1882.

NEW ZEALAND.

WESTPORT COAL COMMITTEE

(REPORT OF).

Report brought up on 18th July, 1882, and ordered to be printed.

ORDERS OF REFERENCE.

Extracts from the Journals of the House of Representatives.

WEDNESDAY, THE 7TH DAY OF JUNE, 1882.

Ordered, "That a Select Committee be appointed to consider and report as to what action should be taken to improve the facilities for shipment at Westport, in order to fully develop the coal export trade of that port. The Committee to consist of the Hon. W. W. Johnston, Mr. Macandrew, Mr. Fergus, Mr. Fish, Mr. Allwright, Mr. Wright, Mr. Levestam, Mr. Hutchison, Mr. Levin, and the mover. Three to be a quorum, with power to call for persons and papers; and to report within a month."—(*Mr. Munro.*)

THURSDAY, THE 6TH DAY OF JULY, 1882.

Ordered, "That the Westport Coal Committee have leave to postpone the bringing-up of their report until Thursday next."—(*Mr. Munro.*)

REPORT.

I AM directed to report that, after due inquiry and consideration, your Committee is of opinion—

1. The one thing needed to ensure a large exportation of coal to foreign markets is the deepening of the entrance to the harbour at Westport.

2. The coal is admitted to be of a quality equal to that of the best steam-coal in the Australian Colonies, and the contents of the Buller Coal Field, as far as surveyed, are estimated by the Geological Department, at some 140,000,000 tons.

3. The two coal companies already in operation in the Buller District have a subscribed capital of £450,000, and have expended £100,000 in opening up their leaseholds. At present they are engaged in operations which, when completed, will enable them to put out 1,300 tons per day, if required, and which output may be indefinitely increased when the other leases available in the Waimangaroa are in working order.

4. The present depth of water at ordinary tides on the bar is 10 or 11 feet, and at spring tides 14 or 15 feet: had this been increased to 16½ feet, the Westport Colliery Company could have this year entered into contracts to deliver 250,000 tons for shipment to the Australian Colonies, and could have completed arrangements for the establishment of copper-smelting works at Westport, on account of the Adelaide Copper Mines Company.

5. It is asserted on behalf of the colliery companies that an expenditure of £50,000 in the formation of a half-tide wall would secure a depth of 16½ feet, and that such wall would constitute an initiatory portion of the work recommended by Sir John Coode as necessary to obtain 23 feet.

6. In the event of Government expending the above sum of £50,000 in the construction of a tide-wall, the two companies hereinbefore referred to are prepared to give an adequate guarantee that they shall pay Government 6d. per ton royalty upon not less than 300,000 tons a year—a sum equivalent to meet the interest on £150,000 at 5 per cent., while the gross revenue derived from haulage on said output would be £37,500 a year, an amount which would go far to recoup the colony in respect of the large outlay which has been incurred in the construction of the Westport and Ngakawau Railway.

7. It is difficult to estimate the extent to which New Zealand coal would find its way into the markets of the world were ships of large tonnage enabled to load at Westport. Your Committee would venture strongly to urge that action should be at once taken towards this end, or, at all events, to effect such partial improvement on the bar as shall secure the results indicated in the preceding paragraph.

JNO. MUNRO,
Chairman.

MINUTES OF PROCEEDINGS.

FRIDAY, 9TH JUNE, 1882.

THE Committee met pursuant to notice.

Present: Mr. Allwright, Mr. Fergus, Mr. Macandrew, Mr. Munro, Mr. Wright.

Order of reference read.

On the motion of Mr. Macandrew, seconded by Mr. Allwright, Mr. Munro took the chair.

Mr. Macandrew read a memorandum from the Secretary of the Westport Colliery Company (Limited), copies of which memorandum were ordered to be sent to each member of the Committee, on the motion of Mr. Wright, seconded by Mr. Fergus.

On the motion of Mr. Wright, seconded by Mr. Fergus, the Clerk was ordered to request the presence of Dr. Hector and the Surveyor-General to give evidence.

The Clerk was also ordered to request the presence of Captains Johnson and Fairchild for the same purpose.

The meeting then adjourned.

MONDAY, 12TH JUNE, 1882.

The Committee met pursuant to notice.

Present: Mr. Fergus, Mr. Fish, Mr. Hutchison, Mr. Levestam, Mr. Levin, Mr. Macandrew, Mr. Wright, Mr. Munro (Chairman).

The minutes of the previous meeting were read and confirmed.

Mr. McKerrow, Surveyor-General, appeared, and gave evidence as to the extent of the coal field and as to the probable quantity of coal therein.

Mr. Cox attended with maps, &c., on behalf of Dr. Hector, who was unable to be present, but who will appear on Wednesday next, the 14th June, 1882.

Captains Johnson and Fairchild attended, and gave evidence.

The Clerk was ordered to request the attendance of Mr. Blackett, Mr. Mackay, and Mr. C. Y. O'Connor at the next meeting.

The meeting then adjourned until Wednesday, the 14th June, 1882, at 10.30 a.m.

WEDNESDAY, 14TH JUNE, 1882.

The Committee met pursuant to notice.

Present: Mr. Allwright, Mr. Fergus, Mr. Hutchison, Mr. Macandrew, Mr. Wright, Mr. Munro (Chairman).

After hearing the evidence of Messrs. Mackay, Blackett, and O'Connor, the Committee adjourned *sine die.*

MONDAY, 19TH JUNE, 1882.

The Committee met pursuant to notice.

Present: Mr. Allwright, Mr. Fish, Mr. Levestam, Mr. Levin, Mr. Macandrew, Mr. Munro (Chairman).

The minutes of the previous meeting were read and confirmed.

After hearing the evidence of Captain W. R. Williams, J. R. George, Esq., and Captain James Lees, the Committee adjourned until Wednesday, the 21st instant, at 10.30 a.m.

WEDNESDAY, 21ST JUNE, 1882.

The Committee met pursuant to notice.

Present: Mr. Allwright, Mr. Levestam, Mr. Macandrew, Mr. Munro (Chairman).

The minutes of the previous meeting were read and confirmed.

Mr. Blair, Mr. Barr, and Mr. Dickson attended, and gave evidence.

The Clerk was ordered to procure from the Railway Department a return showing the tonnage outwards and inwards at the Port of Westport for the last year, and the dues collected thereon.

The Committee then adjourned until Thursday, the 22nd June, 1882, at 10.30 a.m.

THURSDAY, 22ND JUNE, 1882.

The Committee met pursuant to notice.

Present: Mr. Fish, Mr. Levestam, Mr. Levin, Mr. Macandrew, Mr. Munro (Chairman).

The minutes of the previous meeting were read and confirmed.

After hearing Mr. Burns's evidence, the Committee adjourned *sine die.*

THURSDAY, 6TH JULY, 1882.

The Committee met pursuant to notice.

Present: Mr. Allwright, Mr. Hutchison, Mr. Macandrew, Mr. Munro (Chairman).

Dr. Hector attended, and gave evidence.

A return of tonnage and dues collected at the Port of Westport was received from the Railway Department.

The Committee then adjourned *sine die.*

WEDNESDAY, 12TH JULY, 1882.

The Committee met pursuant to notice.

Present: Mr. Allwright, Mr. Fergus, Mr. Fish, Mr. Levestam, Mr. Macandrew, Mr. Wright, Mr. Munro (Chairman).

The minutes of the previous meeting were read and confirmed.

The order of reference, giving leave to the Committee to postpone its report, was read.

A draft report was laid before the Committee.

On the motion of Mr. Macandrew, it was resolved, "That the draft report be printed and circulated amongst members of this Committee."

The Committee then adjourned *sine die.*

THURSDAY, 13TH JULY, 1882.

The Committee met pursuant to notice.

Present: Mr. Fergus, Mr. Fish, Mr. Hutchison, Hon. W. W. Johnston, Mr. Levestam, Mr. Macandrew, Mr. Munro (Chairman).

The minutes of the previous meeting were read and confirmed.

The Committee proceeded to consider its report.

On the motion of Mr. Macandrew, it was resolved, "That the blank in clause 5 be filled up as £50,000."

Mr. Levestam proposed, "That the words from 'taking,' in the first line of clause 6, to 'feet,' in the second line, be struck out, and the words 'expending the above sum of £50,000 in the construction of a tide-wall' be inserted in their place."

Discussion of this proposition was adjourned until Saturday next, 15th instant, at 10.30 a.m.

SATURDAY, 15TH JULY, 1882.

The Committee met pursuant to notice.

