell:* When you speak of clearing, you mean merely felling the trees, not taking out the stumps? That is all.
76. Would you suppose that the revenue arising from this line of Telegraph, if completed, would be twelve per cent. on the amount expended? That is an estimate made by Mr. McGowan, the Superintendent of Telegraphs in Victoria, calculating the number of messages that might be passed from place to place.
77. Has he calculated from the actual result of any Telegraph in Victoria? I presume he has. I have submitted that estimate to mercantile men here, who seem to conceive the number of messages not over estimated.
78. *By the Chairman:* Have you travelled along any of the lines of Electric Telegraph in Victoria? I have travelled along the line from Melbourne to Sandhurst.
79. Does that go through a timbered country? Part of it is heavily timbered.
80. Was Mr. McGowan, or any one else connected with the Telegraph, in your company? Not at that time.
81. In your conversations with persons connected with the Telegraph there, were you ever told of any outrage or accident to the line? I never heard of any outrage having been committed; but I heard of a tree having fallen and broken the line to Geelong.
82. Do you know what was the extent of the damage, as to the delay of the communication, and as to the cost of repairing it? The cost of repair was insignificant, beyond sending a man to mend the wire.
83. I suppose there would not be more than a delay of a day or two in the communication? There could hardly be more.
84. *By Mr. Hay:* How is the wire united in case of accident? A small instrument is used for the purpose of bringing the two ends together, drawing them, and lapping them over and soldering them together. It can be done in a very short period of time.
85. If, in passing through forest country, the wire were broken in several places, would it not be attended with considerable delay? A new piece of wire might be run as fast as two or three men could work at it.
86. *By Mr. Cooper:* You spoke of line-men being employed to go up and down the line—would it not be their office especially to ride up and down to find out where these accidents had happened? It should be a duty of the police to report any accident. It is well known at the office when any accident has happened, because there is an instant stoppage of the communication.
87. I thought the line-men were employed for that purpose? They are for something of the kind. They patrol the line, and do any particular work that may be required from time to time; but when there may be fifty miles or more between the stations some delay might easily occur.
88. *By the Chairman:* What height is the wire raised from the ground? About eighteen feet, or a little more. The posts are twenty-five feet long, they are sunk seven feet in the ground, and the insulator is placed on the top of them.
89. Then no mischievous person could disturb the line without some considerable trouble? He would have to destroy the post.
90. *By Mr. Finckell:* It could not be done unintentionally? No. There might be one advantage in using the forest trees, that heavier wire might be made use of than that usually adopted; and the heavier the wire the better for the communication.
91. Would that add to the cost? Not materially.
92. *By the Chairman:* Supposing a line of Electric Telegraph to be constructed to the Murray, to what point on the Victoria side would there be a line soon constructed? There would be a line direct from Melbourne to the bank of the river opposite Albury.
93. To any other points? It would go to Melbourne by way of the Melvor diggings and Kilmore.
94. *By Mr. Hay:* Would the line go to Beechworth? I am not quite certain, but I conclude it would.
95. *By the Chairman:* How many miles did you say it is from here to Albury? The post makes it 367.
96. Then we may set down the expense of constructing this line at something like £38,000? That would certainly cover the expense.
97. From your knowledge of the Western District, what do you think would be the relative expense of constructing a line to Bathurst? I think the line to Bathurst might be constructed at a cheaper rate, because there are greater facilities for conveyance, and a population that could be employed on the work. There would be great difficulty and expense in obtaining labour, and in conveying men and stores about on the line to Albury, which difficulties would not be encountered on the Western Road.
98. What per cent. reduction would you make on the cost as estimated to Albury on that account? I dare say it might make a difference of something like one-fourth—twenty-five per cent.
99. That is to say, the line from Sydney to Bathurst could be constructed for £75 a mile if the other could be constructed for £100? I believe it might. There is a great deal of timber on the Bathurst Road that would be suitable for the purpose. In fact it is better timbered for that purpose than the other line of road.

