

1882.
NEW ZEALAND.

DIRECT STEAM SERVICE WITH GREAT BRITAIN.

Presented to both Houses of the General Assembly by Command of His Excellency.

No. 1.

The Hon. Mr. JOHNSTON to Sir F. D. BELL.

SIR,—

Post Office and Telegraph Department, Wellington, 13th August, 1881.

The question of the desirability of establishing a direct steam service between the United Kingdom and the colony has been brought under the notice of the Government by Parliament. I enclose for your information a clipping from *Hansard* (see I.-9, 1881), from which you will learn that the Government, in order to enable Parliament to deal definitely with the question next session, has undertaken to obtain all possible information as to the terms upon which a direct service could be secured. As I write, a Committee of each branch of the Legislature is taking evidence, with a view of ascertaining, if possible, what support a direct steam service to the colony would meet with, and for what subsidy the colony might reasonably expect to obtain such a service. It is possible that it may make some inquiries from you by cablegram. Meantime, I have the honor to ask you to be good enough to make all needful inquiries from those who may be willing to embark upon the undertaking, as to (1) the class and description of steamers to be employed; (2) the length of the voyage out and Home; (3) the rate of subsidy for a four-weekly service; (4) the rate of passage-money for Government emigrants; and (5) limit of contract.

2. As you are no doubt aware, companies are being formed in the colony for the purpose of exporting meat, &c., under the freezing process; and this export will be greatly aided and promoted by a direct steam service, insuring a regular and speedy transit. There is every reason to believe that the companies will be successfully floated, and that ere long there will be a very large trade in the export of frozen meat and butter. There are at the present time several gentlemen from the colony in London interested in these projected companies, and of these I would mention the Hon. R. Campbell, M.L.C., as a gentleman who could afford you every information as to the probable success of the export of frozen meat from New Zealand. I would suggest that you communicate with Mr. Campbell, because the value of the export trade of the colony will have a direct bearing on the amount of subsidy which may be required to maintain the direct service.

3. I also enclose you a printed paper (H.-28, 1881), which will be laid before Parliament next week, and would direct your special attention to the correspondence between Sir Julius Vogel, Mr. Larnach, and Mr. Galbraith, of Glasgow. I desire to add that the colony would not be satisfied with a bi-monthly service as suggested in the correspondence, but would require a monthly one; and I hope that, inasmuch as steamers like those of the Orient Company, and also those of Mr. R. M. Sloman, of Hamburg, are now running regularly to Australia without subsidy, a monthly service to meet the requirements of this colony can be obtained without paying a very heavy subsidy.

I have, &c.,

Sir F. D. Bell, K.C.M.G.,
Agent-General for New Zealand, London.

WALTER W. JOHNSTON,
Postmaster-General.

No. 2.

The Hon. Mr. JOHNSTON to Sir F. D. BELL.

SIR,—

Post Office and Telegraph Department, Wellington, 10th September, 1881.

With reference to my letter to you of the 13th ultimo, I have now the honor to send you enclosed a copy of the report of, and the evidence taken by, the Joint Committee of both Houses of Parliament (I.-9, 1881), in the matter of a direct steam service between the United Kingdom and New Zealand. The report has not yet been adopted by the House.

I have, &c.,

Sir F. D. Bell, K.C.M.G.,
Agent-General for New Zealand, London.

WALTER W. JOHNSTON,
Postmaster-General.

No. 3.

The Hon. Mr. JOHNSTON to Sir F. D. BELL.

SIR,—

Post Office and Telegraph Department, Wellington, 8th October, 1881.

In continuation of my letters noted in the margin (the 13th August and 10th September), I have now the honor to forward you copy of resolutions passed by the House of Representatives on the 13th ultimo, in connection with the proposal to establish a direct steam service between Great Britain and this colony.

2. You will observe that, while the report of the Joint Committee was not affirmed, the House resolved that the Government should during the recess make inquiries and collect necessary data, so as to enable the question of a direct steam service to be finally dealt with by Parliament at its next sitting. May I therefore request that you be good enough to procure and forward at your earliest convenience the information solicited by me in my letter of the 13th August last.

I have, &c.,

Sir F. D. Bell, K.C.M.G.,

Agent-General for New Zealand, London.

WALTER W. JOHNSTON,

Postmaster-General.

Enclosure in No. 3.

EXTRACT from the JOURNALS of the HOUSE of REPRESENTATIVES.

Tuesday, the 13th day of September, 1881.

RESOLVED, That this Committee is of opinion that the establishment of a direct monthly steam service with Europe would very materially promote the interests and develop the resources of this colony.

That, in the opinion of this Committee, the Government should make inquiry as to the terms on which a direct steam service with Great Britain could be arranged, and report the same to the next Parliament.

No. 4.

The Hon. Mr. JOHNSTON to Sir F. D. BELL.

SIR,—

Post Office and Telegraph Department, Wellington, 10th October, 1881.

In my letter to you of Saturday, *via* San Francisco, I omitted to state that it had been suggested in the House of Representatives that the subsidy to be paid by this colony in aid of a direct steam service might be considerably reduced, without diminishing overmuch the advantages of the service, if the steamers were allowed to call *en route* at an Australian port. It is believed that it would probably be found on inquiry that one or other of the steamship companies now trading to Australia would be inclined to extend its operations to New Zealand for a moderate payment; and I shall be glad to learn from you that the result of your inquiries confirms this belief.

I have, &c.,

Sir F. D. Bell, K.C.M.G.,

Agent-General for New Zealand, London.

WALTER W. JOHNSTON,

Postmaster-General.

No. 5.

The Hon. W. W. JOHNSTON to the MANAGING DIRECTOR, Union Steam Ship Company, Dunedin.

SIR,—

Post Office and Telegraph Department, Wellington, 30th September, 1881.

I have the honor to invite your attention to the enclosed report of a Select Committee appointed by the House of Representatives last session to consider as to the best means of establishing a direct steam service between New Zealand and the Mother Country.

You will see from the report that the Committee recommended that the colony should guarantee, for not exceeding seven years, to any persons prepared to undertake a monthly steam service by vessels of the class described, at a seagoing speed of not less than $12\frac{1}{2}$ knots, a minimum rate of interest of 6 per cent. per annum upon the actual cost of the steamers required for the service, provided such guarantee shall not be upon an amount exceeding one million, and that the net annual earnings of the service shall go towards the reduction of the payment of interest so guaranteed: provided also that, in the event of such net earnings being in excess of the 6 per cent. guaranteed, such excess shall belong to the contractor; and, that in the event of contractors being found within the colony willing to undertake the service on the forementioned basis, *ceteris paribus*, preference should be given to such.

Inasmuch as the existing contract for the mail service to San Francisco does not expire until November, 1883, the House of Representatives did not adopt the whole of the report of the Select Committee; but it affirmed the desirability of the service, and instructed the Government to make inquiries as to the terms on which it could be established and report the same to the next Parliament; and it is probable that Parliament will then resolve that, instead of renewing the San Francisco service, an endeavour will be made to substitute for it a direct steam service with the Mother Country.

Under these circumstances I hope you will take this question into your consideration, and will make such inquiries and preliminary arrangements as will enable you, should Parliament next session resolve to establish a direct monthly steam service from November, 1883, to tender for the performance of such service.

It was suggested in the House that the subsidy to be paid by this colony might be considerably reduced without diminishing overmuch the advantages of the service, if the steamers were allowed to

call *en route* at an Australian port; and if you decide to go into the matter you will no doubt give this suggestion your consideration, and determine for what subsidy you would carry on a service so modified.

I venture to express the hope that I may be authorized next session to announce to the House that the Union Steam Ship Company is prepared to tender for either of the above services, should the House resolve to establish one of them.

I have, &c.,

WALTER W. JOHNSTON,
Postmaster-General.

The Managing Director,
Union Steam Ship Company of New Zealand (Limited),
Dunedin.

No. 6.

Mr. MILLS to the Hon. the POSTMASTER-GENERAL.

Union Steam Shipping Company of New Zealand (Limited).

Dunedin, 28th October, 1881.

SIR,—

I have the honor to acknowledge the receipt of your favour of 30th ultimo, *re* direct steam service between New Zealand and Great Britain.

The directors of this company have given the matter very careful consideration, and have forwarded a copy of your communication to the Managing Director, who is at present *en route* to England, desiring him while there to make himself thoroughly acquainted with the requirements of such a service as you propose, and to collect such information as will enable the directors to say definitely on what terms it would be possible to carry out a direct steam service fulfilling the conditions enumerated in your letter.

When possessed of the necessary particulars, the directors will again seek the honor of communicating with you.

I have, &c.,

D. MILLS,
Acting General Manager.

The Hon. the Postmaster-General,
Wellington.

No. 7.

Sir F. D. BELL to the Hon. the POSTMASTER-GENERAL.

7, Westminster Chambers, London, S.W., 25th November, 1881.

SIR,—

I have the honor to acknowledge the receipt of your letters of the 8th and 10th October, on the question of steam communication.

I need not say that I am anxious to carry out your commands by completing at the earliest date the reports I am preparing for you, in order that the Government may have these before them for as long a time as possible prior to the meeting of Parliament. It was, however, only last week that the elaborate designs, which have been preparing at my request since August, for ships capable of doing the direct service, could be finished; and though I will not delay my reports a day longer than is necessary for the subject to be presented to you in as complete a shape as I can, the number and variety of the details to be considered are such that it is better for me to take time for their thorough examination rather than run the risk of supplying what might afterwards turn out to have been insufficient or inaccurate conclusions.

I have, &c.,

The Hon. the Postmaster-General, Wellington.

F. D. BELL.

No. 8.

Sir F. D. BELL to the Hon. the POSTMASTER-GENERAL.

7, Westminster Chambers, London, S.W., 2nd December, 1881.

SIR,—

I received this morning a letter, of which copy is annexed, from Mr. Coster, Chairman and Managing Director of the New Zealand Shipping Company, stating that he has made such arrangements in this country as will place that company in a position to establish an efficient direct steam service.

As I have not the least idea what those arrangements may be, I am unable to express any opinion upon the statements in Mr. Coster's letter. He has had several conversations with me on the subject of a steam service, but they have always been in the nature of inquiries as to the course which I was likely to recommend to the Government, rather than with the object of affording any real indication of what the New Zealand Shipping Company would be willing or able to do; and, although Mr. Coster has more than once informed me that he could make here, on behalf of the company, every financial or other arrangement necessary (including the building of the ships) to establish a direct service, I have not had the advantage of knowing anything from him, either as to the plans he has, or as to the mode in which he proposes to carry them out.

I have, &c.,

The Hon. the Postmaster-General, Wellington.

F. D. BELL.

Enclosure in No. 8.

Mr. COSTER to Sir F. D. BELL.

The New Zealand Shipping Company (Limited),
84, Bishopsgate Street Within, London, E.C., 1st December, 1881.

Direct Steamers.

SIR,—

Adverting to the various conversations which have passed between us on this subject, I have now the honor to intimate to you that I have made such arrangements in this country as will place this

company in a position to establish an efficient direct steam service, if decided upon, between England and New Zealand, if satisfactory terms and conditions can be arranged.

