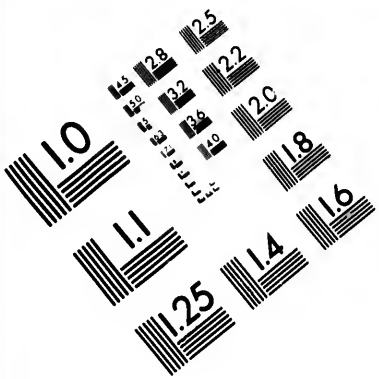

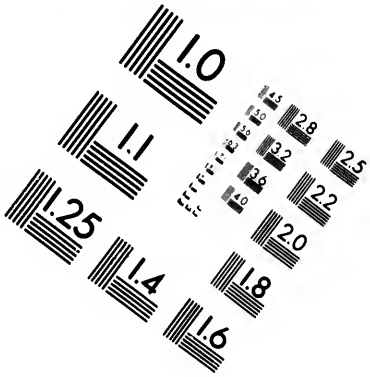

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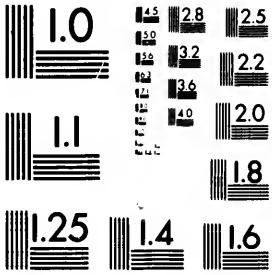

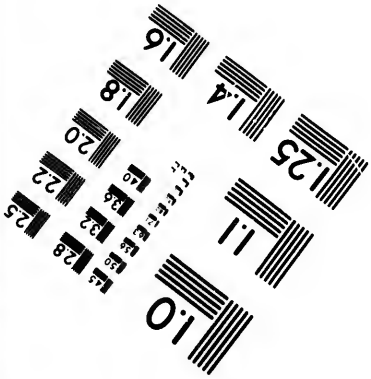

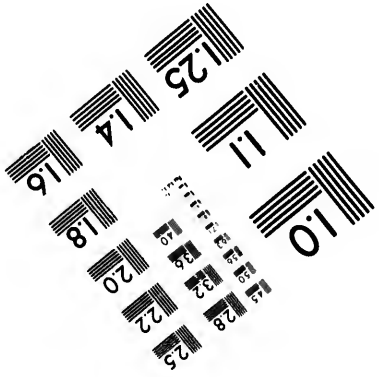

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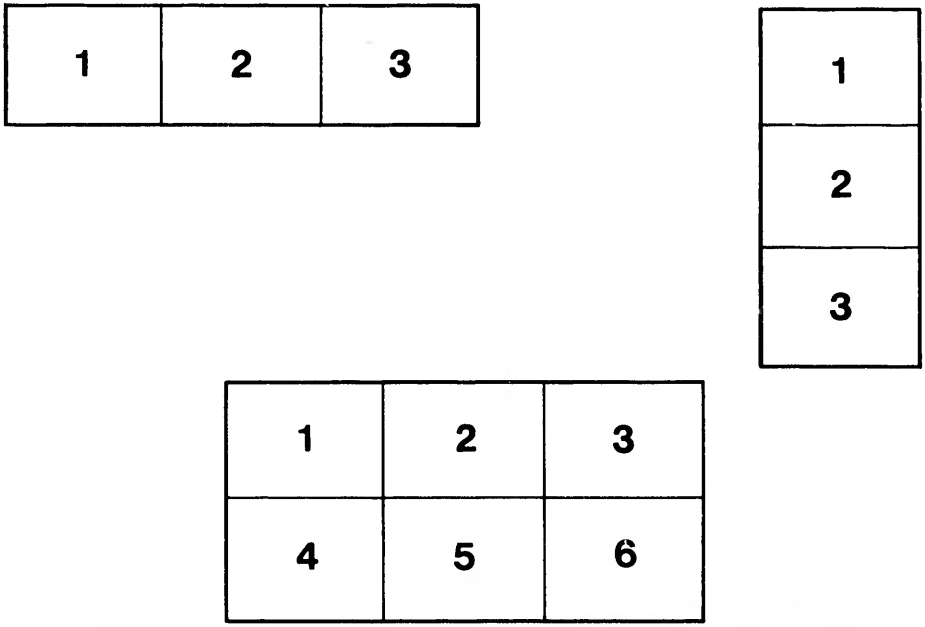

[Confidential.]

