

SIXTH ANNUAL REPORT

ON THE

WORKING AND PROGRESS

OF THE

NEW ZEALAND TELEGRAPH DEPARTMENT.

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PRESENTED TO BOTH HOUSES OF THE GENERAL ASSEMBLY, BY COMMAND OF  
HIS EXCELLENCY.

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WELLINGTON.

—  
1870.



SIXTH ANNUAL REPORT  
OF THE  
TELEGRAPH DEPARTMENT, NEW ZEALAND.

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Office of the Commissioner of Telegraphs,  
Wellington, July 30th, 1870.

SIR,— I have the honor to submit to your Excellency a Report as to the operations of the Telegraph Department of New Zealand during the year ending 30th June, 1870, being the Sixth Annual Report on the subject.

I have, &c,  
JULIUS VOGEL,  
Commissioner of Telegraphs.

His Excellency Sir George Ferguson Bowen, K.C.M.G.  
Governor of New Zealand.

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REPORT.

Satisfactory progress has, during the year, been made in extending the telegraph in the North Island; and the Tokomairiro to Queenstown (Lake Wakatipu) section having been purchased from the Provincial Government of Otago, the system throughout the Colony is now wholly under the control of this Department. The uniform charge of 2s. 6d. for an ordinary telegram of not more than ten words, irrespective of distance, has been reduced to 1s.; a similar reduction has been made on Provincial Government messages; and the Press Telegram rate has also been greatly reduced. It need only be said here, that the policy of such reductions has been proved to be a sound one; and that most complete details as to the results of the change will be found in other parts of this report, and in the valuable tables comprised in the Appendix. A system of Telegraph Money Orders has been established. It bids fair to be most useful; but it has not been in operation for a sufficient time to warrant the expression of a definite opinion.

EXTENSION OF LINES.

During the past year, some of the lines in course of construction at the close of the financial year 1868-9 have been completed. They are as follow:—

*Wellington, to Wanganui and Patea.*

The length of this line is 180 miles, namely—Wellington to Wanganui, 140 miles; Wanganui to Patea, 40 miles.

The poles between Manawatu and Waikanae, on the Wellington and Wanganui section, were supplied by Natives; the remainder were supplied, under contract, by Mr Bull, of Rangitikei. The line between Rangitikei and the foot of the Paikakariki was erected by the Natives, under the supervision of Mr. Blake, Inspector, and two linemen. The other portions of each section were completed, under contract, by Mr. O'Malley, the late contractor for the Tenui and Napier line.

All the poles on this line are of heart of totara, and it is not anticipated that, except from casualties, any very heavy outlay for maintenance will be required for many years.

Stations have been opened at Otaki, Marton, Wanganui, and Patea, all in connection with the Post Office, except at Wanganui. It is intended hereafter to open a station at Foxton, the line having, with that object, been diverted from the sea coast.

The total cost of the line has been £10,093 12s. 3d., or equal to £56 1s. 6d. per mile. Fuller particulars of the cost of construction will be found in Table A.

Great delays were experienced at first in the works, between the Waikanae and Ohau Rivers, through the unwillingness of the Natives to allow the line to be erected. That unwillingness was however happily overcome by the assistance of the Hon. Dr. Featherston, the Superintendent of the Province.

*Hamilton to Cambridge.*

The old Military line between Newcastle and Alexandra having become much decayed, it was thought advisable to carry the line from Hamilton to Cambridge (twelve miles), and to repair that portion of the old line between Cambridge and Alexandra. This has been done; telegraph communication is maintained with Alexandra via Hamilton and Cambridge; and the old Military line between Newcastle and Alexandra has been dismantled. The cost of the twelve miles of new line between Hamilton and Cambridge is included in that of reconstructing the line from Auckland to Newcastle.

## REPORT ON THE WORKING OF

*Auckland to Newcastle.*

This section of the Waikato line has been entirely reconstructed during the year. Two wires have been run as far as Mercer on the new poles, in order to give increased accommodation when telegraph communication is open with the Thames. Totara posts have been used throughout in the reconstruction of this section; in fact, from Auckland to Cambridge, the poles are all totara. The cost of the reconstruction to Newcastle, including the additional wire from Auckland to Mercer, and the twelve miles of new line to Cambridge, has been £3688 13s. 11d., or equal to £44 19s. 8d. per mile. Further details will be found in Table A.

## LINES IN COURSE OF CONSTRUCTION.

*Mercer to the Thames.*

This line has been completed from Mercer to Pukorokoro, and from the station at Grahamstown to Piako. Should no unforeseen difficulties occur, communication between Auckland and Grahamstown will in all probability be completed by the middle of July.\*

*Taupo Line.*

This line extends from Napier to Tapuaeharuru, a distance of ninety miles, and is all but completed. The great difficulties in procuring poles, and in conveying the wire and insulators to the line of route, have considerably retarded the progress of the work. There is, however, every reason to believe that Wellington will be in telegraphic communication with Tapuaeharuru by the first week in July, as at the time of closing this report the construction of the line was completed to within two miles of Tapuaeharuru. The construction of this line is under the supervision of Mr Bold.

*Tapuaeharuru to Tauranga, via Maketu.*

The contract for supplying and delivering poles on this line has been let, and is being rapidly proceeded with. All the material for the wiring has been landed at Tauranga and Maketu. Eight miles, commencing at Tauranga, have been erected, and it is expected that the line will be finished by the end of July. It is intended to open a station at Tauranga, and a lineman's station half-way between Tauranga and Tapuaeharuru. The posts are all to be of totara. The works have been placed under the charge of Mr Walter Blake. The estimated length of the line is between 100 and 110 miles.

*Alexandra (Otago) to Naseby.*

At the request of the Provincial Government of Otago, preliminary operations have been commenced on this line. The survey was completed some time since, and the contract for the supply and delivery of poles (all heart of totara) has been let to Mr G. Proudfoot. The line, after leaving Alexandra, will pass by the township of Blacks, cross the Manuherikia at Beck's, run through the township of Hill's Creek, and thence along the main road to Naseby. Owing to the great distance whence poles had to be obtained, and as carting them would have to be done during the most inclement season, it was thought advisable to make the contract time as long as possible, and thus to lessen the cost. Should the material ordered from England arrive in time, however, it may be hoped that Dunedin will be in telegraphic communication with Naseby by the end of October at latest.

## MAINTENANCE AND REPAIRS.

*Bluff to Balclutha.*

Bluff Harbor to Invercargill (twenty miles). The insertion of new poles, all of totara, will shortly be commenced, a contract for the supply and delivery of such poles along the line having been let to Messrs. Driver, M'Lean and Co., lessees of the Southland Railway. It was thought advisable not to call for tenders for this work, as whoever might have obtained the contract would have been compelled to use the railway for delivering the poles.

From Invercargill to Balclutha, the poles have been lowered, new ones put in where necessary, and the route altered in some places. This section will probably not require new poles for two or three years, but none of the poles recently lowered can be expected to last for more than three years from the present time.

A station will shortly be opened at the Mataura, about half-way between Invercargill and Balclutha, which, apart from the accommodation it will afford to the public, will be most valuable in cases of interruption on the line.

*Balclutha to Waitaki.*

The Balclutha to Waikouaiti portion of this section has been entirely renewed with totara poles, and a third wire has been run from Dunedin to Tokomairiro, in order to give Dunedin direct circuit with the gold fields line. Important alterations have been made in the route, by which the stability of the line has been greatly improved, and its length considerably reduced, thus materially lessening the cost of future maintenance. From Waikouaiti to the River Waitaki, the line is now being thoroughly examined and repaired, and this work will probably be completed in a few months.

*Waitaki to Christchurch.*

Between the Waitaki and Rakaia Rivers, the line has been thoroughly overhauled, and is now in very fair condition. From the Rakaia to Christchurch, new poles of totara have been inserted, and this portion of the line may be considered nearly equal to new. A post and telegraph station will shortly be opened at Waimate, between the Waitaki and Timaru; tenders for the erection of buildings having been advertised for.

\*Communication was completed on the 27th of July.

*Christchurch to Hokitika and Greymouth.*

From thirty miles east of Hokitika to Greymouth, this line has undergone extensive repairs, and is now in excellent condition.

The section between the Bealey and Christchurch may require to be poled during next summer. One or two severe casualties have happened on the Bealey to Hokitika section during the last few months; but otherwise the maintenance of the line has been within the ordinary cost. Occasionally this line does not work well, owing to the presence of atmospheric electricity on the wire. The line for the most part runs over very high country, and its general direction is east and west.

*Greymouth to Westport.*

This section has been several times injured by falling trees; but, except in repairing such or similar damages, only ordinary expenditure has had to be incurred. But little deterioration is apparent, and, apart from it, the section seems in as good condition as when it was opened.

*Christchurch to Blenheim.*

From Christchurch to Woodend, fourteen miles, has been re-poled, thus completing the reconstruction commenced by Mr. Blake, in 1868. From Woodend to Blenheim, little beyond cost of maintenance has been required. At the River Waiiau, floods have frequently caused accidents, such as it is hoped have now been rendered almost impossible; the line having been secured by an iron-tube pole, driven twenty feet into the shingle bed of the river. Details of the cost of maintenance, including reconstruction between Christchurch and Woodend, are stated in Table L.

*Blenheim to Nelson.*

From Blenheim to Picton fourteen miles of new totara poles have been erected, and the wires have been thoroughly repaired. The Picton to Nelson section has not required repair. The reconstruction of the portion between Havelock and Nelson was completed shortly after the date of the last report. A short distance, between Picton and Havelock, will require to be re-poled during the summer. This part of the line being very difficult of access, it is intended in the reconstruction to use built poles, of picked heart of totara. Such poles do not cost more than 12s. each, and being extremely light they are eminently adapted for places where it would be almost impossible to use ordinary poles.