I am returning to-day to the colony, and expecting to reach there about the middle of January. On my arrival the subject will receive the attention of the directors of the company.

I have, &c.,
J. L. COSTER,
Chairman and Managing Director.

Sir F. D. Bell, K.C.M.G.,
Agent-General for New Zealand, London.

No. 9.

The Hon. Mr. JOHNSTON to Sir F. D. BELL.

SIR,— Post Office and Telegraph Department, Wellington, 27th January, 1882.

I have the honor to acknowledge the receipt of your letter of the 2nd ultimo, enclosing one from the Chairman and Managing Director of the New Zealand Shipping Company, on the subject of the direct steam service.

I have, &c.,
WALTER W. JOHNSTON,
Postmaster-General.

Sir F. D. Bell, K.C.M.G.,
Agent-General for New Zealand, London.

No. 10.

Sir F. D. BELL to the Hon. the PREMIER.

SIR,— 7, Westminster Chambers, London, 5th May, 1882.

I propose in this despatch to lay before you, as plainly as I can, the result of the inquiries I was instructed to make in this country on the question of a direct steam service to New Zealand.

There was not a little difficulty in obtaining sufficiently complete, and, at the same time, reliable information upon a subject so intricate in itself, and so replete with chances of miscalculation which might be entirely misleading. I should place in the first rank of difficulties the great and natural reluctance of skilled and experienced men in England to give time and thought to hypothetical questions, especially when these involve elaborate calculations that may not only end in nothing, but be published in a State paper for the benefit of rivals. Next to that, perhaps, was the difficulty that, if information about steam was to be presented by me, in a shape to be at all intelligible, it must embrace the mature conceptions of people who were familiar at once with the art of building steamships, and with the foundation and working of steam services.

The peculiar value of the propositions submitted to the Government in 1878 by Mr. Galbraith and the Messrs. Denny lay in the fact that they were made by people who united acknowledged skill in shipbuilding with varied experience in the working of steamships, and a thorough knowledge of the New Zealand trade. Estimates of the cost of the steamers themselves (such, I mean, as would be fitted for a postal or a mercantile service) would of course be of little value unless accompanied by a reliable calculation of the cost of working them when built; while, on the other hand, no true idea of profit and loss on working them could be formed without a thorough knowledge of the capital that would be wanted for their construction. Thus the proposals of 1878 offered at that time the best security to the Government for a basis on which to determine their own action, and seem to me to offer it still: for I am assuming that nowadays no one in the New Zealand Parliament would think of founding a direct steam service except with new ships of the very best class, possessing the latest improvements in machinery and construction; and that, whether for a postal or a commercial line, it is only to such ships that a subsidy would ever be given.

But, as those proposals only embraced a two-monthly service, the very first steps in the inquiry I had myself to make required the preparation of new and most careful designs, suited for either a fast postal service or a slower mercantile line; and this necessitated an entire revision of the estimates submitted by Mr. Galbraith and Mr. Denny in 1878. Yet it was obvious from the first that no one qualified to execute the double task of designing the ships and estimating the cost of working them would devote the long time and close attention necessary for its performance, only to find afterwards that both his estimates and his designs had passed into the hands of other competitors.

Thus it happened that when, even before your official orders reached me, I began to seek for reliable information on the steam question, I found myself confronted with initial difficulties which had perhaps not been foreseen by you. But as it was absolutely necessary, of course, that somebody should be approached first, I determined to apply to Mr. Galbraith and Mr. Denny. The high and well-known reputation of the Dennys as naval constructors, their own and Mr. Galbraith's long connection with the colony, the large stake they have together had in the New Zealand trade, their successful experience in the working of steam lines, and above all the perfect reliance that could be placed upon their word, pointed them out as the persons to whom the Government of New Zealand would naturally turn, in the first instance, for the requisite information; and I was therefore pleased when I learned afterwards, from the debate of last session on the Steam Committee's Report, that you had ordered me to consult them, and to ascertain if they would still be willing to undertake the establishment of a direct service.

Mr. Galbraith and Messrs. Denny readily responded to my request that they would undertake the revision of their estimates of 1878, and the preparation of entirely new designs; and when your first official commands came to me we had already been for some time in constant communication. They only agreed to my request, however, on the condition that the particulars they gave me should be communicated to you in confidence, with a view to guide the Government itself in coming to a decision as to the course you would recommend to Parliament; but, when the new designs and estimates were nearly ready, the publication of their scheme of 1878 destroyed all that had been done between us, and made them withdraw their permission to communicate either the designs or the estimates to the

Government. I had then, however, and have since, been in frequent communication with many other gentlemen, in order to obtain the varied information you would expect, and I gladly take this opportunity of expressing the obligations I am under to them. I wish especially to name, among these gentlemen, Sir Donald Currie, K.C.M.G., Mr. Sutherland, Chairman of the P. and O. Company, Mr. Gavan Anderson, of the Orient Company, the (Cape) Union Steam Company, Mr. James Alexander (Redfern, Alexander, and Co.), the New Zealand Shipping Company, Messrs. Shaw, Saville, and Co., Messrs. P. Henderson and Co., Mr. Mills, of the Union Steam Company, Mr. John Ross (Ross and Glendining), and Mr. J. A. Ewen (Sargood Son and Ewen), who have all most readily and courteously supplied me with a vast number of details, besides often giving me time, very precious to them, for personal discussions.

In one respect the publication of the papers of 1878 will be of service to you in reading what I am about to say. Not being allowed to send you the elaborate designs and estimates which Mr. Galbraith and Mr. Denny had made anew at my request, I am obliged to present the results of my inquiry as if these were all my own, and it will seem as if I was asking you to take what I say entirely upon trust. But this is not so; because the estimates of 1878 were so complete that they afford an efficient check upon any calculations of my own, and a safe and reliable standard by which to judge of the opinions I shall here venture to express.

I think that for the purpose of this examination it will be convenient to divide the subject of direct steam under the three heads of a postal service, a mercantile line, and some general considerations connected with the New Zealand trade, and I propose to take each of these by itself.

POSTAL STEAM.

In what I am now going to say, I assume that the proposals of the Committee of last session contemplated a mail service, because one of the essential conditions was that the speed should be not less than $12\frac{1}{2}$ knots, which no purely mercantile line could afford. For such a service the Committee proposed that the Government should offer a guarantee of 6 per cent. interest for seven years upon the actual cost of the six steamers which they estimated would be wanted, such cost not to exceed a million; any net earnings of the service to go in reductions of the guaranteed interest, and any excess of earnings above the 6 per cent. to belong to the contractor. But the Galbraith-Denny estimates of 1878 had shown that, even with ships full up, there would be a deficiency of £30,000 in working a two-monthly line of steamers if a 10 per cent. provision on the cost of the ships were made for boiler fund and depreciation; leaving nothing for return on the capital invested or for cost of management. And as their figures were capable of being checked, even to the items of the "portage bill," I confess I was as unable myself, as every one I consulted here, to understand how it could have been expected that whereas a two-monthly service was shown to result in such a loss, a monthly one, at a speed of $12\frac{1}{2}$ knots, with larger ships, could be set going and kept at work upon a guarantee of £60,000; still less that there would be any net earnings from the service itself to come in diminution of that sum. The Committee, it is true, set the postal receipts against the guarantee, and thought it likely, taking these into consideration, that its amount could be materially reduced even at the outset; and it is also true that the Chairman of the Committee explained their proposal to mean a "guaranteed dividend on capital after paying all expenses and wear and tear." But, so far as the contractors themselves were concerned, they were not to receive more than the £60,000 from the colony. Now I am bound to say it is quite beyond doubt that no direct postal line, running monthly at such a speed, has the least chance of being undertaken in England for anything like that sum.

In order to test so positive a statement it will be convenient to examine the estimates of 1878 as if they were now being revised for a monthly service, and to see what corrections have to be made in them. I will endeavour to do this step by step.

I. AS TO CONSTRUCTION AND SPEED.

1. *Size of Ships.*

Mr. Denny's designs of 1878 were for ships of a gross register tonnage of 4,215 tons, with nominal horse-power 700, capable of developing 4,000; having passenger accommodation for eighty-four first class, thirty-four second-class, and four hundred and fifty third-class; average speed at sea, $12\frac{1}{4}$ knots; available space for cargo outwards, after allowing for 2,400 tons of coal (the ship being supposed to be full of passengers of the three classes), about 900 tons; available space for cargo homewards, after allowing for coal and fifty steerage passengers, about 2,500 tons (measurement) of wool, or 2,100 tons (weight) of wheat. And a ship of that class was calculated to cost, at the unprecedentedly low prices of that day, about £115,000.

But these designs, although suitable for a two-monthly line, were obviously out of the question for a monthly postal service. In the single point of speed it would not be worth while to create a new line and grant a large subsidy to it at any lower rate of speed than is now attained by the best ships of the P. and O. and Orient lines; so that the new ships which I asked Mr. Denny to design were made to provide for a speed of $13\frac{1}{4}$ knots. The additional consumption of coal for this speed, and a more carefully-arranged division of space for cargo and passengers, necessitated a new scheme for ships of about 5,900 tons gross, and 3,750 net. Though little alteration was wanted in the case of saloon passengers, I thought that (at the outside) space should not be calculated for more than 300 in the steerage, so that there should be a cargo-space of about 3,300 tons outwards; while homewards, after allowing for fifty steerage passengers, there should be space available for about 4,000 tons (measurement) of wool, or 2,200 tons (weight) of wheat. Ships of this class could certainly not now be built for less than £150,000.

2. *As to Capital required.*

While, therefore, according to the estimates of 1878, the capital required for the three ships was not more than £345,000, it would be necessary now, for building five ships with all the latest improvements in machinery and construction, to have a capital of not less than £800,000; of which half a million might be in shares, and the remainder raised by debentures bearing, say, 5 per cent. interest.

3. *As to Speed.*

I have just said that I think it would be unwise to give a heavy subsidy to any postal line attaining a less speed than the best P. and O. and Orient ships.

The P. and O. Company's contract with the Imperial Post Office is for a speed of 11 knots between Brindisi and Alexandria, and $10\frac{1}{2}$ knots between Suez and Ceylon; but the ships can of course do much more. Their contract with the Victoria Government is for a speed of 12 knots between Ceylon and Melbourne; and the Postmaster-General of Victoria gives the mail time between Brindisi and Melbourne as 895 hours (thirty-seven days seven hours). But the ships of the Orient line go very much faster than that. The "Orient" left Adelaide upon her homeward voyage on the 14th April, 1881, at 8.30 p.m., and arrived at Naples on the 13th May, at noon. She left Naples at 5 p.m. on the 4th November, 1881, and arrived at Adelaide on the 4th December at 3 p.m. (apparent time); carrying letters which had been posted in London at 7.30 p.m. on the 4th November, to overtake the ship at Suez, and put on board there; so that (allowing for difference of time) the transit of these letters was made in twenty-nine and a half days.