"The Australia" (Hotel),
Sydney, October 11th, 1893.

The Honorable Mackenzie Bowell,
Minister of Trade and Commerce, Canada
(Delegate to the Australian Colonies and New Zealand),—

Sir,

Since I arrived in Sydney I have obtained through the courtesy of the Premier and Postmaster-General full statistics respecting telegraphy between the Australian Colonies and Great Britain. Thus enabled to present my views on the matter of the Pacific Cable, based on the latest ascertained facts, I beg leave to submit the following memorandum for the information of yourself and the several Governments.

I have the honour to be,
Sir,
Your obedient Servant,
SANDFORD FLEMING.

Memorandum on the Pacific Cable.

Sydney, New South Wales, October 11th, 1893.

THE printed proceedings of the Postal and Telegraph Conference, held in Brisbane in March last, reached Canada a few weeks back. The resolution passed by the Conference, expressing the opinion that the time has arrived when a cable should be established to Vancouver, was welcomed with peculiar satisfaction by those who for years have looked forward to the prospect of having the two countries connected telegraphically. The debate, however, by Members of the Conference, together with letters attached to the proceedings, gave rise to misgivings, which were in no way lessened when a copy of the agreement between the French Government and the New Caledonia Cable Company was subsequently received from Europe.

As one who has long taken an active interest in the proposal to connect Australia and New Zealand with Canada by a Pacific Cable, I have been impelled by a sense of duty to visit these colonies at this juncture to inquire into all the circumstances, and, if the facts appeared to require it, to submit a respectful representation on the subject, and to appeal with all the earnestness I can command against a contemplated step which, if carried out, would, in my humble judgment, greatly lessen the commercial utility of the Pacific Cable, and render it comparatively valueless as a national undertaking.

Before

1893
(25)

Before leaving Canada I gathered from the proceedings of the Postal Conference, and the papers appended thereto, and I learn from other public documents since my arrival in Sydney, in substance as follows :—

(1.) It is designed that the cable from Queensland to New Caledonia shall form the first link of the Trans-Pacific Cable, and that it is the intention of the Company to proceed section by section as further subsidies are obtained.

(2.) An opinion is expressed in some quarters that it is impossible to lay a cable through the Pacific Ocean from any part of Australia or New Zealand to Canada without landing at some places such as New Caledonia, Samoa, and Hawaii, where British influence is not supreme.

(3.) From the fact that the lines of the Eastern and Eastern Extension cable system touch foreign soil at several points, it has been urged that the Pacific Cable, landing at New Caledonia, would be in no worse position than the present line of telegraph between Australia and England.

In considering these points, I would first direct attention to the character of the agreement between the French Government and the Société Française des Télégraphes Sous-Marins, dated 3rd February, 1893, subsequently ratified by the Parliament of France.

I beg leave to submit a translation of the following five articles of this agreement :—

Working, maintenance, and organisation to be subject to control of the French Under-Secretary of State.

Article III.—As far as the establishment and maintenance of the proposed cable, as well as the organisation of the service, the fixing and collecting of rates, the control, the relations with the public and the connecting of the new line at either end with submarine or land line systems is concerned, the Société Française des Télégraphes Sous-Marins shall observe the table of rules and obligations approved by the Under Secretary of State for the Marine Department and the Colonies, all the clauses and conditions of which it accepts as having the same force as the terms of this agreement.

Company to have offices in France, cable to be made in France, and to be laid, worked, and controlled entirely by French subjects.

Article V.—The Society agrees to have its head offices in France, to engage French administrators only, to have the cable manufactured by French employees in works situated on French territory, and to guarantee the laying of the cable by a French ship and crew.

Society not to cede any of the rights of this agreement or to amalgamate with other company unless the permission of the French Government be first obtained.

Article VI.—The Society shall not, without the expressed written consent of the French Government, cede any of the rights resulting from the present agreement, nor lease its lines or amalgamate its interest with those of any other company.