*Tokomairiro to Queenstown.*

On December 1st, 1869, this line was bought from the Provincial Government of Otago; and the transference of the telegraph throughout the Colony was thus completed. The price was settled by arbitration; Mr Logan acting for the Provincial Government, and Mr Bird for the General Government. The price as settled for the line, buildings, instruments, &c. was £2,384 2s. 6d. New material imported by the Provincial Government, including 1,120 iron poles, was taken over at invoice price, with charges added (£2,047 18s. 10d.), making the total purchase money £4,432 1s. 4d. Owing to the bad condition of the line, immediate reconstruction was deemed advisable, and is now being carried out under the supervision of Mr Logan, the iron poles being used. Up to date, the work has been carried as far as Alexandra.

*Wellington to Napier.*

The casualties on this section during the year have been very few. One great source of trouble, the falling of trees on the line in the Tauera Bush, has been removed; the lineman having, in the course of the summer, cut down all doubtful trees that would, by falling, have been likely to cause injury. The cost of this work has been amply repaid, no interruption having since occurred in the bush. At the Hutt River two large poles have been erected, and the one on the Wellington side (because of the constant encroachment of the river) has been placed some chains back from the bank, and may now be regarded as out of danger.

The station at Castle Point has been converted into a lineman's station. The arrangement answers well and saves at least £150 per annum. At the Hutt, a station has been opened and the duties of Telegraphist and Postmaster are performed by one officer. Details of the expenditure for the maintenance of each section, will be found in Table L.

## COOK STRAIT CABLE.

The tests for insulation have been more regularly taken this year than they were last year. Nos. 1 and 3 wires, as will be seen from Table M, still give satisfactory results; but No. 2 is not so good as could be wished.

## MISCELLANEOUS.

Six complaints by the Public have been recorded during the year, namely:—Three, of late delivery; one, of breach of confidence; one, of wrongly taking down; one, of failing to deliver a message. Each complaint was strictly enquired into, and measures were taken to avoid cause for similar complaints.

The number of telegrams transmitted during the year was 185,423. Considering this large amount of work, it may fairly be said that the duties of the staff have been very satisfactorily performed.

Owing to the rapid extension of the Telegraph in the Northern Island, and to the general requirements of the service, the Learners' Gallery has been fully occupied during the year. Eighteen Cadets have been instructed and have been appointed either to fill vacancies caused by the opening of new stations or to enable the General Manager to provide for contingencies. During the current year, only a few such appointments may be made; their number depending to a large extent upon future extension of lines.

Arrangements have been completed for the reception of telegrams at the Post Offices throughout the Colony; forms and envelopes being procurable at each office. The messages are sent through the Post Office free to the nearest Telegraph Station; but each telegram must be prepaid by postage stamps affixed. As the arrangement only came into force on the 1st June, no statistics are available; but there can be no doubt that it will be a great boon to residents out of the reach of a telegraph station. In the event of a telegram not being sufficiently stamped, the deficiency is collected on delivery.

On the 15th of June, a system of Money Order Telegrams was instituted. The money part of the transaction is completed by the Post Office, this Department simply telegraphing the respective orders and advice. The arrangements are such as not to interfere in any way with existing money order regulations. The public have already largely availed themselves of this privilege—a very great one, in all cases in which the saving of time in the payments of small sums is of importance.

Table K. contains a statement of the number of telegrams and of letters despatched within each Province during the year, as compared with the totals for each of the previous two years. It will be seen that the per centage of telegrams to letters shows a large increase during last year.

#### FINANCIAL.

On the 1st of September, 1869, a uniform rate of charge for ordinary and Provincial Government telegrams was established, namely—2s. 6d. for the first ten words, for any distance, and 6d. for each additional five words, or fraction of five words; Press telegrams being charged, for the first ten words, 1s. 6d., and for each additional ten words, or fraction of ten words, 6d. On the 1st April, 1870, a further reduction was made to—Ordinary and Provincial Government telegrams, 1s. for the first ten words, for any distance, and 6d. for each additional five words, or fraction of five words; and Press telegrams, 6d. for the first ten words, and 6d. for each additional fifteen words, or fraction of fifteen words. The charge for the signature of the sender of Press telegrams was at the same time discontinued.

From table B, it will be seen that the total number of telegrams despatched during the June quarter under the the Shilling Tariff, shews an increase of 22,565 over those during the previous quarter under the half-crown tariff, whilst the cash receipts show a decrease of £101 17s. 6d. Thus the public was largely benefited by the reduction, the Department doing nearly double the amount of work, and the Government receiving £100 less revenue. It cannot, however, be doubted, that as telegraphic facilities are extended—especially by the opening through to Auckland—and as the advantages of a general use of “the wires” come to be appreciated, the reduction of charges will prove a gain to the revenue as well as a great boon to the community.

The details furnished last year of the total number of telegrams of each code, and the receipts for each, will be found repeated in Tables C, D, E, F, H. The table shewing the total value of business, the total cash receipts, and the cost of maintenance of each station (G) will be found to be interesting.

The number of telegrams of all codes transmitted during the year was 185,423, or an increase of 29,256 on the number (156,167) during 1868-69. This increase is, to some extent, due to the work performed on the old provincial lines, and to the opening of new stations—but it is mainly attributable to the increased facilities given to the public by the reduced charges. The immediate effect of the reduction was well shewn by the fact that during April (the first month it was in force), the users of the telegraph for private purposes were 1333 in excess of those during March.

The total cash revenue of the line from Bluff to Napier, including the Patea line (Table I.), amounts to £16,799 18s. 1d.; the total value of business done during the same period being £28,233 2s. 6d. After deducting the cost of maintenance of stations (£14,745 12s. 8d.), and of maintenance and reconstruction of lines (£12,392 13s. 5d.) this leaves a balance of £1,094 16s. 5d. to the credit of this portion of the line.

The returns of the Auckland line, treated in the same way (Table J.), shew an excess of expenditure over receipts of £2,162 1s. 3d.; but after deducting the amount to the credit of the Bluff, Napier, and Patea line (£1,094 16s. 5d.), there remains only £1,067 4s. 10d. to the debit of the Department. At least £6,000 of the cost of maintenance of Southern lines might, however, be fairly charged to construction, so that there might be said to remain a balance to the credit of the Department of close on £5,000.

The total cash receipts of both lines is £17,218 1s. 4d.; and the total value of business done £29,470 7s. 4d.—(Tables I. and J.).

Considering the depressed state of the colony during the year, the prospects of the Department may be regarded as encouraging, and it can confidently be said that the public fully appreciate the advantages resulting from the reduction of charges, by which the telegraph is made a means of convenience usable by all, instead of a luxury, or a costly necessity in cases of emergency.

## PRE-PAYMENT FOR TELEGRAMS, TO GREAT BRITAIN AND OTHER COUNTRIES.

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MEMORANDUM FOR HIS EXCELLENCY THE GOVERNOR.

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THE Commissioner of Telegraphs respectfully requests His Excellency to move the Secretary of State for the Colonies to communicate with the Post Office and Telegraph authorities at Home, with the view of ascertaining whether some facilities cannot be afforded for the receipt and transmission of Telegrams to or from the Mother Country. The Commissioner believes that very extensive use would be made of the Telegraph, if persons could feel assured that, without the necessity for writing to a special or other correspondent in each case, Telegrams would be conveyed to the nearest port in Great Britain or a Colony, and be thence at once forwarded to their respective destinations. Such an arrangement would be especially valuable to New Zealand, which may be entered at so many different ports, from so many different points.

It has been the object of the New Zealand Government to enable residents in other countries to forward Telegrams to the Colony, through the nearest station to be thence transmitted to their destinations. To effect this purpose, three things are necessary:—1. That the rates of charge should be generally known.—2. That a convenient means of paying for the Telegrams should be afforded.—3. That separate Post Bags containing such Telegrams should be made up, and be forwarded to the nearest Telegraph Station in New Zealand, for transmission to their destination. On the other hand, it would doubtless be a great convenience to residents in the Colonies, if bags of Telegrams could, in a similar manner, be sent to Great Britain, under an arrangement for their delivery to the telegraphist at the nearest station, and for their being duly transmitted thence.

The Commissioner for Telegraphs suggests—That the rates of charge for telegraphic messages within Great Britain should be made known in New Zealand, and that New Zealand stamps should be declared receivable as payment of telegraphic charges; such stamps, uncanceled, to be returned to the Colony, and payment to the amount of the same to be made by the Colonial Government. In the same way, the Colonial Government would be willing that telegrams from Great Britain for any part of the Colony, should be paid for in English stamps, if the English authorities would agree to refund to the Colony the amount of such stamps on their being forwarded home uncanceled. The English Post Office authorities should also agree to make up a special bag of telegrams, as already described.

