NEW SOUTH WALES.

ELECTRIC TELEGRAPHS.

(REPORT FROM SUPERINTENDENT.)

Presented to both Houses of Parliament, by Command.

REPORT by the Superintendent of Telegraphs, on the progress and general condition of Electric Telegraphs in New South Wales, to the end of the year 1862.

SUPERINTENDENT OF TELEGRAPHS *to* SECRETARY FOR PUBLIC WORKS.

Department of Public Works,
Electric Telegraph Branch,
Sydney, April, 1863.

I HAVE the honor to submit, for the information of the Honorable the Secretary for Public Works, the following Report on the progress and general condition of the Electric Telegraph Department to the end of the year 1862.

EXTENSIONS.

Since Captain Martindale's Report to September, 1860, the following new lines and stations have been opened:—

From Gundagai to Kiandra, ninety-eight miles in length; contract price, £50 per mile, and £25 per mile for twenty-two miles of wire on existing poles, which were erected as guide poles; cost, exclusive of stations, £4,726 4s. 4d. Stations opened—Tumut, 11 March, 1861; Kiandra, 16 October, 1860.

From Bathurst to Orange, thirty-five miles; contract price per mile, £45 10s.; total cost, £1,730 11s. 11d. Orange station opened 21 December, 1860.

From Bathurst to Mudgee, length of line, ninety-one miles; contract price per mile, £44; total cost, exclusive of stations, £5,887 7s. 7d. Mudgee station opened 16 May, 1861; Sofala, 15 May, 1861; Windeyer, 6 August, 1862; Tambaroora, 3 October, 1862.

From Gundagai to Deniliquin, *viâ* Wagga Wagga; length, 220 miles; contract price per mile, £46, and for a wire on existing poles from Gundagai to Tarcutta, thirty-five miles, at £16 10s. per mile. Wagga Wagga station opened 10 June, 1861; Deniliquin, 1 August, 1861; and Urana, 29 October, 1861.

On the 1st August, 1861, the line from Deniliquin to Moama, fifty-one miles, was purchased from the Deniliquin Telegraph Company at a cost of £2,820 8s., being 10 per cent. advance on the original outlay.

The completion of the above line to Deniliquin, and the purchase of the latter portion from the Company, supply two distinct routes between Gundagai and Melbourne, a result which has proved of great advantage when interruptions have occurred on the direct line *viâ* Albury.

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The next extension of importance is from Maitland to the Queensland boundary at Maryland, *viâ* Singleton, Muswellbrook, Scone, Murrurundi, Tamworth, Bendemeer, Armidale, Glen Innes, and Tenterfield; length, 375 miles; contract price—first section, from Maitland to Murrurundi, 100 miles, £46 per mile; second section, from Murrurundi to the boundary, 275 miles, £48 5s. per mile; total cost, £21,354 15s. 10d.

The stations were opened on the following dates:—Singleton, 25 February, 1861; Muswellbrook, 11 June, 1861; Murrurundi, 12 June, 1861; Tamworth, 10 October, 1861; Armidale, 14 October, 1861; Glen Innes, 20 December, 1861; Tenterfield, 8 November, 1861; and through communication to Brisbane was established on the 9th November, 1861.

From Goulburn to Braidwood, fifty-one miles; contract price per mile, £41; total cost, £2,494 15s. Braidwood station opened 25 November, 1861.

From Campbelltown to Wollongong and Kiama, fifty-eight miles; contract price per mile, £38; total cost, £2,830 8s. 2d. Wollongong Station opened 11 August, 1862. Kiama 15 October, 1862.

From Mudgee to Wellington, forty-eight and a half miles; contract price per mile, £43; total cost, £2,505 19s. 10d. Wellington Station opened 12 September, 1862.

From Grafton to Tenterfield, 112 miles; contract price per mile, £39; total cost, £4,570 14s. 11d. Grafton Station opened 17 December, 1862.

From Orange to Wagga Wagga, *viâ* Forbes (the Lachlan Gold Fields) and (Young) Burrangong, 225 miles; contract price per mile, £43. Forbes Station opened 27 October, 1862.

This line is drawing near completion, and when opened through to Wagga Wagga will form a second and distinct means of communication with Victoria, *viâ* Echuca, and Sandhurst, so that only under extraordinary circumstances can an interruption between the two Colonies occur, and which will render prolonged delays, from the crowded state of the lines, less frequent.

A second wire, between Muswellbrook and Scone, has also been provided for, to be worked by Wheatstone's alphabetical instruments. Contract price per mile, £20; total cost, £303 8s. 6d. The Scone station was opened 10 May, 1862.