Transit rate, Australia to New Caledonia, to be fixed by the French Government and the Society. Maximum rate to equal 90 centimes per word.

Article X.—The transit rate over the cable between Australia and New Caledonia shall be mutually agreed upon by the French Government and the Society. The maximum rate shall be 90 centimes a word.

Disputes to be settled by Council of State.

Article XII.—Any dispute as to the interpretation or the non-performance of those presents arising between the Government, of the one part, and the Société des Télégraphes Sous-Marins, or persons claiming under them, of the other part, shall be decided by the Council of State.

These provisions of the agreement make it plain that the telegraph from Queensland to New Caledonia will be under the absolute control of the French Government, and hence no parallel can be instituted between the new line across the Pacific, as contemplated by its promoters, and the Eastern and Eastern Extension system. The lines of that system certainly pass over portions of foreign soil, but it cannot be held that any foreign Power controls the administration and management of the Company's affairs. Moreover, if, owing to unavoidable geographical reasons, the wires of the Eastern and Eastern Extension Telegraph Company necessarily touch territory which is not British, the more is it to be desired that Australia should be connected with the mother country by a line of communication which nowhere would pass over the soil of another nation, or in any sense be subject to the dictates of a foreign Power.

The Pacific cable, as originally projected and advocated for many years, has been designed to connect the two greatest divisions of the British Colonial Empire—Australia and Canada—by a route substantially British throughout. Unless such a route be physically impossible, it would, in my judgment, be unwise in the last degree to place the first section of this undertaking absolutely under the control of a foreign Power.

I venture to think it can be indisputably established that there is more than one route from Australia and New Zealand to Canada eligible for a British cable; that there is no necessity whatever for landing at New Caledonia, Samoa, or Hawaii, or, indeed, at any island occupied by natives who are not already wholly under British protection. I beg leave to describe several of such routes or combination of routes:—

Route No. 1.

Commencing at Vancouver Island, the cable would extend to Fanning Island, thence to the nearest island of the Fiji Group. From Fiji it may run direct to New Zealand, and thence to the Australian Continent; or it may run first to Norfolk Island, and from that point bifurcate to the northern part of New Zealand, and to a convenient point near the boundary between New South Wales and Queensland.

Route No. 2.

From Vancouver Island the cable would be laid to a small unoccupied island indicated on the charts as Necker Island, favourably situated about 240 miles westward from the Hawaiian Group. From Necker Island the cable would extend to Fiji, and thence as in route No. 1 to New Zealand and Australia.

Route No. 3.

As in route No. 2, the cable would extend from Vancouver Island to Necker Island, thence to Onoatoa or some one of the eastern islands of the Gilbert Group. From this station in the Gilbert Group two branches would extend, one to Queensland and the other to New Zealand. The Queensland branch would touch at San Christoval Island in the Solomon Group, and terminate at Bowen, connecting at that point with the land lines easterly to Brisbane and Sydney, westerly to the Gulf of Carpentaria, where a connection may be formed with the Port Darwin-Adelaide Trans-continental telegraph, leading to Victoria, Tasmania, South and West Australia. The New Zealand branch of this route would find a mid-station on Viti Levu, the southern island of the Fiji Group.

Route No. 4.

As in routes Nos. 2 and 3, the cable would be laid from the northern terminal point to Necker Island. From Necker Island it would extend in a direct course to Bowen, touching at Apamana—a central island of the Gilbert Group—and at San Christoval, of the Solomon Group. At Bowen, this route may, as in the case of route 3, connect with Melbourne, Adelaide, Tasmania, by the South Australian overland line. Route No. 4 is probably the shortest possible line that can be drawn on the surface of the globe between any part of Canada and any part of continental Australia. It has the disadvantage of excluding from its telegraph service the Fiji Islands and New Zealand. To connect the latter colony a special cable from Queensland or New South Wales would be required. The Fiji Islands, however, would remain without a telegraph by this route.

