

1858-9.

—  
VICTORIA.

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# ELECTRIC TELEGRAPH.

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## HALF-YEARLY REPORT

OF THE

GENERAL SUPERINTENDENT OF ELECTRIC TELEGRAPH,

RELATIVE TO THE

ADVANCEMENT AND PRESENT CONDITION OF THE DEPARTMENT,  
UP TO 30TH JUNE, 1858.

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PRESENTED TO BOTH HOUSES OF PARLIAMENT BY HIS EXCELLENCY'S COMMAND.

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By Authority:

JOHN FERRES, GOVERNMENT PRINTER, MELBOURNE.

# REPORT.

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Department of Electric Telegraph, Office of the General Superintendent,  
Melbourne, 30th June, 1858.

At the date of submitting my concluding Report for the year 1857, the lines forming the Victorian division for general and intercolonial telegraphic communication had been completed to the boundary at the River Murray, near Albury, and to the South Australia boundary, near the township of Nelson, at the River Glenelg.

On the seventh (7th) of January, I proceeded to Beechworth, and opened communication with Melbourne on the fifteenth (15th), and with Belvoir, the terminal station on the Victoria side of the River Murray, on the eighteenth (18th) of the same month. This would have been accomplished at a much earlier period had not considerable delay occurred in the receipt of the necessary instruments, stores, &c., at the places named. The same remark will also apply, relative to the opening of communication with Portland, which I did not succeed in perfecting until the sixteenth (16th) of February. The first delay in the arrival of the requisite necessities at Melbourne, alluded to in my last Report, and the frequent irregularities attending the transport of supplies, more especially to distant parts of the interior, will explain the nature of the causes which operated in retarding the earlier opening of the communication.

The lines have continued to work, with the exception of occasional trifling interruptions, very regularly and satisfactorily; and I am not aware that any cause of interruption can be traced to actually malicious motives; but, on the contrary, I am happy in being able to state, that a strong feeling appears to exist in the minds of all well disposed persons throughout the country, rather to protect and insure the safety of the lines, exposed as the posts, &c., necessarily are in many places to damage, accidental or otherwise, from passing vehicles.

In the month of May, tenders were accepted, and contracts made for a line from Sandhurst to Echuca, on the River Murray; a line from Castlemaine to Ballarat, *via* Guildford, Daylesford, and Creswick; another from Castlemaine to Avoca, *via* Maldon, Dunolly, Carisbrook, and Maryborough; and one from Geelong to Cape Otway.

The lines diverging from Castlemaine and Sandhurst are progressing, on the whole, satisfactorily; but, considering that the contracts for these lines are being executed during our winter months, it cannot be expected that the same progress should be made as would be attainable were the works to be prosecuted during the more favorable season of the year. Owing to the latter fact, I believe, the contractor for the Cape Otway line abandoned the undertaking, and his tender having in consequence lapsed, it was considered advisable to postpone further action in respect to the line in question until the ensuing spring—say September next—during which month I purpose recommending that renewed tenders should be called for; and the work may readily be completed within the year.

A request having been made by the Government of Tasmania desiring that my attendance should be given in that colony, as the agent of this Government, in determining the necessary preliminaries respecting the contract for the supply and laying down of the submarine cable to connect the colonies, via Bass's Straits, I received instructions, in the month of February last, to proceed to Hobart Town, for the purpose of conferring with, and advising the Government there, relative to the several important points likely to be involved in arranging the details for the execution of the work. Accordingly, on the 28th of February, I arrived at Hobart Town, and as soon as possible placed myself in communication with the Tasmanian Government. Two tenders only had been received, and those from the only persons in the colonies whom I was aware possessed the practical knowledge upon the subject necessary to entitle their tenders to full consideration. The first was that of Mr. T. C. Highton, and the second that of Messrs Meyer and Co. Although the tender of Mr. Highton was the lowest in amount, yet as a marked deviation from the requirements of the Government had been made in the proposal of a lighter cable than was indicated in the directions upon which the tender was founded, and as the entire line was not included therein, I considered it advisable to recommend the tender of Messrs Meyer and Co., through their agent (Mr. Oppenheimer), although nominally higher; because it adhered more strictly to the requirements alluded to, in embracing a cable of greater weight and strength, and including the entire line.

