

# APPENDICES.

## APPENDIX A.

[COPY.]

62 | 2302.

Department of Electric Telegraph,  
Office of the General Superintendent,  
Melbourne, 18th December, 1862.

SIR,

In compliance with your direction that I should furnish you (for the information of the Legislative Assembly) with a statement as to the present position of the scheme for providing local telegraphic communication, submitted for the consideration of yourself and colleagues in July last, I have the honor to forward herewith copies of all the correspondence on the subject, and to state that, in accordance with your wishes, I conferred with the Honorable the Treasurer (subsequent to your departure for New Zealand), when it was decided that a remittance to meet the cost of the instruments, &c., should be forwarded, with instructions, to Mr. Childers, in London; this was accordingly done by the outgoing mail for August; it may therefore be reasonably anticipated that the various materials will arrive here within the first half of the ensuing year.

On receiving the requisite supplies, I shall lose no time in establishing the communication in the manner indicated by my letter of the 14th July.

It may eventually be necessary to extend the local communication, so as to embrace Brighton, St. Kilda, Prahran, Richmond, Collingwood, &c.; but previous to incurring expenditure for that purpose, I consider that it would be advisable to allow the less extensive amount of local communication already proposed first to develop its advantages, so as to afford some basis for determining the extent of any additional length of line likely to be required.

I have the honor to be,

Sir,

Your obedient Servant,

(Signed)

SAML. W. MCGOWAN.

The Honorable

The Postmaster-General,  
&c., &c., &c.

62 | 959.

Department of Electric Telegraph,  
Office of the General Superintendent,  
Melbourne, 14th July, 1862.

SIR,

With reference to our conversation on the 7th instant, relative to the advisability of placing the various ministerial departments of the Government in direct telegraphic communication with each other, I now do myself the honor to forward herewith a tracing showing the respective connections I propose should be made.

The instruments, conductors, &c., to be employed, would be the same as are now used by the London District Telegraph Company.

I have enclosed herewith a list of the articles which it would be necessary to import from London, and I would beg to suggest that the supply should be ordered through Mr. Childers, who, I believe, is acting as Agent General for the importation of articles required by the Railway Department.

I estimate the total cost of establishing the local communication as proposed at say £1500, in complete working order. The cost of its maintenance would not exceed £150 per annum, possibly much less.

The arrangement of the apparatus is exceedingly simple, and the mode of working may be acquired by any clerk of ordinary intelligence after a few days instruction and practice, so that it would not be necessary to incur a charge for manipulators specially.

Should the Government approve of my proposition, I would strongly recommend that a communication on the subject should be made to Mr. Childers, by the first outgoing mail, conveying at the same time a remittance, to the amount of say £1000, to cover the cost of purchasing the requisite materials.

This would admit of the shipment being made without delay, and should no contingency occur to retard the receipt of the various articles, I am of opinion that the work might be in actual use by the middle of April next.

The accompanying statement shows the offices at which I would propose to place instruments, and the number of communicators which would probably be required at each locality.

I have the honor to be,

Sir,

Your obedient Servant,

(Signed)

S. W. MCGOWAN.

The Honorable

The Postmaster-General,  
&c., &c., &c.

[COPY.]

LIST OF OFFICES AT WHICH IT IS PROPOSED TO PLACE INSTRUMENTS, SHOWING THE NUMBER OF COMMUNICATORS AT EACH LOCALITY.

Indication of Office.	Number of Communicators.	Remarks.
Parliament Houses .. .. .	3	The cost and general supervision of the several instruments (as to adjustments, &c.) would be conducted through a competent officer of the telegraph service, who would visit the offices for the purpose as occasion might require. (Signed) S. W. McG.
Chief Secretary's Office .. .. .	2	
Treasurer's Office .. .. .	2	
Attorney-General's Office .. .. .	1	
General Post Office .. .. .	1	
Office of Mines .. .. .	1	
Audit Office .. .. .	1	
Commissioner of Railways' Office .. .. .	2	
Railway Station, Spencer-street .. .. .	1	
Crown Lands and Survey Office .. .. .	1	
Public Works Office .. .. .	1	
Office of Chief Commissioner of Police .. .. .	1	
Custom House .. .. .	1	
Government Storekeeper's Office .. .. .	1	
Central Telegraph Office .. .. .	1	
General Superintendent's Office .. .. .	1	
	21	

[COPY.]