The distance by each route is ascertained to be as follows (details are appended):—

Route No. 1—Including both branches from Norfolk Island to New Zealand and Australia	7,145 knots.
Route No. 2—Including branches to New Zealand and Australia	7,175 „
Route No. 3—Including both branches to Queensland and New Zealand from the Gilbert Group	8,264 „
Route No. 4—Vancouver to Bowen	6,244 „
Route No. 4A—Vancouver to Bowen, with a special cable from the mainland to New Zealand	7,310 „

Cost.

In estimating the cost of a cable there are various circumstances that require to be considered. One of the most important is the allowance for slack. It is customary to add an allowance to the ascertained superficial distance of 20 per cent., in order that the cable may be safely laid at all depths and under all conditions likely to arise. This practice has been followed in estimating the cost of establishing

a cable by each route. In the case of route No. 1 a special allowance is made on account of the unusually long section between Vancouver and Fanning Island. In each case the estimate is intended to cover the cost of cables of the best type manufactured :—

Route No.	1,	estimated	cost	completed	...	... £1,678,000
,,	2,	,,	,,		...	... 1,585,000
,,	3,	,,	,,		...	... 1,825,000
,,	4,	,,	,,		...	... 1,380,000
,,	4A,	,,	,,		...	... 1,610,000

Having pointed out that there is a choice of routes for an essentially British cable across the Pacific, and presented estimates of cost, which I believe to be fairly reliable, I ask permission to add a few remarks bearing on the means which may be taken to carry out the undertaking.

There are two ways by which the object may be accomplished. First, through the agency of a company liberally subsidised. Second, as a public work under Government control. I have given this question much consideration, and year by year I have become more and more firmly convinced that if economy, low rates for telegraphy, and the highest efficiency be desired, the latter means of establishing the cable is the best. Promoters of companies generally desire to make large sums of money. The policy of companies is to obtain from the public as large profits as possible, while that of Governments is to accommodate and benefit the public in every possible manner by reducing the rates to the lowest practicable point, and by giving the most efficient service. The principle of ownership of telegraphs by Government is not new. It has long been adopted in the United Kingdom, in India, in these colonies, and elsewhere, and in every case I am aware of, where the principle has been tried, the public has derived the greatest advantage.

Various efforts have been made during the past ten years to have the Pacific Cable established by a subsidised company, but no company has offered to carry out the undertaking for a less subsidy than £75,000 a year, continued for a period of twenty-five years. It can be indisputably shown that under the plan of Government ownership, a much less annual payment, for a very much shorter period will suffice. Moreover, when established, the cable will be public property, controlled by Government for the public benefit.

The proposal then is that Australia, New Zealand, Fiji, and Canada, should be joint owners of the Pacific Cable, and that it should be established and worked as a public undertaking for the common good. There is one difficulty to be met at the outset. Certain of the Australian Governments are under obligations to pay an annual subsidy of £32,400 to the Eastern Extension Company until May, 1899, and, in consequence, they may not consider themselves in a position to co-operate on equal terms with the other Governments concerned in establishing the new line. This difficulty is not, however, insuperable, and in my judgment it can most readily be overcome by providing out of capital an annuity to meet the subsidy as it annually becomes due. By this arrangement the liability of New South Wales, Victoria, South Australia, and Western Australia to the Eastern Extension Telegraph Company would be practically removed, and these Colonies would be free to enter with Queensland, New Zealand, Fiji, and Canada into a joint agreement to accomplish the establishment of the Trans-Pacific telegraph. As will hereafter be seen, the annuity so provided to extinguish the subsidy of £32,400 a year would be met by profits accruing from the new cable. Meanwhile, all liability incurred in the raising of capital would be borne in equitable proportions by all the co-operating Governments.

To illustrate the proposal set forth, let us assume that the cable itself, say on route No. 2, requires an expenditure of £1,600,000

To this capital add the sum needed to purchase an annuity to meet the annual subsidy of £32,400 from May, 1894, to May, 1899—five years ...	145,000
Total...	£1,745,000

This total capital raised on the joint guarantee of the Australian Colonies, New Zealand, and Canada could be placed at the low rate of 3 per cent., making a total charge of £52,350 per annum. This

This interest charge is less than the lowest subsidy asked by a company, and I shall establish, by the strongest possible evidence, that unlike a subsidy for a fixed period of twenty-five years, long before the expiry of that period, the whole interest will be met by surplus revenue.