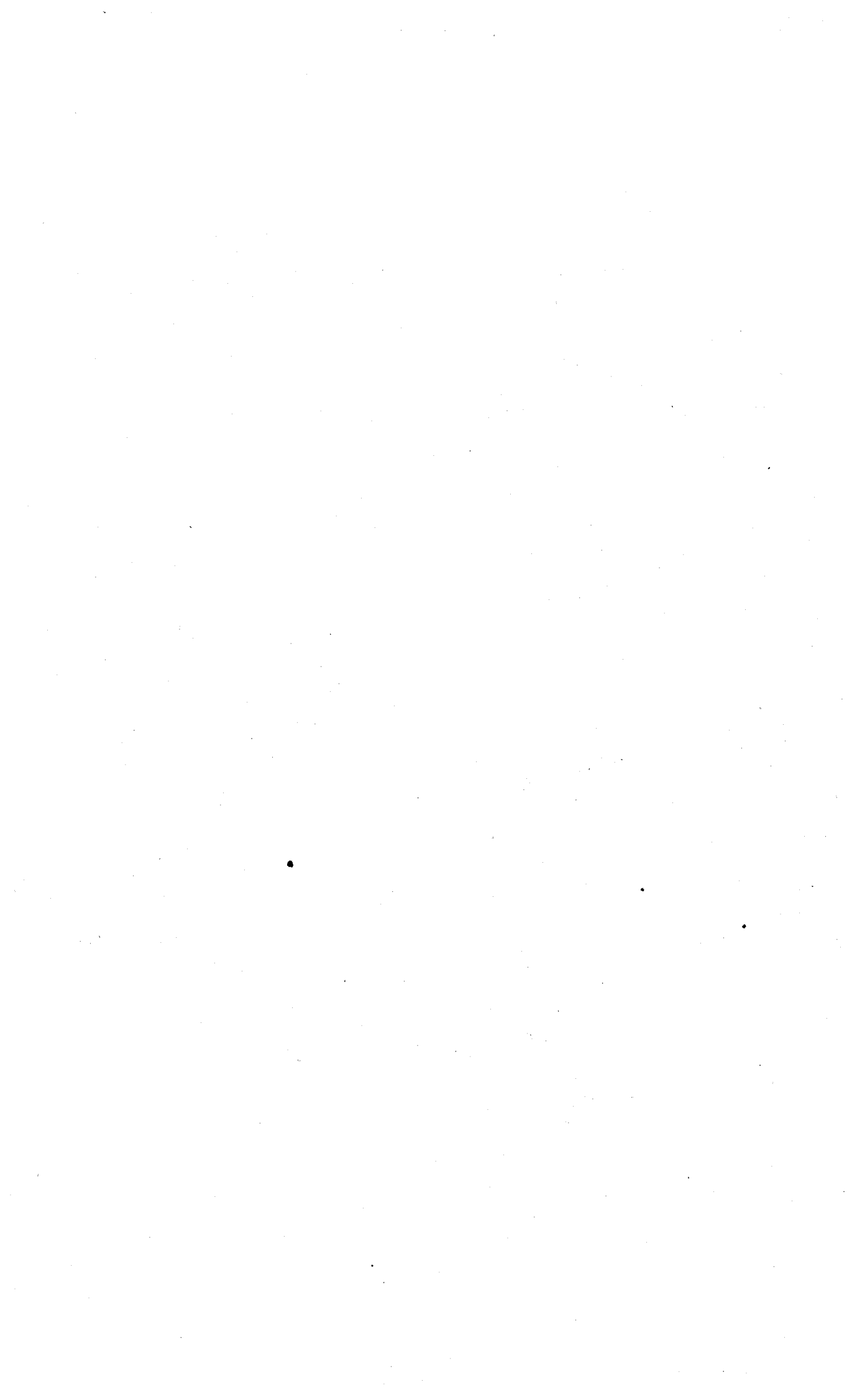
The Commissioner ventures to suggest, that it would be a very great boon, and very greatly calculated to promote interchange of communication throughout the world, if the Imperial authorities would endeavour to arrange with all countries possessing interior lines of telegraph, for the affording of such facilities as are herein proposed; and the Commissioner thinks that the matter would be a simple one, as regards any country in which postal or other stamps are used.

The Commissioner encloses herewith copies of the rates of charge adopted in New Zealand, together with forms for the transmission of messages. It would not, however, be necessary that those forms should be used or adhered to in carrying out the plan proposed. It would be well that the authorities at home should be asked to state whether they would make it a condition of entering into an arrangement, that the authorised English forms should be adopted; and if so, the authorities should be requested to send out to the Colony a considerable supply of such forms.

JULIUS VOGEL.

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THE TELEGRAPH DEPARTMENT.

Table A.

TOTAL COST OF THE LINES OF TELEGRAPH throughout New Zealand, and of the COOK'S STRAIT CABLE.

SECTION OF LINE.	Length of Section in Miles.	Cost of Clearing Bush.			Total Cost of Poles for Section, including Delivery.			Cost of Wire Arms, Insulators, &c. including Cartage.			Cost of Erection.			Total Cost of Section.			Cost per Mile.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Bluff to Invercargill... ..	19	...	...	...	...	...	...	...	...	812	15	6	812	15	6	42	15	6a	
Invercargill to Maitara ... ..	32	...	...	...	1,199	0	0	739	1	4	469	11	0	2,407	12	4	75	4	9
Maitara to Waitaki... ..	189	...	...	...	8,353	18	0	3,034	7	9	1,720	13	3	13,108	19	0	69	7	0
Waitaki to Hurunui... ..	218	...	...	...	6,554	8	8	3,427	13	6	3,760	19	0	13,743	1	2	63	0	7b
Hurunui to Nelson ... ..	241	1,229	3	3	5,213	14	0	3,953	3	4	3,661	6	0	14,057	6	7	58	6	0c
White's Bay Line ... ..	7	...	...	...	...	...	...	...	...	503	12	6	503	12	6	71	18	11d	
Port Chalmers ... ..	8	...	...	...	...	...	...	...	...	800	0	0	800	0	0	100	0	0e	
Christchurch to Greymouth... ..	176	...	...	...	...	...	...	...	...	3,808	0	0	3,808	0	0	21	12	9f	
Greymouth to Westport ... ..	67	1,951	7	6	1,070	16	5	960	15	4	3,019	17	9	7,002	17	0	104	10	5g
Blenheim to Woodend, recon- struction, including White's Bay line (194 miles) ... ..	...	100	0	0	5,136	12	5	2,022	15	4	3,484	12	0	10,743	19	9	55	7	7
Tokomairiro to Queenstown... ..	140	...	...	...	...	...	...	...	...	4,432	1	4	4,432	1	4	31	13	2h	
<b>Total Middle Island... ..</b>	<b>1,097</b>	<b>3,280</b>	<b>10</b>	<b>9</b>	<b>27,528</b>	<b>9</b>	<b>6</b>	<b>14,137</b>	<b>16</b>	<b>7</b>	<b>26,473</b>	<b>8</b>	<b>4</b>	<b>71,420</b>	<b>5</b>	<b>2</b>	<b>65</b>	<b>2</b>	<b>1i</b>
Lyal's Bay to Wellington ... ..	4	...	...	...	123	5	0	104	6	0	57	15	0	285	6	0	71	6	0
Wellington to Patea via Wan- ganui ... ..	180	67	18	6	4,647	12	7	2,315	9	5	3,062	11	9	10,093	12	3	56	1	6k
Wellington to Masterton ... ..	59½	264	4	6	...	...	...	839	4	4	2,357	6	3	3,460	15	1	57	18	4l
Masterton to Castle Point ... ..	35½	22	15	1	...	...	...	388	18	6	1,267	9	1	1,679	2	8	46	19	6l
Castle Point to Porangahau... ..	53	176	9	4	2,362	10	0	722	18	6	1,105	16	10	4,367	14	8	82	8	2m
Porangahau to Napier ... ..	68	74	0	0	2,459	15	6	918	9	8	1,252	10	2	4,704	15	4	69	3	9m
Auckland to Cambridge, via old line to Alexandra, in- cluding branch line to Hamilton ... ..	152	...	...	...	...	...	...	...	...	3,256	0	0	3,256	0	0	21	8	5n	
Auckland to Newcastle, recon- struction 70 miles, includ- ing new line from Hamil- ton to Cambridge, 12 miles	12	...	...	...	1,393	14	6	841	15	9	1,453	3	8	3,688	13	11	44	19	8
<b>Total North Island ... ..</b>	<b>564½</b>	<b>605</b>	<b>7</b>	<b>5</b>	<b>10,986</b>	<b>17</b>	<b>7</b>	<b>6,131</b>	<b>2</b>	<b>2</b>	<b>13,812</b>	<b>12</b>	<b>9</b>	<b>31,535</b>	<b>19</b>	<b>11</b>	<b>55</b>	<b>17</b>	<b>4o</b>
<b>Total Middle Island... ..</b>	<b>1,097</b>	<b>3,280</b>	<b>10</b>	<b>9</b>	<b>27,528</b>	<b>9</b>	<b>6</b>	<b>14,137</b>	<b>16</b>	<b>7</b>	<b>26,473</b>	<b>8</b>	<b>4</b>	<b>71,420</b>	<b>5</b>	<b>2</b>	<b>65</b>	<b>2</b>	<b>1i</b>
<b>Total ... ..</b>	<b>1,661½</b>	<b>3,885</b>	<b>18</b>	<b>2</b>	<b>38,515</b>	<b>7</b>	<b>1</b>	<b>20,268</b>	<b>18</b>	<b>9</b>	<b>40,286</b>	<b>1</b>	<b>1</b>	<b>102,956</b>	<b>5</b>	<b>1</b>	<b>61</b>	<b>19</b>	<b>4p</b>
Cook's Strait Cable, including freight from London, and expense of laying... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	29,864	0	0	...	...	...
<b>Total Expenditure (exclusive of lines in progress. ... ..</b>	...	...	...	...	...	...	...	...	...	...	...	...	...	<b>132,820</b>	<b>5</b>	<b>1</b>	...	...	...

Total number of miles of Line, 1661½; total number of miles of Wire, 2897.

a Purchased from Southland Government. b Includes £450, purchase of Lyttelton line. c Approximate cost. d Approximate cost of Poles, &c. e Purchased from private firm. f Purchased from Canterbury Government. g Six per cent. and difference between receipts and cost of maintenance guaranteed by Nelson Government. h Purchased from Otago Government; total cost includes £2047 18s. 10d. for new material. i Average cost per mile, Middle Island. k Includes cost of exploration of three routes; one by Waipukurau and Wanganui; one by Masterton and Wanganui; and one by Wellington and Wanganui (present route). l Supply of Poles and supervision included in cost of erection. m Survey and supervision included in cost of erection. n Of this amount £2,276 was paid to the Imperial Government as purchase of the line; the balance, £980, is the cost of extension from Ngaruawahia to Hamilton, and from Alexandra to Kihikihi. o Average cost per mile, North Island. p Total average cost per mile.

Table B.

ORDINARY, PRESS, and PROVINCIAL GOVERNMENT TELEGRAMS despatched during each QUARTER of the YEAR ended 30th June, 1870, and the REVENUE derived from each Class.