Present: Mr. Allwright, Mr. Hutchison, Mr. Levestam, Mr. Macandrew, Mr. Wright, Mr. Munro (Chairman).

The minutes of the previous meeting were read and confirmed.

The Committee then proceeded to consider its report.

On the motion of Mr. Wright, it was resolved, "That the word 'enormous,' in clause 1 of this report, be struck out, and the word 'large' inserted in its place."

On the motion of Mr. Wright, it was resolved, "That the word 'world,' in clause 2, be struck out, and the words 'Australian Colonies' be inserted in its place; and that the words 'far as surveyed are' be inserted between 'as' and 'estimated' in the second line of clause 2."

On the motion of Mr. Wright, it was resolved, "That the words from and including 'as,' in the sixth line of clause 4, to and including 'market,' in the next line, be struck out."

On the motion of Mr. Wright, it was resolved, "That the word 'estimated,' in the first line of clause 5, be struck out, and that the words 'asserted on behalf of the colliery companies' be inserted in its place."

On the motion of Mr. Levestam, it was resolved, "That the words from and including 'taking,' in the first line of clause 6, to and including 'feet,' in the next line, be struck out, and the words 'expending the above sum of £50,000 in the construction of a tide-wall' be inserted in their place."

On the motion of Mr. Wright, it was resolved, "That the word 'gross' be inserted between the words 'the' and 'revenue' in the fifth line of clause 6."

On the motion of Mr. Macandrew, it was resolved, "That the word 'amply,' in the sixth line of clause 6, be struck out, and the words 'go far to' be inserted in its place."

On the motion of Mr. Allwright, it was resolved, "That the words from and including 'in case,' in the eighth line of clause 6, to the end of the clause, be struck out."

On the motion of Mr. Wright, it was resolved, "That the words 'as it is,' in the third line of clause 7, and the words from and including 'of this report,' in the sixth line, to the end of the clause, be struck out."

On the motion of Mr Hutchison, it was resolved, "That clause 8 be struck out."

On the motion of Mr. Macandrew, seconded by Mr. Hutchison, it was resolved, "That the report as amended be adopted."

On the motion of Mr. Macandrew, it was resolved, "That the Chairman do present the report to the House."

On the motion of Mr. Wright, it was resolved, "That the report be further amended by the elimination of all the words after 'tons,' in clause 2, and presented as amended."

This concluded the Committee.

MINUTES OF EVIDENCE.

MONDAY, 12TH JUNE, 1882. (Mr. MUNRO in the Chair.)

Captain JOHNSTON, examined.

Captain Johnston.
12th June, 1882.

1. *The Chairman.*] Perhaps Captain Johnston will state what he knows about the Buller Bar, and the navigation of the Westport Harbor?—I do not know much about the bar since I surveyed it seven years ago. I can only say that it has altered, sometimes for the worse, and sometimes for the better than is shown on the chart of my survey that is now before the Committee.

2. *Mr. Fish.*] Is it likely that the bar will alter its position?—Yes, all the West Coast bars do alter, but this bar does not alter so much as others, because it is protected by Cape Foulwind; at the same time it is liable to alter to some extent.

3. Do you refer now to the depth?—Yes, and to the direction also.

4. *Mr. Hutchison.*] Would protective works prevent that?—Not unless they are carried into deep water. If you only carry your breastwork out a short distance, of course you must have two walls in order to get enough water. You would require both a long and a short wall. Unless you have both of these, the channel is likely to change alongside the one wall, and go in another direction altogether.

5. *Mr. Wright.*] Can you say how far it would be necessary to extend these walls in order to secure deep water?—I have seen the map now before the Committee, and I think it would be about a mile.

6. Then a training bank from the West Spit would require to be a long one?—Yes. (Witness here explained his views by constantly referring to the chart before the Committee.)

7. A heavy swell comes from the North-west, I believe?—Yes.

8. Are you aware that Sir John Coode recommends a training wall or pier 6,000 feet long on the eastern side, and one on the western side rather more than 4,000 feet long?—Yes.

9. You are clearly of opinion that any less length of groin than is indicated in the map, would not secure deep water permanently?—I am certain it would be no good, you would have to carry the work out for fully a mile before it would be of permanent use.

10. *Mr. Fergus.*] If you carried it out a mile, what depth of water do you think you would obtain?—About five fathoms at the outer end, when I surveyed it.

11. What depth of water would you have on the shallowest part of the bar if this wall were carried out according to the plan?—There is no doubt that it would absolutely deepen the bar to the extent of some feet.

12. What depth would you have in the channel as shown on the plan?—I cannot say exactly what the depth would be.

13. Do you think that if you were to carry out this wall to any less length than a mile, you would derive any benefit?—Yes, for the time being; but the benefit would not be permanent.

14. Do you think that by extending it to 20 chains you could get a depth of 16 feet on the bar at high water?—Yes, I think so; because the depth is already 14 or 15 feet at high water—I mean during spring tides.

15. You think you could get 16 feet of water on the bar without doing anything to the eastern wall?—I think that a short wall should be put on the eastern side, as well as the one on the western side.

16. *Mr. Wright.*] You have stated that a groin some twentychains in length would probably give 16 feet depth at high tide?—Yes, I think that would be about the depth it would give on the bar.

17. Then, assuming that you have 16 feet at high water on the bar, what would be the draught of the vessels that you would consider it safe to bring into the port?—If the water is smooth you can easily bring in a vessel drawing 15 feet. This bar is sheltered, and the sea is very frequently smooth.

18. What do you consider a safe margin between a vessel's bottom and the sand?—For a comparatively large ship I should say two feet, and for small steamers or boats a few inches in moderate weather.

19. The 16 feet that you think you could obtain, if your recommendation were carried out, would only admit vessels drawing 12 feet at neap tides?—Yes.

20. *Mr. Fish.*] Then, as a matter of fact, if you want to do really anything practical with that harbor you will have to make it so that there will be 16 feet of water on the bar at low tide?—Yes.

21. Sir John Coode states that between January, 1873, and July, 1876—a period of three and a-half years—the depth of water averaged about 16 feet. Can you say what causes there were to preserve that uniformity of depth?—I presume it was a flood in the Buller River that caused the water to deepen, and that a long time after a north-west gale came and blocked the sand up again.

22. *Mr. Fergus.*] Suppose this wall were extended forty chains instead of twenty, do you think we should get a corresponding depth of water at spring tide?—Yes, I think so.

23. *The Chairman.*] Are the Government continuing the eastern wall?—Yes.

24. Do you think that the continuation of this wall will have the effect of deepening the harbor?—No, I do not think so. I do not think the harbor could be deepened much unless the second wall were erected, and in the manner shown on the chart.

Captain Fairchild.

12th June, 1882.

Captain FAIRCHILD, examined.

25. *The Chairman.*] Have you had any experience of the Buller Bar?—Yes; considerable.

26. *Mr. Wright.*] How long is it since you were last at Westport?—Two and a half months. On that occasion I was on the bar in a boat, and not in a vessel.

27. Can you say whether the channel over the bar is tolerably permanent, or whether it is very shifty?—It is not a very shifty channel. In fact it is the least shifty of any bar on the West Coast.

28. To what do you attribute that?—It is not so exposed to the prevailing winds, as it is sheltered by Cape Foulwind. But when it does shift, the alteration that takes place is tremendous. At the same time, things go on for years without a shift taking place.

29. Have you formed any opinion as to the length of training-wall that would be necessary to fix the channel?—It would take a very long distance to make the bar a fixture. The wall would have to be run out a long way on the east side.

30. Do you think that one training-wall on the Western Spit would have any decided effect in improving the channel?—No, I do not think so; the water has a tendency to run to the east. My opinion is that the wall should be on the east side, unless, of course, you are going to have two walls.

31. If you had only one wall, and that on the east side, would not the sand from the westward be driven into the channel by the prevailing winds?—No, I do not think so; because the Steeples and the Cape would cut off the worst of the wind. The south-west is the prevailing wind.

32. What length of training-wall or mole do you think would be necessary to effect any sensible improvement on the bar?—I think the wall should be at least 1,000 feet in length on the eastern side. Anything less than that could not greatly improve the bar.

33. *Mr. Fergus.*] What depth on the bar at spring tide would a wall 1,000 feet long on the eastern side give?—I should say we ought to reckon on 16 or 17 feet. We get 15 feet now, and we have an average of about 12 feet.

34. You think that by extending this wall on the western side 1,000 feet, you would get 16 feet at spring tides?—Yes.

35. You do not think that a wall on the other side is absolutely necessary?—No, I do not. I do not think a wall on the western side would deepen the bar at all, though it might prevent it from getting shallow. On the east side there is a very good bottom for building a wall on.