Now it may be looked upon as certain that, if a new P. and O. contract had to be made to-day, a speed of 13 to $13\frac{1}{2}$ knots would be insisted upon by the public. The pressure for accelerating the Brindisi route has not yet been very marked, but the Imperial Post Office is well aware that it must come, and that the acceleration must take place; with a proper allowance, of course, to the P. and O. The average mail time between London and Melbourne under the P. and O. contract has been thirty-nine days two hours outward, and forty-one days twelve hours homeward; and the course of post has been about eighty-eight days. The average mail time under the San Francisco contract (between London and Auckland) has been, outward forty days, and homeward forty and a one-third days; and the shortest time, thirty-eight days out and thirty-six days home. The San Francisco contract gives a speed of 11 nautical miles per hour, and requires the voyage to be made between San Francisco and Auckland in 550 hours (just under twenty-three days), which could of course be materially shortened. The United States Post Office has recently accelerated its overland service across the Continent by a day, and (as was pointed out in the last New Zealand Post Office Report) the overland time will be still shorter when the Southern Pacific Railway carries the mails. And although, out of nearly 700 voyages across the Atlantic which I have taken out, the average time outward between New York and Liverpool was a little over nine days, and homeward eight and a half days, the "Brittanic" (White Star Line) has done it in seven days eleven hours, the "Servia" (Cunard Line) in seven days seven hours, and now the "Alaska" (Guion Line) in seven days four hours out, and a few minutes over seven days home, being the fastest on record.

Such feats as these by both the eastern and western routes show what is being done in steam, and should warn us not to bind ourselves to anything but the very best, if we undertake it at all. The "Servia," for instance, is a ship built entirely of steel, with a gross measurement of 8,500 tons, having indicated horse-power 10,500, 530 feet long, and width of beam 52 feet. Every month some new achievement in design surpasses the previous experience. Last year Sir John Lubbock said, in his address to the British Association for the Promotion of Science, "that the steam pressure had been increased from less than 5lb. up to 70lb. the square inch, and that the consumption of coal had been brought down from 5lb or 6lb. per horse-power to less than 2lb." But over the whole of the Clyde now a pressure of from 75lb. to 125lb. is more the rule than the exception, and in our triple-expansion engines the pressure would be 125lb.

I am unable to conceive a contract being now contemplated for a direct service which should not require the mail time between London and the port of arrival to be equal to the best average that could be done by the Suez Canal or by San Francisco. Even the Galbraith-Denny estimates of 1878 gave only forty-two days out and forty home; and yet it can hardly be doubted that if we had bound ourselves then to give £80,000 a year for eight years merely to get a two-monthly service, we should long ago have regretted it. It must be allowed, as the P. and O. urged in 1879, that in looking at the working of a postal line you must have regard not to exceptionally fast voyages, but also to the slow, as serious casualties and irregularities are fatal to the commercial interests which a mail service is required to subserve; yet these P. and O. steamers had, even then, travelled 13,000,000 miles without accident, and the India, China, and Australian mails were delivered with almost the same regularity as the Dublin mail. I take it that a direct postal line should have a speed of at least $13\frac{1}{2}$ knots, or it is not worth the subsidy we should have to pay for it.

4. *As to Route.*

The Galbraith-Denny designs of 1878 were for a route outward *viâ* the Cape, and homeward *viâ* the Suez Canal. I assume that until the Panama Canal problem is solved no idea would be entertained of subsidizing a direct postal service to New Zealand except *viâ* the Suez Canal both ways; the question of touching at Ceylon is not so material, as the deviation to Galle does not take a boat more than 350 miles out of the direct track to Aden, and does not mean more than thirty hours' steaming.

I mention the Panama Canal now, because I suppose New Zealand will not be willing to determine anything relating to a new postal contract without considering the change that must come over the Pacific trade if that canal is ever made. It is true that a canal at Panama would not divert any of the present trade to Australia, because the distance from (say) Liverpool or Milford Haven to Melbourne by the Suez Canal is 11,200 miles, while by the Panama Canal it would be 12,800; so that the Australian Colonies will always take the eastern route. But the figures are just reversed in the case of New Zealand, because the distance to Wellington by the Suez Canal is 12,700 miles, while by the Panama Canal it is only 11,500, and therefore the New Zealand trade would soon go that way. If the Panama Canal were made, New Zealand would be less dependent than she has been on the Australian steam services; but her interests as a grain-growing colony would be largely affected, as the making of that canal must greatly develop the shipment of cereals from the Pacific Slope to Europe, and the shortening of distance (6,000 miles as compared with Cape Horn) would be sure to lead to the employment of steam for the transport of grain from San Francisco to the Mersey.

The establishment of a direct postal line by the Suez Canal would involve the organization of a special mail service between London and Naples, where the ships would naturally touch, both out and home. The Imperial Post Office has not hitherto entertained the idea of a Naples-Australian mail, and only makes up ship-mails for Orient vessels. The official difficulty is that the engagements now existing with the French and Italian Governments require all mails to go *via* Brindisi; and this was lately stated to me by the Post Office authorities as an insuperable objection to any scheme for giving to the public of Australia and New Zealand the saving in postal time they would undoubtedly gain by mails made up at the last moment in London to catch the Orient ships at Naples. But I do not think there is much in the difficulty; so far as the French Government are concerned there is really none, because when the mail train comes out of the Mont Cenis tunnel it is on the Italian side, and whether the mails go on to Brindisi or bifurcate to Naples there is no loss to the French Post Office: while, so far as the Italian Government are concerned, it can hardly be doubted that they would welcome a proposal to accelerate a Naples train and bifurcate the mails, if accompanied by new postal revenue arising from a direct service to New Zealand. At any rate, I am assuming that the official difficulty could be overcome, and that the route for a direct postal line, unless undertaken by the P. and O. Company, would go the same way as the Orient ships; that is to say, from London to Naples, then through the canal, and straight on to the port of arrival in New Zealand.

II. AS TO WORKING COSTS.

1. *Consumption of Coal.*

In the Galbraith-Denny estimates of 1878 the amount of coal to be put on board for the outward voyage, including a small supply at St. Vincent, was given at 2,650 tons, of which about 400 tons would remain on arrival; and for the homeward voyage, 2,100 tons, inclusive of coaling at Port Said. The higher power for a fast postal line would require a larger supply of coal both ways; and I estimate the amount to be put on board for the outward voyage at not less than 3,000 tons, of which about 300 tons would again be in the bunkers on arrival, leaving about 2,600 to be taken in for the homeward voyage. These quantities are inclusive of coaling-up at Naples, Port Said, and Aden. It could not be safely estimated that the consumption of coal, for a ship of the power I am assuming, and steaming 13½ knots at sea, would be much under seventy tons a day.

As to the cost of the coal, the scheme of 1878 put the price in London at 21s.; St. Vincent, 33s.; Port Said, 32s.; and New Zealand, 33s. The London price may now be put at 19s., and at the other coaling-places on the way about 28s. (except Aden, where it would be more nearly 40s.), while the New Zealand price would also certainly be much less than was assumed in 1878. The total cost of coal for the outward voyage was put down in 1878 at about £3,000, and homeward, £3,450, or, together, a little under £6,500 for the voyage both ways. It would not be safe to estimate the cost of coal for a fast postal line now at less than £7,500 out and home.

2. *Portage Bill.*

The estimate of 1878 gave £2,342 for wages, &c., each voyage. It would be necessary to add about £1,000 to this for a fast postal line, so that the portage bill could not well be taken at less than £3,400 per voyage out and home; the difference in the wages of engineers, firemen, &c., being probably not less than £70 a month.

3. *Lights, Dock Dues, Loading and Discharging, Ship's Stores, &c.*

These were taken in 1878 at £2,615 for the outward, and £1,679 for the homeward voyage, or, together, £4,294. It would not be proper to take the cost for new postal steamers at less than an addition of £1,200 or £1,300 to that amount, or between £5,500 and £6,000 for the voyage out and home.

4. *Suez Canal dues.*

These would only have been payable one way under the scheme of 1878; for a postal service now *via* Canal both ways, the amount would exceed £4,000. These dues, as you are aware, are 10 francs per ton on the net register tonnage, besides the passenger fee of 10 francs per head.

5. *Insurance.*

This was taken in 1878 at £3,175 per voyage. It would probably be necessary to add about £600 to this estimate, but the amount would vary according to the freight and passage-money of each ship.

6. *Total Cost for the Year's Thirteen Voyages.*

Comparing step by step as I have done the chief items of fixed and unavoidable expenditure in any steam line, I do not think there can be any great error in the figures I have assumed for a postal service. I have taken only moderate sums for sailing charges, whether in London or New Zealand, and there is not much room for blunders in estimating such expenditure as loading cargo, ship's stores, cabin-furnishing, and advertising in England, or discharging, loading wool and wheat, dumping wool, and storage in New Zealand. In the scheme of 1878, taking the number of voyages out and home for a two-monthly service, Mr. Galbraith estimated the total cost for the year's work at a little over £114,000. With a fast postal line having a fixed departure every four weeks, there would be thirteen voyages out and home in the year: and I have assumed that the homeward voyages would be seven with wool and six with wheat. The cost of loading home with wheat is of course less than with wool, so that there would probably be a difference of at least £1,500 in favour of the voyage of the steamer loading with wheat. But taking the voyages as I have put them, full up both out and home, it would not be safe to take the cost of the year's work (under the various heads I have given above) at any less than an average of £27,000 a voyage (even with cheap coal in New Zealand), or, say, from £350,000 to £355,000 for the year's work.

III. AS TO REVENUE.

1. *Passage-money.*(i.) *Saloon and Second-cabin Passengers.*

In the Galbraith-Denny estimates of 1878 the rates of passage-money were put down somewhat in excess of the usual charge from London to Melbourne. The saloon price was stated at £70, and the second cabin at £35, both outward and homeward. In the calculations I have made for a postal service I have been content to adhere to these figures; but it must be remembered that, between return tickets and arrangements sure to be made with families, more or less reduction is likely to take place in these rates.

As to the number of cabin passengers that might be depended upon for each voyage, this is necessarily conjectural. It will be well, therefore, to look at the actual numbers that have sailed for New Zealand by the existing lines of sailing ships for some time past, so that from these you may judge how far it may be necessary to correct my estimate of passengers for direct postal steamers. This I shall presently do. For the immediate purpose of this section it will be enough for me to say that I assume we might fairly expect fifty saloon and forty second-cabin passengers by each outward ship, and forty saloon and thirty second-cabin on each homeward voyage. In 1878 Mr. Galbraith thought he might have seventy saloon passengers by each two-monthly vessel, but this is too high an estimate monthly; he, however, only put down twenty-five second-cabin passengers, which may, on the other hand, be taken to be rather too low.

(ii.) *Steerage Passengers.*

In the scheme of 1878 the rates were put down at £18 outward and £20 homeward. £18 is, however, too high, and I am only taking them at £15 outward, and £20 to £25 homeward.

As to the number of steerage passengers, the question depends entirely on the extent to which the colony may choose to continue free or assisted emigration. It was assumed in the proposals of 1878 that the Government would guarantee a number equal to 450 adults by each ship; but this was out of the question. Later on, the figures I shall give, showing the number of steerage passengers who have paid their own passages in sailing ships, will enable you to form a tolerably accurate judgment on the numbers of that class likely to sail by direct steamers. For the present purpose I am assuming that the Government will continue a moderate amount of assisted immigration, and, if so, it would not be unreasonable to say that, between Government immigrants and persons paying their own passage, each outward ship might be expected to take out a number equal to 300 adults, while perhaps fifty might come in the homeward ship.