	SEPTEMBER QUARTER, 1869.		DECEMBER QUARTER, 1869.		MARCH QUARTER, 1870.		JUNE QUARTER, 1870.	
	No. of Telegrams	Revenue Derived.	No. of Telegrams	Revenue Derived.	No. of Telegrams	Revenue Derived.	No. of Telegrams	Revenue Derived.
Ordinary Telegrams ... ..	24,307	3753 17 0	21,972	3558 13 0	23,351	3781 10 6	44,788	3636 10 0
Press Do. ... ..	1,152	340 4 3	853	216 18 0	740	182 4 0	1,460	241 14 0
Pro. Govt. Do. ... ..	877	271 10 1	897	216 11 0	870	198 17 0	1,278	182 10 0
<b>Totals ... ..</b>	<b>26,336</b>	<b>4365 11 4</b>	<b>23,722</b>	<b>3992 2 0</b>	<b>24,961</b>	<b>4162 11 6</b>	<b>47,526</b>	<b>4060 14 0</b>

The half-crown tariff came into operation on 1st September, 1869, and the present shilling tariff on 1st April, 1870.

REPORT ON THE WORKING OF

Table C.

ORDINARY TELEGRAMS despatched from EACH STATION during Year ending 30th JUNE, 1870.

NAME OF STATION.	1869.				1870.				TOTALS.			
	SEPTEMBER QUARTER.		DECEMBER QUARTER.		MARCH QUARTER.		JUNE QUARTER.		No. of Telegrams.	Amount.		
	No. of Telegrams.	Amount.	No. of Telegrams.	Amount.	No. of Telegrams.	Amount.	No. of Telegrams.	Amount.				
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Alexandra, Otago	...	...	...	...	...	...	...	...	...	...	...	...
Balclutha	281	31 18 6	66	11 18 0	127	19 1 0	199	14 13 0	392	45 12 0	...	...
Bealey	55	7 8 0	203	31 4 0	228	35 1 6	433	31 14 6	1,145	129 18 6	...	...
Blenheim	561	68 15 2	535	7 3 6	53	7 17 6	61	3 19 0	220	26 8 0	...	...
Bluff	271	35 3 8	241	84 8 6	579	96 4 0	1,021	82 7 6	2,696	331 15 2	...	...
Brighton	254	28 1 4	158	38 2 0	182	28 0 0	334	25 0 6	1,028	126 6 2	...	...
Castle Point	37	4 17 0	56	23 7 6	113	17 4 0	289	20 15 6	814	89 8 4	...	...
Charleston	677	95 9 6	573	8 11 6	51	7 18 6	114	8 14 6	258	30 1 6	...	...
Cheviot	100	17 2 5	105	90 4 0	403	63 1 6	959	76 12 6	2,612	325 7 6	...	...
Christchurch	2,614	453 14 2	2,088	23 2 6	152	33 15 0	163	19 19 6	520	93 19 5	...	...
Clyde	...	...	104	362 17 0	2,267	395 2 6	3,927	345 7 0	10,896	1,557 0 8	...	...
Dunedin	3,969	613 18 5	127	16 4 0	302	50 12 0	462	34 3 6	868	100 19 6	...	...
Dromed	75	8 7 4	30	4 5 0	47	6 11 0	119	8 14 0	271	27 17 4	...	...
Featherston	1,647	291 10 7	1,309	212 10 6	1,001	163 18 0	1,996	171 17 6	5,953	839 16 7	...	...
Greymouth	150	16 11 6	109	16 12 0	124	19 5 6	323	23 18 0	706	76 7 0	...	...
Havelock	227	26 11 6	206	31 10 6	283	41 8 0	539	40 6 0	1,255	139 16 6	...	...
Hokitika	1,818	342 10 6	1,495	247 19 0	1,376	230 14 0	2,349	206 1 0	7,088	1,027 4 6	...	...
Hutt	...	...	...	...	7	1 2 0	123	8 8 6	130	9 10 6	...	...
Invercargill	648	114 11 11	609	101 15 6	574	99 8 0	949	86 7 0	2,780	402 2 5	...	...
Kaipoi	363	42 15 3	155	23 10 0	276	42 8 6	886	67 0 0	1,680	175 13 9	...	...
Kaikoura	97	12 7 4	71	10 11 0	90	13 2 0	169	12 19 0	427	48 19 4	...	...
Lawrence	...	...	...	...	380	58 2 0	477	34 10 6	924	102 5 6	...	...
Lyttelton	815	87 9 8	533	80 2 6	701	103 14 0	1,783	126 9 0	3,832	397 15 2	...	...
Marion	...	...	...	...	43	6 11 6	261	20 0 0	304	26 11 6	...	...
Masferton	70	6 11 3	58	8 11 0	82	11 11 6	175	11 4 6	385	37 18 3	...	...
Napier	547	103 18 4	441	72 8 0	518	89 7 6	1,014	87 3 3	2,520	352 17 1	...	...
Nelson	1,224	228 17 9	1,439	239 0 0	1,232	201 2 0	2,259	185 1 6	6,154	854 1 3	...	...
Oamaru	886	114 4 9	828	131 19 6	780	121 5 0	1,251	101 0 6	3,745	468 9 9	...	...
Okaki	...	...	8	1 4 6	37	7 5 0	114	9 11 6	159	18 1 0	...	...
Palmerston	...	...	...	...	78	13 0 6	233	16 0 0	311	29 0 6	...	...
Patea	...	...	...	...	9	1 8 0	337	29 1 0	346	30 9 0	...	...
Pictou	379	46 2 0	230	34 2 0	231	33 9 0	572	40 16 0	1,412	154 9 0	...	...
Port Chalmers	390	33 17 9	252	36 10 0	298	44 9 6	705	48 10 6	1,645	163 7 9	...	...
Queenstown	...	...	81	13 12 6	203	32 9 6	486	43 18 6	770	90 0 6	...	...
Roxburgh	...	...	45	7 7 6	101	15 4 6	142	9 12 0	288	32 4 0	...	...

Table C.—(Continued).  
ORDINARY TELEGRAMS despatched from EACH STATION during Year ending 30th JUNE, 1870.

NAME OF STATION.	1869.				1870.				TOTALS.	
	SEPTEMBER QUARTER.		DECEMBER QUARTER.		MARCH QUARTER.		JUNE QUARTER.		No. of Telegrams.	Amount.
	No. of Telegrams.	Amount. £ s. d.	No. of Telegrams.	Amount. £ s. d.	No. of Telegrams.	Amount. £ s. d.	No. of Telegrams.	Amount. £ s. d.		
Selwyn ...	50	5 13 7	30	4 12 6	61	8 9 0	94	6 3 6	235	24 18 7
Spit ...	268	43 2 10	233	38 18 6	243	41 6 6	397	35 17 0	1,141	159 4 10
Temuka ...	139	13 8 7	99	14 19 6	122	17 17 0	289	19 14 0	649	65 19 1
Timaru ...	731	111 3 7	670	107 14 6	707	110 19 6	1,362	112 18 0	3,470	442 15 7
Tokomairiro ...	830	95 15 4	625	93 13 6	300	43 10 6	444	29 3 0	2,199	262 2 4
Waikouaiti ...	139	18 0 11	133	20 8 6	148	22 17 6	290	20 11 6	710	81 18 5
Waipawa ...	126	15 6 1	93	16 17 6	89	15 12 6	176	13 8 6	484	61 4 7
Waipukurau ...	133	17 7 0	129	20 16 0	153	26 17 6	295	25 7 0	710	90 7 6
Wanganui ...	...	...	432	74 16 0	593	99 7 0	1,673	137 7 6	2,698	311 10 6
Wellington ...	1,740	292 11 1	1,678	273 0 0	1,937	311 15 0	3,760	298 9 0	9,115	1,175 15 1
Government Buildings ...	269	67 13 7	56	10 6 6	34	5 9 6	182	18 5 6	541	101 15 1
Westport ...	889	147 7 5	992	149 19 6	792	120 9 0	1,666	122 0 0	4,339	539 15 11
White's Bay ...	2	0 5 5	5	0 15 0	6	1 4 6	13	0 18 0	26	3 2 11
Totals Bluff to Napier and Patea ...	23,471	3,660 11 0	21,309	3,456 14 6	22,602	3,663 12 6	43,501	3,541 14 6	110,883	14,322 12 6
Alexandra, Auckland ...	97	12 17 11	69	11 7 6	49	7 11 6	144	10 14 6	359	42 11 5
Auckland ...	255	28 11 3	243	37 7 6	261	41 1 0	412	30 17 0	1,171	137 16 9
Cambridge ...	54	7 17 0	77	12 9 6	112	19 7 0	133	10 12 6	376	50 6 0
Hamilton ...	108	12 10 11	97	14 7 6	92	13 12 6	175	13 16 0	472	54 6 11
Mercer ...	79	8 4 9	51	7 19 6	76	11 15 6	143	9 17 0	349	37 16 9
Newcastle ...	149	14 19 9	76	11 5 6	106	17 6 0	198	13 14 0	529	57 5 3
Onehunga ...	94	8 4 5	50	7 1 6	53	7 4 6	82	5 4 6	279	27 14 11
Totals Auckland Lines ...	886	93 6 0	663	101 18 6	749	117 18 0	1,287	94 15 6	3,535	407 18 0
" Bluff to Napier and Patea ...	23,471	3,660 11 0	21,309	3,456 14 6	22,602	3,663 12 6	43,501	3,541 14 6	110,883	14,322 12 6
Grand Totals ...	24,307	3,753 17 0	21,972	3,558 13 0	23,351	3,781 10 6	44,788	3,636 10 0	114,418	14,730 10 6



THE TELEGRAPH DEPARTMENT.

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E.—No. 7.

Table D.—(Continued).  
PRESS TELEGRAMS despatched during Year ended 30th JUNE, 1870.