Cost of Working.

I have obtained estimates from the best authorities, of the cost of working the Pacific cable under Government. These estimates range from £45,000 to £60,000 per annum, and include the salaries of superintendents, electricians, and operators, two steamers for current repairs, and all necessary expense at terminal and mid-ocean stations. As it is desirable to have adequate allowance for every service, it is expedient to base our calculations on the highest estimate (£60,000) as the total cost of working the cable. £60,000 will accordingly be a first charge on the revenue, and it will remain a constant charge whatever the volume of business, whether five million words per annum or half a million only.

Renewal Fund.

Next to working expenses there should be an annual charge on revenue for renewals. It is proposed, therefore, to place to a cumulative reserve the sum of £32,000 a year, equal to 2 per cent. on the entire cost of the cable. This provision is considered ample until the earning qualities of the cable come to be thoroughly established.

Revenue.

In many cases it is difficult, owing to the lack of information, to form estimates of the probable revenue of a projected undertaking. In this instance, however, the best data is available for our guidance. We have the published statistics of telegraph business by the existing line between Australia and Europe for a number of years, and it is fair to assume that on the establishment of the Pacific cable, rates and all other things being equal, the business will be equally divided between the two lines.

I am unable to ascertain the business for the past year, but I gather from the published returns that the number of words transmitted in the year ending May 1st, 1892, was 1,275,191. If we divide this into equal parts, we have 637,595 words as a basis for estimating the revenue of the Pacific cable.

In examining the returns for previous years some striking peculiarities are apparent. During the eight years from 1882 to 1890 the telegraph business between the Australian Colonies and Great Britain increased on an average 54,441 words each year, equal to 14 per cent. per annum. This may be viewed as the normal increase under a high tariff, inasmuch as throughout these eight years the charges on ordinary messages were never less than 9s. 4d. per word. On May 1st, 1891, the rate was reduced from 9s. 4d. to 4s. per word, and within the twelve following months the business increased by 448,913 words—an increase of 54 per cent. on the business of the previous year, and 831 per cent. over the normal annual increase during the preceding eight years. The further expansion of business will no doubt for the present be disturbed and retarded by an increase in the charges on messages on the 1st January last; but there remains the experience of the year 1891-2 to establish the remarkable effect of a low tariff in stimulating telegraphy. In that single year the increase in the number of words transmitted under a 4s. rate was greater than the growth of the business during the whole of the preceding eight years under a 9s. 4d. rate.

One of the direct benefits to the public from the Government ownership of the Pacific cable will be the reduction in charges for transmitting messages. I have already mentioned that with a full and efficient staff, such as the estimate for working expenses provides for, it will cost no more to do a large business than a small. There will, therefore, be no reason for preventing the freest expansion of telegraphy by the new line by lowering the charges. In my humble opinion, the rates across the Pacific should be lowered to 2s. per word immediately on the cable being laid, in order that the public may have the advantage of cheaper communication at the earliest moment.

The

The proposed rate of 2s. per word for transmitting messages across the Pacific would reduce charges between Australia and England to 3s. 3d. in place of 4s. 9d. as at present. Moreover, messages from Australia received at Vancouver would be forwarded to all parts of Canada and the United States for an average charge not exceeding 2s. 3d. per word in place of 6s.—the present charge.

I wish to avoid extravagant statements or too sanguine estimates. I would, in submitting my ideas, particularly desire to keep strictly within reasonable probabilities. If we base estimates on the existing volume of business merely, we must anticipate that there will be no great advance over the business of 1891–2 for a few years if the charges on messages are again raised, as they already have been to some extent. In the calculations which follow, I shall, therefore, assume the business to be at a standstill for three years; that is to say, I shall assume that the business in 1894 will not be greater in volume than it was in 1891–2, and that thenceforth the normal increase of not more than 14 per cent. per annum shall apply. The number of words transmitted in 1891–2 was 1,275,191. It is assumed that the Pacific cable would, if in operation in 1894 obtain one-half of this business.