2. *Freight.*

As the scheme of 1878 contemplated the large number of 450 statute adults in the steerage, there was only space left for 900 tons of cargo outward, and this was put down at the rate of 70s. per ton. The homeward ship with wool was estimated to take 2,000 tons (measurement) of wool in grease at a freight of $\frac{3}{4}$ d., and about 500 tons of washed at $\frac{1}{4}$ d.; if loaded with wheat, about 2,100 tons (weight) at a freight of 45s.

My estimate for the outward cargo of a postal ship, where not more than space for 300 steerage passengers would have to be reserved, was about 3,300 tons. As to the rates, the details I shall give later on about freights to both Australia and New Zealand will enable you to form your own opinion upon the scale that might be expected for a direct steamer now. I do not wish to make any sanguine estimates myself, but I see no reason why direct steamers to New Zealand should not obtain as much, for fine goods at all events, as steamers to Australia now do; which means, for the more valuable portion of this class of goods, that the rate might be as high as from 60s. to 100s. I have wished, however, to name only a reasonable average rate, and I think it would be safe to take about half of the outward cargo (or, say, 1,500 tons) at an average of 70s., and the rest of the space at 30s. to 50s. per ton.

With regard to homeward freight I feel on somewhat surer ground. The ships which loaded with wool would have about 4,000 tons of cargo space available after deducting what was required for passengers and stores. But it is only in the case of steamers sailing at dates enabling them to get home in time for a particular wool series that even a fast postal line could safely be expected to get $\frac{3}{4}$ d. over sailing rates: at all events, I have only put down 3,000 tons measurement of wool in the grease at a freight of $\frac{3}{4}$ d., and 1,000 tons measurement of washed wool at $\frac{1}{4}$ d. The ships loading with grain would be able to take about 2,200 tons of wheat, and I estimate that freight at not more than 45s. per ton. The calculations on which these figures are based would be interchangeable in respect of ships that carried both wool and grain; but, whether freighted with the one or the other, I am assuming that they would all be full up; and I am leaving out altogether exceptional years, such as the one in which I myself sent wheat home at less than 30s. a ton. In the scheme of 1878 it was only supposed that two of the ships would come home with wool, and that for the rest of the year they would have to depend on grain. Since that time the development of the trade in refrigerated meat and dairy produce has added a new feature to shipments that will be made from the colony. I shall give, later on, some details in reference to this, but for my present purpose it is not very material to take it into account as an alternative, because, whatever might be the extent to which meat and dairy produce caused a displacement of wool or wheat, the total freight-money would not be very materially affected.

3. *Total Revenue of the Year.*

The estimates of 1878 brought out £118,000 as the total earnings of the ships in the year. I have found it very difficult to come to a definite conclusion as to what can safely be put down as the total revenue in the case of a postal line, because a very slight difference in the rates of freight on each voyage would come out in thousands at the end of the year's work. As regards expenditure I am afraid there is more risk of its being greater, than chance of its being less, than I have put down. Income, on the other hand, could only be increased in two ways: there might happen to be more saloon and second-cabin passengers out and home than I have supposed; but there is no room for increase in

steerage passengers without reducing the calculated space for cargo, so that, as the estimate for cargo is full out and home, the only appreciable improvement in freight would be by getting better rates outward than 70s. for fine goods, or homeward than $\frac{1}{2}$ d. and $\frac{1}{4}$ d. for wool, and 45s. for wheat. At these rates, however, and for the immediate purpose of this section, it is enough to say that, according to the freight and passage-money which I have assumed as likely to be got, the total revenue of the year would be from £355,000 to £360,000.

IV. RESULTS OF THE YEAR'S WORK.

If you now bring together the figures I have given in the preceding sections, you will see that I am unable to come to any other conclusion than that a postal line, established under the conditions I have mentioned, could not only be expected to yield little in excess of working cost, but with management added would leave a deficiency even with the ships full up both out and home. Nor can I think there is very much danger of error in this view; for, upon comparing the figures in the scheme of 1878 with those I have here given for a postal service, I cannot see there is much room for either saving in working cost or excess in earnings.

On the working cost side, with the single exception of the price of New Zealand coal, which I have allowed for, it is not only impossible to make any saving in any of the figures of 1878, but it is certain that in all the spending departments—the portage bill, lights and dock dues, sailing and loading charges, canal dues, and insurance—a thoroughly-equipped postal service will cost much more for each voyage than was estimated for the two-monthly boats. On the revenue side I do not see that my estimate can safely be exceeded. On what, then, does the question of subsidy for such a service depend? And the reply to this must be that it does not depend upon whether a few thousands more can be earned by higher rates of freight and passage-money, but upon how much has to be set apart for boiler fund and depreciation, and how much is wanted for dividend on capital. It is on this that the question of subsidy really hangs.

In the scheme of 1878 Mr. Galbraith put down 10 per cent. on the cost of the boats as the necessary provision for depreciation and boiler fund and periodical overhaul; and as to interest on capital he told us that capitalists would not be induced to invest their money in steam enterprises, which are so liable to hazards and vicissitudes impossible to provide against, unless an almost certain prospect could be assured to them of at least 10 per cent. on their capital. I cannot pretend to say how far this statement would stand the test of competition for a subsidy; but of course it is precisely the question that has to be tried. If I have been right in taking the share capital necessary for building the steamers of a postal line at £600,000, in addition to £200,000 raised by debentures (and in giving these figures I am putting the cost of building at less than would be estimated for a first-class P. and O. boat), then the amount required for a 10-per-cent. boiler fund and a 10-per-cent. dividend to shareholders is not less than £140,000 a year. To this must be added £10,000 a year as interest on debenture capital, and probably another £10,000 a year for cost of the establishments necessary for a proper administration of the service in England and New Zealand. I have gone into every item of this cost, and, considering the emoluments which men capable for such a purpose can command, I feel sure no great saving would be made in the amount. All this means that, besides working cost of the boats themselves, a sum of something like £160,000 more has to be faced; and it is here that the play of figures will be really found if ever the colony resolves to establish a fast postal service direct. I have no doubt you could get ships built upon a guarantee of 6 per cent. on the capital employed in building them; that, however, is not the question, because it is not in the construction of the ships, but in the administration of the service, that the risk and difficulty lie: and the same people who would be glad to take an offer of 6 per cent. on the cost of building would not look at it if put in the shape of a sum to cover the risks of establishing and working the service. The first step, therefore, for the colony to take is to divest itself of any idea that it would ever be possible to establish a postal service at even $12\frac{1}{2}$ knots, for a subsidy of £60,000: for this sum would leave neither the shareholders nor the debenture-holders any return whatever on their capital, and would only give a boiler and depreciation fund of $7\frac{1}{2}$ per cent., which is the least that any prudent capitalist would look at if he went into steam at all.

MERCANTILE STEAM.

In the preceding section I have confined myself to a fast postal service: I will now endeavour to apply a like analysis to the question of a mercantile line.

I. AS TO CONSTRUCTION.

1. *Size of Ships.*

For the postal service I was contemplating a class of ships designed specially for speed. The class wanted for a purely mercantile line would have to be designed rather with a view to large carrying capacity. Assuming new ships to be built for the purpose, I think the class of vessel that would at once be most economical and best subserve the objects of a mercantile service would be one whose dimensions were about 5,200 tons gross and 3,400 net; and such a ship (after allowing space for, say, 200 steerage passengers) would take 4,200 tons outward, and be capable of bringing home a cargo of more than 5,000 tons. This means that such a ship would certainly not cost less than £100,000, and might run up to £110,000.

2. *Speed.*

There being no postal question at stake, it would be sufficient for a mercantile service to steam, say, 10 to $10\frac{1}{2}$ knots at sea, and this speed would allow of the outward voyage *viâ* the Cape being made in fifty-four days, and the homeward *viâ* Magellan Strait in about forty-seven days.

3. *Route.*

The object of my present inquiry being to see what would be the earnings of such a service, so as to judge what subsidy (if any) it would require, I have assumed as one of its conditions that the question of passing through the Suez Canal would have to be eliminated. In that case I suppose there

could be no doubt of the route being outward *viâ* the Cape, and homeward through Magellan Strait, coaling at St. Vincent. The question of first port of arrival and last of departure in the colony would probably (within specified limits) have to be left to the contractors, depending on the cargo each ship had on board.

4. *Number of Voyages.*

In the postal service I have assumed that you would require a four-weekly time table, as is now the case *viâ* both San Francisco and Brindisi. For a mercantile line it would be sufficient to have a monthly steamer, or twelve voyages in the year; but having regard to the fact that, while not less than five ships would be wanted for a monthly service, the same number could equally carry on a four-weekly service, I conceive that contractors would be as ready to do the one as the other, as each voyage would (if my calculations are not mistaken) show a profit.

5. *Capital required.*

As five ships would be required to perform the service, it will be seen that, supposing each to cost no more than £100,000, the enterprise would want a capital of at least half a million, of which, say, £300,000 could be in shares, and the rest raised by debentures. It would, however, be safer to put the cost of building at £110,000, and to have £350,000 in share-capital, which would allow an ample margin for construction.

II. AS TO WORKING COST.

1. *Consumption of Coal.*

A service at the speed I have named would not involve a consumption of more than 35 tons of coal per day. On the outward voyage, therefore, the ship would not have to take on board any more than 2,200 tons of coal, and for the homeward voyage she would take in perhaps 1,500 tons in New Zealand, loading up at St. Vincent. The cost of the outward and homeward coal would not much exceed £2,000 each way, depending on the price at which it could be put on board in the colony. I estimate, therefore, the cost of coal for the voyage out and home at something over £4,000.

2. *Portage bill.*

The cost of wages, &c., would of course be considerably less for a purely mercantile ship than for a fast postal service, and I think it would be sufficient to take it at £500 a month, or, say, £2,500 for the five months' voyage.

3. *Lights, Dock Dues, Loading and Discharging, Ship's Stores, &c.*

There would not be so much comparative saving in the light and dock dues, victualling, and other sailing charges; and it would not be safe to put this part of the ship's expenditure at less than from £5,000 to £5,500 for the voyage out and home.

4. *Insurance.*

The great difference in the cost of the ships, compared with those of a power required for a fast postal line, would of course materially reduce the item of insurance. You will have observed that I estimated it for the postal ships at £3,800 per voyage, and, as I dare say there would be a saving of £1,500 on the mercantile line, it would be a fair estimate to put this item at £2,300 for the voyage.

5. *Total Cost of the Thirteen Voyages.*

In the postal steamers I assumed that there would be seven voyages home with wool, and six with wheat. With a line at the lesser speed I think (though this is quite conjectural) it would be expedient to reverse the calculation, and take seven voyages home with wheat, and six with wool. But this supposition is only made in order to have a better check on the calculation of earnings. During most seasons the ships would very likely bring home both wool and wheat, and the difference in cost between loading with wheat compared to wool would be divided. Taking all the items of working cost together, I put down the total cost for the thirteen voyages out and home at very close upon £200,000.