The Government of Tasmania having accepted the tender of Messrs Meyer and Co., I consider it proper that I should here give full prominence to the letter addressed by me to that Government, through the Honorable F. M. Innes, Colonial Treasurer, upon the offers of Mr. Highton and Messrs Meyer and Co., submitted for my report upon the date named, as follows:—

Hobart Town, 4th March, 1858.

Sir,

In compliance with the request conveyed by your letter of the 3rd instant, I have the honor to inform you, that after a careful perusal of the tenders of Messrs Meyer and Co., and Highton, respectively, for the various works involved in establishing telegraphic communication between Tasmania and Victoria, in the manner already decided upon, and having fully weighed and considered the several important points touched upon in the two tenders, I would beg to submit the accompanying observations thereon.

2. Before proceeding further, I would premise, that I believe I am fully impressed with the nature and responsibility of the important office devolved upon me, in pronouncing my frank and unreserved opinion in the question at issue, as perhaps tending materially to influence the decision of your Government in the course which may ultimately be adopted, and requiring as it will, the expenditure of a very large amount of public money, chargeable equally upon the respective Governments. I therefore sincerely hope, the views now expressed, may, at any subsequent period, bear the stamp of impartiality and correctness; and that whatever weight may be attachable to them, may in practice, be productive of the gratifying results, to which I look forward with the strongest and most ardent anticipations.

#### MR. HIGHTON'S TENDER.

3. For convenience of reference, I have numbered the paragraphs and clauses of this tender from 1 to 26 respectively. Up to No. 14 inclusively, it will be observed that reference is only made to the proposed method of manufacturing the cable, and in adverting to the several clauses collectively, I would simply observe, that they are merely descriptive of the usual mode of constructing a submarine cable in a proper and efficient manner.

4. In clause 15 a departure is made from the description of cable required; the size specified for the conducting wire being No. 18, whereas the proper size should be No. 16, the latter being two sizes larger, and therefore heavier and stronger than the former.

5. In clause 16 a departure is again made in the size of the covering or protecting wires, the size required being No. 8, and that named, being No. 10; the former being of course, the heavier and stronger of the two. The deviations named would, if introduced, cause a very material difference in the weight of the cable, having the effect of substituting a cable of rather less than one and a half tons to the mile, for one of proportionately greater strength, weighing two tons, and amounting to a difference of nearly sixty tons upon the whole contract, in favor of the contractor supplying the lighter cable.

6. Clauses 18, 19, 20, 21, 22, 23, 24 and 25, are merely stipulatory, and although offering advantages and self-imposed penalties, do not state more than will probably be provided for under the terms of the contract.

7. The sum named in clause 26 (£19,365) would not appear to include the whole line, but merely the submarine portion—the cost of the land sections upon King and Hunter Islands would therefore require to be added. On this point I am enabled to form I think, a tolerably approximate estimate from the experience obtained during my late survey and examination of the route, and from being fully acquainted with the nature of the obstacles to be overcome, and the difficulties likely to be encountered. I have accordingly calculated the several items of expense on the most economic basis, and I find, that the probable cost of the land sections across the islands named, would be from £2300 to £2500, certainly not exceeding the latter sum. This would therefore, bring the entire cost of the line according to Mr. Highton's offer, to the sum of, say £21,865. Mr. Highton makes no tender, cash, or otherwise, as to securities.

#### MESSERS. MEYER AND CO.'S TENDER.

Clause 1, and indeed the entire tender, is a general offer for the whole work according to the surveys, description of cable, &c., already published.

Clause 2 states the sizes, weights, &c., of materials, their nature and application.

Clauses 3, 4, 5, describe the proposed arrangements for securing the perfect efficiency and submersion of the cables.

Clause 6 specifies the particular points between which the tenderer agrees to lay down the cable.

Clause 7 provides for the construction of the overland sections on the islands already named.

Clauses 8, 9, 10, 11, 12 and 13, are stipulatory; the provisions named in which will probably be included in the terms of the contract.

Clauses 14 and 15 state the price (£23,000), and stipulate the mode of payment.

Clause 16 is stipulatory, and professes to relieve the tenderer of all responsibility after the transmission of a message between the shores of the colonies; but this clause is rendered partially inoperative by the concluding paragraph of the preceding one, for if "communication" is not "established" within the "seven days" named, it appears clear to me, that as no "message" could have passed, the responsibility of the tenderer would still remain.

Clause 17 offers the deposit of £1000 cash security, as a guarantee of good faith in the fulfilment of the contract.