NAME OF STATION.	1869.				1870.				TOTALS.	
	SEPTEMBER QUARTER.		DECEMBER QUARTER.		MARCH QUARTER.		JUNE QUARTER.		No. of Telegrams.	Amount.
	No. of Telegrams.	Amount. £ s. d.	No. of Telegrams.	Amount. £ s. d.	No. of Telegrams.	Amount. £ s. d.	No. of Telegrams.	Amount. £ s. d.		
Selwyn	...	...	...	...	...	...	...	...	...	...
Spit	4	1 3 0	1	0 5 0	...	...	4	0 11 0	...	1 19 0
Temuka	3	0 6 0	1	0 1 6	...	...	1	0 1 0	5	0 8 6
Timaru	9	4 8 0	19	4 14 6	14	1 18 0	39	22 17 0	81	33 17 6
Tokomairiro	12	1 8 8	14	2 12 6	5	0 12 0	9	0 10 6	40	5 3 8
Waikouaiti	...	...	7	0 18 0	11	1 8 0	6	0 10 0	24	2 16 0
Waipawa	...	...	...	...	...	...	...	...	...	...
Waipukurau	1	0 2 8	...	...	...	...	...	...	1	0 2 8
Wanganui	...	...	14	3 17 0	16	5 18 0	23	4 0 0	53	13 15 0
Wellington	400	131 6 6	301	68 11 0	190	53 1 6	385	80 2 6	1,276	333 1 6
Government Buildings	19	5 8 10	...	...	...	...	7	0 16 6	26	6 4 10
Westport	1	0 2 6	15	2 9 6	3	0 10 6	12	0 19 6	31	4 2 0
White's Bay	...	...	...	...	...	...	...	...	...	...
Totals, Bluff to Napier and Patea	1,131	337 11 0	845	215 15 0	715	176 1 0	1,459	241 11 6	4,150	970 18 6
Alexandra, Auckland	...	...	...	...	...	...	...	...	...	...
Auckland	14	1 18 8	4	0 12 6	9	1 14 6	1	0 2 6	28	4 8 2
Cambridge	...	...	...	...	11	3 14 6	...	...	11	3 14 6
Hamilton	4	0 4 8	2	0 3 6	5	0 14 0	...	...	11	1 2 2
Mercer	...	...	...	...	...	...	...	...	...	...
Newcastle	3	0 9 11	...	...	...	...	...	...	3	0 9 11
Onehunga	...	...	2	0 7 0	...	...	...	...	2	0 7 0
Totals, Auckland Lines	21	2 13 3	8	1 3 0	25	6 3 0	1	0 2 6	55	10 1 9
Totals, Bluff to Napier and Patea	1,131	337 11 0	845	215 15 0	715	176 1 0	1,459	241 11 6	4,150	970 18 6
Grand Totals	1,152	340 4 3	853	216 18 0	740	182 4 0	1,460	241 14 0	4,205	981 0 3

REPORT ON THE WORKING OF

Table E.  
PROVINCIAL GOVERNMENT TELEGRAMS despatched during Year ended 30th JUNE, 1870.

NAME OF STATION.	1869.				1870.				TOTAL.	
	SEPTEMBER QUARTER.		DECEMBER QUARTER.		MARCH QUARTER.		JUNE QUARTER.		No. of Telegrams.	Amount.
	No. of Telegrams.	£ s. d.	No. of Telegrams.	£ s. d.	No. of Telegrams.	£ s. d.	No. of Telegrams.	£ s. d.		
Alexandra, Otago	...	...	...	...	...	...	...	...	...	...
Balclutha	22	3 12 4	1	0 3 0	9	1 15 0	6	0 10 6	16	2 8 6
Bealey	3	0 14 4	4	0 3 0	7	1 6 0	4	0 12 6	37	6 11 4
Blenheim	19	2 16 3	7	1 5 0	5	0 18 6	53	7 12 6	7	1 6 4
Bluff	...	...	...	...	...	...	...	...	...	...
Brighton	8	1 1 8	19	3 13 0	1	0 4 0	19	2 2 0	1	0 4 0
Castle Point	...	...	...	...	...	...	...	...	...	...
Charleston	31	4 4 7	44	10 19 6	3	0 12 0	...	...	3	0 12 0
Cheviot	...	...	...	...	...	...	...	...	...	...
Christchurch	3	2 7 4	3	1 0 6	26	4 17 0	57	6 3 0	158	26 4 1
Clyde	...	...	...	...	...	...	...	...	...	...
Cromwell	...	...	...	...	...	...	...	...	...	...
Dunedin	180	48 6 6	15	1 17 6	2	0 7 6	5	0 11 6	15	5 3 10
Featherston	3	0 6 6	4	3 3 6	22	4 7 6	32	3 1 6	69	10 12 6
Greymouth	79	15 13 2	4	0 17 6	9	1 12 0	38	5 8 6	51	7 18 0
Havelock	2	0 4 5	213	45 17 6	194	41 10 6	246	84 15 0	833	170 9 6
Hokitika	3	0 6 6	4	0 18 6	4	1 0 0	7	0 11 6	18	2 16 6
Hutt	183	94 0 5	76	15 15 6	73	15 15 0	94	12 11 0	322	59 14 8
Invercargill	...	...	2	0 7 6	1	0 3 6	10	1 3 6	39	7 3 11
Kaipoi	...	...	104	26 8 6	120	32 18 6	125	24 8 0	16	2 5 8
Kaikoura	...	...	...	...	...	...	...	...	...	...
Lawrence	2	0 7 0	...	...	...	...	...	...	...	...
Lytelton	5	1 6 6	3	0 7 6	7	0 3 0	1	0 2 6	10	1 19 6
Marton	...	...	...	...	...	...	...	...	...	...
Masteron	1	0 1 5	1	0 4 0	3	0 11 6	10	3 5 0	10	3 5 0
Napier	29	8 12 3	22	5 0 6	45	14 0 0	...	...	5	0 16 11
Nelson	42	11 8 6	62	19 12 0	71	18 0 0	133	17 17 0	117	30 18 9
Oamaru	15	2 10 11	20	4 8 0	11	2 0 6	24	2 15 6	308	67 7 6
Oraki	...	...	...	...	...	...	...	...	...	...
Palmerston	...	...	...	...	...	...	...	...	...	...
Patea	...	...	...	...	...	...	...	...	...	...
Pictou	1	0 1 6	1	0 2 6	2	0 6 6	8	0 17 0	10	1 3 6
Port Chalmers	19	2 10 10	23	3 19 0	26	4 5 0	80	2 11 0	12	1 4 0
Queenstown	...	...	7	1 5 0	17	4 18 0	49	13 8 0	73	13 5 10
Roxburgh	...	...	5	0 16 6	5	0 18 6	4	0 7 0	14	2 2 0

Table E.—Continued.  
PROVINCIAL GOVERNMENT TELEGRAMS despatched during Year ended 30th JUNE, 1870.

NAME OF STATION.	1869.				1870.				TOTALS.	
	SEPTEMBER QUARTER.		DECEMBER QUARTER.		MARCH QUARTER.		JUNE QUARTER.		No. of Telegrams.	Amount.
	No. of Telegrams.	Amount. £ s. d.	No. of Telegrams.	Amount. £ s. d.	No. of Telegrams.	Amount. £ s. d.	No. of Telegrams.	Amount. £ s. d.		
Selwyn	...	...	...	...	...	...	...	...	...	...
Spit	...	...	...	...	...	...	...	...	...	...
Temuka	...	...	...	...	...	...	...	...	...	...
Timaru	...	...	...	...	...	...	...	...	...	...
Tokomairiro	46	8 16 3	40	8 5 6	5	0 16 6	1	0 3 0	1	0 3 0
Waikouaiti	10	2 4 10	10	2 14 0	10	1 18 0	18	1 14 0	109	19 12 3
Waipawa	7	1 15 3	5	1 1 6	17	4 7 6	3	0 7 6	49	8 12 4
Waipukurau	1	0 7 0	2	0 9 6	7	2 12 6	...	...	32	7 11 9
Wanganui	...	...	42	18 14 0	7	2 17 0	...	...	10	3 9 0
Wellington	22	5 12 6	50	11 19 6	34	7 6 6	61	8 19 0	74	25 10 0
Government Buildings	73	35 11 3	8	4 19 0	2	0 6 6	14	2 10 0	167	33 4 6
Westport	67	15 11 11	69	14 0 6	77	14 19 6	104	11 11 0	97	43 6 9
White's Bay	...	...	...	...	...	...	...	...	...	...
Totals Bluff to Napier and Patea	876	271 6 7	897	216 11 0	870	198 17 0	1278	182 10 0	3921	869 4 7
Alexandra, (Auckland)	...	...	...	...	...	...	...	...	...	...
Auckland	...	...	...	...	...	...	...	...	...	...
Cambridge	...	...	...	...	...	...	...	...	...	...
Hamilton	...	...	...	...	...	...	...	...	...	...
Mercer	...	...	...	...	...	...	...	...	...	...
Newcastle	...	...	...	...	...	...	...	...	...	...
Onehunga	1	0 3 6	...	...	...	...	...	...	1	0 3 6
Totals Auckland Lines	1	0 3 6	...	...	...	...	...	...	1	0 3 6
Bluff to Napier and Patea	876	271 6 7	897	216 11 0	870	198 17 0	1278	182 10 0	3921	869 4 7
Grand Totals	877	271 10 1	897	216 11 0	870	198 17 0	1278	182 10 0	3922	869 8 1

REPORT ON THE WORKING OF

Table F.  
GENERAL GOVERNMENT TELEGRAMS despatched during Year end 30th JUNE, 1870.