- E. J. Spence, Esq. 100. *By Mr. Cowper*: What is the distance to Bathurst? I think it is 113 miles according to the mile-stone, but we always call it 120
- 2 Dec., 1856. 101. *By the Chairman*: If the Government were to decide upon constructing a line of Electric Telegraph, would you be inclined to tender for it? I would.

FRIDAY, 5 DECEMBER 1856.

Present:—

Mr. IRVING, | Mr. MACARTHUR,
Mr. PARKES.

HENRY PARKES ESQ., IN THE CHAIR.

Saul Samuel, Esq.

Saul Samuel, Esquire, called in and examined:—

5 Dec., 1856.

1. *By the Chairman*: You have been paying considerable attention lately to the subject of constructing an Electric Telegraph between here and Melbourne? I have.
2. Will you have the kindness to state to the Committee about what time this subject had occupied your attention? About six months. I have paid two visits to Melbourne in consequence.
3. Did any particular circumstances attract your attention to it in the first instance? Yes. It was first suggested to me by a friend, who is a large, and, I believe, the only importer of wire and telegraphic instruments; in fact he has imported them for the Victoria Government. He applied to me and my friend Mr. Spence, to move in the matter here, with the endeavour to get either the merchants or the Government to take it up. In consequence I turned my attention to the subject, and endeavoured to ascertain the practicability, as well as the advisability, of establishing a line of Telegraph in this Colony.
4. What were the steps first adopted by you with that object? The first step I took was to visit Melbourne, to ascertain the manner in which the line was constructed there, and also the mode of working it. Mr. Spence and myself acted jointly. We placed ourselves in communication with Mr. McGowan, the Superintendent of Electric Telegraphs in Victoria, who very kindly furnished us with all the information in his power, and we then determined on calling the attention of the Government here to the matter, thinking it much better that they should take it up than that it should be left to the merchants of Sydney to do so, particularly as the Government of Victoria were already acting in the matter, and had constructed a considerable amount of Electric Telegraph.
5. Was this on the occasion of your first visit? Yes.
6. What followed? I then communicated with Mr. Donaldson, who was at that time Premier, and he expressed his anxiety to take the subject up, and thought the Government were willing to do so. I also communicated with Mr. Cowper afterwards, and with Captain Towns and other merchants of the City, and in consequence of the great desire evinced to see a line of Telegraph in operation, we determined upon going overland to Melbourne, to make ourselves acquainted with the line of country, to see whether a line of Telegraph really was practicable, and whether it could be done at such a price as to induce the Government to take it up.
7. Was your object at this time to undertake the construction of the line as a private speculation? We thought in the first instance that it would be advisable to get up a company for the purpose, but afterwards we came to the conclusion that it would be better that the Government should do it, and we thought of getting the contract for its construction from the Government, having the whole of the instruments and wires at our command, through our friends.
8. The result was that you determined to go overland to Melbourne, with a view of ascertaining for yourself the practicability of establishing a line of Telegraph? Exactly.
9. Will you have the kindness to state, in substance, your experience on the line of road to Melbourne, and your opinion of the practicability of the work, its utility if constructed, its probable cost of construction, and the probability of its being remunerative? It certainly is practicable, there is no doubt about that, but I think that instead of adopting the plan pursued in Victoria, of carrying it on by a line of posts, it might be more advisable, as being more economical, to construct it by means of the forest trees. In some places it will be compulsory to use posts in carrying it across plains, or where the country is thinly timbered. A line of trees would certainly be more economical, for in many places there would be considerable difficulty in getting posts; they would have to be carted a considerable distance, and the ground in which they would have to be placed, being in many places hard rock, would involve great expense in sinking. Altogether, I think, the forest trees present great advantages; it might be done more expeditiously, and certainly at less cost. The advantages of an Electric Telegraph to Melbourne would be very great,—one of the greatest would be the very speedy communication between the merchants, which would tend greatly to benefit the commercial interests of the country. Then, again, it would act as a check to crime, and would assist the police immensely; in fact it does in Victoria. By adopting the forest trees I certainly think the cost would not exceed Mr. McGowan's estimate, which is £85 a mile from here to Melbourne, exclusive of wire and instruments.
10. *By Mr. Irving*: In speaking of the forest trees, would you understand hardwood? Of course you must take the trees as they come. I do not see why a gum would not stand as well as another tree. You would take the top off, and fix the insulator to which the wire is attached to the side of the tree instead of the post.
11. *By Mr. Macarthur*: You do not propose to kill the trees? No; I think they would stand longer if they were not killed.
12. A gum tree would stand better? I think the principal timber we should have would be stringy bark and box. If posts were adopted, I should not think of taking gum, because the timber would not stand, unless it were blue gum, which you could not get in that country.