#### SUMMARY.

Owing to the deficiencies pointed out in the tender of Mr. Highton, even although the amount named, after adding the cost of the land sections, is considerably less than that stated in Messrs. Meyer and Co.'s tender, I am compelled to consider the former the least preferable of the two, as being imperfect in not embracing the whole of the work, and also in offering a cable of less strength and weight than was indicated as likely to be required; connected with this, it is also apparent, that no proportionate reduction in price is made in favor of the lighter cable, the difference being only about £1400, which sum appears small when it is considered, that the cable offered by Mr. Highton would weigh nearly, or quite, one-fourth less than the one tendered for by Messrs. Meyer and Co. Mr. Highton would appear to have taken every pains to provide all necessary information, and I have no doubt, that from his allusions to his previous experience in submarine telegraphic operations, he would be well fitted to undertake and carry out the work for which he has tendered; on the other hand, it must be remembered, that Messrs. Meyer and Co. although a mercantile firm, have performed very large contracts for various public works, both in Victoria and South Australia, principally in supplying water pipes, hydraulic machinery, telegraphic apparatus, wire, insulators, &c., besides two small submarine cables for the Government of South Australia, and that so far as I have been able to learn, all the work undertaken by Messrs. Meyer and Co. have been performed most satisfactorily.

Upon the whole, I would recommend the acceptance of the tender of Messrs. Meyer and Co., under the belief that from the trustworthy manner in which they have already performed important services, amounting in extent to upwards of £200,000 for the Government of Victoria, they would no doubt fully maintain their present reputation in carrying out the work for which they have here proposed.

A question having arisen as to the advisability or otherwise of calling for tenders for the work in England, I deemed it necessary to give that point my serious consideration, with a view, if possible, of obtaining some advantages, and of perhaps effecting a saving or reduction in the probable expenditure; relative to which I would here observe that the main difficulties in the way of obtaining anything like a satisfactory offer in the mother country would, in my opinion, be the probable delay likely to be occasioned; the indisposition of any responsible contractor there to undertake the whole work, and, if carried out otherwise, the likelihood of difficulties or disputes arising between the land contractor and the marine contractor, the two works being, in this instance, so closely assimilated; the absence of pecuniary responsibility on the part of the officer or officers with whom the decision as to the tenders might rest; and, lastly, the uncertainty that the arrangements made in England would be so satisfactory to the respective Governments as if concluded here under their own especial surveillance. While upon this branch of my subject I would take occasion to suggest the advisability of communicating with

the Victoria Government, relative to the necessity for appointing some competent person in England to inspect the quality of the various materials to be employed in the construction of the proposed cable during the process of manufacture. I consider that the appointment of such an inspecting officer would afford great additional security for the efficiency of the work; and for the purpose of providing still greater safety against the introduction of inferior materials or defective workmanship, I would beg to suggest that the terms of the contract should specify the cable to be made in one continuous length of, say 120 miles, the various sections to be cut off accordingly as laid down. By this means not only would inspection into different portions of the cable be secured, while in process of submersion, but the surplus cable would be preserved entire, instead of being in several detached lengths or sections as would otherwise be the case.

With reference to the stipulation in Messrs. Meyer and Co.'s tender, clause 16, I would recommend that the tenderer (Mr. Oppenheimer) should be called upon for a further explanation relative to the terms proposed for payment. I quite concur in the view that it would be highly desirable on public grounds to secure the guarantee of the contractor for the period of thirty days; and as Mr. Oppenheimer is evidently desirous of recognizing his responsibility for a period of "seven days," I see no reason why he should object to the additional twenty-three, it being exceedingly improbable that communication having been established and maintained for the shorter period named would be likely to become interrupted during the longer one. In any case, however, I conceive that there should be no difficulty in the way of obtaining the required guarantee by the expenditure of some reasonable per-centage on the amount of the responsibility involved.

Having now, I trust, placed you in possession of my unbiassed and impartial opinion upon the highly important subject under consideration, I beg to return the several papers entrusted to me, and to leave the decision in the hands of your Government, in the full hope and confidence that whatever course may be adopted the result may prove all that could be desired; and in the belief that the Government which I have the honor to serve, and, on the present occasion, to represent, will be happy to express its approval of the judgment and energy exhibited by the Government of Tasmania in proceeding with the practical details of the work, so as to ensure the speedy realization of the vast advantages certain to arise from the early completion of this division of the chain of inter-colonial telegraphic communication, now so far advanced in the adjoining colonies; and as a worker towards the desired end, I may be permitted to add that my greatest gratification will be to lend all my energies to facilitate, by every legitimate means, the object in view, feeling sure that in its successful accomplishment my humble efforts will have been happily rewarded.