General Superintendent Electric Telegraph, in reference to proposed arrangement to place the various Departments in direct telegraphic communication with each other.

Return to the Honorable the P. M. General, who will be good enough to obtain the concurrence of the Cabinet, or otherwise, to this scheme on Friday next; and if approved, the outgoing mail may convey the necessary order to Mr. Childers.

(Signed) J. O'S.  
21 | 7 | 62.

Returned to the Honorable the Postmaster-General, as directed.  
22 | 7 | 62.

(Signed) J. MOORE.

The Cabinet approves of this project. It is referred to the P. M. General and the Treasurer to settle this as the funds will permit. Some members of the Government would wish to include the Supreme Court and other public institutions. If Dr. Evans should be absent, Mr. McGowan can at once confer with the Treasurer.

(Signed) G. S. EVANS.  
25 | 7 | 62.

[COPY.]

62 | 4413.  
SIR,

Treasury, Melbourne,  
27th August, 1862.

Referring to your minutes of the 25th ultimo on the proposal by the Superintendent of the Electric Telegraph Department for the establishment of telegraphic communication between the several Government offices, I am directed to state that the Treasurer has forwarded to the Colonial Agent-General a remittance to meet the necessary expenditure in the purchase of instruments, &c., and has also forwarded to Mr. Childers a copy of Mr. McGowan's letter, with the list of articles required (contained in that communication), which he has requested Mr. Childers to procure and forward to this colony.

I have the honor to be,  
Sir,

Your obedient servant,  
(Signed) W. H. HULL.

To the Honorable  
The Postmaster-General,  
&c., &c., &c.

[COPY.]

17, Prince's Gardens, London (W.),  
26th November, 1862.

MY DEAR SIR,

I hope you will approve of what I have done in the matter of the telegraphic material required for the Melbourne offices. You will see by my official letter to the Treasurer that I have ordered twenty-six of Wheatstone's instruments with the latest improvements, and seven miles of the wire which you ordered. I arranged with Mr. Brereton (the consulting engineer for Victoria railway purposes) to have his assistance, and the advice of Mr. Latimer Clark; and I enclose a memorandum showing the comparative advantages, prices, &c., of the different instruments and wire from which we had to make a selection, and the reasons for our decision.

We all took some trouble in the matter, and personally inspected in operation the several systems. You may perhaps hear that there has been some question at Sydney about the Wheatstone's instrument sent there, but their fitness (in their present shape) for general use is now thoroughly established in England, which is more than can be said of any other, and I do not doubt that under your superintendence they will answer as well as in England; in unskilful hands their somewhat complicated internal construction is no doubt an objection.

The price formerly was £40, or £36 net; it is now only £22 10s., but your remittance is still insufficient to purchase all you require, and I have requested Mr. Haines to send an additional £150, or to give me a sufficient credit on the colonial agents; and meanwhile I have ordered only seven instead of nine miles of wire. May I ask you to see to this.

Professor Wheatstone showed me his automatic instrument with the last improvements. I should conceive that on your single wire lines it might be worth trying, especially for newspaper purposes; its speed is very great, and it appears to work very truly. The professor is now adapting it to the Morse system, but his plan is not yet brought to perfection. I send you an alphabet as it goes into the machine (1), the same recorded in its own character (2), and in the Morse character (3).

Believe me, my dear Sir,

Yours, very truly,

(Signed)

HUGH C. E. CHILDERS.

Enclosure No. 1.

[Copy.]

18, Duke street, Westminster,  
24th November, 1862.

MEMORANDUM AS TO TELEGRAPHS FOR MELBOURNE.

List of prices received from manufacturers, November, 1862.