PROPOSED EXTENSIONS FOR 1863.

A line from Deniliquin to Hay, an estimated distance of eighty miles.
From Braidwood to Queanbeyan, thirty-five miles.
From Wellington to Dubbo, thirty-five miles.
An additional wire from Sydney to Newcastle.

Tenders have been received for the above lines, at the undermentioned rates:—
Deniliquin to Hay, £43 per mile.
Braidwood to Queanbeyan, £37 per mile.
Wellington to Dubbo, £41 10s. per mile.

These extensions have been guaranteed by the inhabitants of the districts they are intended to connect, that they will be responsible for the annual payment of 5 per cent. (return by the lines) on the capital invested, after paying the working expenses.

The second wire to Newcastle has been contracted for at £15 per mile, to be completed in six months from the acceptance of the tender.

The last mentioned is a work urgently required, the business on the Northern Line having of late increased so rapidly that it has become an absolute necessity to increase the facilities for its accommodation. When this line is working, an increased revenue may be expected from Newcastle and Maitland; as at present, many messages, to the transmission of which early replies form a condition, are withheld in consequence of the crowded state of the line.

Tenders for two minor lines, for railway purposes, from Parramatta to Penrith and from Campbelltown to Picton, have also been called for.

WHEATSTONE'S INSTRUMENTS FOR RAILWAY LINES.

The Wheatstone's Instruments supplied from England in 1861, have not answered the purposes intended. They are too complicated and delicate in their construction to be used by inexperienced operators, and cannot be made to work satisfactorily when a number of stations are connected in one circuit. I have found, however, that for a short line, with two terminal stations only, they can be depended on, and will work short private lines or branches from main lines to places which will not pay for a trained operator.

I would recommend that alphabetical instruments of a more simple construction be adopted for the railways, and those now in use kept for short branch lines to minor stations.

BRANCH LINES FOR PUBLIC COMPANIES, PRIVATE INDIVIDUALS, &c.

The system determined on by the Government to erect branch lines to connect with nearest stations, by placing extra wires on existing poles, or constructing lines throughout, and charging an annual rental of 5 per cent. on the cost of construction, has at present been taken advantage of only in one instance (to the Bellambi Coal Mines), but will, I feel sure, when it becomes generally known, be more frequently adopted, and will increase the business of the main lines. The numerous Coal Companies at Newcastle will shortly, I have every reason to believe, avail themselves of this inexpensive means of connecting their mines with their metropolitan offices. The Wheatstone alphabetical instruments are well adapted for such lines, as no previous knowledge is required for their manipulation, and they work well when too many are not included in one circuit.

The length of lines now at work in this Colony is as follows, which, considering that it is only five years since Telegraphic communication was commenced in New South Wales, will shew that the spirit of enterprise has not been absent in this important matter, and it will be seen, by the Tables of Receipts and Expenditure (pages 4 and 5), that Telegraphs have been fully appreciated by the public.

	Number of Miles of Line.	Number of Miles of Wire.
Southern Lines.		
Sydney to Albury	365	730
Do. to Kiama	94	94
Do. to South Head	7	7
Do. to Campbelltown	34	34
Goulburn to Braidwood	54	54
Gundagai to Kiandra	99	99
Do. to Moama	271	271
Western Lines.		
Sydney to Wagga Wagga	387	387
Bathurst to Wellington	146	146
Northern Lines.		
Sydney to Queensland Boundary	517	517
Maitland to Newcastle	20	20
Do. to Morpeth	4	4
Newcastle to Singleton..	48	48
Muswellbrook to Scone..	16	16
Tenterfield to Grafton	112	112
	2,174	2,539

Although in the year 1858 this Colony was far behind the sister Colonies of Victoria and South Australia in the length of its lines, it can now boast of not only a greater number of miles of wire, but that it is the only Australian Colony in which the Electric Telegraph returns a fair per centage on the capital invested.

RECEIPTS AND EXPENDITURE.

The receipts, at nearly all the stations, shew a steady increase, which is most encouraging, and augurs well for further progress. The public appear to evince increased confidence in this simple and expeditious means of communication; and when the works, which are now in progress, are completed, delays of a serious nature will seldom occur, and a still further increase in the revenue of the Department may be expected.