III. AS TO REVENUE.

1. *Passage-money.*

(i.) *Cabin Passengers.*

I estimated that saloon passengers in a first-class mail steamer would be willing to pay £70 for their passage; but in the mercantile steamers I think it would not be expedient to calculate on more than £50. In the postal steamer I have taken the passage-money of the second cabin at £35; in the mercantile steamer it had better not be put at more than £30.

As to numbers, while I took fifty saloon and forty second-cabin passengers as a fair number outward in a mail steamer, and forty saloon and thirty second cabin homeward, I think it would be expedient not to assume, for the present at any rate, a much higher number for a mercantile steamer than thirty saloon and twenty second cabin outward, and twenty of each class homeward. It should be remembered that to people with whom price would not be so much an object a voyage to Melbourne or Sydney in a P. and O. or Orient ship, transshipping there to Dunedin or Auckland, offers attractions which would most likely take them that way in preference to what they would call a "long sea" voyage, even in a steamer with a speed of 10½ knots. But perhaps this prejudice would soon pass away with the greater number if the contractors (as would clearly be their interest) took pains to make the saloon passage really comfortable.

(ii.) *Steerage Passengers.*

As I have already said, I might assume that, whether a direct steam service was a fast postal one or only a mercantile one at the lesser speed, there would always be about the same number of steerage passengers offering, and no difference in the number of Government immigrants. Nevertheless I only propose to put down the number by each ship on the outward voyage at 200 instead of 300; and it would be better to estimate the number homeward at thirty instead of fifty.

I see no reason to change the outward rate of passage-money which I gave in the case of a postal steamer, and I take it accordingly at £15; as regards homeward passage, perhaps it should be put at not more than £20.

2. Rates of Freight.

I have said that, after allowing space for 200 steerage passengers, there would be room, in the class of ship I am contemplating, for about 4,200 tons of cargo outward. Now it is not very easy to predict with any certainty the rates of freight that could be obtained for this. On the one hand, we know that the ventures which were made by the New Zealand Shipping Company in the "Durham" and "Staadth Haarlem" were certainly not encouraging, and that for a good deal of the cargo they had to take sailing rates each way. On the other hand, I think those instances cannot be taken as a permanent guide for many reasons; and I am told by shippers that with a regular monthly steamer they would engage freight at very full rates for all fine goods. The details I shall give under this head in a subsequent section will enable you to form a fair judgment, and will, at any rate, check my own estimates. For my present purpose I am satisfied to take, out of the 4,200 tons I have supposed for the outward voyage, 1,200 at 20s., 2,000 at from 20s. to 50s., and 1,000 at from 60s. to 90s., according to the season and the fine-goods freight offering at the time of sailing. On the homeward voyage I am not calculating that a mercantile steamer would obtain freight at all in excess of sailing rates.

Ships of the class I am now contemplating would be able to take 3,000 tons measurement of greasy wool (equal to 1,500 tons weight at 80 feet to the ton), and about 2,200 tons of washed wool (equal to about 700 tons weight at 120 feet to the ton): and, as I think it certain that neither by postal nor mercantile steamer would woolgrowers be willing, except in the case of steamers timed to arrive for a particular wool series, to pay an extra $\frac{1}{2}$ d. per pound for their wool, I am only putting the rate down at $\frac{1}{2}$ d. for greasy and $\frac{1}{4}$ d. for washed.

With regard to a cargo of grain, I am assuming that the ships would carry quite 4,000 tons (weight) of wheat; and I am willing to estimate that growers would pay no more than 40s. a ton instead of 45s., averaging over all years, including exceptional seasons of low freight such as I have referred to above. During one season, it is true, the New Zealand Shipping Company's vessels were taking wheat as low as 26s., but that was a rare case, and for the last two years the sailing-ship rate has hardly ever been under 45s.; so that 40s. is sure to be safe as an average.

3. Total Earnings of the Ship.

Taking, then, the freight and passage-money earned by the mercantile steamer out and home, and deducting from these earnings the charges (including cost of victualling passengers), it is clear that the total revenue earned over the thirteen voyages, at the rates I have named, would come to a very large sum, even with freight of wheat at 40s., and without any additional $\frac{1}{2}$ d. on the wool in the case of steamers sailing at dates to let them get home in time for a particular wool series; while I cannot think of any permanent reduction there could be in other freights, which would decrease the receipts to a really serious extent. At any rate, at the prices I have put down, I feel confident that the total revenue of the year would not be less than £285,000.

IV. RESULTS OF THE YEAR'S WORK.

Now if you bring together, as in the case of the postal steamers, the figures of working cost and revenue for a mercantile line, it will be at once seen that, instead of a deficiency over the transactions of the year, there is a large surplus. In round numbers I estimate that this surplus may be put down at not less than £85,000 over the thirteen voyages of the year, provided no serious falling off takes place in the above-mentioned rates for freight and passage-money, and on the supposition that the ships are all full up with passengers and cargo both out and home.

Such figures would enable an ample sum to be set apart for boiler fund and depreciation, periodical overhaul, and management; but would not leave much dividend on the capital employed.

Taking the cost of the ships at the lowest estimate of £100,000 each, a boiler and depreciation fund of 10 per cent. would take up £50,000 of the year's profits. I do not think much saving could be made in cost of administration, so I keep this at the same £10,000 as Mr. Galbraith estimated in 1878, and as I have myself estimated just now for postal steam. Interest at 5 per cent. on £200,000 of debenture-capital would take up another £10,000. Deducting these sums, which together amount to £70,000, from the credit balance on the year's transactions, there would still be left about £15,000 for the shareholders. In order, however, to put the calculation in a safer light for contractors, I will take the cost of the ships at £110,000, which is certainly an outside estimate. In that case the cost of the five ships would be £550,000, instead of half a million; the £50,000 I have allowed from the year's earnings for boiler fund and depreciation would give a little over 9 per cent. instead of 10, and then it would not require a subsidy of much more than £10,000 a year, added to the profit on the thirteen voyages, to let the shareholders get a dividend of $7\frac{1}{2}$ per cent. on their share-capital of £350,000. I think that if such a result were seen to rest on sound calculations the money for the purpose would be forthcoming: for if a number of capitalists, willing to invest in steam, could feel fairly sure of $7\frac{1}{2}$ per cent. to-day, when the population of New Zealand is not much over half a million, they would know very well that whoever was first to occupy the ground would not see many years pass by before the increase of the people, and the growing volume of trade, must largely add to the earnings of the line: and that they would not only have a present monopoly of profit, but secure the undivided enjoyment of any larger returns, until in the fulness of time, as happened to the P. and O. in Australia, there should be room for some rival resolved to seize a share.

CHECKS ON THE PRECEDING STATEMENTS.

I need hardly point out that the estimates and calculations contained in the preceding sections are intended to give you, in a connected form, the results at which I have myself arrived, after a laborious investigation extending over many months, during which I have utilized information from every qualified person who was willing to give it to me. Some of this information, as was naturally to

be expected, was very conflicting, though chiefly in that part of it which was perhaps least material; on almost all the really important factors the concurrence of information has been very marked. But since, on account of its having often been confidentially given, I am deprived of the advantage of stating explicitly the authority on which my calculations rest, and am therefore obliged to assume the responsibility for these upon myself, you will naturally expect that on a question of such magnitude, and where any material error would involve thousands, I should at least place before you some of the grounds for the conclusions to which I have come. I will now endeavour to do so.

1. *As to Construction, Working Cost, &c., of the Ships.*

You will have perceived that the Galbraith-Denny estimates of 1878 went on the basis that a steamship of about 4,200 gross register tonnage could be built for £115,000, which was under £28 a ton. But it was pointed out that the prices of that day for ship-building were unprecedentedly low; and I am sure that in my present estimates I am well within the mark, for the P. and O. Company have had their latest ships built at several of the greatest ship-building yards, and Mr. Sutherland, the Chairman of that company, allows me to give it as his opinion that a ship of 5,000 tons gross, fitted out in a first-rate manner, with the proper amount of spare gear and machinery, could hardly be built at the present moment for anything less than £160,000.

As to capacity, the following list of a number of steamships, chosen by me from the lines running to America and Australia, will perhaps be useful to show the ordinary relation between gross and net tonnage; and, although it is not likely that for the Australian trade such ships as the "Servia" will be required for some years, it must be remembered that the tendency is now to build large ships, as being worked cheaper, and therefore more profitable.

Steamer.	Register Tonnage.		Registered Horse-power.
	Gross.	Net.	
Atlantic lines—			
City of Rome	8,415	5,538	1,500
Servia	7,392	3,971	1,000
Alaska	6,932	3,579	1,800
Britannic	5,004	3,152	760
P. and O. line—			
Rome	5,013	2,558	850
Carthage	5,013	2,588	850
Shannon	4,189	2,162	750
Clyde	4,124	2,442	780
Orient line—			
Austral	5,588	3,549	1,000
Orient	5,386	3,440	1,000
Liguria	4,666	2,980	750
Potosi	4,219	2,704	600

Out of the preceding list very few of the new ships are less than 5,000 tons gross; and I have throughout assumed that, if a direct steam service were to be established for New Zealand, ships of equal capacity would be wanted, as indeed they would certainly be the cheapest to build and work. At the same time I am not saying that smaller ships cannot be built to combine great carrying capacity with speed, for a striking instance of this exists in the "Aberdeen," a new cargo-steamer built for the Australian trade, which has lately excited much attention here on account of various improvements in her engines, and also economy of fuel, speed, and large carrying capacity. Though only 3,616 tons gross and 2,370 net register, she can take over 5,800 tons of cargo and coal; is said to have only cost £80,000; and has just made the passage from Plymouth to the Cape in twenty-two days.

I do not think I need add anything to what I have said already as to speed, consumption of coal, or working cost generally; for there is not much room for any one who has thoroughly studied those points to go far wrong in estimating them. But the question of revenue is one where serious error can very easily be made; and you will, perhaps, be glad, therefore, if I deal in some detail with the questions of passenger traffic and cargo.

2. *Passenger Traffic.*

The first step to take in connection with the prospect of passenger traffic is to inquire into the actual passenger trade between this country and New Zealand for some time back; but it will be quite as necessary to look also at the example of Australian traffic if any fair judgment is to be attained on the question of how far the establishment of direct steam services to Australia has tended to develop trade there, and whether a similar development may not, within reasonable limits, be equally looked for in the case of New Zealand.

I will first take the chief sailing-ship lines to New Zealand separately.

(i.) *New Zealand Shipping Company's Line.*

In 1881 this company carried, in the outward voyages of fifty-four ships, aggregating 51,000 tons 171 saloon passengers, 151 second cabin, and 203 steerage (exclusive of Government immigrants); or, altogether, 525 passengers of all classes. This number was much below the average of the five years 1877–81, which was 234 saloon, 276 second cabin, and 788 steerage, paying their own passage, or close on 1,300 of all classes; while in 1879 the number had been exceptionally large, amounting to (equal to) 2,900 adults. The number of passengers homeward, on the other hand, has always been small; in 1881 there were only 136 saloon, 28 second cabin, and 115 steerage.