Saul Samuel,
Esq.

5 Dec., 1855.

13. What wood would you generally get in the western country? I think you would get stringy bark and box all the way.

14. What I mean by the western country is the country away from the sea-coast beyond the dividing range? I would take box if I could get it; it is the most durable timber.

15. There is the same description of forest nearly all the way to Victoria? Yes. The difficulty is that the timber is not straight, and therefore I would adopt the forest trees, as the posts would have to be carted a considerable distance, though it would not be quite such an elegant construction as if the posts were all symmetrically arranged in a perfect line.

16. By the Chairman: There are no peculiar impediments in the way of the construction of a line of Telegraph? None whatever. The only difficulty would be one which happens in every country where the line is carried through forests, the occasional interruption of the communication from trees falling across the line.

17. You have taken into consideration the clearing of the line for a short distance on each side of the wire? The road would form a clearance on one side, and on the other side any branches that presented immediate danger should be cut down. But in many places it would be utterly impossible to clear the whole of the trees at any distance from the line. I would mention the country near Bargo, which is a dense stringy bark forest, running close up to the road; nor indeed do I look upon it as necessary; in Victoria they do not do it.

18. The very density of the growth would be a protection against serious accident, would it not? To a great extent. There certainly is no great impediment to the line. This would be a difficulty, but it is one that prevails in every other country where the wire is carried through forest country. In America, in 1853, they had 80,000 miles of Electric Telegraph, and that all carried through forest.

19. From your examinations and inquiries, you are of opinion that a line could be constructed from here to Albury at a rate under £100 a mile? I think you might safely calculate that it could be constructed at £100 a mile, and if the forest trees are used instead of posts, under that sum.

20. You have been a number of years connected with trade in Sydney? I have.

21. And also more or less with the trade of the other Colonies? Yes.

22. Have you any intimate relations with the trade of Melbourne? To a certain extent.

23. Do you think, from your knowledge of the amount of mercantile communication, that a line of Telegraph between here and Melbourne would pay its expenses? Mr. McGowan has furnished you, I think, with an estimate of the probable cost of working it, and the probable revenue, and I have been looking at that, and I do not think it has been over-estimated. I will go into the detail of his estimate if you will allow me. He says there will be about 50 messages each way daily between Sydney and Melbourne; now I do not think that is at all over-estimated, taking into consideration the press.

24. That is exclusive of the press? That is exclusive of the press; that is not calculated at all; but taking that into consideration, for it would perhaps make up for any deficiency in the presumed amount of mercantile messages, I do not think the number is over-estimated. He reckons 20 messages from Melbourne to Beechworth, and I certainly think between those two places they would far exceed that number. 20 from Beechworth to Melbourne is a moderate calculation; but 20 from Sydney to Beechworth I think is too much, though the amount is insignificant, and might very well be put out of the calculation. I do not think, taking this estimate as a whole, that Mr. McGowan has over-estimated the number of messages daily. On the contrary, I think he is rather under than over the mark. If we were hereafter to reduce the charges he sets down here, (these would do to start with,) perhaps the same thing would occur as in America, namely, that the desire to communicate in this way would increase, and consequently the profits would increase also. There is one suggestion I would throw out to the Committee and to the Government, which I think is important. In a communication I had with Mr. McGowan I put it to him whether it would not be possible for him to take the superintendence of the whole of the line between Melbourne and Sydney, which idea he fell into. It occurred to me that it would be desirable, because it would lessen the expense to the two Governments, which, perhaps, is the least of its advantages, and because there would then be an uniform system of communication. You would have the same cyphers, which indeed would be inevitable, and you would also be able to procure competent men to work the instruments, whom he would furnish, he having instructed a number of young men under his own eye. You would also have the advantage of his great experience, and altogether I think it would be the best arrangement that could be entered into, to give him the management of both lines in the two Colonies.