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The annexed Table gives the number of Messages and Receipts at each Station, for the years 1860, 1861, and 1862:—

STATIONS.	1860.		1861.		1862.	
	No. of Messages.	Receipts.	No. of Messages.	Receipts.	No. of Messages.	Receipts.
		£ s. d.		£ s. d.		£ s. d.
Sydney	18,484	7,756 14 1	25,364	9,410 6 10	36,926	13,033 4 0
Redfern	2,806	85 18 5	1,653	105 19 4	928	129 5 7
Parramatta	1,437	74 2 9	1,377	106 4 2	1,300	125 12 11
Liverpool	989	42 17 1	429	25 10 3	343	41 15 9
Campbelltown	2,052	95 13 7	1,611	106 19 3	1,338	194 5 8
Wollongong	....	.....	....	.....	617	104 3 9
Kiama	....	.....	....	.....	168	25 15 4
Berrima	589	73 11 9	504	72 10 3	428	76 0 7
Goulburn	2,490	588 2 2	2,537	599 15 10	2,529	641 3 10
Braidwood	....	.....	137	37 4 6	1,184	342 3 11
Yass	1,390	341 5 9	2,458	508 5 6	2,209	437 0 1
Gundagai	1,020	230 12 1	919	201 10 10	847	172 6 1
Tumut	....	.....	538	152 7 6	586	153 4 3
Kiandra	898	260 1 11	1,050	311 8 1	286	67 0 8
Kyamba	42	14 6 11	54	10 5 11	43	13 5 9
Albury	12,452	460 16 7	13,612	530 1 3	16,819	524 11 10
South Head	165	10 1 0	22	7 1 4	50	5 15 8
Penrith	589	83 11 0	1,144	155 7 10	1,426	200 0 4
Hartley	223	31 4 0	429	59 17 0	493	74 10 0
Bathurst	2,424	672 17 1	3,273	694 12 0	4,704	1,035 7 4
Orange	41	5 8 9	774	137 14 2	1,852	332 12 4
Forbes	....	.....	....	.....	1,368	385 17 5
Wagga Wagga	....	.....	555	165 2 8	1,230	366 17 1
Urana	....	.....	61	19 1 6	353	104 11 3
Deniliquin	....	.....	752	293 11 3	1,810	674 7 1
Sofala	....	.....	394	71 14 11	880	157 18 10
Tambaroora	....	.....	....	.....	334	62 17 1
Windeyer	....	.....	....	.....	214	45 4 7
Mudgee	....	.....	1,377	354 17 11	2,663	696 5 11
Wellington	....	.....	....	.....	145	32 2 4
Windsor	374	77 7 10	869	143 11 8	994	188 9 11
Wollombi	105	18 14 4	179	26 17 9	209	57 12 1
Maitland	2,336	529 4 7	3,963	824 18 11	5,320	1,225 0 1
East Maitland	....	.....	....	.....	10	1 12 7
Morpeth	522	95 5 3	1,137	190 7 5	1,243	210 15 11
Newcastle	2,523	588 16 3	4,067	951 17 2	5,114	1,241 11 10
Singleton	....	.....	1,318	253 12 8	1,759	324 18 3
Muswellbrook	....	.....	625	138 11 3	951	179 13 7
Scone	....	.....	....	.....	327	51 18 5
Murrurundi	....	.....	444	86 15 5	667	178 18 4
Tamworth	....	.....	234	64 13 5	894	291 6 4
Armidale	....	.....	282	78 2 0	1,799	454 13 6
Glen Innes	....	.....	3	0 13 6	413	107 18 7
Tenterfield	....	.....	79	33 3 7	819	295 4 5
Grafton	....	.....	....	.....	68	16 15 11
Balance on Intercolonial receipts due from other Colonies, 1862.	....	.....	....	.....	....	419 2 8
Mr. Hales Contract, Bellambi.	....	.....	....	.....	....	12 10 0
Less in 1861, balance on Intercolonial business due to other Colonies.	....	.....	....	388 6 1	....	.....
	53,951	12,136 13 2	74,224	16,542 8 9	104,660	25,513 9 8

The result of the business in 1860 was as follows:—

Total capital invested to 31 December...	£48,568 16 10
Amount expended on lines available for traffic was, to same date	48,454 2 2
The amount of Revenue to 31 December, as per above return...	£12,136 13 2
Less working expenses, including salaries, &c.	9,408 12 4
Shewing a net profit of ... ... (or 5⅝ per cent. per annum.)	£2,728 0 10

In

In 1861.

Total capital invested to 31 December...	£95,819	13	6
Amount expended, to same date, on lines available for traffic...	60,615	13	3
Amount of Revenue to do., as per return	£16,542	8	9
Less working expenses, including salaries, &c.	12,915	15	4
Shewing a net profit of	£3,626	13	5

(or 6 per cent. per annum.)

In 1862.

Total capital invested, including £12,222 8s. 1d. for Colonial Architect's expenditure, for building stations	£116,234	11	7
Revenue collected to 31 December, as per statement	£25,513	9	8
Less working expenses, including salaries, &c.	16,780	7	5
Net profit	£8,733	2	3

(or $7\frac{3}{4}$ per cent. per annum.)