NAME OF STATION.	1869.						1870.						TOTALS.	
	SEPTEMBER QUARTER.		DECEMBER QUARTER.		MARCH QUARTER.		JUNE QUARTER.		No. of Telegrams.	Amount.	No. of Telegrams.	Amount.	No. of Telegrams.	Amount.
	No. of Telegrams.	Amount.	No. of Telegrams.	Amount.	No. of Telegrams.	Amount.	No. of Telegrams.	Amount.						
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.						
Alexandra, Otago	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Balclutha	14	1 19 4	1	0 2 6	15	2 15 0	21	2 2 6	37	5 0 0	37	5 0 0	...	
Bealey	1	0 3 9	7	1 11 0	22	4 4 0	31	5 16 6	74	13 10 10	74	13 10 10	...	
Blenheim	60	10 13 4	...	...	...	...	...	...	1	0 3 9	...	...	...	
Bluff	617	100 5 6	666	79 2 0	101	19 3 0	...	...	340	56 6 10	2,316	285 12 6	...	
Brighton	1	0 2 9	2	0 5 6	6	1 11 6	...	...	9	1 19 9	...	...	...	
Castle Point...	9	2 11 1	3	0 11 0	6	1 3 0	5	1 1 6	23	5 6 7	...	...	...	
Charlestown...	192	44 3 4	109	17 7 6	30	6 15 6	45	4 18 0	376	73 4 4	...	...	...	
Cheviot	...	...	...	...	3	0 12 0	...	...	...	...	...	...	...	
Christchurch	155	37 9 9	210	65 19 0	232	57 9 6	342	56 3 0	989	217 1 3	...	...	...	
Clyde	...	...	5	0 19 0	25	4 13 6	22	2 9 6	53	8 2 0	...	...	...	
Cromwell	...	...	...	...	6	1 1 0	...	...	28	3 19 0	...	...	...	
Dunedin	263	103 12 0	377	111 7 6	503	128 18 6	664	116 14 0	1,807	460 12 0	...	...	...	
Featherston	39	6 16 0	45	8 6 6	39	10 12 6	63	7 16 0	186	33 11 0	...	...	...	
Grey mouth	885	223 10 6	1,015	145 14 6	919	130 15 6	484	33 1 0	3,303	532 1 6	...	...	...	
Greytown	8	1 5 3	10	1 16 0	11	2 13 6	18	1 16 0	47	7 10 9	...	...	...	
Havelock	16	2 12 10	13	2 16 0	17	3 16 6	17	2 1 0	63	11 6 4	...	...	...	
Hokitika	966	281 7 1	1,297	204 9 0	1,052	159 19 0	630	59 12 0	3,945	705 7 1	...	...	...	
Hutt	...	...	...	...	1	0 5 0	12	1 12 0	13	1 17 0	...	...	...	
Invercargill	57	35 12 2	51	11 11 0	58	14 13 0	99	14 13 0	265	75 18 8	...	...	...	
Kaipoi	1	0 2 3	7	1 10 6	6	1 0 0	20	0 10 0	20	3 2 9	...	...	...	
Kaikoura	12	3 9 4	12	3 0 0	13	2 6 6	15	1 12 0	52	10 7 10	...	...	...	
Lawrence	...	...	2	0 8 0	8	1 8 6	18	2 7 6	28	4 4 0	...	...	...	
Lyttelton	1,044	121 11 8	1,109	149 14 6	1,326	132 1 0	773	48 10 6	4,252	501 17 8	...	...	...	
Marton	...	...	...	...	13	3 15 0	53	13 11 6	66	17 6 6	...	...	...	
Masterton	16	2 3 1	12	2 17 0	14	3 2 6	17	1 3 6	59	9 6 1	...	...	...	
Napier	692	315 6 3	494	258 7 0	550	281 18 6	609	265 13 0	2,345	1,121 4 9	...	...	...	
Nelson	1,302	213 10 11	1,624	241 5 0	2,193	310 17 0	742	66 0 0	5,861	831 12 11	...	...	...	
Oamaru	14	2 19 5	21	4 8 6	28	6 1 6	37	6 12 0	100	20 1 5	...	...	...	
Otaki	...	...	...	...	5	1 12 6	9	1 17 6	14	3 10 0	...	...	...	
Palmerston	...	...	...	...	7	1 4 6	11	1 3 0	18	2 7 6	...	...	...	
Patea	...	...	...	...	27	7 6 6	239	64 4 6	266	71 11 0	...	...	...	
Pictou	562	97 6 5	313	48 7 6	485	70 10 6	126	8 16 6	1,486	225 0 11	...	...	...	
Port Chalmers	1,855	298 15 11	2,223	316 6 6	2,442	351 12 0	727	39 17 6	7,247	1,006 11 11	...	...	...	
Queenstown	...	...	6	1 2 6	24	5 4 0	31	4 2 6	61	10 9 0	...	...	...	
Roxburgh	...	...	...	...	9	1 13 6	5	0 8 0	14	2 6 6	...	...	...	



THE TELEGRAPH DEPARTMENT.

Table F.—(Continued).

GENERAL GOVERNMENT TELEGRAMS despatched during Year ended 30th JUNE, 1870.

NAME OF STATION.	1869.				1870.				TOTALS.	
	SEPTEMBER QUARTER.		DECEMBER QUARTER.		MARCH QUARTER.		JUNE QUARTER.		No. of Telegrams.	Amount.
	No. of Telegrams.	Amount.	No. of Telegrams.	Amount.	No. of Telegrams.	Amount.	No. of Telegrams.	Amount.		
Selwyn	1	£ 0 6 6	1	£ 0 4 0	1	£ 0 5 0	2	£ 0 3 0	5	£ 0 18 6
Spit	842	154 12 3	670	93 17 6	819	126 13 6	176	30 8 6	2,507	405 11 9
Temuka	...	...	2	0 7 6	1	0 4 0	2	0 6 0	5	0 17 6
Timaru	41	4 15 5	62	11 17 6	59	10 7 6	67	9 4 6	229	86 4 11
Tokomairiro	50	10 5 11	28	5 12 0	7	1 6 6	17	1 13 6	102	18 17 11
Waikouaiti	8	2 0 0	19	7 13 6	6	1 5 6	12	3 8 0	45	14 7 0
Waipawa	7	1 18 1	19	4 8 6	11	2 11 0	11	2 7 0	48	11 4 7
Waipukurau	25	6 15 9	10	1 16 6	84	57 15 0	10	1 16 0	129	68 3 3
Wanganui	...	...	973	187 17 6	1,233	248 2 0	462	136 19 0	2,668	572 18 6
Wellington	2,517	514 8 9	2,633	434 9 0	2,714	429 15 6	1,179	151 7 0	9,043	1,530 0 3
Government Buildings	1,172	536 14 3	1,284	438 13 6	1,629	519 0 6	1,929	402 15 0	6,014	1,897 3 3
Westport	1,214	253 15 7	1,120	150 2 6	900	117 4 0	179	15 11 0	3,413	586 13 1
White's Bay	...	...	...	...	...	...	...	...	...	...
Totals Bluff to Napier and Patea	14,658	3,392 2 5	16,534	3,040 5 0	18,213	3,370 5 6	10,520	1,630 11 6	59,925	11,433 4 5
Alexandra, Auckland	167	56 16 4	40	11 10 0	112	33 16 6	45	5 11 6	364	107 14 4
Auckland	192	58 14 10	155	55 1 0	279	96 11 6	83	13 10 0	709	223 17 4
Cambridge	11	1 18 11	20	4 2 6	343	144 0 6	19	2 17 0	393	152 18 11
Hamilton	223	46 8 6	170	45 4 6	373	99 5 6	175	21 1 0	950	211 19 6
Mercer	72	22 19 6	24	6 14 6	23	7 15 6	5	0 13 6	124	38 3 0
Newcastle	89	23 8 9	52	14 1 6	75	21 6 0	46	6 3 0	262	64 19 3
Onehunga	35	3 16 9	35	5 13 0	44	7 3 0	37	2 16 6	151	19 9 3
Totals Auckland Lines	789	214 3 7	505	142 7 0	1,249	409 18 6	410	52 12 6	2,953	819 1 7
" Bluff to Napier and Patea	14,658	3,392 2 5	16,534	3,040 5 0	18,213	3,370 5 6	10,520	1,630 11 6	59,925	11,433 4 5
Grand Totals	15,447	3,606 6 0	17,039	3,182 12 0	19,462	3,780 4 0	10,930	1,683 4 0	62,878	12,252 6 0

REPORT ON THE WORKING OF

Table G.  
RETURN for the YEAR ended 30th JUNE, 1870, of the CASH REVENUE derived from PRIVATE, PRESS, and PROVINCIAL GOVERNMENT MESSAGES, and of the Value of GENERAL GOVERNMENT TELEGRAMS; the number of MESSAGES transmitted by each STATION, and the WORKING EXPENSES of each STATION.