25. If Telegraphic communication were established through Victoria, with Van Diemen's Land and South Australia, would not the number of messages along our line be greatly increased in consequence? No doubt of it. Of course you are aware that the South Australian Government are now moving actively in the matter. They have their line surveyed; and Mr. Todd, the Superintendent of Telegraphs in South Australia, whom I met in Victoria, (indeed he was present at most of our communications with Mr. McGowan,) has reported upon the practicability of it, and the Government intend taking it up immediately.

26. Looking at the question of constructing this line of Electric Telegraph with the ultimate view that it will, within a very short distance of time comparatively, connect us with Adelaide, Launceston, and Hobart Town, as well as with Melbourne, can there be a doubt as to the certainty of its very soon repaying the cost of its construction, as well as the working expenses, by the increased traffic along it? Not in my mind. I am perfectly satisfied it will very speedily return the cost of its construction.

27. And of course it will very much facilitate all mercantile operations with Victoria, South Australia, and Tasmania? Yes, no doubt of it.

28. On the other hand, when the other Colonies have constructed lines of Telegraph, we, being left out, should be at a great disadvantage? We should; more particularly as the

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Murray is now being navigated, and the Adelaide people have the advantage of sending supplies by water, whereas we have to send them over bad roads, with considerable difficulty.

29. After the consideration you have bestowed on the subject, and your experience as a mercantile man, are you of opinion that it is a work of urgent necessity for the Colony? I am. I think it should be commenced immediately. The Government of Victoria would be quite ready to meet us on their side, for on our trip overland we met the Surveyor on the Victoria side close to the river, he having just marked out the line for the Electric Telegraph from Melbourne to Albury. It was originally intended to construct the line from Sandhurst to Belvoir, but now they have determined on carrying it direct from Melbourne to the Victoria side of the Murray.

30. You have resided for some years in the Western District at or near Bathurst? Yes, I have resided in the Wellington and Bathurst country a great number of years.

31. You are well acquainted with that district and the intermediate districts? Yes.

32. Do you think it would be a desirable thing to connect Bathurst with Sydney by an Electric Telegraph? I think it would be most desirable, more particularly as I believe we have vast gold fields there which will be thickly populated before many years are over. It is a very important district; trade is increasing rapidly, and the country becoming very thickly populated. I believe a line of Electric Telegraph to Bathurst would not only pay, but could be constructed at much less cost than to the southward.

33. It has been stated by Mr. Spence, in his evidence before this Committee, that on account of the greater degree in which the line of road to Bathurst is settled, labor could be obtained more easily, and therefore the line could be constructed at considerably less expense? I think it could be constructed for less, but I am not prepared to say how much, more particularly if the forest trees are adopted; but if posts are adopted it would be an expensive line, because the country is all rock over the mountains. There would be a less distance to cart the material than there would be from here to Albury, and altogether the advantages for construction are greater to the westward. I believe the line would pay very well; in fact, the sum it would cost would be so small, that a very small return would repay the outlay.

34. Is there any other point to which you think it would be advisable to make a line of Telegraph? I think after a line is constructed to any particular point a desire would prevail in every portion of the country to have it, and I believe the price at which it could be constructed is so moderate, and the advantage to be derived so great, that lines to all parts of the country would speedily be taken up. I do not see why they should not be taken up by private enterprise, in the same way as in America, where there are rival Telegraph Companies; but for my own part, I would rather the Government should take it up than any private company.

35. Is it within your knowledge that a contract for the construction of a line of Electric Telegraph could be at once entered into? Yes. I may say that Mr. Spence and myself would be prepared to contract for its construction.