The rates of passage-money by this line have not varied, being from forty to fifty guineas in the saloon, £25 in the second cabin, and £16 in the steerage for the outward voyage, and homeward much the same.

(ii.) *Shaw, Saville, and Co's Line.*

In 1881 this line carried in the outward voyage of fifty-seven ships, aggregating 55,859 tons, 168 saloon, 201 second cabin, and 676 steerage (exclusive of Government immigrants); or, altogether, 1,045 of all classes. The rates of passage-money were about forty guineas in the saloon, from £23 to £24 (average) second cabin, and about £15 (average) in the steerage. The number of homeward passengers was small.

(iii.) *Albion Company's Lines.*

In 1881 this line carried in nine ships, aggregating 9,400 tons, 49 saloon passengers, 70 second cabin, and 187 steerage (exclusive of Government immigrants). This was (as in the case of the New Zealand Shipping Company) less than the average of the five years 1877–81, which amounted to 88 in the saloon, 24 in the second cabin, and 342 in the steerage. The rates of passage-money were forty guineas in the saloon, £25 second cabin, and £17 steerage.

On the homeward voyages the Albion ships had, in 1881, 45 saloon passengers, and 51 steerage; the average of the same five years being 35 in the saloon, 7 in the second cabin, and 72 in the steerage. The passage-money homeward was £45 in the saloon and £20 in the steerage.

(iv.) *Summary of the Three Lines.*

Adding together the outward passengers by all three lines for 1881, it will be seen that these were—

		Saloon.	Second Cabin.	Steerage.
New Zealand Shipping Company	...	171	151	203
Shaw, Saville, and Co.	...	168	201	676
Albion Company	...	49	70	187
		388	422	1,066

—or altogether 1,876 passengers of all classes who paid their own passages. As that year was a very low one for numbers, I think it is a safe estimate to take about 500 saloon and 450 second-cabin passengers as an ordinary number by sailing ships to New Zealand in the course of a year. Now my estimate for each postal steamer was fifty saloon passengers outwards, and forty second cabin; and for the mercantile steamer thirty saloon and twenty second cabin. In the postal line, assuming thirteen voyages, my calculation would give a total number of 650 saloon passengers and about 500 second cabin for the year. If this should seem an excessive estimate when compared with the actual numbers given above for the three lines of sailing ships in 1881, it must be remembered not only that 1881 was a low year, but that in, addition to the saloon and second-cabin passengers who took their passage in those ships, there were certainly many more who went out *via* Australia in P. and O. and Orient steamers; and, although I am not supposing that there never would be saloon passengers in sailing ships if a direct postal steam line were established, it may fairly be said, at any rate, that most of those I am now speaking of as having gone round by Australia would swell the passenger list of direct steamers; while it can hardly be doubted that, putting as I have done the rate for second cabin at £35, a certain proportion of that class also would go out by steam rather than by sailing ship, even at £10 more. As regards the mercantile steamer, it seems to me obvious that, taking the numbers as I have estimated them, for the outward voyage, at thirty (with a passage-money of £50) in the saloon, and twenty (with a passage-money of £30) in the second cabin, direct steamers might be expected to carry these numbers, seeing that they are less than the actual passengers of both classes by sailing ships in one of the lowest years known in the New Zealand trade.

I am carefully avoiding sanguine predictions as to the early development of passenger traffic by the establishment of a direct steam service, because my object is not to deal with suppositions, but simply to justify, if I can, from actual facts, the estimates I have ventured to give you of passenger revenue to be expected at the present time. Still, it is necessary, as I said above, to see what development has resulted from the establishment of steam services to Australia; and I proceed to ask your attention to this.

(v.) *Passenger Trade by Steam to Australia.*

The P. and O. ships are now carrying from 1,200 to 1,500 saloon passengers, and 600 to 700 second cabin, on their outward voyages to Australia. The homeward traffic is somewhat less. As you are aware, the P. and O. take no third-class passengers.

The Orient ships carried 4,335 saloon and second-cabin passengers to Australia in 1881, and over 5,600 steerage.

These two lines alone, therefore, independently of many private steamers and all the sailing ships, are now carrying at the rate of 6,000 cabin passengers, and not far from 6,000 steerage (exclusive of Government emigrants). Taking these three classes together, we have a total of at least 12,000 people going by those lines to Australia every year, or 1,000 every month, besides whatever number travel by other steamers and by sailing ship: these last I am excluding from consideration altogether, as being a class which has already shown its rejection of steam in favour of sailing ship, and which therefore had perhaps better not be taken as likely to increase the proportion of steamer passengers for some time to come.

Now my estimate of saloon and second-cabin passengers who might be expected to travel by fast postal steamers to New Zealand was not 1,200 of both classes in the year, and in the mercantile steamers only 650; and, with regard to steerage passengers, even if two two-thirds of the number I estimated in the mercantile steamer are taken as Government immigrants, and as many first and second-cabin passengers are supposed as in the postal steamer, the total would only come to about 2,000 passengers of all classes who would pay their own passage every year by steam, which is not one-sixth of the number who actually travel by steam to Australia.

But if the normal amount of passenger traffic by steam to the several colonies of the Australasian group may be at all measured by the amount of their respective populations, such a proportion as one-sixth is much less than the one that should be expected in a future calculation for New Zealand. At

the end of 1881 the population of New South Wales was, in round numbers, 859,000; Victoria, 741,000; South Australia, 280,000; and Tasmania, 116,000; or, together, 1,996,000; while the population of New Zealand was 500,000 (also in round numbers), which is a proportion much exceeding one-sixth. According to the proportion which our population bears to that of the Australian Colonies I have named (not counting Queensland, which is now served by a separate line of steamers), New Zealand might fairly expect to see 1,500 cabin passengers, and a total of all classes of more than 3,000, travelling by direct steam, instead of the 2,100 I have given, even after allowing for the deduction that has to be made from the Australian totals for passengers to New Zealand coming out by Australian steamers. I would again deprecate the expectation of a great increase in passenger traffic to New Zealand by a direct steam service as being sure to lead to disappointment; but you will perhaps agree with me, after what I have said, that neither in the figures I have given for the postal, nor in those for the mercantile service, am I giving way to exaggeration or leading you astray.

3. *Freight by Steam.*

Passing on from the passenger traffic to the more troublesome question of the amount of cargo that may be looked for in a monthly direct steamer, I admit that there are several difficulties in the way of forming any really correct estimate; yet there are a few broad features on which I think you may rely to a considerable extent, and I will try to make these clear.

In the first place, as regards outward cargo, I may as well say briefly, as I have done in regard to passenger traffic, what has taken place about cargo to New Zealand last year, and compare this with what went to Australia by steam.

The New Zealand Shipping Company took out in 1881 a total of 83,854 tons of goods, of which about 6,500 tons were fine goods: their average of fine goods for the five years 1877–81 was 6,750 tons. Rates of freight were from 25s. to 45s. per ton, the average net freight earned being between 27s. and 28s.; but large shipments of salt, cement, deals, &c., had always to be carried at nominal prices. Freight on wool by their ships during the past few years has been $\frac{3}{4}$ d. for washed and $\frac{3}{4}$ d. for greasy; the rate for wheat has lately averaged 45s. a ton of 20 cwt., though during one season it was carried as low as 26s. On tallow, preserved meats, gum, &c., freights have ranged from 40s. up to 60s. a ton.

Shaw, Saville, and Co. took out in 1881 a total of 87,296 tons, at an average freight of from 27s. to 30s. for measurement and 25s. for weight; about 4,000 tons were fine goods; and freights home for wool and wheat were about the same as the New Zealand Shipping Company, the two lines really dividing the London trade.

The Albion Company took out in 1881 a total of 13,324 tons, including 1,875 tons of fine goods, being about 1,000 tons over the average of the five years 1877–81. The rates were from 20s. to 30s. for weight, 20s. to 35s. measurement, and about 40s. for fine goods.

Taking the cargo sent out by the three lines, the total outward for 1881 was nearly 185,000 tons. In the Steam Committee's Report it is stated that 106,312 tons of cargo were brought into the colony direct from the United Kingdom during the year ended 31st March, 1881; the yearly average would accordingly be about 145,656 tons, exclusive of cargo going round by Australia. Now it is manifest that a monthly steamer could only take a small proportion of this, without allowing for any increase whatever in the trade.

The P. and O. ships are now carrying at the rate of about 50,000 tons of cargo annually outward, besides what comes homeward. The Orient line carries about 2,000 tons in each steamer, or nearly the same as the P. and O. Their rates outward have ranged for measurement up to 50s., and for "express cargo" from 50s. to 100s. Both these companies object, for obvious reasons connected with their transshipping trade, to giving detailed information about their earnings, but the figures I have given represent the general result. It may therefore be taken for your purpose that at least 100,000 tons of goods go out by steam to Australia in the year, independently of the amount carried by sailing ship. According to this, the estimates I have given of probable revenue from freight by direct steam to New Zealand can hardly be deemed excessive. On the contrary, I think they will be found under the mark. I have already said that with a regular monthly steamer shippers would engage freight for fine goods at very full rates. Two firms alone sent close on 700 tons of fine goods in 1881 by steam *via* Australia to the single port of Dunedin, at the following freights: In one case, the highest rate by Orient ships was 100s., and average 93s.; by P. and O. ships 95s., and average 76s.; and by other steamers at an average of over 70s.; the average all round being over 82s. per ton, besides primage of 5 per cent. payable in London, or 10 per cent. in the colony. In the other case the highest rate by P. and O. was 90s., and by the Orient 100s., besides primage of 10 per cent. The Orient ships were able to get the best freights all through the season, because they made shorter time to Dunedin. But the same two firms also sent nearly 4,000 tons of soft goods by sailing ships, a large part of which would certainly have gone round by Melbourne if it had not been for having to add to these high rates the damage by transshipment to the very class of finer goods that could best bear the extra freight; and, moreover, it is certain that retail houses send far more round by Australia than large firms, because they can always obtain, more easily than warehousemen, the higher price wanted to cover the difference between sailing freight and steam. Now it is evident that when a shipper, even by fast Orient boats, has to add the delay in time by transshipping to the damage by transshipment, he would not send his goods round if he could send them direct at no higher rates. It was lately pointed out in the Dunedin Chamber of Commerce that, while an average of thirty-two sailing vessels gave one hundred and seven days as sailing time between leaving docks and delivering goods, an average of twenty-eight steamers round by Australia gave sixty-seven days as steaming time from bill of lading to delivery. Now this is nearly a fortnight more than I have allowed for the time of even the mercantile steamer direct, so that, except at extravagant rates, a shipper would hardly ever hesitate in his choice.