NAME OF STATION.	Total Cash Revenue derived from Private, Press, and Provincial Government Messages.	Value of General Government Messages.	Total Value of Messages of all codes.	Total Number of Private, Press, and Provincial Government Messages.	Total Number of General Government Messages.	Total Number of Messages of all codes.	Amount paid for Salaries.	Contingencies.	Total Cost of Maintenance of each Station.	REMARKS.
	£ s. d.	£ s. d.	£ s. d.				£ s. d.	£ s. d.	£ s. d.	
Head Office	48 13 6	5 0 0	53 13 6	411	37	448	2069 11 8	182 7 10	2251 19 6	
Alexandra, Otago	141 19 4	13 10 10	155 10 2	1189	74	1263	62 10 0	10 8 6	72 18 6	
Balclutha	27 14 4	0 3 9	27 18 1	227	1	228	106 6 8	38 11 4	144 18 0	
Bealey	349 10 7	56 6 10	405 17 5	2831	340	3171	200 0 0	25 16 6	225 16 6	
Blenheim	185 12 4	285 12 6	471 4 10	1120	2316	3436	206 7 4	39 12 6	245 19 10	
Bluff	101 10 6	1 19 9	103 10 3	887	9	896	225 0 0	15 9 0	240 9 0	
Brighton	30 15 0	5 6 7	36 1 7	262	23	285	173 15 10	63 10 6	237 6 4	
Castle Point	354 11 7	73 4 4	427 15 11	2791	376	3167	90 0 8	14 10 6	104 10 6	
Charleston	94 19 11	0 12 0	95 11 11	523	3	526	160 5 8	34 9 9	194 15 5	
Cheviot	1706 19 2	217 1 3	1924 0 5	11498	939	12437	117 1 8	20 3 10	137 5 6	
Christchurch	112 0 0	8 2 0	120 2 0	938	53	991	1894 13 11	353 13 7	1748 7 6	Including £210 rent of office
Clyde	114 14 6	3 19 0	118 13 6	1020	28	1048	37 10 0	13 19 10	51 9 10	
Cromwell	2785 16 0	460 12 0	3246 8 0	20411	1807	22218	82 10 0	27 2 10	89 12 10	
Dunedin	30 13 10	33 11 0	64 4 10	289	186	475	1076 11 7	128 1 10	1204 13 5	
Featherston	911 2 9	532 1 6	1443 4 3	6364	3303	9667	120 16 8	29 14 0	150 10 8	
Greymouth	84 12 5	7 10 9	92 3 2	756	47	803	209 3 4	34 19 9	244 3 1	
Havelock	143 0 2	11 6 4	154 6 6	1287	63	1350	129 3 4	27 8 6	156 11 10	
Hokitika	1251 3 5	705 7 1	1956 10 6	7706	3945	11651	145 0 0	10 5 0	155 5 0	
Hutt	10 17 6	1 17 0	12 14 6	141	13	154	489 4 2	64 1 6	553 5 8	
Invercargill	406 6 3	75 18 8	482 4 11	2811	265	3076	16 13 4	16 16 0	33 9 4	
Kaipoi	178 18 3	3 2 9	182 1 0	1696	20	1716	186 16 5	31 19 3	218 15 8	
Kaikoura	49 19 4	10 7 10	60 7 2	433	52	485	86 0 0	13 12 6	99 12 6	
Lawrence	108 13 6	4 4 0	112 17 6	965	28	993	131 6 8	83 12 6	214 19 2	
Lytelton	29 17 6	17 6 6	47 4 0	315	66	381	40 11 8	20 14 4	61 6 0	
Marton	38 15 2	9 6 1	48 1 3	390	449	839	361 16 2	19 7 8	381 3 10	
Masterton	483 0 9	1121 4 9	1604 5 6	3034	2345	5379	45 0 4	10 0 0	86 13 6	
Napier	998 15 7	831 12 11	1830 8 6	6811	5861	12672	109 3 4	10 0 0	119 3 4	
Nelson	483 5 4	20 1 5	503 6 9	3830	100	3930	302 11 5	37 14 9	340 6 2	
Oamaru	19 3 0	3 10 0	22 13 0	161	14	175	420 7 2	52 1 0	472 8 2	
Ohaki	30 4 0	2 7 6	32 11 6	321	18	339	192 19 0	12 7 4	205 6 4	
Palmerston	31 0 6	71 11 0	102 11 6	350	266	616	54 3 4	17 15 6	71 15 6	
Patea	156 1 6	225 0 11	381 2 5	1427	1486	2913	86 2 4	36 2 4	90 5 8	
Pieton	191 14 4	1006 11 11	1198 6 3	1934	7247	9181	40 9 6	31 17 3	72 6 9	
Port Chalmers	112 13 0	10 9 0	123 2 0	861	61	922	109 15 0	20 4 8	129 19 8	
Queenstown							277 18 0	28 4 4	306 2 4	
							47 18 4	27 16 10	75 15 2	

Table G.—Continued.  
RETURN for the YEAR ended 30th JUNE, 1870, of the CASH REVENUE derived from PRIVATE, PRESS, and PROVINCIAL GOVERNMENT MESSAGES, and of the Value of GENERAL GOVERNMENT TELEGRAMS; the number of MESSAGES transmitted by each STATION, and the WORKING EXPENSES of each STATION.

NAME OF STATION.	Total Cash Revenue derived from Private, Press, and Provincial Government Messages.	Value of General Government Messages.	Total Value of Messages of all codes.	Total Number of Private, Press, and Provincial Government Messages.	Total Number of General Government Messages.	Total Number of Messages of all Codes.	Amount paid for Salaries.	Contingencies.	Total Cost of Maintenance of each Station.	REMARKS.
	£ s. d.	£ s. d.	£ s. d.	Total Number of Private, Press, and Provincial Government Messages.	Total Number of General Government Messages.	Total Number of Messages of all Codes.	£ s. d.	£ s. d.	£ s. d.	
Roxburgh	34 6 0	2 6 6	36 12 6	302	14	316	62 10 0	12 3 10	74 13 10	
Selwyn	24 18 7	0 18 6	25 17 1	235	5	240	109 3 4	15 3 7	124 6 11	
Spit	161 7 4	405 11 9	566 19 1	1151	2507	3658	109 3 4	30 15 6	139 18 10	
Temuka	66 7 7	0 17 6	67 5 1	654	5	659	109 3 4	19 0 0	128 3 4	
Timaru	476 16 1	36 4 11	513 1 0	3552	229	3781	160 8 4	18 3 0	178 11 4	
Tokomairiro	286 18 3	18 17 11	305 16 2	2348	102	2450	209 3 4	31 17 4	241 0 8	
Waikouaiti	93 6 9	14 7 0	107 13 9	783	45	828	94 13 4	10 18 4	105 11 8	
Waipawa	68 16 4	11 4 7	80 0 11	516	48	564	110 0 0	24 1 3	134 1 3	
Waipukurau	93 19 2	68 3 3	162 2 5	721	129	850	115 0 0	32 13 6	147 13 6	
Wanganui	350 15 6	572 18 6	923 14 0	2825	2668	5493	133 19 0	43 0 0	176 19 0	
Wellington	1542 1 1	1530 0 3	3072 1 4	10558	9043	19601	1078 4 9	200 4 0	1278 8 9	
Government Buildings	151 6 8	1897 3 3	2048 9 11	664	6014	6678	185 8 4	10 4 0	195 12 4	
Westport	600 0 10	586 13 1	1186 13 11	4687	3413	8100	209 3 4	18 12 0	227 15 4	
White's Bay	3 2 11	...	3 2 11	26	...	26	414 6 8	43 1 3	457 7 11	
Totals Bluff to Napier and Patea ...	16,162 15 7	11,433 4 5	27,596 0 0	118,954	59,925	178,879	12,599 8 3	2,146 4 5	14,745 12 8	
Alexandra, Auckland	46 19 7	107 14 4	154 13 11	387	364	751	91 5 0	89 14 6	180 19 6	Includes extra assistance during Native disturbances
Auckland	137 16 9	223 17 4	361 14 1	1171	709	1880	314 15 7	339 3 4	653 18 11	Do. do. and rent of office.
Cambridge	54 0 6	152 18 11	206 19 5	387	393	780	94 11 8	47 0 8	141 12 4	Includes extra assistance during Native disturbances
Hamilton	55 9 1	211 19 6	267 8 7	483	950	1433	89 11 8	72 18 10	162 10 6	Do. Do.
Mercer	37 16 9	38 3 0	75 19 9	349	124	473	89 11 8	105 12 11	195 4 7	Do. Do.
Newcastle	57 15 2	64 19 3	122 14 5	532	262	794	89 11 8	55 6 11	144 18 7	Do. Do.
Onehunga	28 5 5	19 9 3	47 14 8	282	151	433	93 15 7	98 14 8	192 10 3	Includes gratuity to invalided officer.
Totals Auckland Lines	418 3 3	819 1 7	1,237 4 10	3,591	2,953	6,544	863 2 10	808 11 10	1,671 14 8	
Totals Bluff to Napier and Patea ..	16,162 15 7	11,433 4 5	27,596 0 0	118,954	59,925	178,879	12,599 8 3	2,146 4 5	14,745 12 8	
Grand Totals	16,580 18 10	12,252 6 0	28,833 4 10	122,545	62,878	185,423	13,462 11 1	2,954 16 3	16,417 7 4	

## REPORT ON THE WORKING OF

**Table H**  
**CASH VALUE of SHIPPING TELEGRAMS and the Amounts chargeable to each DEPARTMENT of the GENERAL GOVERNMENT for TELEGRAMS transmitted during the Year ended 30th JUNE, 1870.**

	JULY.		AUGUST.		SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.		TOTALS.			
	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.		
Colonial Secretary ...	67	1 0	129	5 1	83	19 0	158	0 0	121	2 0	143	11 0	113	19 0	157	9 0	87	9 6	126	9 6	126	9 6	85	12 0	46	10 0	1,320	7 1
Crown Lands ...	20	8 7	11	2 1	2	14 6	6	18 6	3	17 6	7	15 6	8	4 0	6	12 6	6	6 0	10	15 0	10	15 0	15	11 0	10	7 0	110	12 2
Customs ...	15	13 0	20	6 1	18	0 0	18	4 0	12	9 0	13	13 0	18	15 0	19	9 0	22	2 0	12	11 0	12	11 0	24	0 6	16	5 0	211	7 7
Defence ...	335	6 1	188	6 8	162	0 6	175	8 6	146	8 0	184	16 0	316	0 0	254	3 0	259	9 6	214	4 0	194	10 6	212	4 6	212	4 6	2,592	17 3
Judicial ...	63	11 6	53	17 2	36	16 0	32	6 0	54	18 0	51	16 6	53	13 0	43	18 6	64	8 0	35	10 0	35	10 0	36	11 0	36	8 0	563	13 8
Marine ...	11	15 11	12	0 10	3	13 0	5	11 0	9	2 6	18	6 0	6	7 0	7	6 0	3	0 6	2	18 6	2	18 6	2	17 6	2	4 0	85	2 9
Native ...	21	8 0	18	15 6	13	3 0	8	6 0	7	4 6	9	9 0	9	16 6	23	12 6	8	13 0	12	11 0	10	7 0	10	7 0	22	3 0	165	9 0
Postal ...	39	5 11	38	11 10	51	9 6	65	4 6	44	16 6	76	18 6	89	6 0	75	15 6	115	17 0	66	13 6	59	6 0	64	0 6	64	0 6	787	5 3
Registrar ...	2	7 4	4	8 4	3	4 6	2	17 6	1	16 6	11	9 6	7	9 6	8	3 0	6	11 6	5	3 6	4	6 0	4	6 0	3	1 6	60	18 8
Telegraph ...	...	...	4	4 3	4	0 6	0	12 6	...	...	0	7 6	...	...	...	...	0	7 0	...	...	...	...	...	...	...	...	9	11 9
Treasury ...	93	1 3	127	10 4	52	16 6	54	17 6	51	10 0	53	14 6	53	3 6	55	8 0	41	14 6	45	19 6	85	8 6	62	9 0	62	9 0	727	13 1
Shipping Reports ...	636	18 11	769	4 10	489	18 6	464	9 0	580	11 6	634	4 0	611	6 0	579	15 0	644	14 0	70	8 0	72	10 0	63	8 0	63	8 0	5,617	7 9
Totals ...	1,306	17 6	1,377	13 0	921	15 6	992	15 0	1,038	16 0	1,156	1 0	1,287	19 6	1,231	12 0	1,260	12 6	603	3 6	541	0 0	539	0 6	539	0 6	12,252	6 0

Table I.