This I consider a very satisfactory result, considering that many of the stations, which are necessary for the maintenance of the through lines, return little or no revenue, and that several of the late extensions have not yet had sufficient time to develop themselves, it being always found that the branch lines pay better after the first year from their opening.

CONDITION OF THE LINES.

The Southern Line has now been constructed nearly five years, and has cost but a very trifling sum for repairs. The insulation, although inferior to that now adopted, has proved sufficient to admit of the line between Sydney and Albury being worked through in all weathers, without repeating.

The Western Lines have also worked well, and the expenditure for repairs has been insignificant. The first section of the Northern Line, which has been constructed over a rugged and badly timbered country, has been more troublesome, but when the repairs are completed, which are now contracted for, the line will work more satisfactorily. The submarine cable at Wiseman's Ferry, on the River Hawkesbury, has also been a source of great annoyance, the continuance of which has now been provided against by the substitution of masts and over-head wires.

The mode of insulating all but the early lines has been very much improved, highly glazed porcelain insulators, double umbrella, being now used, in place of the rough salt-glazed stoneware insulators. The superiority of the former is very manifest by the comparative ease and rapidity with which the lines so insulated can be worked in wet weather.

For all future lines, and for repairs to those already constructed, much longer and larger poles will be used, the first cost of which will, perhaps, a little exceed those now erected, but they will eventually prove more economical, as the same poles, if twenty-eight feet long, when decayed near the surface of the ground, can be re-set, and will still be of sufficient length to admit of ordinary traffic passing under the wires.

As an experiment, a number of wrought iron posts have been imported; they consist of a galvanized wrought-iron tube, fifteen feet long, tapering towards the top, in which is fitted a six feet wooden top carrying the cross-arm sand insulators, the whole fitted into a cast-iron base four and a-half feet long, with cross-feet to keep the post in a perpendicular position; they are very light in appearance, and will be very durable. Some of them will be shortly put up in George-street, between the Post Office and the Railway Station. I fear that their expense will be too great to use them extensively in the country, but they might answer along the lines of railway.

On all the late extensions the buts of the poles have been coated with a serving of a patent cement, which, when mixed with a little coal tar, and applied immediately after the pole is charred (while it is still hot), cannot fail to add to the durability of the timber, but whether it will answer the sanguine expectations of the manufacturers can only be decided by a lengthy trial.

The

The ink-printing instruments have worked well, and are a great relief to the operators in the Chief Office. The writing on the tape can be read at any angle, which is an advantage at all times, more particularly when the light is indifferent.

THE TELEGRAPHIC MONEY ORDER BRANCH.

The transmission of money orders, by Telegraph, between Sydney, Windsor, Maitland, Newcastle, Goulburn, Yass, Gundagai, Albury, Bathurst, Mudgee, and Deniliquin, was commenced on the 2nd July, 1860, but the system did not prove remunerative, and was transferred to the Postal Money Order Branch in January, 1863, the Telegraph still being used for the transmission of the advice form on the payment of the minimum charge for a message—this mode of transmission being, of course, at the option of the sender.

METEOROLOGICAL OBSERVATIONS AND WIND AND WEATHER REPORTS.

Meteorological observations have been received daily, by Telegraph, with tolerable regularity, from Brisbane, Armidale, Newcastle, Windsor, Bathurst, Deniliquin, Albury, and Goulburn, and are registered in the Chief Office, Sydney.

I would recommend that Mudgee, Forbes, Tenterfield, Grafton, and Kiandra be added to the number, when I have no doubt some interesting results may be worked out. Copies of the tables are supplied monthly to the Astronomer for publication.

Wind and weather reports are posted at the Chief Telegraph Office every morning from the principal places throughout the Colonies, and are copied into the daily newspapers, so that, at a glance, the direction of the wind and state of the weather can be ascertained in every district connected by Telegraph. This is a matter of the utmost importance to the owners of coasting vessels and the mariner, and is of interest to the squatter, the agriculturist, and the traveller.

In England the Government have considered this a matter of such vital importance that a separate department has been established under the immediate direction of Admiral FitzRoy. Stations have been opened at all the most important coast towns, which are connected with a central office in London, to which office sudden changes in the reading of the barometer, and changes in the direction of the wind, are telegraphed. These reports are again communicated to the stations most likely to be visited by the coming storm; warning signals are then hoisted. One of these signals consists of a canvas drum, or cylinder, which has the appearance of a black square; another is in the shape of a cone, which appears like a triangle when suspended; the triangle, with the point upward, indicates a probable gale from the northward; a triangle, with the point downward, shews that a gale is probable from the southward; a drum alone shews that stormy winds may be expected from more than one quarter successively; a cone and drum are a warning of dangerous winds—point up above the drum for northerly winds—point down below the drum for southerly winds.