INSTRUMENTS.						£	s.	d.	£	s.	d.
<i>Siemens, Halske, and Co.</i>	Instrument	...	...	...	...	18	0	0			
	Alarum	...	...	...	...	3	5	0			
	Wire and screws	...	...	...	...	0	15	10			
	Net	...	...	...	...				22	0	10
<i>H. Wilde.</i>	Reciprocating instrument	...	...	...	...				18	0	0
	Treadle ditto	...	...	...	...				30	0	0
<i>W. T. Henley.</i>	Instrument	...	...	...	...	18	0	0			
	Alarum	...	...	...	...	2	10	0			
									20	10	0
<i>Wheatstone.</i>	(26 taken)										
	Instrument and alarum complete, £25 (less 10 per cent.)	...	...	...	...				22	10	0

WIRE.

<i>Siemens, Halske, and Co.</i>	3 conductors, each a strand of 3 wires, insulated, coated, and sheathed, per mile	65	0	0
	1 conductor of 7 wires, ditto, ditto, ditto	48	0	0
<i>W. Silver and Co.</i>	3 wires (each insulated), covered	29	18	0
	7 ditto, ditto, ditto	65	0	0
	12 ditto, ditto, ditto	109	0	0

On the first page is a list of the quotations for alphabetical telegraphic instruments and wire, which have been obtained from the several manufacturers named.

Mr. Siemens, Professor Wheatstone, and Mr. Henley's representative have been seen, and their several instruments examined. Mr. Latimer Clark has been consulted professionally, and his advice obtained in respect to the selection of the instruments to be adopted.

The instrument lowest in price on the list is one of Mr. H. Wilde's, with a reciprocating motion (see diagram and printed particulars herewith). It is a recent patent, and does not appear yet to have been much adopted. In working it both hands are employed and the sliding backwards and forwards of the pointer would not be so easy as a rotary motion. The experience had of its working is insufficient to warrant its being recommended for exportation. The other instrument of Mr. H. Wilde's is similar to Professor Wheatstone's, only worked by the foot instead of the hand, and more expensive than the Professor's.

The instrument next in order of price is Mr. Henley's (see printed diagram and particulars herewith). This is an extremely simple and beautifully finished instrument. It works almost noiselessly, and the transmitting portion is so strong and simple that it presents little liability to derangement and great facility for repair. Some of these are now being used in the London District Telegraph offices, and Sir Charles Bright, one of the directors of the company, states, give satisfaction. In a trial of them, with a view to decide respecting the present order for Melbourne, they were not found, when used by unpractised hands, to afford good results. The instruments at the Exhibition, and three pairs sent by Mr. Henley to this office, were experimented upon.

There appears to be a danger of tripping inherent to all instruments where the current is not uninterruptedly maintained. In the present instance, if the operator start or stop slowly, the requisite number of currents will not have been created, and thus the instrument become deranged.

Another evil appeared to be the difficulty of stopping dead upon the desired letter. When the horizontal wheel is put in motion, it requires considerable practice and skill to stop it at the right moment. If the letter be once passed, travelling back to it will send the indicator forward, and the transmitter and indicator will no longer agree.

Mr. Henley states that he is about introducing some improvements, which he anticipates will overcome the objections above stated; but until he has succeeded in doing so, his instruments do not appear to be suitable for exportation.

The next instrument on the list is that of Messrs. Siemens, Halske, and Co. It is in principle much the same as Mr. Henley's, but it is free from the danger of overrunning before referred to. It is very strongly made. Mr. Siemens states that many are in use in Germany, and several in England, and give satisfaction.

The objections to it appear to be:—There is the same liability to trip as in Mr. Henley's if the handle is not started with a jerk, or if it is brought home slowly. The handle of the instrument at

the Exhibition was turned a complete circle slowly and steadily without affecting the indicator perceptibly. It is large, and cumbersome and noisy in working, and would be found disagreeable in an office where other work was going on.

The last on the list is Professor Wheatstone's. This instrument has been very extensively used. It is exclusively employed by the Private Telegraph Company, and is found in the "London District Telegraph Company" and the "Electric and International Telegraph Company's offices," and is the most complete, and appears to be, on the whole, the most satisfactory instrument of those now in general use. The current being continuous, there is not the liability to trip referred to before; while the letters being given by pressing down keys, there is no danger of overrunning, and an inexperienced operator will not easily make mistakes, but simply lose time.