I have the honor to be,

Sir,

Your obedient Servant,

(Signed) SAMUEL W. McGOWAN.

To the Honorable F. M. Innes,  
Colonial Treasurer, Tasmania.

A few days subsequent to the date of the letter here quoted, the Government of Tasmania concluded a contract with the agent of Messrs. Meyer and Co. (Mr. Joseph Oppenheimer) for the satisfactory completion of the line, including the "thirty days" guarantee referred to in my letter, for the sum of twenty-five thousand pounds (£25,000), the additional amount being allowed in lieu of the provision of steam power by the Government, in laying down the cable, and as a bonus for the assumption by Mr. Oppenheimer of the entire risk connected with perfecting the establishment of telegraphic communication between the shores of Victoria and Tasmania.

This important matter having been thus settled, I lost no time in returning to Melbourne; but, shortly after my return, I was surprised at learning, that, owing to some unforeseen and sudden contingency, the contractor was subsequently obliged to relinquish his undertaking, and assume the liability of forfeiting his security deposit of £1,000. Although this unexpected occurrence threatened seriously to impede the progress of the work at the very outset, still, I am happy in being able to inform you, that the delay which ensued was only of a temporary nature, a fresh contract, upon precisely the same terms as the previous one, having been entered into, as soon as possible, with a responsible and capable firm, Messrs. Brown and McNaughton, resident in Tasmania, with whom the execution of the work now rests. The new contractors have, I understand, exhibited much energy in their proceedings, and, I believe, fully intend that their undertaking shall be completed early in the ensuing year—the land section of the line, through a portion of King Island being at present in progress, and orders having been promptly transmitted to England for the manufacture and shipment of the cable, instruments, &c.

While concluding my remarks upon this subject, I would allude to the visit, during last month, of F. M. Innes, Esq., the Honorable the Treasurer for Tasmania, upon whose representations the route originally determined for the line was materially altered. It will be remembered that, from the evidence adduced by Mr. Innes, respecting the impracticability of the land line upon the Tasmanian side to meet the submarine section at Cape Grim, it was decided that, instead of carrying the line from Sea Elephant Bay, King Island, to the north coast of Tasmania, *via* Hunter Island and Cape Grim, it should be taken from King Island to the Tamar Heads, near George Town, and embracing, *en route*, Circular Head.

In order that the several points considered and discussed at the time, which ultimately led to the adoption of the deviation referred to, may be the better understood, I deem it advisable here to quote the following letter, which I had the honor to address to you, and upon the suggestions which are contained therein, the concessions made by this Government were ultimately based:—

Department of Electric Telegraph,  
Office of the General Superintendent,  
Melbourne, 20th May, 1858.

Sir,

Having I trust, fully weighed and considered the several points touched upon in the letter of the Honorable Mr. Innes, the Treasurer for Tasmania, concerning the contemplated connection of the colonies by electric telegraph, *via* Bass's Straits, particularly with reference to the proposition of Mr. Innes on behalf of the Government of Tasmania, relating to a change in the route previously agreed upon for the course of the line; I respectfully beg to report—

That viewing the great importance which will attach to the proposed submarine portion of the work, I may be permitted to express my opinion, that too much attention can hardly be given to the consideration of all matters tending to ensure the largest amount of security and efficiency for that comparatively hazardous and expensive division of this interesting and valuable addition to the commercial intercourse not only of Victoria and Tasmania, but of the Australian Colonies generally.

I therefore purpose to pass the subject under consideration according to the various heads numbered in the communication of Mr. Innes.

1. The comprehensive views expressed in this paragraph are, I think, quite correct, and so far as they govern the mutual responsibility of the respective Governments in the probable amount of expenditure to be incurred, appears to me, fair and reasonable.

2. The direct interests of the two colonies should in my opinion, dictate the proper course or direction for the line, and the adjustment of proportionable liability should be finally decided and settled in the first instance, and not subsequently, as adverted to in the concluding sentence; the latter course involving the item of maintenance, which, I consider, should be kept distinct from that of primary establishment.