Year.	Number of words per annum.	Earnings of the cable at 2s. per word.	Year.	Number of words per annum.	Earnings of the cable at 2s. per word.
		£			£
1894	637,595	63,759	1900	1,173,176	117,318
1895	726,858	72,686	1901	1,262,439	126,244
1896	816,122	81,612	1902	1,351,703	135,170
1897	905,386	90,539	1903	1,440,967	144,097
1898	994,649	99,465	1904	1,530,230	153,023
1899	1,083,913	108,391			

It is scarcely likely that the Pacific cable will be established before the year 1896. The above estimate shows that in the year following (1897) the revenue from the cable would be £90,539, a sum equal to the whole working expenses, together with £30,539 for the renewal fund.

In the five following years, the revenue, in addition to paying working expenses and providing for gradually reducing the interest charges would finally in 1903, within about seven years after the completion of the undertaking, be sufficient to meet every current charge, and the contributing Governments would practically be relieved from further liability. Not only would all fixed charges be then met, but in succeeding years the productive capacity of the undertaking would yield an annually increasing surplus, to be dealt with as the co-operating Governments may determine.

If instead of a 2s. rate we reckon the same business for each year at an additional 6d. per word, or 2s. 6d. in all, a charge on messages across the Pacific, which would still be considered comparatively low, we have as follows :—

Year.	Earnings of the cable at 2s. 6d. per word.	The fixed Charges, including working expenses, renewal fund, and interest, being in all £144,350 per annum.	
		Deficiency.	Surplus.
	£	£	£
1897	113,173	31,177	.....
1898	124,331	20,019	.....
1899	135,489	8,861	.....
1900	146,647	.....	2,297
1901	157,805	.....	13,455
1902	168,963	.....	24,613
1903	180,121	.....	35,771
1904	191,279	.....	46,929
1905	202,437	.....	58,087
1906	213,595	.....	69,245

This last estimate gives the result for the first ten years operation of the cable based on a 2s. 6d. rate and a low normal increase. It shows that the revenue for the first year would be insufficient to pay the whole interest on capital in addition

addition to working expenses and provision for renewal fund, and that the co-operating Governments would together require to pay £31,177 to make up interest. In the following year the deficiency to be made good would be £20,019; in the third year, £8,861. A small surplus would result in the fourth year, and at the end of ten years there would be an accumulated surplus of over £250,000 after meeting interest on cost and every other charge.

Comparison with present Subsidy.

If we compare these estimated results with the sums now paid for the temporary use of the existing telegraph at lower rates than formerly, we shall find everything in favour of an independent cable owned and controlled by Government.

There is first a fixed annual subsidy of £32,400 paid to the Eastern Extension Cable Company by five of the colonies. In addition to this annual payment I find in the Postmaster-General's (N.S.W.) Report for 1892 (page 25) that further sums have been paid to the same Company, for the past two years, to obtain a reduction in charges from 9s. 4d. to 4s. and 4s. 9d. Under the heading "Cable Guarantee," I find that £27,520 was paid for the year 1891–2, and £21,778 for the year 1892–3. If we add this guaranteed payment to the subsidy, we find the payments in each case to have been—

Colony.	Subsidy and Guarantee paid	
	For year 1891–2.	For year 1892–3.
	£	£
By Victoria	25,730	23,048
„ New South Wales	23,787	21,126
„ South Australia	7,966	7,213
„ Tasmania	1,447	1,102
„ Western Australia	990	874
Total sums paid... ... £	59,920	53,363*

* Note:—This does not include £815 paid by New Zealand.