DEBTOR AND CREDITOR STATEMENT of LINES from BLUFF to NAPIER and PATEA.

Dr.	£ s. d.	£ s. d.	Cr.	£ s. d.	£ s. d.
To total cost of maintenance of stations ... ..	14,745 12 8		By Cash Receipts as under:		
„ Total cost of maintenance of lines ... ..	12,392 13 5		Ordinary, Press, and Provincial Government Telegrams ...	16,162 15 7	
		27,138 6 1	Subscriptions from the Press and other receipts ... ..	637 2 6	16,799 18 1
Balance (credit of lines from Bluff to Napier and Patea)		27,138 6 1	Total cash revenue ... ..	...	16,799 18 1
		1,094 16 5	Value of Gen. Govt. telegrams ... ..	...	11,433 4 5
		£28,233 2 6			£28,233 2 6

Table J.

DEBTOR AND CREDITOR STATEMENT for AUCKLAND LINES.

Dr.	£ s. d.	£ s. d.	Cr.	£ s. d.	£ s. d.
To total cost of maintenance Stations ... ..	1,671 14 8		By cash receipts for Ordinary, Press, and Provincial Government telegrams ... ..	...	418 3 3
„ Total cost of maintenance of Lines ... ..	1,727 11 5		By value of General Government telegrams ... ..	...	819 1 7
		3,399 6 1	Balance (debit to Auckland lines) ... ..	...	1,237 4 10
		£3,399 6 1			2,162 1 3
					£3,399 6 1

GENERAL BALANCE.

To Balance to debit of Auckland lines ... ..	...	2,162 1 3	By balance to credit of lines from Bluff to Napier and Patea ... ..	...	1,094 16 5
			By balance to debit of Department ... ..	...	1,067 4 10
		£2,162 1 3			£2,162 1 3

Table K.

NUMBER of INTERPROVINCIAL LETTERS forwarded during the year ended 31st December, 1869; number of TELEGRAMS despatched in each PROVINCE during the year ended 30th June, 1870; proportion of TELEGRAMS to every 100 LETTERS; together with a similar return for the previous year.

PROVINCE.	1869-70.			1868-9.		
	Number of Letters.	Number of Telegrams.	Proportion of Telegrams sent for every 100 Letters.	Number of Letters.	Number of Telegrams.	Proportion of Telegrams sent for every 100 Letters.
Wellington ... ..	302,209	34,494	11.41	328,180	24,412	7.43
Marlborough ... ..	53,562	7,945	14.83	45,523	6,819	14.97
Nelson ... ..	176,903	25,361	14.33	203,537	22,592	11.09
Canterbury ... ..	397,352	27,255	6.85	539,610	25,911	4.8
Westland ... ..	242,400	21,318	8.79	251,108	17,649	7.02
Otago ... ..	538,329	44,927	8.34	595,062	39,123	6.57
Southland ... ..	75,445	6,512	8.63	84,235	6,498	7.71
Hawke's Bay ... ..	65,967	10,451	15.84	62,539	8,661	13.84
Taranaki ... ..	26,578	616	2.31	...	...	...
Auckland ... ..	495,315	6,544	1.32	439,694	4,502	1.02

Total number of Letters ... ..	1869-70.	1868-69.	1867-68.
„ „ Telegrams... ..	2,374,060	2,549,488	1,938,578
Proportion of Telegrams to every 100 Letters ... ..	7.81	6.12	5.47

## REPORT ON THE TELEGRAPH DEPARTMENT.

Table L.

COST of MAINTENANCE of TELEGRAPH LINES for the Financial Year ending 30th June, 1870.

SECTION.	No. of Miles.	Salaries of Linemen.			Travelling Expenses.			Extra Labour.			Cost of Material used for repairs.			Total Cost of Maintenance.			Cost Per Mile.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Bluff to Balclutha ... ..	114	168	17	5	260	15	3	277	19	6	158	9	0	866	1	2	7	11	11½ <sup>a</sup>
Tokomairiro to Queenstown ...	140	213	6	1	269	6	10	482	16	4	796	13	3	1,762	2	6	12	11	9 <sup>b</sup>
Balclutha to Waitaki ... ..	152	257	1	8	369	14	6	872	12	4	1,047	9	1	2,546	17	7	16	15	0 <sup>c</sup>
Waitaki to Christchurch ... ..	148	308	6	8	256	9	3	360	13	3	381	9	1	1,306	18	3	8	16	7½ <sup>d</sup>
Christchurch to Greymouth ...	176	397	10	0	502	4	0	481	14	0	311	5	6	1,692	13	6	9	12	4 <sup>e</sup>
Greymouth to Westport ... ..	67	150	0	0	242	16	4	...	...	...	26	3	6	418	19	10	6	5	1
Christchurch to Blenheim ...	208	427	10	3	278	5	5	376	5	4	407	0	1	1,489	1	1	7	3	2 <sup>f</sup>
Blenheim to Nelson, including White's Bay line ... ..	92	333	13	4	119	14	2	292	13	6	98	4	8	844	5	8	9	3	6½ <sup>g</sup>
Wellington to Napier ... ..	221	560	0	7	288	3	0	142	7	2	82	15	2	1,073	5	11	4	17	0 <sup>h</sup>
Wellington to Patea ... ..	180	108	14	9	206	14	2	32	19	6	43	19	6	392	7	11	2	3	7
	1,498	2,925	0	9	2,794	2	11	3,320	0	11	3,353	8	10	12,392	13	5	8	5	5½*
Auckland lines ... ..	164	729	11	8	633	7	3	157	19	0	206	13	6	1,727	11	5	10	10	8 <sup>i</sup>
Totals ... ..	1,662	3,654	12	5	3,427	10	2	3,477	19	11	3,560	2	4	14,120	4	10	8	9	11 <sup>k</sup>

\* Cost per mile Bluff to Napier and Patea.

<sup>a</sup> Includes cost of lowering old poles between Invercargill and Balclutha. <sup>b</sup> Includes cost of reconstruction from Tokomairiro to Alexandra. <sup>c</sup> Includes cost of reconstruction from Balclutha to Waikouaiti, and insertion of new poles and running third wire from Dunedin to Tokomairiro to join goldfields line. <sup>d</sup> Includes cost of reconstruction from Timaru to Christchurch. <sup>e</sup> Includes cost of reconstruction of thirty miles of line from Hokitika to Bealey. <sup>f</sup> Includes cost of reconstruction from Christchurch to Woodend. <sup>g</sup> Includes cost of reconstruction of three miles of line south of Nelson; insertion of new totara poles from the junction of Blenheim and White's Bay line to Picton, and insertion of fifty totara poles, and running of third wire from junction to White's Bay. <sup>h</sup> Includes cost of clearing bush at the Taueru; running the second wire from Tenui junction to Castle Point, and sundry deviations of the line between Featherston and Hutt. <sup>i</sup> Includes cost of repairs of line between Cambridge and Alexandra; dismantling of old line between Alexandra and Newcastle; also of branch line to Kihī Kihī, and extra cost of maintenance of old line between Newcastle and Auckland prior to reconstruction. <sup>k</sup> Total average cost per mile.

Table M.

INSULATION TESTS of the COOK STRAIT CABLE for the Years ending 30th June, 1868, 1869, and 1870, respectively, showing the resistance per knot, after two minutes' electrification, in millions of Ohms (British Association units of resistance).

DATE.	No. 1 Wire.	No. 2 Wire.	No. 3 Wire.	DATE.	No. 1 Wire.	No. 2 Wire.	No. 3 Wire.	DATE.	No. 1 Wire.	No. 2 Wire.	No. 3 Wire.
1867—				1868—				1869—			
September 1 ...	473	71	554	September 11 ...	630	22.5	946	July 27 ...	649	9.	1,104
"  30 ...	634	102	634	"  17 ...	697	63.5	1,000	August 24 ...	667	7.	1,200
October 14 ...	547	179	620					September 27 ...	745	13.	1,274
November 1 ...	598	32.6	667					† October ...	...	...	...
"  14 ...	574	10.6	643					November 8 ...	582	5.	1,253
December 2 ...	608	10.5	709					December 3 ...	638	2.5	1,159
				1869—				1870—			
				March 27 ...	467	26	729	January 22 ...	526	2.	865
				April 19 ...	483	30	748	February 22 ...	417	3.	707
				May 11 ...	562	31	950	March 18 ...	442	3.4	967
1868—				"  20 ...	344	2.06	619	"  26 ...	430	8.6	812
* June 7 ...	930	5.5	1,094	May 17 ...	531	14	963	May 31 ...	456	.446	871
				"  22 ...	522	15	931	June 26 ...	355	2.3	622

\* This test was taken with zinc to earth, and the others with copper to earth. † No test taken.