36. If tenders were invited you would be prepared to send in a tender? We should.

37. There would be no difficulty in getting proper persons to superintend the working of the Telegraph when once constructed? I do not think there would be the slightest difficulty. We put that question to Mr. McGowan, and he pointed out to us that he was opening fresh lines, and had young men perfectly competent, whom he had taught himself.

38. What instrument has been used in Melbourne? Morse's Recording Instrument. It is very simple, and the use of it is easily learnt. It is the one with which only one wire is required for communicating with a great number of places.

39. Is it the same class of instruments that are now obtainable, as you have mentioned, in Victoria? Yes.

40. By Mr. Macarthur: Are you aware whether any steps have been taken towards carrying a line of Telegraph from Melbourne to Tasmania—whether any surveys have been made, or any measures taken to determine upon the line? I may mention that the line between Hobart Town and Launceston and George's Town is now in course of construction; and when I was in Victoria Mr. Champ, the Colonial Secretary of Tasmania, was there, and I was informed, this was one of the subjects that he was treating with the Government about. As far as the two Governments are concerned, I believe it is settled that there shall be a line of communication from Queenscliffe in Victoria, to King's Island, and then across the island to the nearest point on the coast of Van Diemen's Land.

41. Will any great extent of sub-marine Telegraph be required? Sixty miles, I think, to King's Island, and about the same to Cape Grim. I have noticed that the Acting Governor, in his speech to the Legislature refers to that; he mentioned that it is the intention of the Government to construct lines of Telegraph to the borders of Victoria, and to place themselves in communication with the Governments of the other Colonies, with a view to connecting them with Melbourne by means of the Electric Telegraph. Mr. McGowan mentioned to us, in the last interview we had with him, that in this month or next, they intended to advertise for tenders for the construction of the lines both to this frontier and the Adelaide frontier and that the Government intended doing that, and taking the chance of getting the money voted, they were so confident that the amount would be voted by the Legislature.

42. I suppose they have not the materials at present for a sub-marine Telegraph? No, but they have been sent for; the gentleman to whom I referred before, has sent for them, and he supplies the Government with them. In fact, he has undertaken the construction of the line in Van Diemen's Land. He has taken it at a moderate price, his anxiety, being a large importer of the material, is to get Telegraphs generally adopted. The country in Tasmania presents great advantages for the construction of a line; they have a beautiful road across the island, and fine timber; in fact, they can fall one tree of sixty or seventy feet in length and get three posts out of it, which presents great facilities; whilst on our side, we have great difficulty, in most places, in getting the proper description of timber. I have not met with any authority upon the subject, but I have heard from Mr. McGowan that in Canada

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- and the United States great lengths of Electric Telegraph are constructed upon the forest trees. Seal Samuel, Esq.
43. Mr. McGowan states the expense of maintenance and repairs to the line at £1,000 yearly; I suppose you have scarcely had an opportunity of forming an opinion on that point? 5 Dec., 1856.
- No. It would entirely depend on circumstances. There would occasionally be casualties happening. I think the police might assist in keeping the line in repair, and I think some arrangement might be made with the publicans along the line of road; there is a public house about every ten miles, and it would be very easy for them to undertake it; they have generally a spare man about the place, and it would only involve the necessity of sending him now and then each way along the line. The wire is very easily repaired.
44. It is probable that this estimate has been formed from Mr. McGowan's experience in Victoria? Yes. I think the expense of repairs would hardly be so heavy here. There is one item in that estimate which I think very high, £2,000 for rent of offices. In Sydney £2,000 would build offices sufficient for the City alone. Of course offices would be required at every place where there is a station, and there should be a sleeping apartment for the man in charge and a messenger; and it would be necessary that there should always be a man on duty, even during the night.
45. Building is by no means so expensive in this Colony as it is in Victoria? No, by no means. At Goulburn you could always rent a cottage, but in Sydney it would be desirable to build a place, or you might rent rooms in the Exchange, which would be a very proper place. I think £250 a year would rent suitable offices, for a small house anywhere in the centre of the City would do. All the clerks need not reside in the place—only the chief clerk, and always one clerk to attend to the communication. I think it would be a most excellent arrangement, if it could be carried out, as I before suggested, to give Mr. McGowan the superintendence of the whole line, as he understands the subject so well, and could furnish you with competent men, who might be prepared in the Telegraph offices at Melbourne. That of course is a matter for the consideration of the two Governments; but it would be most desirable to have an uniform system of communication, with the same instruments and the same mode of insulation.
46. Wherever a railway runs I presume you would recommend that the Electric Telegraph should follow it? It is absolutely necessary, so that in case of accident on the railway immediate assistance might be forwarded, or in case of any interruption of the line immediate notice could be given at the various stations, so as to prevent accident.
47. *By the Chairman:* Have you examined the insulators used on the line in Victoria? I have.
48. Of what kind are they? Merely of earthenware, on the top of a wooden peg, which is prepared with a composition so as to make the wood a non-conductor.
49. Are they quite effective? Quite effective. Of course if we adopt a line of trees we shall have to adopt a slightly different mode of fixing the insulators; they are placed on the tops of the post, but must be attached to the sides of the trees.
50. I thought they were generally attached to the side of the posts, and protected by a small roof-like projection? Some few are, but not generally; they are usually on the tops of the posts. Earthenware is such a capital non-conductor that it is generally adopted for insulators.