36. *Mr. Wright.*] What do you consider to be a safe margin between a vessel's bottom and the sand on that bar?—Very little depth is safe. I have frequently touched on the bar. Two-thirds of the time the water is smooth, and a steam collier drawing within a foot of the water on the bar could get in.

37. *Mr. Fish.*] What is the nature of the bar?—It is pretty soft, and if a vessel were to drag a little it would not hurt her.

38. What is the width of the bar?—It is very narrow—not the length of a ship—and a vessel is very soon over it.

39. *Mr. Macandrew.*] Could the bar be dredged at all?—No. All you could take away in six months would be replaced in one night.

40. *Mr. Fish.*] What, in your opinion, would be necessary to make the bar permanently deeper than it is; for instance, would the construction of these walls on the east and west sides make the bar permanently deeper?—I think that if the east wall were run further out it might have that effect, but I doubt whether the channel would be permanently deeper.

41. Do you think it would be necessary to make a wall on the west side?—I do not think there would be any great benefit from doing so. It is the wall on the east side that we want.

42. You do not seem to anticipate any difficulty in shutting out the accumulation of sand from the westward?—The sand does not come in that way, because it is sheltered by the Cape, and the land does not allow the sea to cross the bar to any great extent. I do not think that the westward sand is ever thrown much in to the mouth of the harbor. Heavy freshes in the river cause the bar to shift, but I do not attribute the shifting of the bar to the action of the sea at all. I think that most of the deposit we get on the bar at the Buller comes down the river.

43. *Mr. Fergus.*] If you continued the eastern wall for 20 chains, do you think it would make a permanent improvement on the bar?—I should think 12 or 14 feet ought to be depended on.

44. Then what length of wall do you think would be necessary to get vessels drawing 16 feet in?—I am afraid it would be a very hard job to get vessels drawing 16 feet in at all periods of the year. That could be done at spring tide.

45. *Mr. Wright.*] This bar is formed by the sand and shingle brought down the river?—Yes.

46. If piers were put out on each side of the channel would they not have the effect of carrying the drift out to deep water?—Yes, I think it would have the effect of deepening the channel a little, but not sufficiently to admit of the passage of a vessel drawing 16 feet at all times of the year.

47. *The Chairman.*] Have you ever seen a heavy flood in the Buller River?—No, not a heavy one. I may remark that the training-walls in New Zealand have not got on very well. They have been tried at Patea, Napier, and other places, but they have not been satisfactory.

WEDNESDAY, 14TH JUNE, 1882. (Mr. MUNRO in the Chair.)

Mr. Mackay.

14th June, 1882.

Mr. THOMAS MACKAY, examined.

48. *The Chairman.*] Mr. Mackay, will you give us what information you can with regard to the Westport Coal Field?—Witness produced a map, and having explained it to the Committee, said the lease of the Westport Company has been delayed for the purpose of adding on another block. Altogether that company have close on 1,500 acres on what is called the Waimangaroa Basin. They have three separate blocks averaging about 500 acres each, they have two blocks now, and one they are to get, two are contiguous and the third is adjacent. I should say that all the tinged blocks on this map represent the coal area so far as can be ascertained. The company have only a small section of the Waimangaroa part of

the coal field. There are 2,950 acres in another block, which the Westport Company propose to lease in what is called the Granity Creek Basin, near the Ngakawau River. *Mr. Mackay.* 14th June, 1882.

49. *Mr. Wright.*] Will you indicate the course the tramway takes to carry the coal to the port?—(Witness explained on the map.)

50. Is this tinted portion accessible without passing through other blocks?—No, but there is power to go through any of the blocks by the Act of 1877, (witness read the section). No lessee has power to block another from access to any part of the coal field.

51. Are there any other areas in the basin held under lease?—Yes, there is an area of coal which was taken up under Fisher's lease that has now been abandoned. Roche's lease is going to be cancelled. That is just opposite to where the Wellington Company's lease is.

52. I want to know if there are any areas of coal not held under lease. I understood Mr. McKerrow to say that the Westport Company and the Koranui Company held all the areas of coal in that basin?—Mr. McKerrow must have misunderstood your queries. What those companies hold is only a very small portion of what the Geological Department consider to be the coal area in this district.

53. Yes, I see by this map that the area of the field is about twice as great as that comprised in the leases. There are about 5,600 acres in round numbers not leased. There is a large area at Mokihinui under provisional applications at present for leases not shown on the map—that would be all brought in.

Mr. BLACKETT, Engineer in Charge, North Island, and Marine Engineer, New Zealand. *Mr. Blackett.*

54. *The Chairman.*] The object of the Committee is to find out in what manner large vessels can be got into the Port of Westport, and to what extent Government would be justified in going to expenditure for that purpose. We want to find out, for instance, for what amount of money vessels drawing 16 feet or 16½ feet, can be got in?—My most obvious reply is to refer the Committee to Sir John Coode's report.

55. But Sir John Coode's plan is of such an extensive character that it is generally acknowledged it cannot be entirely carried out at once. The object is to find out what lesser sum than the half million he estimates might effect material improvement.

56. *Mr. Wright.*] The Secretary of the Company has stated that you have said that the works required could be carried out for a sum the interest on which would be met by a charge of a fraction of a penny per ton on the coal in the Company's lease (statement read)?—I have no recollection of having said such a thing. It must have been some other witness. I never said it.

57. Then the Secretary had no warrant for making that assertion?—I have no recollection of ever saying anything like it.

58. Have you formed any opinion or estimate of the amount required to obtain sufficient water on the Westport Bar to admit vessels drawing 16 feet?—The full amount of works proposed by Sir J. Coode would not admit vessels of 16 feet. He says 15 feet.

59. *The Chairman.*] Sir John estimates there would be 23 feet 4 inches at high-water spring tides, and 15 feet and a fraction at neap tides?—Yes; but you must allow something under the vessel's bottom. Sir John says you should allow 6 feet for "send"—that is, the rise and fall of the swell—and 3 feet under the vessel's bottom, making together 9 feet, which leaves only 14 feet at spring tides.

60. *Mr. Hutchison.*] Is there a safe bottom, supposing a vessel should ground at the wharves inside?—The bottom is composed mainly of sand, shingle, and snags, mixed up.

61. But the snags could be taken out?—Yes. Any large harbour works would necessitate that operation.

62. *Mr. Wright.*] Then you agree with Sir J. Coode, that the total expenditure he states to be necessary would only admit vessels drawing 15 feet during an on-shore gale. He says that during heavy weather there must be 3 feet under the keel, and 6 feet allowed for "scend" that would reduce it to 14 feet during an on-shore gale. But in calm weather you could do with less margin?—Yes; but you could not always make sure of fine, smooth weather. The masters of vessels would want to get in when they arrived, whether the weather was fine or not.

63. But the works Sir John Coode contemplates would probably admit vessels drawing 16 or 17 feet, if they got offshore weather or smooth water?—Yes; if you could be sure of fine weather, but the West Coast bars are not generally smooth.

64. *Mr. Hutchison.*] Could you not do a less work than Sir John Coode proposes?—Yes; but if you spent less money you would get less result.

65. *The Chairman.*] What lesser sum than that proposed by Sir John Coode might be recommended to be spent year by year?—The great thing to be looked for is not only deepening the bar, but also to keep the channel permanently in one place. It is likely that £100,000 or £120,000 might be usefully spent, but you would not get the results which Sir John Coode estimates for. By carrying on portions of all the works he recommends—to finish, for instance, the eastern training-wall he recommends, according to his plan—part of the western training-wall, possibly one-third of the western breakwater, and, also part of the eastern breakwater, all as laid down on Sir John's plan—at a very rough estimate I should think £120,000 would do that amount of work. That is not the result of actual calculations, you must understand.

66. *Mr. Wright.*] What would be the permanent result, in your opinion, from that expenditure?—I think it is very likely it would deepen the bar to the extent of 18 inches, and that it might be expected to keep the channel in one place.

67. But without the assistance of any training-walls or breakwaters it does not appear that the channel has any great tendency to shift. Captain Leech has stated in evidence that for a period of three and a half years, from January, 1873 to July, 1876, the depth at high-water spring tides had averaged 16 feet, so that the contemplated expenditure of half a million would not, it would appear, effect a very great improvement over what was the natural condition of the bar for a very long period?—You will find that Sir John Coode says that to produce a small result, you will require a comparatively large expenditure on account of the formation of the beach, and from my own experience I can state that the position of the channel is subject to very large and sudden changes, after heavy land floods.