Night signals are arranged with lamps representing a square and triangles. For the drum or square four lanterns are fixed on two yards not less than four feet long; for the triangles one yard with three lamps are used.

The cautionary signals have been worked with great success, and as a warning is sometimes given at distant places two days before a storm reaches the point in question, much valuable life and property has been saved.

As the Telegraph lines in the Australian Colonies form a trunk line over 2,000 miles in length, and as several important coast stations are thereby connected, I propose that a system of warning signals, similar to the above, be adopted, which, by a simple arrangement of flags, the quarter in which the gale is raging can also be indicated.

PROPOSED EXTENSIONS.

An extension of the line from Mudgee to Muswellbrook, or Murrurundi, about 140 miles in length, should be provided for at an early date. This line would be of great value as an additional means of communication with the Northern Districts, in the event of temporary interruptions on the line *viâ* Wiseman's Ferry and Wollombi; if made to connect with the Northern Line at Murrurundi, Cassilis might be taken *en route*. The farther north such a line is carried the more its use will be felt.

A line from Braidwood to the Gulf Diggings, *viâ* Araluen, a distance of sixty miles, would, I think, be remunerative.

The direct line to South Australia, from Deniliquin, *viâ* the Murray, is still in abeyance, the South Australian Government not having as yet consented to an equitable division of receipts. The completion of this extension is becoming more requisite, not only in consequence of the increasing importance of the country through which it will pass, but that it will be the means of relieving the overburthened Southern Line, as all the Adelaide business would then be forwarded *viâ* Bathurst and Deniliquin.

LINES IN OTHER COLONIES.

In Victoria, since Captain Martindale's Report in 1860, the following additional lines and stations have been opened:—Tarangulla, 1 November, 1860; Creswick, 21 December, 1860; Clunes, 8 February, 1861; Wahgunyah, 8 February, 1861; Yackandandah, 28 February, 1861; Carisbrook, 6 March, 1861; Schnapper Point, 22 March, 1861; Hamilton, 23 March, 1861; Chiltern, 28 March, 1861; Cape Schanck, 6 September, 1861; Stawell, 7 October, 1861; Woodend, 23 October, 1861; Inglewood, 25 October, 1861; Spencer-street, 28 October, 1861; Taradale, 30 November, 1861.

The second Intercolonial wire has also been completed, and will shortly be in working order; this line will expedite the transmission of "through" messages between Sydney and Melbourne, so that replies to telegrams, under ordinary circumstances, should be received within an hour.

In South Australia considerable extensions have also been carried out, viz.:—

From Adelaide to Glenelg	$6\frac{1}{2}$	miles.
„ Mount Barker to Woodside	$11\frac{1}{2}$	„
„ Mount Gambier to Penola	$36\frac{1}{2}$	„
„ Aubuan to Walleroo	70	„
„ Mount Gambier to M'Donnell Bay ...	20	„
„ Willunga to Yankalilla	22	„
„ Woodside to Gumaracka	10	„

Other extensions have been proposed by Mr. Todd, which have not yet been provided for, viz., a line from Clare to Port Augusta, and the line from Gawler Town, or Kapunda, to the New South Wales boundary, to join the Murray Line from Deniliquin; the latter I consider a most important object for both Colonies. To this Colony it is requisite to relieve the pressure on the existing lines, and in South Australia it would place them in immediate communication with the principal places supplied by that Colony, and would also provide for them a second route, *viâ* Echuca, to Victoria; should their direct line, *viâ* Mount Gambier, be interrupted, the Adelaide and Sydney messages could then be transmitted as freely and expeditiously as between Sydney and Melbourne. I regret that the proportionate division of the amounts collected cannot be at once determined on, so that the work might be commenced without further delay. A meeting of the Superintendents of the Telegraph Departments of the several Colonies, either in Sydney or Melbourne, to settle this and other important matters connected with the Intercolonial lines, would be of infinite advantage to all, and I would suggest that the several Governments be requested to give the necessary authority at an early date.

LIST OF STATIONS IN EACH COLONY.

New South Wales.