Arthur E. Dodwell, Esq., called in and examined.

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1. *By the Chairman:* How long have you been in this Colony? About nine months.
2. You came here from England? Yes.
3. In England you were employed in connexion with the Electric Telegraph? Yes.
4. This Committee has been appointed by the Legislative Assembly to inquire into the subject of the Electric Telegraph generally; and they would feel obliged if you would state, for their information, where you were employed, and how long you were employed in connexion with the Telegraph in England? I entered the service of the Electric Telegraph Company, as nearly as I can recollect, in the middle of 1847; that was at the commencement of the Electric Telegraph Company's operations. In the first instance I was engaged in the Engineer's Department, and there, of course, had an opportunity of becoming acquainted with the uses of the instruments, as well as the construction of the lines. I subsequently came to Adelaide and Port Phillip, and, after a short stay, returned to England and re-entered the service; going to Birmingham after a short time, as Manager of the Station there, and also of the Midland District.
5. How long did you remain in the capacity of Manager of the Birmingham Station? About fourteen months.
6. What instruments were used in connexion with the Electric Telegraph Company's lines? The double needle Telegraph; Cook and Wheatstone's Patent, principally.
7. Can you inform the Committee what is the extent of the Telegraphic communication in England—the number of miles? I really cannot at the present moment say exactly; it would involve a reference to Bradshaw's Guide; any one could see it there.
8. You could not, from your own private information, give any statistics to the Committee, as to the extent of Telegraphic communication in England, in point of distance, and also in point of business done? It would be impossible for me to give any answer of any worth, at the present moment.
9. You said you had been at Port Phillip? Yes.
10. Was the line of Telegraph between Geelong and Melbourne in operation then? Nothing was thought of it then.
11. In what year was this? In 1851.
12. Has your attention been directed to the subject of uniting the different parts of these Colonies by electric communication? Yes.

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13. The line between Sydney and Melbourne, for instance—has that engaged your attention? Yes, I have thought of it, seeing that the subject has received some consideration.

14. Have you formed any conclusions in your own mind as to what would be the best course for establishing a line between here and Melbourne? With regard to the route, I think the better plan would be to make use of the Railway Survey, and let the line be laid so that it could be followed by the railway, on its being extended. I think the principal towns should have the facilities afforded by the Telegraph, for police purposes, as well as for general matters of business.

15. Does your practical knowledge of the working of the Telegraph in England enable you to give any estimate that would be at all valuable, as to the construction of a line between here and Melbourne? I have roughly estimated the cost of a line from here to Albury, (which I take to be 315 miles) including the cost of the necessary stations and apparatus, to be about £30,000.