In looking, indeed, at the prospects of a direct steam service to New Zealand, the amount of fine goods capable of bearing steam freights is of course a material point. It is well, therefore, to see what quantity of these is taken by the populations of New Zealand and Australia. Now the value of the drapery goods shipped from the United Kingdom to Auckland, Wellington, Canterbury, and Otago direct, during the three years 1879–81, was as follows;—

1879 (to New Zealand)	...	...	...	...	...	£1,243,840
1880	"	...	...	...	...	935,130
1881	"	...	...	...	...	1,220,790

For the three years £3,399,760

—or an average of about £1,130,000 a year. Comparing this with the value of drapery goods shipped in the same years to New South Wales, Victoria, and South Australia for the same three years, these are the figures:—

1879 (to Australia)	...	...	...	...	...	£4,785,660
1880	"	...	...	...	...	5,497,430
1881	"	...	...	...	...	6,641,880

For the three years £16,924,970

—or an average of about £5,600,000 a year, the increase being at the rate of about a million sterling each year. Of this total of nearly £17,000,000 for 1881, South Australia took £2,500,000, New South Wales £6,800,000, and Victoria £7,500,000; and thus it appears that the amount of drapery goods shipped to these three Australian Colonies was close upon five times the amount shipped to the chief ports in New Zealand direct. Now, if the populations of the respective colonies are compared, it is obvious (and much more so here than in the case of either passenger traffic or other cargo) that the people in Australia are not likely to want drapery goods to so great an excess over the quantity wanted by ourselves.

There is, of course, no means of stating with anything like real accuracy the proportion which fine goods usually bear to other cargo, or the average value of fine goods to the ton measurement; but it is commonly estimated by shippers that fine goods occupy about one-tenth of the space taken by other cargo (measurement), and that their value is about £100 to the ton: and this is the proportion given to me lately by some large packers I have consulted. If, then, the £3,400,000 worth of drapery goods sent to New Zealand in the three years 1879–81 are taken at this scale, they would have required about 12,000 tons of measurement space each year to bring them out: they actually took rather more, or close on 13,000 tons, last year. Now, if you turn to the estimate which I made above of the tonnage that might be expected to pay fine-goods freight, you will find that I have put it at not more than 1,000 tons per steamer, or 13,000 tons in the year, which is just what went by sail in 1881. Considering that, in addition to the fine goods which came by sailing ship direct, a large quantity certainly came round by both P. and O. and Orient ships, I ought to be well under the mark, because, whatever may be the goods that would not come in a direct steamer, fine goods at any rate would certainly come. And it should be remembered that, whereas at the present time a large amount of the fine-goods trade to New Zealand is done from as well as through Australia, the tendency of a steam service would naturally be to lessen Australian shipments to New Zealand, in favour of shipments from the United Kingdom direct.

Again, out of the total register tonnage of 374,000 tons cleared from the United Kingdom to the chief ports in New Zealand (Auckland, Wellington, Canterbury, and Otago), in the three years 1879–81, only 5,600 were steam, or not 2 per cent. of steamers to sailing ships; whereas the percentage of steam to Australia has been increasing rapidly in the same three years, as the following figures will show:—

The total tonnage to New South Wales in the three years was ...	508,033 tons
" " Victoria " " ...	522,692 "
" " South Australia " " ...	234,237 "

For the three colonies 1,264,962 tons

Of this total, 967,000 tons were sent by sailing vessels, and 298,000 tons by steam; but the annual increase in the percentage of steam to the whole tonnage was as follows:—

Year.	Total Register Tonnage to the three Australian Colonies.	Of which there were Sailing Ships.	And Steam.	Percentage of Steam.
1879	362,775 tons	296,112 tons	66,663 tons	18·38
1880	399,849 "	304,566 "	95,283 "	23·83
1881	502,338 "	366,489 "	135,849 "	27·04

Thus, while the sailing-ship tonnage increased by 70,000 tons, the steam tonnage also increased by 69,000 tons, and more than doubled itself in the three years; and there is every reason to think that a similar development will take place again next year. In Queensland, the steam service lately established has had a striking result; only about 28,000 tons register were cleared to Queensland in 1879, without any steam; in 1881, with a total tonnage of about 54,000 tons, upwards of 21,000 were steam; and there is no question that the demand for steam tonnage to that colony is increasing fast.

So much on the subject of outward cargo. Now, with regard to homeward freight, it is just as manifest as it was in the outward, that a monthly steamer could only take a small proportion of the present trade, allowing nothing whatever for increase. The wool sent home by sailing ship last year was over 180,000 bales, and grain, 105,000 tons. It is therefore hard to see why, with freight no higher than sailing rates, direct steamers should not fill up homeward, unless questions relating to ports of call should prevent it. In the calculations given above I have only spoken of wool and grain; but I am not forgetting the probable shipments of refrigerated meats and dairy produce. We know pretty well what the market in England is for New Zealand wools; and with regard to food-supply we also know that the annual deficit of the United Kingdom is 280,000,000 bushels of grain. But the demand for dairy produce is practically unlimited. Though the import of butter into the United Kingdom has doubled in the last ten years, being now 2,500,000 cwt., worth over £12,000,000 wholesale, the consumer has to pay more for it now than he had then; and, although the import of cheese has nearly trebled in the same time, being now 1,750,000 cwt., worth £5,000,000 wholesale, the rise in price to the consumer has been even greater than in butter. Already the import of Australian

refrigerated butter has begun, and no one will say that New Zealand cannot produce as good butter as Australia; while, as to our power of competing with the States in dairy produce, it is enough to say that fine butter is quite as dear in most parts of America as it is in England, and that it is the manufacture of oleo-margarine, suetina, and other spurious butters which is increasing there at such a prodigious rate, not genuine butter, such as New Zealand could send home.

Then, as regards meats, the English deficiency exceeds 600,000 tons. There came from the States in 1881 nearly 715,000 cwt. of fresh meat, about the same quantity of preserved, and 759,000,000 lbs. of bacon and hams. The competition of New Zealand with America in this trade will be met by adverse conditions of freight, because fresh meat is now brought across the Atlantic for rather less than 1d. per lb. But in the metropolitan meat market, only the other day, the wholesale salesmen were getting 10½d. and 11d. for American fresh meats, and but for that supply it was said that meat would have been selling in London at half-a-crown a pound. Now Australia and New Zealand together could spare 2,000 tons of meat a day, without reducing the capital number of their sheep and cattle: and it is certain that, for any meats New Zealand could send, there would be an ample market here.

Carrying on the comparison between sailing ships and steam in the homeward trade, and applying it for instance to the shipment of wool from Australia, I find that, out of a total shipment of rather more than 2,622,000 bales from the same three Australian Colonies I have named, and during the three years 1879–81, only about 290,000 bales were sent by steam; but the annual growth of the percentage of steam tonnage to the whole is shown by the fact that, whereas in 1879 only 62,000 bales came to England by steam, in 1881 there were more than 119,000 bales, increasing the percentage of steam to the whole from 7·47 per cent. to 12·79 per cent. And as regards shipments of wheat the proportion that is being sent home by steam is now about 10 per cent., with a certainty of increase.

At the Cape steam is fast superseding sailing ships altogether. Two rival companies divide the principal trade, though there are private steamers besides. Only one of them has the Cape Government's immigration contract, but the payment for carrying the mails is shared between the two. Each company sends a mail ship out every fortnight, but they run a weekly ship against each other, and in competition with private rivals. The mail ships can steam 13 knots; and, the contract time being twenty-six days, while the steamers have done it in eighteen, the Cape has to pay very large sums by way of bonus for undertime, raising the cost of carrying the mails by sums varying from £60,000 to £100,000 in the year: this, however, will soon be remedied, as the contract expires in 1883. There are not many days a week now in which a steamer from Europe does not arrive at Capetown. It would be difficult to estimate the change that has been made, by the establishment of steam, to all the settlements of South Africa.

The aggregate declared value of exports from the United Kingdom to the entire group of Australasian Colonies for the last eleven years shows that, whereas in 1870 the amount was under £10,000,000, it had gone up in 1880 to more than £17,000,000, and reached in 1881 a total of £22,615,000, being an excess of 5½ millions over the preceding year. The rapid multiplication of steamers now taking place in the carriage of this vast total of merchandise has for some time past attracted the serious attention of shippers; and it is expected, in quarters best able to judge, that there will soon be as keen a competition for freight by steamers as was ever seen in sailing vessels. The total amount of net register tonnage cleared out during 1881 for Australian ports (excluding vessels for Indian ports taking cargo for transshipment at ports of call, but including P. and O. and other steamers which, though calling at Indian ports, cleared for and proceeded to Australian ports) was over 696,000 tons, being by far the highest ever recorded, and showing an increase of 144,000 tons (25 per cent.) over the preceding year, 1880. And the proportion of steam to the aggregate tonnage is growing every day. There are now twenty-eight steamers, having a tonnage of close on 99,000 tons, with horsepower (indicated) 70,000, on the berth for Australian ports, to sail between now and the middle of July. This increase in the steam trade to the Southern Colonies, indeed, is only a part of the prodigious development of the steam marine which is now taking place throughout the Empire, and is sure to embrace New Zealand before long.

CONCLUSION.

It may be convenient, in conclusion, to bring together the broad points of difference in the preceding comparison between a postal and a mercantile service.

As regards construction, the postal steamer would cost £45,000 or £50,000 more to build, calling for a larger capital by a quarter of million, and requiring £20,000 a year more for boiler fund and depreciation, to say nothing of interest on capital.

As regards working cost, the postal line would burn £45,000 worth more coal, and have to pay £55,000 for going through the canal; making in these two items alone a difference of £100,000.

As regards revenue, while the postal line would earn perhaps £80,000 more passage-money and freight, the working expenses of the mercantile would be less by at least £150,000 a year.

The general result of the comparison is that, although a postal line would probably earn as much as £360,000, its working expenses would come to nearly as much, leaving hardly anything for either boiler fund or interest on capital, and it would certainly require a subsidy far exceeding £100,000 a year; while a mercantile line, though only earning £285,000, would have at the end of the year £85,000 over working expenses, enabling enough to be laid by for boiler fund and debenture-interest, and only requiring a subsidy of about £10,000 to pay a dividend of 7½ per cent. to the shareholders.

Before closing this letter I must not omit to refer to the question whether there could be any extension of existing Australian lines to New Zealand. The only two English lines at all capable of it are the P. and O. and Orient; and the matter may be disposed of in a few words by saying that no subsidy you could entertain would tempt either of them to undertake it at present. The P. and O. have lately sent one of their inspectors to New Zealand to get special information, but they have no intention of extending anywhere just now, whatever might happen by and by; and as for the Orient, they have as much as they can manage with their growing Australian trade. The chief point, indeed, is that, in order for any extension at all to succeed, it must take place from Melbourne, as neither postally

nor commercially would it suit New Zealand for the steamers to extend from Sydney. Now the Sydney trade is even now far too valuable to run risks about, and is increasing very fast: in 1881 the value of the goods shipped to Sydney exceeded by £800,000 the value shipped to Melbourne; and neither the P. and O. nor the Orient would shut out Sydney freight to make room for New Zealand.

With regard to foreign lines I intend (in order not to leave any inquiry unexhausted) going to Paris and seeing the people of the Messageries Maritimes, which is the only foreign line worth thinking of. But it will be remembered that for postal objects there would certainly be many difficulties in the way of any foreign contract at all.