Mr. Blackett.
14th June, 1882.

68. *The Chairman.*] Do you think that removing the snags from Snag Fall, about four miles up the Buller River, would have a good effect, by relieving what is now the overflow, and confining the water coming down the river. Many are of opinion that if the snags were removed, the whole river would have a straight flow right out?—I should not anticipate very much good from that.

69. Do you not think that the removal of the snags, which now divert the river, and cause an overflow would have a material effect in confining the river?—I am not so well acquainted with it as to be able to give a decided answer. But I think it is very doubtful if it would have any appreciable effect on the mouth of the river.

70. Of course it would allow the whole body of water to come down?—I think its effect in improving the mouth of the river would be very fractional in amount. I cannot see any but the smallest amount of good likely to come from it.

71. *Mr. Fergus.*] Supposing this wall (eastern breakwater, shown on map) were continued out for half a mile, are you of opinion that it would have any permanently good result to the channel, by cutting off these streams which now flow over the sand banks. I mean not touching any other works, but simply constructing this wall on the Westport side, half a mile out, according to Sir John Coode's plan?—According to Sir John Coode's plan, you cannot make the eastern breakwater as designed, without making the western one also. One is very strong and high in comparison with the other. If you made only the eastern one, it would have to be made stronger, because it would then have the full force of the sea upon it. This is really a half-tide wall for a great portion of its length. And if the other, that is, the western one, was not made, the eastern one would have to be built proportionately stronger.

72. *Mr. Macandrew.*] I understand, then, that your opinion is that an outlay of £120,000 would give 18 inches more permanent depth than there is now on the bar—that is, roughly speaking?—Yes; this is an approximate statement.

73. It is said this field contains 100,000,000 to 200,000,000 tons of coal; assuming it to be 100,000,000, one penny a ton would give £416,000, or within a fraction of what would really provide for the works?—Yes; but the getting out of these millions of tons would take a generation or two, whereas you would be called upon to spend the money on works at once.

74. Are you aware that during the greater portion of the year the water is comparatively smooth at the Buller?—Yes; they have a fair share of fine weather there.

75. More so than on any other part of the coast?—Its position behind Cape Foulwind and the Steeples shelters it from south and south-west winds, and thus it is more favourably situated than other harbours on the coast.

76. So that a margin of 3 feet under the vessel's bottom would only be required in comparatively exceptional circumstances?—I think that whatever might be the depth or the weather, masters of vessels would go in with a less margin than 3 feet, seeing that they now frequently scrape the bar in going out.

77. *Mr. Fergus.*] Do you know the average draught of the vessels trading there just now?—There is a depth of water on the bar of 10 feet 6 inches to 11 feet now at neap tides, and 14 feet to 14 feet 6 inches at springs, and vessels go out touching the bar under these circumstances; this will give an idea of their draft.

78. *Mr. Allwright.*] When vessels are loaded, will they plough through the bar?—I do not say they plough, but that they touch it.

79. *The Chairman.*] I have seen schooners towed out ploughing through the sand.

80. *Mr. Fergus.*] What is the average depth of the largest class of vessels trading there at the present time?—I do not know; I only know the depth of water, and it may be estimated from that when they touch.

81. Could not some large vessels go in with a comparatively small draft of water?—Yes; if purposely built so, but they make use of every inch of water now. Excepting the "Westport," the class of vessels frequenting the Buller are not adapted for the service—they may be called a "scratch" lot. You want wide vessels with flat bottoms, and they should be trimmed nearly on an even keel. I think more might be done usefully in that way, than in spending hundreds of thousands in works intended to improve the bar.

82. *Mr. Wright.*] Is the sand at the mouth, sand brought down by the river, or driven along the coast?—The sand belongs to the coast. Part of it, of course, has come down the river. There is more shingle than anything else brought down the river.

83. The river itself brings down a considerable volume of shingle and sand during floods?—No doubt of it; an immense quantity.

84. So that there would be the risk of a large deposit, even if the works were carried out?—The risk is lessened according to how much of the works you carry out.

85. But unless the works were carried out to a considerable depth of water, there would be the risk of an accumulation?—Not in the immediate channel.

86. But immediately outside the channel?—It would be spread out like a fan, and its shape would be altered continually by the floods and currents and the waves along the shore.

87. So that unless the works were carried out to four or five fathoms, there would be a risk of a bar forming at the entrance to the breakwaters?—I would not say that every foot you added to the work would lessen the risk of that.

88. I mean would there not be the risk of an accumulation at the mouth of the walls, unless they were carried out to a considerable depth?—The risk would be small, and it would be a very temporary inconvenience, I think, should an accumulation occur.

89. *Mr. Hutchison.*] Do you not think that one wall could be dispensed with, and the other made sufficiently strong to answer all purposes. The outer one, I understand, would be the most expensive?—In such a position as this you cannot do with only one training-wall. It might be a good experiment to try the effect of the inside or training-walls first, and to build them as far as you safely could on account of the sea. You would quickly see when the outer protecting breakwater became necessary; but a certain amount of good might be looked for from the construction of the inside training-walls alone.

WEDNESDAY, 14TH JUNE, 1882. (Mr. MUNRO in the Chair.)

Mr. C. Y. O'CONNOR, Inspecting Engineer, Middle Island, examined.

Mr. O'Connor.
14th June, 1882.

90. *The Chairman.*] Mr. O'Connor, can you give us any information on this subject?—As I understand it, the main question is whether any very great result can be obtained by a much smaller expenditure of money than Sir John Coode recommends, and my reply to that would be that I really do not think any great result can be obtained unless the works go out a long way. A glance at this map shows that the works have to be carried out a considerable way before they come to the beach line at all. No works, I think, can produce much result unless they go out beyond the moving shingle beds at the river entrance into deep water.

91. *Mr Fergus.*] We have it in evidence that on the Wesport side of the river the accumulation of sand is not from the sea, but to a very large extent comes from the river?—No doubt.

92. Then if the wall was made on the eastern side of the river for half a mile, surely certain results would follow. Do you think that by making the wall on the Westport side for a quarter or a half mile it would have a tendency to deepen the bar, by preventing an overflow of the water?—I think that anything which tended to keep the river in one defined course would do good, but I think also that unless you go outside the influence of the shingle beds, which are always being moved by the sea, no work can be relied on as likely to permanently produce a deeper channel. In order to do permanent good you have to go outside these shingle beds, which are affected by every storm. I believe it is really the storms from the sea moving the shingle banks which divert the river more than the floods in the river itself; it is the river which puts the shingle there, but after that it is the sea which chiefly moves it about. At Greymouth I have known the sea to heap up the shingle into an island in one storm, almost in the line of the river, which would then turn out of its previous course.

93. We have it in evidence that for three and a half years the channel remained almost stationary, since then we have evidence that it shifts very little and very seldom. The question is, if you could prevent this overflow, do you not think it might have the effect of reducing the bar, and taking it away to a certain extent. We have also the evidence of captains of vessels that it is a very short bar—not the length of a vessel?—The bar is not very large at any one time, but it alters its position with changes of wind, so that it may range over a large area.

94. *The Chairman.*] But it does not change often?—No; it changes rather gradually than often. Sometimes it shows a tendency to change continuously in one direction. I have known cases where it remained stationary for a length of time, but its doing so depends on the weather. One great advantage Westport has, is, that it is sheltered from the heaviest seas to a great extent.

95. So that what might take place at Greymouth, for example, in the way of rapid changes, would not take place at Westport to the same extent?—No.

Mr. Macandrew.] Supposing this coal field were your own private property, and you had available £135,000, say, wherewith to improve the entrance for navigation, do you think you could do anything material with that?—I think if I had the £135,000, I should go on spending it towards a work which was to cost eventually half a million, and I should anticipate getting some little advantage from the work as I went along, but not very much until it had got a good way out. We have now spent £100,000 at Greymouth, and we have only just got to the outside of the shingle influence, and have produced no material benefit as yet.

97. Supposing that money had been spent at Westport, do you think it would have shown better results?—I do not think so, I think it would have been rather the other way, you would have to go farther out than at Greymouth, because the water deepens quicker at Greymouth than it does at Westport.

98. Then you think one would be more likely to make a harbour at Greymouth for a specific sum than at Westport?—No, I do not quite say that—for results at Greymouth are not necessarily permanent—you can get out quicker into deep water, but there is no guarantee of the results being permanent, because the shingle at Greymouth travels so rapidly along the coast. As regards Westport, I am inclined to think that, though necessarily costly to start with, any large results would probably be permanent, and if the training-walls are carried right outside the influence of the shifting shingle near the shore, as recommended by Sir John Coode, I have very little doubt that the effect will be to secure a deep entrance, for, at any rate, a very long time to come.