Sydney	Gundagai	Sofala	Newcastle
Redfern	Tumut	Tambaroora	Singleton
Parramatta	Kiandra	Windeyer	Muswellbrook
Liverpool	Wagga Wagga	Mudgee	Scone
Campbelltown	Urana	Wellington	Murrurundi
Picton	Deniliquin	Orange	Tamworth
Wollongong	Kyamba	Forbes	Armidale
Kiama	Albury	Young	Glen Innes
Berrima	South Head	Windsor	Tenterfield
Goulburn	Penrith	Wollombi	Grafton
Braidwood	Hartley	Maitland	Bendemeer.
Yass	Bathurst	Morpeth	

Victoria.

Melbourne	Beaufort	Inglewood	Footscray
Williamstown	Streatham	Kerang	Mortlake
Geelong	Hexham	Swan Hill	Chiltern
Queenscliff	Otway	Gisborne	Woodend
Point Lonsdale	Creswick	Kyneton	Taradale
Sandridge	Daylesford	Castlemaine	Harcourt
Schnapper Point	Maldon	Sandhurst	Werribee
Cape Schanck	Dunolly	Echuca	Meredith
Portland	Carisbrook	Kilmore	Buninyong
Belfast	Maryborough	Longwood	Lethbridge
Warnambool	Avoca	Benalla	Hamilton
Camperdown	Moonambel	Wangaratta	Smythesdale
Colac	Red Bank	Beechworth	Ararat
Winchelsea	Clunes	Yackandandah	Stawell.
Back Creek	Wahgunyah	Rutherglen	
Ballarat	Tarnagulla	Belvoir	

South Australia.

Adelaide	Gawlertown	Mount Barker	Guichen Bay
Bowden	Roseworthy	Nairne	Mount Gambier
Alberton	Freeling	Woodside	Penola
Port Adelaide	Kapunda	Strathalbyn	Macdonnell Bay
Peninsula	Clare	Willunga	Kadina
Dry Creek	Burra	Port Elliott	Wallaroo.
Salisbury	Gumaracka	Yankalilla	
Smithfield	Glenelg	Goolwa	

Queensland.

Brisbane	Ipswich	Laidley	Toowoomba
Lytton	Gatton	Drayton	Warwick

Dalby.

It has been suggested that a reduction should be made in the present scale of charges, and that such reduction would materially increase both the number of messages and the receipts. In this I cannot concur, the existing rates not being excessive, while, if such a measure increased the number of messages, which I very much doubt, it would also require an increased expenditure, as the lines are now fully occupied, and an increased business could only be carried on by means of additional wires, instruments, and operators. I consider that the public generally will benefit more by further extensions than by any reduction in the tariff, which would only result in a proportionate reduction in the receipts.

As a proof that the above argument is a sound one, I append a Table shewing the receipts in Victoria for the years 1860 and 1861, by which it will be seen that, after a reduction in the charges made in that Colony, although thirteen additional stations were opened in the subsequent year, 1861, there was a considerable decrease in the amount collected.

Comparative statement of receipts in Victoria in 1860 and 1861:—

		£	s.	d.
1860.	Amount as above...	46,226	10	3
1861.	Do. do.	33,783	19	3

An

An uniform rate of charge for all messages has also been advocated, but experience shews that such would be impracticable, as telegrams never can be reduced to a prescribed length, and therefore a message, say of fifty words, occupying a much longer time in its transmission than one of briefer matter, must always be charged in rateable proportion to the minimum charge; besides which it would be a palpable injustice to exact, say 2s. 6d., for messages from Sydney to Parramatta, which has constant communication with the metropolis by boat and rail, and where dispatch therefore is comparatively of lesser importance, while only the same sum would be charged to distant places, such as Deniliquin, Tenterfield, Grafton, &c., where postal communication is necessarily tardy and irregular. I consider indeed it would be a serious absurdity to equalize the rates in such cases, and that in fact it would annihilate the business of the Telegraph for short distances, and would consequently reduce the receipts—without promoting its usefulness to the remote parts of the Colony.

**REPORT of the Superintendent of Telegraphs on the Anglo-Australian Telegraph.*

I have the honor to submit, for the information and consideration of the Honorable the Secretary for Public Works, the following proposal for the extension of the line of Electric Telegraph to Northern Australia, and its ultimate connection with the Dutch settlements, India and Europe.

It will be seen that this is a work of the utmost importance to the Australian Colonies, from the following short digest of what has been already done, and is now in progress, towards the completion of a Telegraphic system between Europe and Australia, and that the time has now arrived for immediate action on the part of the several Colonial Governments.