16. Did you give the matter much consideration in forming this estimate? I did. The first thing I calculated was the probable cost of the conveyance of stores; and for that purpose I made inquiry as to the cost of carriage, and also with regard to the kind of country through which the line would have to pass; because it is a well known fact, that a great part of this line is destitute of the quality of timber that could be used for posts and poles, and these would have to be drawn from a distance and set up. I have therefore, with regard to this point, taken into consideration the cost of labor and carriage. The cost of insulators, to be purchased in England, and instruments also—either Cook and Wheatstone's or Morse's, would be about £9 each. Then there is the cost of stations, setting up desks, and so on. I have taken some little trouble to put it together, and I think that £30,000 for 315 miles will not be far wrong.

17. In your calculations, did you contemplate using forest trees instead of posts, to any extent? No, the erection of posts in every case.

18. Have you had any suggestions made to you, as to the desirability of making the forest trees available as they stand? Yes, I have heard it suggested.

19. Do you see objections to that? I see many objections to it.

20. Will you have the kindness to state those objections? In the first place, many trees will fall without the slightest notice; young trees frequently fall in the bush because the roots have not a solid hold of the ground; old trees are objectionable to fix anything to, and I think it would be no saving whatever. I should be disinclined, in fact, to make use of the old trees.

21. You think there would be greater liability to accident from trees falling? I think the falling of the trees would be one objection. It suggested itself to me that there was no necessity for any scheme of that kind, and that it had its disadvantages.

22. It was thought it would be economical to make the live trees available where they present themselves? Experience would be the best guide in such a matter; but I think, unless it has been done at present, very little value could be attached to the suggestion.

23. It has been given in evidence that it has been done to some extent in Victoria? If to any great extent, and if any saving has been effected, it may be worth consideration; but I had not heard that such has been the case, and therefore I dismissed the matter from my mind.

24. In your calculation did you go upon the basis of importing all the material direct from England? With regard to insulators and instruments, yes.

25. You had no information before you at the time that there was sufficient material—wire, instruments, and insulators—in Victoria for the purpose? I have not heard it.

26. The instrument now being used in Victoria is the one known as Morse's Recording Instrument? Yes.

27. Do you think that is as good for the purpose as any other? Undoubtedly it is a good instrument—it has been used for years; but the Electric Telegraph Company did not use it. The instrument is a very good one. I think it might be worked very well indeed here; but I consider defective insulation and obstructions are more seriously felt in its use than in the use of the Double Needle Telegraph. It is more liable to defect and obstruction.

28. Will you have the kindness to state what is the difference in the mode of insulation between Morse's instrument and the one to which you have referred? The insulation must be the same. When I say greater care must be taken, I mean that obstruction in the case of Morse's Telegraph would be of more consequence than any contact where the Needle Telegraph was used. With Morse's instrument you receive the message by means of signs, (dots and strokes on paper), and with the Needle Telegraph by the movement of the needles. You are more easily able, in the event of any contact between two wires, or any obstruction from atmospheric influence, or anything of that kind, to make out what the clerk has sent you from the needle instrument than from the printing instrument, because the signs would be running into each other in such an absurd manner that you could make nothing of them. In the event of contact, when the double needle instrument is used, you could disconnect one wire, and work a single needle.

29. Is there any material difference in the cost? The cost is about the same.

30. Is the cost of superintendence the same? The cost of superintendence in any case would be the same.

31. You have some acquaintance now with the community of Sydney and the Colony generally—do you think an Electric Telegraph between Sydney and Melbourne would be remunerative, according to your experience of the business done, in comparison with the dense population and great traffic of England? Simply between Melbourne and Sydney it would not be of such very great value, but when it connects this Colony with other Colonies, I think it will be found greatly conducive to commercial convenience.

32. You are aware that steps have been taken to connect Victoria with South Australia and Tasmania, by means of the Electric Telegraph? I am.

33. Are you of opinion that if this proposal be carried out, and New South Wales be excluded from the system, we should be at great disadvantage—in fact, that it would be absolutely necessary, if these other Colonies were connected, that we should be included in that system? I think it would be greatly to be deplored if New South Wales should be cut off from the benefits that would arise from Telegraphic communication. The other Colonies would enjoy great and undoubted benefits, both social and commercial; and it would be an absolute loss to this community if the other Colonies were to outrival it in this respect.