99. Are you of opinion that £135,000 could be spent as part of the extended operations without prejudice?—I think so.

100. It would be complete in itself so far as it went, and yet form part of the ultimate design?—Yes; so long as it was not attempted to make this £135,000 go so far as you could by any means extend it. What I mean is, that I think it would be inadvisable to stretch that amount of money over as great a length of work as it might be possible to extend it over, because then the works would probably not be strong enough. It was attempted in Hokitika to construct with £30,000 a length of walling estimated by Sir John Coode to cost over £100,000, and the result has not been satisfactory.

101. *Mr. Wright.*] By spending £135,000 as part of the half million required for the complete plan, what result would you anticipate?—I do not know that one could guarantee any absolute result from that in itself, but you might possibly obtain some little advantage in the permanence of the position of the channel so far. Of course, if you did it would be better for navigation; but I do not think you could depend upon any increase of depth.

102. Would you anticipate more profitable results from investing £135,000 in improved colliers, regarding it as a commercial enterprise?—That would depend very much upon what one could get in the shape of improvements in colliers for the money, I do not know exactly myself what it is practicable to obtain, that is to say, I do not know how many tons of coal could be carried in safety with a depth of 10 feet. If one could obtain any great advantage in the increased tonnage of the ships by spending £135,000, then I have no doubt that the expenditure would produce greater results in that way than if £135,000 only were spent on harbour works.

Mr. O'Connor.
14th June, 1882.

103. *The Chairman.*] That is immediate results?—Yes; I have no doubt that with this expenditure of half a million, one could produce permanently a very large improvement in the harbour, and I have no doubt that the depth Sir John Coode mentions would then be obtained—23 feet, I think it is, at spring tides. But unless the works are carried out to the point which Sir John Coode indicates, I really doubt if you would get any very great improvement in the results on the bar.

104. *Mr. Wright.*] You could not anticipate half the benefit from spending half the amount?—No. The further you go out the less you render the thing liable to change, by getting beyond the limits of the shifting channel.

105. *The Chairman.*] The department in the meantime is building a half-tide wall; what is that costing per chain?—I cannot tell at the moment, I could get it; but that is no guide, because we are not in the sea at all yet.

106. What is the character of the overflow channel about four miles up from Westport, where the Buller overflows into the Orawaiti?—The Buller at that place takes a long bend—a long horse-shoe bend. At the apex of this it is inclined to break through into the Orawaiti Valley, and find a way to sea by a short cut. There were two ways proposed to obviate this—one was to block across the depression leading to the Orawaiti, and the other was to cut a relief channel at the base of the bend. Sir John Coode represents the state of the case thus:—

"*New Relief Channel.*"

"I gather from the longitudinal and transverse sections taken in January of the present year, and forwarded to me with the other documents, that the making of a new 'relief' channel between the upper end of Sluice-box Falls and the lower end of Snag Falls, near Oamaru Creek, which I stated when in New Zealand would be preferable to reparing the old bank, has thus far been attended with satisfactory results. It is not improbable that the bed of the river between the lower end of this relief channel and a point almost a furlong south of gauge No. 13, may eventually require some artificial aid to reduce the bottom to a closer approximation to a uniform gradient than can be accomplished by natural agency alone. I mention this as a matter deserving the attention of the colonial engineers, because it should have the effect of lowering the normal level of the upland water at this point, and, in a corresponding degree, would increase the length, and consequently, the volume of the tidal compartment, whilst it would certainly improve the discharging capacity of the river. If the relief channel should continue to increase in sectional area, it is quite probable that in course of time this may become the main channel of the Buller, a result which I regard as very desirable, and which should be encouraged. If the scouring action of the river passing through the relief channel should cause the erosion of the materials on either side to such an extent as to tend to the creation of an unduly wide or tortuous course, it would be well that this tendency should be controlled, by fagoting the sides at such points, and to such extent, as circumstances may indicate to be necessary."

The relief channel so cut was merely a ditch 8 feet wide, but it had an immense fall—it fell as much in one mile as the river bed did in one and a half miles, as a consequence of this, the river had a strong tendency to flow down this cut in floods, and so enlarged it to a width of three or four chains. It has a considerable tendency to relieve the river in time of even moderate floods, and in large floods an immense body of water goes down it.

107. Have you any reports about the recent overflow?—I believe Mr. Martin has forwarded some, but I have not seen them yet.

108. It has been suggested that clearing Snag Fall would obviate this overflow into the Orawiti. Do you think it would?—I think it would be a very experimental thing; sometimes such things do good, and sometimes a flood comes and destroys in an hour what you have been doing for months. To take out the snags and put them along the banks of the river might be successful, or might not. It is purely a matter of accident which way such things result.

109. *The Chairman.*] Those who live there say that this is the true antidote, because since the water has overflowed there, the bar has decreased in depth?—The water on the bar has lessened.

110. *Mr. Macandrew.*] Do you know the relative volume of water in the Buller and, say, the Tees?—I do not know the Tees. The volume of the Buller is, I think, stated in Sir John Coode's report, but I do not know what that of the Tees is.

111. One would think that deepening the estuary of the Tees would be much more difficult than deepening the entrance to the Buller, but they have made a wonderful improvement in the Tees by inducing a scour for less money than the Buller works are estimated to cost.

112. *Mr. O'Connor.*] I have not any personal knowledge of the Tees, so cannot of course attempt to make a comparison of the two cases, but I should imagine that Sir John Coode must be cognisant of this Tees' case, as he has made harbours in England a special study. Having had such a large experience, too, of harbour works generally, it seems reasonable to assume that he would not have designed the works at Westport to cost £600,000 if they could be constructed effectually for a very much smaller sum, such as £130,000.

Mr. Williams.
19th June, 1882.

MONDAY, 19TH JUNE, 1882.

Mr. W. R. WILLIAMS, examined.

113. *The Chairman.*] You have some experience of the bar in the Buller River, and the Westport harbour?—Yes.

114. The Committee wish to ascertain what can be done in order to improve the harbour at Westport, with a view to the ultimate development of the coal trade there, and they would like to have your views on the subject. You have an interest in the Koranui Coal Company?—Yes; I have a large interest.

115. And you know the Port of Westport well?—Yes; I would like, first of all, to state that seven or eight years ago, I was dealing largely with the Town of Newcastle for coals, and I thought that if coal

were to be got in New Zealand I might purchase here, consequently I went down to the West Coast and examined every part of it, I then went to Newcastle, and on coming back a fortnight afterwards, I returned to Westport and purchased a large interest in the Koranui mine, because I knew that the harbour would eventually be one of the best in the colony. I may say that I have come to the conclusion that if £50,000 were judiciously spent on the breakwater, we could prevent the loose shingle from coming accross the mouth of the harbour, and by so doing, we could have at least 2 or 3 feet more water on the bar; of course I mean that £50,000 would only go towards the cost, and not that it would make the harbour perfect. The shingle is very loose, and if it is allowed to come across from the east, it will block the harbour up at every gale. *Mr. Williams.* 15th June, 1882.

116. You know the entrance to the river?—Yes.

117. Do you think that if the eastern wall were carried out, it would have the effect of deepening the channel and the bar?—Yes; once the protection wall is placed there nothing more will be required. I may state that in the course of my travels, I have been to Sunderland and other places, and I believe that for an expenditure of £50,000 Westport could be made a better harbour than Sunderland is. I think it would be better to have a wall on both the eastern and western sides, if possible, though, I believe the eastern wall would be sufficient, if no more could be got.

118. *Mr. Levin.*] How far do you think £50,000 would carry out the wall?—I cannot state the distance exactly. I think the Government should do something to improve this port, if it is only to be regarded as a harbor of refuge.

119. You think that an expenditure of £50,000 ought to procure for you 3 feet more water on the bar?—Yes; more than that. The last time the steamer "Westport" came over the bar, I may say that she drew 12 feet 6 inches of water, and had 350 tons of coal on board, and she never touched the bottom.

120. Did you not make two trips out in one week?—Yes, we took 1,500 tons out from Westport in one month in the one boat. I have paid more than £40,000 a year to Newcastle for coals, and I have no hesitation in saying that, if the work proposed is carried out, we shall in a couple of years put Newcastle coals nearly altogether out of the New Zealand market.