Telegraphic communication at present exists, and is in daily operation, between London and Bagdad, and from Kurrrachee to Rangoon, in the Bay of Bengal. The gaps to be filled up are from Bagdad to Kurrachee, a distance of 1,410 miles, arrangements for which have been entered into; and the contract for the Persian Gulf cable has been given to Mr. Henley, to be ready and laid by the end of the present year. The next length to be provided for is from Rangoon to Singapore, a distance of 1,090 nautical miles. This section the Indian Government have consented either to subsidize or assist in carrying out coincidently with the other extensions. The Dutch Government have entered into arrangements with Mr. Gisborne for the supply and submersion of a new cable, on the most approved principle, between Singapore and Batavia, which, in connection with their existing land lines, will in less than two years establish communication to the east end of Java, and bring the Telegraph within our reach, and as will be presently seen, at a comparatively small cost.

The next link is the Australian section, which Mr. Gisborne proposes should terminate either at Brisbane or Broad Sound, but now that the northern Colony, Queensland, is daily becoming more settled, a land line would be much more suitable. The following perhaps would be the best route:—

The Queensland Government to extend their existing lines to Rockhampton, which I am informed, will be immediately provided for, and from thence to, say, Peak Downs or some other point to be determined on, within the Settled Districts, to be then continued jointly between the Colonies of New South Wales and Queensland, to say 138° east; from thence to Van Diemen's Gulf to be constructed by the South Australian Government, or in the event of that Government not approving of this proposal, the line should terminate at the Albert River, Gulf of Carpentaria (which would reduce the land line, to be constructed by the two Colonies, to 700 miles,) and there join the submarine cable, which would touch at Port Essington, and continue to Coepang and Cape Sedano, East Java.

Another route (which is proposed by Mr. Todd) is to carry a land line direct from Adelaide across the Continent to Van Diemen's Gulf, an estimated distance of 2,000 miles. This proposal would have been more feasible were the country settled, or any intermediate places of sufficient importance to assist the receipts;—this not being the case, I think the proposal to make the terminus of the submarine line at Albert River would be preferable as it would materially reduce the working expenses.

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* Copy of Report placed before the Honorable the Secretary for Public Works, 9th of March, 1863.

There are other important reasons, besides those of economy, in favor of the Queensland route, as messages from Sydney, Brisbane, Rockhampton, and other important places, if the South Australian Line were carried out, would have to travel over an unnecessary length of line—in some cases from latitude 23° S. down to 38° S., making a circuit of nearly 3,000 miles to reach again the same degree of latitude. This would not be so seriously felt by the Southern Colonies, *viâ* the Queensland route, and South Australia would be placed in equally as good a position as Victoria by the completion of the Murray River Line.

The following will shew the advantages the Queensland extension would have over the South Australian Line, both in distance and economical working:—

Distances, &c., Land Line, viâ Queensland.

From Peak Downs to Albert River, 700 miles. Estimated Cost, £70,000.

Submarine Line.

From Albert River to Port Essington	660	knots.
From Port Essington to Coepang	525	„
From Coepang to Cape Sedano	590	„
Add for slack	200	„
	1,975	„
Total knots, 1,975, at £240	£474,000	

Working Expenses.

Between Peak Downs and Albert River stations should be established every hundred miles, or say six intermediate stations. Each station should be provided with—

1 Operator, at	£350	per annum.
2 Line Men, at £250	500	„
Provisions	250	„
Contingencies	200	„
	£1,300	
Or, per annum, for the six stations	£7,800	
The two terminal stations, £1,000 each	2,000	
	£9,800	

For the submarine portions the following stations would be required, say Albert River, Port Essington, Coepang, and Cape Sedano. The two intermediate stations would require—

2 Operators, at £350	£700	per annum.
1 Assistant	200	„
Provisions	250	„
Contingencies	200	„
	£1,350	
	2	
	£2,700	£2,700
The two terminal stations—		
1 Operator	£350	
1 Assistant	200	
Provisions and contingencies	350	
	£900	
	2	
	£1,800	£1,800
		£4,500

Or, total working expenses from Queensland to Java, per annum £14,300

Mr.

Mr. Todd estimates the working and expenses of the land line alone, at £20,000 per annum, assuming that twelve stations only are established, but I feel satisfied that with a less number than eighteen stations the line could not be maintained in an efficient working condition.

The land line from Peak Downs to Albert River I would recommend should be constructed by the Government of New South Wales and Queensland jointly, and I am in a position to state that there are capitalists within the Colony who would immediately undertake the work, and provide everything complete for the opening of the line, at a reasonable rate, taking Debentures as payment for the amount of the Contract.

The entire management and maintenance should also be undertaken by the two Colonies, and a minimum rate demanded for the conveyance of messages, which would, I have no doubt, cover the working expenses and return a fair interest on the outlay. The advantages to New South Wales would be considerable, as a toll would be charged for messages from the Southern Colonies for their transmission over our existing lines.