3. Referring to the expense of maintenance, I quite concur in the opinion, that it should be equally borne by the two colonies.

4. The scale of charges should be decided upon and published, under the approval of the two colonies in the same manner as that recently arranged between Victoria and South Australia, for the transmission of intercolonial messages; and the revenue for messages between Victoria and Tasmania should I think, be divided equally, but I would recommend that definite action as to the rate of charges should be deferred until the period for laying the cable shall have nearly approached, by which time we shall probably be in possession of some available data as to rates of charges upon intercolonial correspondence, which may prove of much practical value in arriving at a just and equitable conclusion as to definite arrangements.

I consider that it would be advisable to pay the revenue derivable from the telegraph into the general revenue fund of the colony, in which the collections may have been made, in preference to establishing an intercolonial telegraph fund as proposed by Mr. Innes; my reason being, that it would tend to greater simplifications in accounts, the total amount or the balance by comparison and deduction, payable to, or receivable from either colony, being adjusted at monthly or quarterly periods as most convenient, and the payments on account of expenditure being defrayed out of the general revenue of the respective colonies.

5. I see no objection to the proposition as to vesting the custody of the submarine section of the line in the Victoria Government, the Government of Tasmania of course reimbursing this Government upon demand, a share equal to one-half of the total expenditure incurred in the maintenance and direction of that portion of the work. I should wish it, however, to be clearly understood that this recommendation applies strictly to the submarine division, and not that this Government should be held liable for a share of the expenses of establishments in connection with the submarine line upon the main land of Tasmania.

Having had the honor of several personal conferences with Mr. Innes upon the subject of his present mission to this colony, and having duly considered the points involving the necessity for a change in the proposed line of route for the connecting line *via* Bass's Straits, I am prepared to recommend that the route should remain essentially the same up to Sea Elephant Bay, King Island, but from that point, instead of proceeding to Hunter Island, on a course to Cape Grim, as originally intended, the line should be carried to Three Hummock Island, thence in as nearly as practicable a straight course to the most favorable landing point near Circular Head, thence again seaward, keeping the most favorable soundings, without necessitating a too remote departure from the coast line, to the best landing in the vicinity of Tamar Heads, on the George Town side. I am not at present aware that the adoption of this course would place any additional difficulties in the way of the safe deposit of the cable in the supposed absence of any natural obstacles; but it would of course be necessary that accurate soundings and observations should be obtained between the points indicated, and that every precaution should be taken to guard against the likelihood of failure, either in depositing the cable, or as to its integrity after submersion.

I deem it unnecessary to make any lengthened allusion to the importance of carrying the line *via* Cape Otway and King Island in preference to the more direct route from the Port Phillip Heads to the Tamar River, having already given my reasons for advocating the King Island route in my first communication upon this important subject (addressed to Mr. Champ, Colonial Secretary of Tasmania in the month of August, 1856), further than to add that, since the date of that letter, I have become aware of nothing which would cause me to change the opinion expressed therein; but on the contrary, that personal observation during the interim has tended to strengthen my belief in the justness of my conclusions with reference to the advantages likely to be derived from adopting the course I first proposed.

I have the honor to be,

Sir,

Your obedient Servant.

(Signed) SAMUEL W. McGOWAN.

The Honorable the Postmaster-General, Melbourne.

In proceeding to carry out the work in accordance with the alterations decided upon, it will, of course, be necessary that a second survey of the line should be made, for which purpose the services of the S. S. *Victoria* will, no doubt, be required, when I trust that no less favorable positions for submerging the cable will be discovered, than have already been found upon the routes surveyed during the month of November last. Should I be enabled again to proceed in the *Victoria* upon the second survey, I purpose to take advantage of the occasion to obtain a line of traverse soundings over the entire distance, to be taken at much lesser intervals than before, in order that the fullest and most correct information may be available for the guidance of those entrusted with the submerging of the cable, and upon the reliability of which information, so much will depend in ensuring the ultimate certainty of the permanence of the communication.