121. *Mr. Fish.*] You think that nearly the whole of the sum you have mentioned (£40,000) would be spent on Westport coal if the work is done?—Yes, I believe that more than two-thirds of that amount would be spent in Westport.

122. *Mr. Macandrew.*] In ordinary weather what depth of water would a vessel require under her keel in order that she might pass safely over?—In calm weather I could come out with safety if I had from 6 to 9 inches under my boat. Of course that could only be when the weather was very fine. In rough weather it would be unwise on the part of any man to come out at all. I may say that at Westport you never get rough weather for more than two or three days at a time.

123. *Mr. Allwright.*] You state that by expending £50,000 you could get a greater depth—viz, 2 or 3 feet of water on the bar?—Yes, the depth of water on the bar varies, but it generally comes back to its usual depth in two or three days.

124. Then you think that by expending this £50,000 you would get 16 feet of water on the bar at spring tides?—Yes; as I told Mr Pharazyn the other day, I have no doubt we should get at least 2 feet more water on the bar.

125. Would 16 feet of water be sufficient for all vessels that trade to the port?—No; it would be sufficient to bring out vessels that would supply local wants only, but for the foreign trade you would require a depth of 26 feet. If you got a good depth I believe vessels would come from Melbourne to Westport for coal. I wish the Committee to understand that trading vessels do not draw 26 feet of water—only those large steamers that are now building, and some running do so.

126. *Mr. Macandrew.*] Of course those vessels would regulate their visits to suit the spring tides?—Yes; and I may say that I do that myself.

127. *Mr. Allwright.*] Can a steamer go over the bar in any weather?—No; it would be madness to attempt to go over in a northerly gale.

128. *Mr. Macandrew.*] In the event of £50,000 being sufficient to produce a greater depth by 2 feet would your Company and the other company interested be inclined to take the matter in hand, provided that the Government made an abatement in the royalty?—Speaking for myself, I can say that I would do so, and I believe the other Companies would do so too.

129. Do you think that if there were an abatement of threepence per ton, on as many tons as would, at the reduced rate, bring in £3,000 per annum, the Companies would, in consideration of that find the money and do the work that is required?—Yes; I think we are unanimous in our opinion that it is necessary we should do all we can. I may inform you that in Newcastle, where there is 22 feet on the bar, vessels are frequently bar-bound for some days, and even at times for a week.

130. Have you seen Sir John Coode's report on the Westport Harbour?—Yes.

131. Do you think the port could be made available for much larger vessels?—Yes; I do think so, and I say that after having carefully studied the matter, our main object is to stop the wash from coming from the north-east.

132. *The Chairman.*] Have you seen the harbour works at Timaru?—Yes.

133. Do you think that a wall similar to that should be constructed?—No; a much less expensive work would do. The stone that would be required is on the spot. In this respect we are more favoured than any other coal port in the colony, and as there will be plenty of labour available in the summer time, owing to the fact that there is less employment for the coal miners, the work could be done more cheaply than under ordinary circumstances. The miners would be very glad to get work on the breakwater during the summer months. When the coal trade is slack in Newcastle, N.S.W., miners that get full work in winter seldom get more than half-time in the summer.

Mr. George.

Mr. J. R. George, examined.

134. *The Chairman.*] You are Chairman of the Koranui Coal Company?—I am.

135. The Committee would like you to tell them how much your Company has expended in the

Mr. George. 19th June, 1882.

development of its lease?—About £32,000 up to the present time, and by the time we have done, we shall have expended about £35,000.

136. When do you expect to begin your operations?—In a week or two.

137. What do you calculate will be your output?—At present not a great deal, but the works are laid for putting out 500 tons per day.

138. You know that the object of this Committee is to ascertain by what means, if any, the harbour can be deepened. Now, suppose that the Government did not see their way to expend money on the improvements we refer to, do you think your Company would, in consideration of an abatement of the royalty, take the work in hand?—I could not give an answer to that question at once, but I should say that the Company would do all they possibly could in the matter.

139. Suppose that £100,000 were expended by the Government on the work, would your Company and the others which are interested be prepared to pay interest on the amount out of the royalties that they would receive?—I think there would not be much difficulty in that respect. I do not think our Company would object to assist in guaranteeing the interest, and I would do all I could to promote any arrangement of that sort.

140. *Mr. Macandrew.*] You say you have already expended £32,000?—Yes; about that.

141. And by means of that expenditure you expect to be able to bring out about 500 tons of coal a day?—Yes.

142. Do you think that £50,000, laid out judiciously, would give you 16 feet of water on the bar?—Yes; speaking roughly, I should think it would. Speaking as an engineer, I think that the expenditure of £50,000 would secure a depth of 16 feet on the bar at spring tides, provided it was expended on the northern breakwater, which would be carried out to a certain distance across the flat between the river and the bar, on Sir J. Coode's plan.

143. Then should there be any difficulty about the Government finding the money to carry out this wall to a certain distance, you think your Company and the others interested will be inclined to co-operate to do the work themselves, to find the money and have control of the work, &c., in consideration of an abatement of the royalty?—I think we should be prepared to do something in that direction, but it is a rather large question to answer at once.

144. Do you think the money would be expended more judiciously by a Company than by the Government?—I think it would be better that the Government should carry out the work themselves.

145. *The Chairman.*] Do you know the wall they are erecting now?—Yes; I saw the beginning of the work when I was down there.

146. *Mr. Macandrew.*] In the event of the two companies combining to find the money, do you think it would be better for the Government to expend the money—or, rather, that it should be expended under their direction?—No; I think the Government had better find the money and do the work, for, if the Companies found the money they would like to spend it.

147. In the event of its taking that shape, I suppose there would be no difficulty in so arranging the matter that the companies shall not have a monopoly of a absolute control over the harbour?—I presume that if the Companies make this breakwater, and deepen the harbour, an arrangement would be come to by which they would obtain a portion of the wharfage dues.

148. Could you not make it a free port?—I do not think that could be done.

149. Do you think that if large vessels could get in, each of the two Companies could deliver 500 tons of coal per day to them?—Yes.

Captain James Leys examined.

Captain Leys.

150. *The Chairman.*] You have been trading to the Buller River for the last 15 or 16 years?—Yes.

151. Do you know what prevailing winds affect the bar in its shifting movements?—For the last seven years I have been constantly trading to Westport from Wanganui, and, as far as I know, the weather does not affect the bar to any great extent, because it is very much sheltered by the Steeples. During the seven years I have been trading there, the bar has not shifted half a mile. It is not so much the prevailing wind and sea that affect it, as the blind channel in the North Spit. That is what causes the obstruction, it divides the channel and makes the bar shallow.

152. Do you know the training-wall that the Government are erecting now?—Yes.

153. Do you think that if that wall were continued as far as is shown on that chart, it would have the effect of deepening the bar?—Yes, I think it would give at least 1 or 2 feet more in depth. At one time they put in a few bags to deepen the bar, and even then there was an increased depth.

154. *Mr Allwright.*] What is the depth of your vessel when she is loaded?—About 7 feet 6 inches. I never have found any difficulty in getting in.

155. What is the depth of water on the bar at ordinary tide?—10 or 11 feet, and at spring tide 14 or 15 feet. I may say that Westport is a sort of "harbour of refuge," as other boats going to Greymouth have to go in there in order to find out the state of the bar at the last named place, before they venture onwards. They are afraid to go on without going into Westport to ascertain the state of the bar at Greymouth. The Buller Bar is a far better one to take than the Grey.

Wednesday, 21st June, 1882. (Mr. Munro in the Chair.)

Mr. W. N. Blair, Engineer in Charge, Middle Island, examined.

Mr. Blair 21st June, 1882.

156. *The Chairman.*] Mr. Blair, will you state what are the works at present being caried on at Westport by the Government?—Yes; a portion of the eastern training-wall, according to Sir John Coode's plan is being gone on with, but instead of commencing at the inner end of the wall near the coal staiths, we only commence at the beach and go on outwards. Then, in order to get to the proper line it is

Mr. Blair.
21st June, 1882.

necessary to make a short piece of cross wall at an angle of about forty-five degrees to the permanent line before the permanent wall itself is begun. £2000 was allocated for running out a portion of the wall; in order to make the most of it, we are running it in the direction just described, that is the work we have now in hand, we have spent nearly half the money.

157. That is, you have spent £1,000?—Yes.

158. What length of wall have you constructed for that?—About three chains.

159. *Mr. Macandrew.*] Is it done by contract?—No. We have a contract for the supply of stone.

160. What is the cost per yard or chain?—About £330 per chain, and we are only just beginning it.

161. The cost for the stone deposited has been about 6s per ton, there is practically about a cubic yard in a ton when the stone is loose.