For the construction of the land line I would recommend an entire alteration to the present system: Thus—instead of thirty posts, twenty-three feet in length to the mile, I would place only ten posts, forty feet high, with a light steel wire conductor of the same size as the *over-house* wires now used by private firms in London, No. 11 wire gauge. I would also substitute a bell-shaped ebonite insulator instead of the more expensive and fragile articles now in use, and a zinc rain shield round the post, about a foot from the top. By this means a dry zone can always be insured, and the highest points of insulation attained.

The light wire and insulators (which are not breakable) would effect a considerable saving in carriage and cost of repairs, and the long poles would always admit of being re-planted instead of providing new ones when they become rotten.

The subsidy for the submarine portion would, according to the above proposal, be reduced to £23,700 per annum for thirty years, which, to commence with, might be distributed between the Colonies, as formerly proposed by the resolutions passed by the Legislative Assemblies of New South Wales and Victoria in 1860, which were the same proportions as the present mail subsidy, but I think the Tasmanian and New Zealand contributions should be divided between the undermentioned four Colonies, and after the first year, in proportion to the number or value of messages transmitted by each Colony. At first the annual amounts payable would be—

Victoria	59,968	£14,212	14	0
New South Wales ...	24,406	5,784	2	0
South Australia	8,906	2,110	12	0
Queensland	6,720	1,592	12	0
		23,700	0	0

The subsidy at any rate would be merely nominal, as Mr. Gisborne proposes to convey free messages from the several Governments to the extent of the subsidy, and in case the Home Government does not contribute, to place the tariff value of their messages to the credit of the subsidy. This liberal offer reduces the whole matter to the construction and working of 700 miles of land line, the former of which (at a cost of £70,000, bearing an interest of 5 per cent.) would form an annual charge of £3,500, and with the working expenses, which are estimated at £9,800 per annum, would be provided by the two Colonies; against these would be placed the profits derived from the undertaking. The submarine cable, proposed by Mr. Gisborne, is one well adapted for the route intended; it has a much larger conductor than the original sample; it is much heavier, and is provided with an outer coating of equal parts of jute, bitumen, and hydraulic mortar, which will prevent the corrosion of the protecting wires, and admit of the cable being lifted for repairs without fear of fracture. The shallow soundings, throughout the entire distance, are also much in favor of the successful laying and working of the cable, a depth of more than fifty fathoms being seldom attained; the distances are also very convenient, being only 660 knots for the longest length—will admit a speed of not less than from twenty to twenty-five words a minute.

It is calculated that 40,000 mercantile and private messages would annually be transmitted over the Australian portion of the line; this number, at a 30s. rate per message of twenty words, from Queensland to Java, would produce an annual revenue of £60,000, to be divided as follows:—

Land Line.

		Annual Receipts.
40,000 Messages, at 10s.	.....	£20,000
Working expenses.....	£9,800	
Renewal fund	1,750	
	———	11,550
Profit		£8,450

Submarine Line.

40,000 Messages, at 20s.	.....	£40,000
Working expenses.....	£4,500	
Renewal fund	11,850	
	———	16,350
Leaving a profit of.....		£23,650

which will be nearly sufficient to cover the subsidy, without the aid of the service messages.

I consider that 40,000 messages per annum are a low estimate, being only 133 messages, or sixty-six each way, per working day, which, considering that nearly the entire World would be connected, would be below the actual result.

I am of opinion that the total through charge for a message of twenty words from Australia to England would not exceeds £6, *viâ* Asia Minor, as the most expensive part of the former (projected) route would be avoided, viz., the Red Sea and Mediterranean Line.

The advantages to be derived by the Australian Colonies from an International system of Telegraphs, instead of merely an Intercolonial system, even in the time of peace, are so numerous and manifest that it would be almost tedious as well as unnecessary to comment upon them; but it may be said that should it unhappily be ever again the fate of England to be at war with a maritime power, circumstances would very probably occur under which the entire cost of such means of communication would be saved in less time than it has taken to write the foregoing; and to shew that the line would be well supported, I need only refer to the existing lines in these Colonies, which are fully and profitably occupied.

I would further recommend, for the consideration of the Government, that a Telegraphic Conference be held in Melbourne at the same time as the Federal Conference, and that the Superintendents of the different Colonies should bring up a joint report for the information and guidance of the latter, during the discussion on the Intercolonial and International Telegraphic Systems.

EDW. CHAS. CRACKNELL,
Superintendent of Telegraphs.

Sydney, 9 *March*, 1863.

Sydney: Thomas Richards, Government Printer.—1863.

[*Price*, 9*d*.]