The chief objection is its complicated construction and the delicacy of the parts, rendering it unfit for places where watchmakers are not to be found. There is, however, nothing but what any ordinary watchmaker would understand and be able to repair. It employs both hands in working, and where required to be used very constantly would be greatly improved by the addition of an arrangement for turning the handle by the foot, or, still better, by a weight to be wound up occasionally.

The price of Professor Wheatstone's instrument is 30s. higher than Mr. Henley's, but the difference is more than compensated by its greater efficiency.

Mr. Latimer Clark states, in his opinion, it is decidedly the best of the alphabetical instruments at present known.

Under these circumstances it is recommended as the safest to forward to the colony.

The twenty-six instruments selected for Melbourne have all been tested by Mr. Clark, and have again to be examined before they are packed. It was found that they would read without failure through 235 miles of wire. The resistance of one complete instrument, or set of apparatus, was nearly equivalent to twenty-five miles of wire, so that when (5) five instruments were connected, and the current passed through all, there was sufficient power to read through the five, and about 100 miles of wire; but this is theoretical and without allowance for leakage.

#### WIRE.

The sample of wire sent by Mr. McGowan does not agree with the indent, and it is therefore presumed that it was simply intended as a sample of the method of coating and sheathing. This sample consists of what is called "target wire", and has ten lines of fine wire, each separately insulated with indiarubber.

As a decided preference is expressed for Messrs. Siemens and Halske's patent wire, it is recommended that that should be sent.

On the first page will be seen Messrs. Siemen and Halske's quotation for their patent wire, with one conductor of seven wires, and with these conductors, each consisting of a strand of three wires. That with the three conductors would be the most desirable, but the money remitted from the colony will not permit of its being purchased; it is therefore recommended the single conductor (which is all that is specified in the indent) should be sent.

There appears to be great difference of opinion amongst electrical engineers, as to the best method of insulating wire.

Mr. Clark states that his experience is not favorable to indiarubber, nor to any known method of separately insulating wires; he uses naked wires where he can, where this is impossible he prefers gutta-percha.

Professor Wheatstone very strongly objects to the use of gutta-percha, and recommends wires covered with indiarubber, and coated with hemp and tarred tape, like the samples sent herewith, from Messrs. Silver and Co.'s. These, suspended from ordinary iron wire, are used by the Private Telegraph Company over London.

The indent from Melbourne asks for twenty-six instruments, complete, and nine miles of wire, with the requisite insulators, &c., and the sum remitted for the same is £1000.

The instruments and wire before recommended being adopted, this sum will not cover their expense, and if it is not to be exceeded, a fewer number of instruments or a less quantity of wire must be purchased.

As it will be easy to use temporarily ordinary telegraphic wire, but impossible to find any substitute for an instrument, it would appear better to reduce the quantity of the former, rather than the number of the latter. The following would be within the sum remitted, viz. :-

	£	s.	d.	£	s.	d.
Twenty-six Wheatstone's instruments, at £25...	650	0	0			
Less 10 per cent. commission	65	0	0			
				585	0	0
Seven miles of Siemens's wire, at £48				336	0	0
				<u>921</u>	<u>0</u>	<u>0</u>

Leaving £79 for insulators, freight, and commission. To complete the order, it will be well to remit an additional £150.

(Initialed)

R. P. B.

[COPY.]

17, Prince's Gardens, London (W.),  
27th December, 1862.

MY DEAR SIR,

I am happy to inform you that the telegraphic instruments which I advised by the last mail, as having been ordered, have been inspected and packed, and are in course of shipment.

As no account has been paid, I do not write on this subject to the Treasurer, but you will, perhaps, be good enough to let him know this.

The wire has not yet been delivered.

Believe me, my dear Sir,

Yours very truly,

S. W. McGowan, Esq.

(Signed)

HUGH C. E. CHILDERS.