Thus it appears that five Colonies have paid, in each of the past two years, to the Eastern Extension Cable Company, sums in excess of the interest (£52,350) on the whole capital required to establish the Pacific Cable. I do not know that it is at all necessary to carry the comparison any further. I will only remark that in the case of the Pacific Cable the liability for interest would not be confined to the present five contributing colonies, the intention is that it shall be borne in equitable proportions by all, including New Zealand, Queensland, Fiji, and Canada, and in consequence would fall lightly on each. Moreover, it is perfectly clear from the estimates of revenue, that while at no time would the interest charge, distributed over nine Governments, exceed £52,350, so soon as the cable goes into operation the payments on interest account would gradually be reduced, and in a very few years would be wholly covered by surplus revenue. It is quite true that in the case of the Eastern Extension Cable the guarantee may cease any year by giving notice, and the obligation resting on five colonies to pay the annual subsidy of £32,400 will in any event terminate in 1899; but, without an alternative line under Government control, is there any certainty that the Eastern Extension Company may not raise charges to the old high rates unless an extension of the subsidy be granted them?

Conclusion.

In connection with the estimates of revenue I have pointed out from statistical returns two elements of increase of business—(1) a normal increase under an exceedingly high tariff; (2) a very much greater increase under a lower tariff. There will be a third increase which will be due to the development of traffic with Canada and in bringing the Australian Colonies into direct telegraphic touch with the whole telegraph system of North America. At present telegraphic intercourse is insignificant, but with a 2s. or 2s. 6d. rate across the Pacific in place of a 6s. rate by a circuitous route, the circumstances will be favourable to the growth of telegraph business between the two continents, and, in consequence, the revenue to the Pacific Cable from this source will rapidly develop to large proportions.

In

In the foregoing estimates of revenue I have reckoned only the normal increase under a high tariff and taken no account of the greater increase which certainly will result from the charges being lowered, as proposed. I have likewise added nothing for the Australasia-North American business, the whole of which would flow to the Pacific cable. I am quite warranted, therefore, in expressing the opinion that the estimates of revenue I have presented are not exaggerated or unreasonable, and that the Pacific cable established by Government in the manner proposed would effect very important results. It would practically extinguish all subsidies now paid and render guarantees unnecessary. It would permanently establish low rates for ocean telegraphy. It would yield a revenue which, after paying working expenses, providing for maintenance and renewals, would make good, all interest charges on the whole cost of the undertaking from the beginning, and in a very few years would furnish large surplus earnings. I venture to think, then, that if the resolution passed by the Postal and Telegraph Conference in March last be generally assented to in these colonies, the Governments need not hesitate in incurring the comparatively small, almost nominal, liability, necessary to secure a telegraph connection across the Pacific, which every British subject will recognise to be of the greatest national and commercial value.

APPENDIX.

Distances by the several routes or combinations of routes referred to in the Memorandum of Mr. Sandford Fleming, October 11th, 1893, on the Pacific Cable.

Route No. 1.

	Knots.
Vancouver Island to Fanning Island	3,232
Fanning Island to Fiji, North Island	1,715
Fiji to Norfolk Island	1,022
Norfolk Island to North Cape, New Zealand	415
Norfolk Island to Tweed mouth, near boundary New South Wales and Queensland	761
Total	7,145

Route No. 2.

Vancouver Island to Necker Island	2,431
Necker Island to Fiji	2,546
Fiji to Norfolk Island	1,022
Norfolk Island to North Cape, New Zealand	415
Norfolk Island to Tweed mouth	761
Total	7,175

Route No. 3.

Vancouver Island to Necker Island	2,431
Necker Island to Onoatoa (in the Gilbert Group)	1,917
Onoatoa to S. W. Viti Levu (Fiji Group)	980
Viti Levu to North Cape, New Zealand	1,004
Onoatoa to San Christoval (Solomon Group)	953
San Christoval to Bowen, Queensland	979
Total	8,264

Route No. 4.

Vancouver to Necker	2,431
Necker to Apamana (Gilbert Group)	1,865
Apamana to San Christoval (Solomon Group)	969
San Christoval to Bowen, Queensland	979
Total	6,244

Route No. 4a.

Vancouver to Bowen, Queensland (same as No. 4)	6,244
Tweed mouth to North Cape, New Zealand	1,066
Total	7,310

Sydney: Charles Potter, Government Printer.—1893.