162. Is the work now commenced of the same nature as it would be if carried out to the extremity?—It is the same class of work, but if you went out into the surf, it would require to be much heavier, so that the cost now is no criterion. I think the best criterion of cost, would be the cost of the Grey, we have had large works in operation there for a long time. They cost 2s 10d per ton.

163. You are acquainted personally with these places, I suppose?—Yes; I have been there several times.

164. What, in your opinion, would it cost to give another 2 feet of water on the bar, making it say 16½ feet?—It is a very difficult thing to say.

165. Would £50,000 do it, do you think?—Speaking off-hand, I do not think it would, considering that the whole thing is estimated to cost nearly half a million. With double £50,000 you might do something; we have spent nearly £100,000 on the Grey works. I think £100,000 might do some good at the Buller, supposing we ran out portions of the two walls, to concentrate the current, and send it clear across the bar, to confine it from spreading. I believe, at the Buller, in floods, instead of making deep channels, the bar simply spreads it considerably, perhaps a foot or two is taken off over a wide area instead of a deep channel being made in one place.

166. *The Chairman.*] What does the Grey cost per chain?—The average of the work done last year is about £750, but the cost is increasing rapidly as we go out.

167. Do you not think the work could be done cheaper by contract?—We have really not made a start, if we were going to do the whole work, it would be advisable to contract for it, or else make arrangements on a large scale to carry it out in the most economical manner. At the Grey the work was first done by contract, but we are now doing it ourselves much cheaper; I think at two-thirds of the contract price, although the lead is longer.

168. *Mr. Allwright.*] With an expenditure of £100,000 you think you could improve the bar?—I think it would do something. It is difficult to say what the effect would be in extra depth. The walls would undoubtedly concentrate the current as it went across the bar.

169. Then there is no guarantee that that expenditure would improve the bar?—There is no guarantee in any of these works.

170. Would there be if the whole amount Sir John Coode recommends were spent?—After getting out a certain distance I have no doubt that the effect would be permanent and marked, and that it would increase with every yard you went out.

171. How much do you think these walls would cost?—I think about £100,000. Perhaps more That is to the point where they would begin to have a beneficial effect.

172. Do you think if Sir John Coode's plans were carried out entirely there would be an absolute guarantee of success?—I believe the chances would be very greatly in its favor; but you can never be sure what the precise action of water will be when flowing in an open channel.

Mr. G. M. Barr, examined.

Mr. G. M. Barr.

173. *The Chairman.*] You are a civil engineer, and have charge of the harbour works at Dunedin and Wanganui?—Yes.

174. You have visited Westport?—Yes; I was there for about five or six weeks at a stretch at one time.

175. Do you know the conditions of the harbour improvement works going on there?—I do not know what has been done within the last year or two, the works, as far as the ships were concerned, had only been carried as far as the coal staiths at the time I was there.

176. The object of the Committee is to ascertain what expense would be necessary to deepen the bar so as to admit vessels drawing 16 or 17 feet of water, and, as you are a professional man, and are acquainted with Westport, we want your opinion?—Well, of course the principle for improving these bars in a permanent manner is to concentrate the scour upon it, that when an accumulation is made by the action of the ocean, there should be a scour running out so that the action of the ocean may be neutralised as far as possible by artificial works. I may say that I have read Sir John Coode's reports, and I should be inclined to adhere to his line of design as regards the outer breakwaters. Of course, bearing in mind that there will not be as much money available as would carry out the whole design, I would devote the first attention to concentrating a scour on the bar, which is really the most urgent work; and, therefore, I would make the outer breakwaters before I carried out the internal works. I would make these breakwaters in the first place to half-tide height—that is, to half the height between high and low water—or a little more. My reason for that would be this—that in all tidal waters the principal effect of the scour is in the second half of the ebb. The first half produces comparatively little effect in the scour, because the swiftest current of the water runs over the surface, whereas the deeper down the water sinks the more effect it has. It is keeping that in mind that I would spend the money in going over the whole length, and carrying the walls to a partial height rather than making a short length to the full height. I have made an estimate, and I find that to carry out the two breakwaters to the full length and to half-tide height would cost £168,000—the two walls together. Of course, if it was found advisable when money was available to carry the works to a greater height—if it was found the

Mr C. M. Barr. 21st June, 1882.

trade required it — these walls could be added to, so that whatever money might be spent would be so much towards the complete scheme. The walls could be raised at any time foot by foot just as the money was available. I am strongly of opinion that it would be much better to push the whole work to the full length and only to a partial height rather than to make only part of the length, but the full height. The sum I have named includes the cost of timber staging for depositing the stuff in making the walls, this could be made of such a nature with the best timber that it would last fifteen or twenty years with occasional repairs, so that it would be available for raising the works at any time within that period. Half-tide walls are very often used in such circumstances as these, and if it was found ten, fifteen, or twenty years after that increased height was necessary, they could be added to.

177. *Mr. Levestam.*] But does not a flood do a good deal to scour the river, and with only half-tide walls would not part of the effect of the flood in scouring be lost. Would not some of the water escape?—Some would escape.

178. Then the flood would not have its full effect?—The difference would not be so much as you might think, because flood water being fresh floats over the top of salt water, and fresh water has never so much effect as salt water in scouring.

179. But is it not the water of the Buller that you want to scour the bar?—The difference between the effect of the scour with a half-tide wall and a full-tide wall is not so much as might at first sight appear. The floods are only occasional, while the salt water flows in and out twice a day; and, therefore, the salt water has more effect than an occasional flood of fresh water, which may come perhaps only once in three, or six, or twelve months, so that you would not sacrifice much in the effect of the scour by having half-tide walls, while you would save very considerably in the cost.

180. *Mr. Macandrew.*] Do you think that a less expenditure than £168,000 you mention would be of no advantage?—There would be some advantage as soon as you got out. The most expensive part of the works is the exterior—that is, outside the bar. The extremity of these walls will be over the bar, but if you had them as far as the bar itself you would have a marked gain.

181. What depth do you think spending the £168,000, as you propose, would give?—I think 21 or 22 feet at spring-tides.

182. Suppose we were content with 16½ feet, could you not modify what you propose to a proportionate cost?—The way in which I should propose to carry out the works would be layer upon layer—that is, going over the whole length at once, and increasing in height over the whole line at one time.

183. Supposing £50,000 were spent, what effect do you think that would be likely to cause?—It would have some effect, but I do not think it would be very much.

184. Would it deepen the bar 2 feet?—I believe it would give as much as that. The peculiarity of this bar and that of Wanganui, and several others, is that there is a sort of crust on the top, 1 or 2 feet thick, and when once that is broken, a little additional scour will keep it clear.

185. *Mr. Levestam.*] Supposing you had £50,000 to spend, what would you do?—I would do this part of the work.

186. *Mr. Macandrew.*] Supposing £50,000 or £60,000 could be spent, would what was done be available towards the complete design?—Certainly.

187. It would be there for what it is worth without prejudicing the ultimate design?—Yes, even if you made these walls to a very low height, you would fix the channel in one direction, which of itself is a very great gain. The amount of scour would increase by every foot you increase the walls in height.

188. *Mr Levestam.*] If you had £50,000 to spend, your first work would be to close up this (indicating on plan)?—Yes; you must close that up to half-tide. I think, first of all, I would make a strong point of having that closed as soon as possible. Close up the side channel or "swaith" on the eastern beach at once.

Mr Dickson.

Mr. W. Hay Dickson, examined.

189. *The Chairman.*] You are the General Manager of the Westport Colliery Company?—Yes.

190. The Committee are anxious to learn particulars of the commercial aspect of the Westport coal trade. How much money have you spent in your leases?—£60,000 to the present in our mining works. We have made a further expenditure of £30,000 on vessels to carry the coal—£90,000 altogether.

191. What is the output capacity of your works?—Five hundred tons a day at present. Certain alterations to be made shortly will bring it up to 800 tons a day.

192. How much do you actually put out?—Two hundred tons a day. Here is a statement showing the output month by month since the mine was opened to 31st May last.

193. Of course the Company are able to make a much larger output than you are doing. Why is it not larger?—The principal reason is want of sufficient water on the bar. If there was a greater depth, we should be able to secure a larger number of vessels on freight. There is a great scarcity in New Zealand waters of the class of vessels suitable for Westport, in the present state of the harbour. If there was more water on the bar, a larger number of vessels would be available to trade to the port. We are slightly hampered by want of sufficient rolling-stock and accommodation in the staiths.