I have to express my great regret on account of the unavoidable and unlooked-for delay which exists in respect to the opening of telegraphic communication with Adelaide; but the causes which have combined to occasion the frequent postponement of the opening, have been, I believe, of no ordinary character: the main difficulty consisting of a serious defection in a six-mile length of sub-aqueous line, upon a portion of the line westward of Guichen Bay, having only recently been determined, and the necessary arrangements for overcoming this obstacle being at present in active progress. Mr. Todd, the Superintendent of the South Australian lines, has, on several occasions, been in direct communication with me, working the line from Guichen Bay to Melbourne quite satisfactorily, and he is, I believe, untiring in his exertions to perfect his line with the least possible delay, so as to ensure its entire integrity between Adelaide and Mount Gambier, the terminal or repeating station, mutually agreed upon for the South Australia and Victoria inter-colonial line. When this shall have been accomplished, the communication will immediately be available, and the disappointment which has already been occasioned to a large portion of the public, in both colonies, will, I trust, be speedily removed.

I have much gratification in being able to state, that the business of the past six months exhibits a very marked increase upon the amount mentioned in my last Report, ending 31st December, 1857.

The following tabular statement, showing the general business of the department for the half-year, will, I am sure, be examined with great interest, not only by those whose office it is to record the advance of colonial progress, but also by the majority of persons who are daily in the habit of availing themselves of the invaluable advantages of this means of communication as a trustworthy and efficient agent in various branches of business and social intercourse :—

## STATEMENT,

Showing the GENERAL BUSINESS of the TELEGRAPH DEPARTMENT in VICTORIA, during the Half-Year ending 30th June, 1858.

Month.	Number of Private Messages.	Number of Messages on Public Service.	Value of Messages on Public Service.	Total Cash Receipts.	Total Number of Messages transmitted.
1858.			£ s. d.	£ s. d.	
January .....	6,825	886	371 18 3	906 15 7	7,711
February .....	7,240	1,091	499 4 10	1,051 15 1	8,331
March .....	8,302	1,019	516 11 1	1,266 18 1	9,321
April .....	7,858	1,057	474 17 1	1,213 5 9	8,915
May .....	7,870	1,045	530 12 1	1,265 14 3	8,915
June .....	8,205	1,261	659 1 10	1,180 14 6	9,466
Total ...	46,300	6,359	£3,052 5 2	£6,885 3 3	52,659

## GENERAL ABSTRACT.

The GROSS EXPENDITURE for SALARIES and EXPENSES incidental to the Working and Maintenance of the Lines, during the period included in the foregoing Return, amounts to £7664 3s. 1d.

## DEBITOR AND CREDITOR STATEMENT.

Dr.		Cr.	
	£ s. d.		£ s. d.
Total Expenditure for working and maintenance from 1st January to the 30th June, 1858 .....	7,664 3 1	By balance 31st December, 1857 .....	3,531 18 2
Balance.....	5,805 3 6	Revenue for the transmission of private despatches .....	6,885 3 3
		Value of the despatches on public service .....	3,052 5 2
	<hr/>		<hr/>
	£13,469 6 7		£13,469 6 7

As compared with the Half-Yearly Statement of 31st December, 1857, the foregoing shows an increase of 16,179 private messages; of Government despatches, 2902—increasing the amount chargeable upon the latter by £1380 16s. 6d., and the cash receipts by £1522 7s. 10d.; making the increase upon the total number of messages transmitted 19,081.

The total expenditure upon the lines already completed and in operation, from which the above returns have been obtained, has amounted to about £70,000 up to the present time, and the balance appearing in favor of the department upon the general receipts and disbursements for the half-year, £2273 5s. 4d., shows a surplus of rather more than 6½ per cent. per annum; but by adding to this sum the balance brought down from my previous Statement, the total balance is increased to £5805 3s. 6d.

It will thus be observed that the business of the lines continues steadily to increase as additions to the facilities for communication are from time to time established; and pleasing as it now is to notice this fact, I may add, that I look forward to the general



opening of the intercolonial lines with anticipation of a still greater increase to the revenue of at least three of our local lines, while, at the same time, the cost of working will not be materially increased.

The necessary preliminaries, under your own immediate direction, for establishing the money order system in this colony, during the ensuing month, upon a similar basis to the plan adopted, and so beneficially employed, in Great Britain, having been concluded, and printed instructions forwarded to the station masters at the several places where money orders are to be issued, in order that those officers may co-operate efficiently with the various postmasters entrusted with the management of the system, it cannot be doubted that the public will be eager to seize the advantages thus offered, and I anticipate a considerable increase in revenue to my department, on account of the probable extensive use which will be made of the telegraph in connection with money orders, particularly in cases where economy of time may be necessary. Facilities are at present provided for communicating by mail with places distant from telegraph stations, by which the sender of a message may have his communication mailed at the nearest station to the place of destination, by depositing at the transmitting office a sufficient number of postage stamps for that purpose.