I must now conclude. My purpose, throughout a letter whose length would otherwise be inexcusable, has been to supply a number of tests by which the Government might safely judge what subsidy to give, and contractors also tell how much to ask. But I also meant to show why I think that, subsidy or no subsidy, steam is sure to come. A great and daily-increasing change is taking place in the carrying trade of the world, and sail is yielding more and more to steam. I am unable to see what causes there can be at work to prevent a like change hereafter in the carrying trade of New Zealand, or why it should seem so unreasonable to suppose that steam will gain upon the sailing ships as much for us as it is doing for every other part of the Empire. Twenty years ago there were only half a million tons of British-owned merchant steamers; in 1881 there were nearly 5,800,000 tons, estimated to have cost not far from £90,000,000 to build. Seventy-six per cent. of England's ocean-carrying trade is now done by steam. There are now building in the United Kingdom steamers whose aggregate length is said to be seven miles. It is certain that we are on the threshold of even greater progress in steam than any which the last few years have seen; and it surely cannot be that New Zealand alone will be excluded from it, or long remain the only great colony in the southern seas whose English trade must all be done by sail.

I have now completed, as far as I am able, the duty that was imposed upon me by the Government. It is not within my province to offer opinions of my own as to the course which it would be wisest for the colony to take. My business was to bring together information that might be of use to the Government in their advice to Parliament, and I hope I have enabled you to test what it is worth.

I have, &c.,

The Hon. the Premier, Wellington.

F. D. BELL.

No. 11.

The AGENT-GENERAL to the Hon. the PREMIER.

SIR,—

7, Westminster Chambers, London, S.W., 17th May, 1882.

I am desirous of preventing any misapprehension arising out of what I said in my recent letters upon the steam question as to the part which Mr. Galbraith and Mr. Peter Denny had in the matter, as it will very likely appear to you that I had not properly acknowledged the generous and really invaluable assistance they had given me all through my investigation.

It must have been obvious, indeed, to every one that no amount of general information as to trade and traffic, such as I was able to bring together through the courtesy of others, would have been of practical service to the colony without the detailed statements which Mr. Denny and Mr. Galbraith had enabled me to present to you upon questions of tonnage, measurement capacities, speed, coal consumption, and other essential features in design, as well as upon a variety of equally significant questions connected with the working of a line. But I was under what now turns out to have been a mistaken impression that I should best consult their wishes by refraining from referring to their part in these, except in very indirect terms; and I am now very glad that, although they could not see their way to let me send you the actual estimates and designs, it was not their intention to debar me from admitting, in the full way I should have wished to do from the first, the extent of my obligations to them. I cannot express these, I think, in a more complete way than by saying that, if my letter should turn out to be of any use to the Government and Parliament, you have to thank those gentlemen for it, and not me.

If you present the despatch of the 5th May to Parliament, I request you will be pleased to present this letter also.

I have, &c.,

The Hon. the Premier, Wellington.

F. D. BELL.

No. 12.

The AGENT-GENERAL to the Hon. the PREMIER.

SIR,—

7, Westminster Chambers, London, S.W., 18th May, 1882.

There are one or two points relating to a mercantile line which I kept out of my printed letter, and which I may as well not delay referring to any longer.

I am sure that, if Parliament decides in favour of having a direct line at all, the first thing you will find it necessary to do is to determine four things:—

1. The amount of subsidy you will give;
2. The size of the ships;
3. What ports they must enter;
4. The port of first arrival and last departure.

With regard to the question of subsidy, the information I have already given you may perhaps assist you in coming to a conclusion as to the least sum that would be likely to be required for a mercantile line. I showed that a subsidy of £10,000 might suffice, in addition to the earnings of the mercantile steamers, to yield a dividend of $7\frac{1}{2}$ per cent. to the shareholders of such a company as would necessarily have to be formed to build and work the boats. But I pointed out that such a result could only be arrived at on the supposition of every steamer being full up both out and home; and, if the colony

does not mean to continue a stream of immigration large enough to guarantee 200 steerage passengers, I ought to guard you from expecting that intending contractors would go into a direct service under any supposition that paying steerage passengers would come up to that number. I have examined the latest results in several of the best established ocean-going steamer enterprises, and they certainly are not very encouraging. The British India Company, it is true, divides 12 per cent.; the Peninsular and Oriental Company, 9 per cent.; the Union Company (Cape), 10 per cent.; the Castle Company (Cape), $7\frac{1}{2}$ per cent.; the Royal Mail Company, $8\frac{1}{2}$ per cent.; the Pacific Company, $8\frac{1}{2}$ per cent.; the National Company, 8 per cent. preference and 4 per cent. ordinary; but the General Steam Navigation Company only divides 5 per cent.; the Orient Company has divided 5 per cent., after setting apart a reserve of 6 per cent. on the cost of their fleet; the Pacific Company, which made a gross profit of £318,000, carried £198,000 to reserve, and did not divide more than £118,000; while the Cunard Company, though earning a gross revenue of more than a million, brought up their reserves to nearly £300,000, and were content to divide only 3 per cent. The plan I should think the best would be to make the subsidy depend on the profits; but any such proposal would require very skilful management, and I am quite sure there is no chance of any offers of that kind being made first to you. The risks of starting an entirely new enterprise are so great, that they will not be run by really responsible people without the assurance of adequate profit: and, although I have expressed the opinion that the money might be forthcoming on the conditions I named if a dividend of $7\frac{1}{2}$ per cent. were thereby assured, I must guard you against any confident expectation of my turning out to be right, for everything depends not only on the skill and experience, but on the financial power, of those who might be disposed to entertain the scheme. It would be far better not to start a service at all, than to start one unless those who took it up were strong enough to carry it through; and among these I know of some who would certainly not engage in it unless they felt assured of a dividend of 10 per cent.

In order to test the difference in comparing work done with subsidy between a boat of 4,000 tons, such as was designed in 1878, and one of the class described by me, I took the estimates of 1878 and recast them as they would appear if they had been made for a monthly service, counting passengers and freight on the same scale, relative to capacity, as I had assumed for my mercantile steamer. The figures were recomputed on the following basis:—

1. The service was supposed to be one of twelve voyages in the year.
2. The passengers were taken at fifty saloon, forty second-cabin, and 200 steerage; the space saved by reducing the steerage passengers to 200 being added to the cargo space.
3. The rates of cabin passage-money were taken at £70 in the saloon and £35 in the second cabin.
4. The amount of fine goods paying high freight on the outward voyage was taken at 1,000 tons, being as much as I had allowed in the larger mercantile steamer, and leaving only about 750 tons supposed to pay a 20s. rate.
5. The homeward voyages were supposed to be six with wool and six with wheat.
6. The ships were supposed not to cost more than £5,000 above the estimate of 1878, so that the capital wanted should not exceed £600,000.

Every condition in the comparison was therefore favourable to the 4,000-ton boat. But, upon making the same computation as was done for the mercantile steamer in order to bring out the results of the year's work, I found that, while earnings could not be put higher than £201,000, working cost could not be safely taken at less than £222,000; so that there was an initial deficiency of £21,000 without allowing anything for boiler fund, management, or interest on capital. Taking boiler fund at 10 per cent., management at £10,000, and debenture-interest (on £200,000) at £10,000, £80,000 more had to be added to this initial deficiency; and then, assuming shareholders to be satisfied with a dividend of $7\frac{1}{2}$ per cent. on £400,000, that item would require another £30,000; so that the total subsidy was brought up to £131,000. Against this, however, the steamer of 1878 being supposed to have a speed of $12\frac{1}{4}$ knots, and give a postal time of forty-one days, the postages could be set, whereas in the mercantile steamer they of course could not.

The trade relation, therefore, between subsidy and work done, comparing the steamer of 1878 with the mercantile steamer described by me, may be roughly expressed in this way:—

1. For a subsidy of £10,000 the mercantile steamer would take out 52,000 tons of cargo, and bring home 31,000 tons (measurement) of wool, and 28,000 tons (weight) of wheat.
2. For a subsidy of £122,000, less the postages, the steamer of 1878 running monthly would take out 22,000 tons of cargo, and bring home 15,000 tons (measurement) of wool, and 13,000 tons of wheat.

As to the class of the ships, and the ports they must enter, it is needless to point out that the unfavourable trade-proportion between subsidy and work, to which I have just referred, would be increased if the steamers were reduced below the 4,000 tons, which the Committee of last session fixed as the minimum. I should not be at all surprised if I were blamed for even thinking of ships of such a size as I described in the printed despatch. But the task I had set myself was to find out what class of ship would do most work for the whole colony in proportion to the subsidy which the whole colony would have to pay. It was almost too favourable an estimate for the ship designed in 1878 to put her sea-going speed at $12\frac{1}{4}$ knots, and she would not have been equal in many things to the steamers now designed by Mr. Denny; while in the light of the present day she must be judged altogether too small for such a service. The greatly-increased size in the postal steamer I described was due to considerably higher speed, and much greater carrying capacity both for weight and measurement; two features which the ship-owning experience between 1878 and now has clearly shown to be necessary.

With regard to ports, the Committee of last session had laid it down that the ships must be at least 4,000 tons, have a sea-going speed of $12\frac{1}{2}$ knots, and be of a draft enabling them to enter "the chief ports." This expression is rather vague: was it meant to include Port Chalmers? Because I cannot see how a first class $12\frac{1}{2}$ -knot ocean-going steamer of 4,000 tons can be built to go over the bar; and if going into Port Chalmers is to be a condition it must be the governing factor in any designs, and must have a considerable effect on the proportion of subsidy to work. The

steamer of 1878 could not have gone into Port Chalmers, as she had a load draft of twenty-four feet; and I need hardly bring to your recollection how the "Staatd Haarlem" was not allowed to be taken into that port, though it had been fully intended she should go there, and though she only drew a little over nineteen feet.

Second only to this question of whether the ships of a direct line must be capable of entering a given port is the one of what the ports of call are to be, and which is to be the port of first arrival and last departure. Assuming the service to be decided upon at all, one of the points which contractors would want to know for certain would be exactly what the colony would insist upon in the matter of ports, and how far (if at all) a discretion would be left to themselves, according to the considerations of trade and freight at each port, of which they would be allowed to judge.

I mention these points early because Parliament had not made up its mind upon them, whereas the decision of them lies at the threshold of any action. It is of course unnecessary to point out the special difference there is between a steam line to Australia and one to New Zealand. When a steamer goes to Adelaide, she serves the whole of South Australia; to Melbourne, the whole of Victoria; to Sydney, the whole of New South Wales: whereas nothing of the sort is possible with us. Nor is it necessary to remind any one to whom so great a subsidy may seem hard for a fast postal line direct, that a line to Australia can rely on passage-money such as we cannot approach. The 12,000 passengers, for instance, who went by the Peninsular and Oriental and Orient ships in 1881 could not have paid far short of £400,000 passage-money, to say nothing of the 100,000 tons of cargo, which must have added at least a quarter of a million more. It is considerations such as these which touch most nearly the question of profit, and it is these which would really govern any responsible people disposed to entertain a scheme for a direct line to New Zealand.

The Hon. the Premier, Wellington.

I have, &c.,
F. D. BELL.