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34. What I meant more particularly was this—that in all ordinary mercantile operations, in the transactions of business between the mercantile men of the respective communities of these four Colonies, we should be placed at a disadvantage which nothing could compensate, if we had not the same means of communication as they would have, if any system of this kind were originated? I think so, decidedly.

35. The fair competition of trade would be seriously interfered with? I think it would be, detrimentally to this Colony.

36. *By Mr. Macarthur:* Supposing all the other principal cities of Australia to be in communication by means of the Electric Telegraph, and Sydney to be shut out from that means of communication, would it not exclude her from being the commercial emporium of this part of the world? I think so, certainly; but the experience I have of the Electric Telegraph would not enable me to give such an answer as a Colonial merchant would be able to give; he would be better acquainted with the nature and extent of the trade between this and the other Colonies, and he would be able to form some idea of the probable consequences of our communication being so much more protracted than that of the other Colonies, and whether the amount of business would not consequently suffer, while in the other Colonies it would be likely to increase.

37. *By the Chairman:* Would you state to the Committee what was the character of the greater number of messages sent by the line of Electric Telegraph, on which you were engaged, between Birmingham and London, Manchester, Liverpool, York, and the other places with which it was in connexion? Between Birmingham and London the messages were of a varied character; they related to the Stock Exchange business and to manufactures; there were a great number of private messages and police messages; but the market reports formed the principal messages that passed between Birmingham and the other principal cities and towns.

38. Were the messages customarily of a social or mercantile character? By far the greater proportion were mercantile.

39. I suppose there was a fluctuation in the number of social messages? Yes.

40. And a still greater fluctuation in the police messages? They certainly varied in number at times. The police messages were exceedingly frequent. Birmingham, from its central position, is liable to have messages pass through it from, and to, every part of the country. The number of police messages varies greatly with the state of the surrounding districts. If the manufacturing districts are disturbed police messages are very frequent. Races also generally increased the number of police messages; and there were at such times a great number of sporting messages sent by the Telegraph.

41. *By Mr. Macarthur:* The Telegraph was used, I suppose, for communications of public interest generally? All the public news used to come by it from the Stock Exchanges and the Corn Markets; also extracts from the London morning papers, and anything interesting in the second and third editions; then there were communications from the continent by the Sub-marine Telegraph; all used to come down to Birmingham as the receiving point, to be transmitted to other places—Chester, Manchester, Warwick, and many other places.

42. *By the Chairman:* You do not know anything about the mode of construction and management of the Electric Telegraph in the United States? No, I do not, excepting as to some portions of their apparatus. I have seen specimens of glass insulators, and so forth, but that was some years ago; they may be different now.

43. Did you come out to the Colony with any view of being in any way connected with lines of Electric Telegraph here? No, I had no idea of it.

44. Your estimate, I find, is about £95 a mile for the line from here to Albury? About that.

45. Have you any further information which would be valuable to the Committee, or any other suggestions to make with reference to the mode of construction or management of lines of Electric Telegraph in this Colony? I should recommend, in the first place, that the Superintendent should be appointed by the Government, and that the contract be carried out under the supervision of that officer, so as to afford the Government a collateral guarantee for the proper performance of the contract. Uniformity in system is of infinite importance, and I think that the Superintendents of the Telegraphs in the various Colonies should meet (say quarterly) for the purpose of discussing all points that might arise, upon which a mutual understanding should exist, and for facilitating and improving the working of the system as regards economy and simplicity. A competent and vigilant superintendence, supported by a very stringent Act, would, I think, be ample protection against wilful injury to the line. Each Government Department using the Telegraph might be charged annually with a fixed sum, in consequence of which all messages on public service might be sent at any time when duly signed by authorized persons. A reduced tariff should exist for press messages. It appears to me that many subjects, both engineering and commercial, connected with the construction and management of a Telegraphic system, have not been alluded to in the correspondence relative to the Electric Telegraph lately published; I, therefore, beg to state, in conclusion, that in the event of Telegraphic communication between this and the other Colonies being decided upon, I shall be happy to afford my best assistance.