The obvious advantages to be gained, in increased protection to life and property, by rendering the communication with the Heads available during the night, have not been overlooked, and had it not been for the disappointments suffered by the non-arrival of the necessary instruments for the purpose, arrangements would, ere this, have been made for the full accomplishment of the object named. As the supplies ordered are now, however, considerably overdue, and as fresh instructions have been forwarded upon the subject, I do not anticipate much further delay in the receipt of the several articles wanting.

With reference to the progress of the New South Wales division of the intercolonial lines, I learn, from Captain Martindale, R.E., Chief Commissioner of Railways, Sydney, that the line has been completed as far as Yass, but, owing to the absence of the requisite instruments, the communication has not been opened beyond Goulburn. A delay has also recently occurred in the progress of the work, through a strike on the part of a majority of the workmen employed by the contractor; but, notwithstanding the contingencies which have arisen, I believe it is expected that the line will be completed to Albury before November next.

Attached hereto will be found the half-yearly report of Mr. Ellery, the Superintendent of the Astronomical Observatory, Williamstown, in reference to which I may say, that the establishment continues to be maintained in a state of efficiency, and that the valuable services which it renders to mariners and the commercial interest generally are of such a nature as to merit special notice. I therefore beg to express a hope that, in preparing the Estimates for next year, the requirements of this important and useful branch may be properly provided for.

I have the honor to be,

Sir,

Your obedient servant,

SAMUEL W. MCGOWAN.

The Honorable the Postmaster-General.

&c., &c., &c.,

Melbourne.

# FIFTH HALF-YEARLY REPORT

OF THE

## ASTRONOMICAL OBSERVATORY.

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Williamstown, 30th June, 1858.

The Report which I have now the honor to submit completes the history of astronomical observation in the colony for the last five years; and although there is still much to be done before the Observatory and its appliances can be considered sufficiently complete to secure the full benefit which astronomical observation is calculated to confer upon not only science, but also upon some of the leading commercial interests of the colony, I still feel justified in saying that the progress which has been made during the last five years has been considerable, and warrants the hope that the next five years will place the Astronomical Observatory of Victoria on a footing with those of England and America.

### INSTRUMENTS.

The transit instrument, with which the principal observations have been made since the date of my last report, has continued to give satisfaction in its performance, although, during the last two months, some of the results of the level observations lead me to suspect that one of the pivots is losing its true cylindrical form. This, I fear, results from an unequal degree of hardness in the pivot itself. If I am right in my conjecture, the instrument will in time become useless, until the pivots are replaced, which would necessitate the sending of the instrument to the makers in London. The foundations of the piers of both the transit instrument and the clock appear to have become quite steady and settled, so that much labor in eliminating the instrumental errors is now saved.

Preparations are being made to adapt a registering apparatus to the clock (similar to those used at Greenwich and in the American observatories), by the aid of which much greater precision of observation is attainable, and the number of observations in a given time can be greatly increased. I expect to complete it in about two months.

The altazimuth instrument has not been much used for the last few months, and the number of observations made with it is limited, my chief attention having been directed to R.A. observations, especially of the moon. It forms a valuable addition to the Observatory, and affords great facilities for extra-meridional observation. The instrument itself is in good working order, and gives satisfaction in its performance, but, as I have mentioned in my previous reports, its low power greatly limits its capability for work. Its foundation has become very steady, and its adjustments generally remain constant.

### OBSERVATIONS.

As heretofore, observations with the transit instrument of right ascension form the greatest portion of the work. Beyond the meridian observations for time regulation, cataloguing stars and observations of the moon have been my principal study.

Extra meridional observations have been made of occultations and for the declinations of a few stars.

During the six months elapsed since my last report, 383 transit observations, 351 level observations, 28 observations with the transit collimator, and 47 observations out of the meridian with the altazimuth circle have been made; altogether, 809 observations of all kinds.

### CALCULATIONS.

The calculations of observations, the results of which are immediately required, are almost the only ones my time allows me to make; the other observations remain most of

them unreduced, assistance for which I hope will occasionally be allowed me. Several calculations for the difference of the longitude of the Observatory from Greenwich have been made from observations of the moon's right ascension, the results averaging as follows:—

From observation during 1857.				From observations from January to June, 1858.			
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>sec.</i>	<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>sec.</i>
9	39	58	578	9	39	56	104

### REGULATION OF TIME, TIME BALLS, CHRONOMETERS, ETC.

At the date of my last report, a new time ball was in course of erection on the tower of the Electric Telegraph Station, to which the Observatory is attached. It has been since completed, and in the principle of its construction has proved quite successful, although, from some defects in the workmanship, a few trivial repairs have been lately required. The site, I believe, is not so good as could be desired: the commanders of vessels generally complain that it is not high enough. The time signal at the Lighthouse is given every night as heretofore, and is of great convenience to mariners whose vessels lie in positions from whence the time ball cannot be seen at one o'clock. The Melbourne time ball has been out of use for some time, the apparatus having become unfit for service: a new one is in course of construction. It is to be regretted that no time ball is erected at Geelong or Queenscliff yet; at the latter place especially its value to navigators could scarcely be over-estimated.

Thirty-six applications for errors, &c., of ships' chronometers have been made during the half-year. Pertaining to this subject, I would beg to call attention to the suggestions in my last report, viz., the advisability of adopting the same plan as the Board of Trade at Liverpool, of subjecting all chronometers sent to the Observatory to the tests for variation of temperature.

The general regulation of time through the medium of the telegraph, is made daily at noon, and at other times as required. I would here beg to point out the great benefit of adopting the electric clock and sympathetic dial system of time regulation, not only throughout the telegraph stations, but for all the public clocks, as suggested in my previous reports. I take the liberty of quoting a paragraph from the Twentieth Report of the Astronomer Royal to the Greenwich Board of Visitors on this subject:—

"Application has been made to me from one of the important offices of Government, for the galvanic regulation of their clocks. On considering the risks to which various galvanic communications are liable, and the financial necessity of occupying wires as little as possible, I perceived it was necessary to devise constructions which would satisfy the following conditions:—First, that a current sent once a day would suffice for adjusting the clock, even if it had gone ten or more seconds wrong. Secondly, that an occasional failure of the current should not stop the clock. I have arranged constructions which possess these characters. \* \* \* \* I think it likely this may prove to be the beginning of a very extensive system of clock regulation." I might add, that the Astronomer Royal's system is now quite general in England.

### GENERAL REMARKS.

The present state of the Observatory is far from perfect, and it is highly desirable that some additions should be made to turn to the best account the labor which is necessarily bestowed on it. The utility and necessity of the Astronomical Observatory cannot be doubted, when its chief object is the facilitating the navigation of vessels to and from this port, especially on long voyages; and when added to this, that with efficient instruments, every observation made is adding an item to the science of astronomy, and aiding in the perfection of nautical tables, the maintaining the Observatory efficiently becomes a legitimate demand on the consideration of the Government. As I have before stated in my reports,—to place the Observatory on a most efficient footing, it will be necessary to erect a substantial building on an approved site; and the staff of instruments necessary beyond those already in position, would require an expenditure of about £3000.

A powerful equatorial, of dimensions and capabilities sufficient for all practical purposes, would form the most expensive item, and a refracting is now generally adopted in preference to a reflecting instrument, as being of greater practical utility, and not so expensive either in first cost or maintenance. An instrument of such a kind, with lenses manufactured by the best artists in Europe, would cost from £1200 to £1500. This instrument, together with a transit circle (the immediate procural of which is indispensable), and a zenith sector, would form the more important staff of instruments.

The immediate requirements of the present Observatory are—a transit circle, on the plan of the Astronomer Royal, and a sidereal clock. If the electric system of regulating public time is adopted, an electric clock should be added.

In conclusion, I would state that the Magnetic Observatory, under the direction of Professor Neumayer, and the Astronomical Observatory, are now placed in telegraphic communication, and that means are in preparation for the determination of the difference of the longitude of the Magnetic from the Astronomical Observatory; and I desire to express my appreciation of the courteous liberality with which Professor Neumayer has offered me his valuable assistance in the matter. We have made all the preliminary arrangements for comparing and combining our observations wherever we can profitably do so; and I feel assured that the communication existing between the two Observatories, and the cordial co-operation which it is the desire of Professor Neumayer and myself to maintain, will largely conduce to the progress and usefulness of the establishments over which we are privileged to preside.

ROBT. L. J. ELLERY,

*Superintendent of Astronomical Observatory.*

The General Superintendent of Electric Telegraph,  
Melbourne.