194. That is, you require accommodation to store the coal?—We have men and shipping capable of sending away about 300 tons a day, but for want of additional rolling-stock and staith accommodation, there is great difficulty in regulating the shipping movements to full advantage. The number of railway trucks is barely sufficient for 200 tons a day. Mr. Johnston, the Minister for Public Works, however, gave a promise on Tuesday that the number of the rolling-stock should be increased.

195. What reason have you for believing the trade would be materially increased if the bar were improved?—We have been offered business to the extent of 250,000 tons a year in Australia. In March last Mr. Bend, the Chairman of the Melbourne Metropolitan Gas Works, came to Dunedin specially to see if we could not supply his Company with 70,000 tons a year for gas purposes. In consequence of our inability to do anything, he came to Wellington and saw Sir John Hall and Mr. Johnston on the subject, and stated what his Company were prepared to do if we had sufficient water on the bar for vessels suitable for the Australian trade.

196. What depth would be necessary for an export foreign trade sufficient for vessels drawing 16½ feet loaded?—18 feet would admit vessels drawing 16ft 6in.

Mr. Dickson.
21st June, 1882.

197. If there was that depth you could extend your operations by the amount you mention?—I mentioned 250,000 tons, but the trade might be increased within 12 months after the harbour was deepened to more than double that quantity.

198. What is your experience of the quality of the coal as a marketable commodity?—The best criterion, I think, is the demand. In New Zealand alone at the present time we are selling 60,000 tons a year, and we would have no difficulty in selling at least three times as much more if we could get it away from the harbour.

199. You are selling none in Victoria?—None at all at present, through the difficulty of obtaining suitable bottoms—bottoms suitable to the bar and large enough to carry coals to Australia. With regard to the quality of the coal and the prospects of the trade, I may state that we are asked for 900 tons for the "Bowen" which we cannot deliver, and we also had to decline an order of 400 tons for H.M.S. "Nelson." Here is a telegram with reference to the "Bowen" which can be put in as evidence. As showing how our coal compares with Scotch coal, I may state that four months ago the ship "Dunedin" came to Port Chalmers with refrigerating machinery, the ship "Nelson" brought out 400 tons of Scotch coal to work the machinery on the way home, but she came a few days late, and they had to take a lot of Westport coal to keep going; they were so satisfied with it that they put all the "Nelson's" Scotch coal ashore and took Westport instead.

200. Supposing a certain expenditure were made by the Government, is your Company prepared to guarantee an output, and to what extent?—I may mention that yesterday Mr. Burns (who also represents our company) and myself waited on the other company, the Koranui, which is likely to be at work presently, and we came to a joint arrangement that the two companies would be prepared, if vessels drawing 16 feet 6 inches can be admitted, to guarantee an output of 300,000 tons per annum.

201. The royalty is 6d per ton?—Yes; that would give £75,000 a year

202. Which would be 7½ per cent. on £100,000?—Yes; or to put it in another way 5 per cent on £150,000.

203. Supposing you did not succeed in putting out that amount, you would pay the difference?—We would pay the royalty on that amount, which would be a guarantee. If the works are proceeded with, the Company I represent will proceed at once with additional works capable of bringing the output to 500,000 tons a year. I think that is a sufficient guarantee of good faith. We have the plans ready now and are only staying our hands to see whether anything is likely to be done to the harbour, because manifestly it would be unwise to erect works for 500,000 tons when we have only facilities for sending away 60,000 tons.

204. It has been said that to get colliers suitable to the trade would be better than deepening the the bar?—That might extend the trade in New Zealand, but it would be at the expense of other local companies here. There are complaints now from those upon whom we are encroaching. But it is utterly impossible to build steamers suitable for the present bar, and at the same time suitable for the inter-colonial trade. They could not be made large enough to pay. We want steamers carrying 1,500 to 2,000 tons to go across to Melbourne and Adelaide. With the present bar whatever vessels could be obtained would be confined to the New Zealand trade.

205. Of course, as long as the intercolonial trade is not available, you are competing with other New Zealand companies?—Yes, if the bar were deepened to the extent I have stated, a large number of home vessels would take Westport coal instead of going in ballast to Newcastle and taking coal thence to India and San Francisco. With an increased output we should increase our staff of men. We employ 120 men in the mines now, and about 70 in the steamers.

206. How many would you be likely to employ if you had the large trade you mention, supposing the bar were deepened?—With an output of 500,000 tons, we should employ at least 1,000 men in the mines, that represents between three and four thousand persons including their families, say 3,500. It is unnecessary to point out, that providing labour for a number like this, means a large increase to the Government revenue, besides the royalty, because these people would want to be fed, and would consume dutiable foods.

207. Supposing the Government were to increase the depth on the bar, what is the Company prepared to do in the way of increasing their shipping, and what guarantees would you give that you would increase it?—The Company do not expect to require to increase their shipping very much, because we have promises from the largest steamship carrying companies in Australia that they will send their vessels as soon as the harbour is improved—Simpson and Son, Harrold Bros., the South Australian Coal Company all of Adelaide, and several companies in Melbourne, all promise to send steamers as soon as we tell them there is water sufficient. In addition to that, Captain Stephens, who is managing director of one of the largest line of steamers in China, also promises to send his vessels to Westport. He has one steamer, the "Crusader," going regularly to Newcastle alone, and he was very anxious, twelve months ago, to send her to Westport for coal, she could carry 1,500 tons on 15 feet draft. The Company would however, if needed, provide the bottoms to meet whatever demand might arise.

208. *Mr. Macandrew.*] What is your principal market at present?—All over New Zealand—Wellington, Port Chalmers, the Bluff, Lyttelton and Auckland.

209. What is the price of coal free on board?—12s 6d now, but most of our contracts have been at 1s. less.

210. What is the price at Newcastle?—10s.

211. You get 1s 6d more?—1s 6d more on contracts and 2s 6d more on open sales. We put up the price because we could not meet the open demand. The price would be much reduced to the public if there was a decreased cost of carrying the coal to market through harbour improvements, and the larger the output the cheaper the price at which we could deliver the coal.

212. In the event of the bar being deepened to allow large vessels to go in, your price would be regulated by the price of Newcastle coal?—For steam purposes, but not for gas purposes. The contract offered us would have left us a very good price, and fair rates for shipping.

213. The price you get here is 11s 6d; what is the price of foreign coal?—We get a larger price than Newcastle for several purposes. It is admitted by the Union Company and others that our coal is 15

Mr. Dickson. 21st June, 1882.

per cent more economical for steam purposes. It is a much better gas coal than Newcastle, but not quite so good as Greymouth.

214. *Mr. Allwright.*] My experience does not carry out that?—I think the best criterion of the value of our coal for gas purposes, is the important fact that the Melbourne Gas Company are not merely willing to contract for our coal, but to alter their plant to suit it.

215. Could you get a greater price than Newcastle in a foreign market?—We could get 11s 6d as compared with 10s for Newcastle for steam purposes, because of the greater economy in space, labor handling, and quantity used of our coal.

216. *Mr. Macandrew.*] A large portion of our foreign market would be the ships going to India and San Francisco, as it would be more convenient for them to go to Westport than to Newcastle.

217. If the foreign demand were as great as you could deal with, you would not trouble the home market?—Our object is to sell the coal at Westport, if we can. We do not wish to undertake the work of carriers unless it is necessary. I may say that several steamers have been ordered for the home trade.

218. You have referred to a copper ore company. What did you say in regard to them?—I have been in communication with some capitalists in Adelaide who own copper mines, and they would be willing to erect smelting works at Westport and smelt the ore there, as we could give them small coal at a low price for the purpose.

219. Have you any idea of the extent to which this would be carried on?—No.

220. Did I understand you to say that the want of rolling-stock diminishes your output now by 100 tons a day less than you otherwise could put out?—Yes; from that and want of sufficient accommodation in the staithes, but I may say that the Government engineers recognise fully the necessity of increasing the staith accommodation, and I believe that the Public Works Statement will contain a recommendation to the effect that the accommodation should be increased.

221. Suppose you took over the works yourselves in consideration of getting a rebate on the royalty, who would have the control of the harbour?—I do not think we could do anything unless we had control of the harbour. If the Government were to give us a rebate of the royalty, the Company might be prepared to raise the money, or if a Trust should be formed to do the work and control the harbour, and that Trust issued debentures, our Company would be quite willing to purchase the debentures to the extent of £50,000. I may say that our articles of association would prevent us spending money on the harbour unless we had the control of it. If any outlay the Company made on the harbour could be guaranteed to be returned to us, together with reasonable interest, we would be quite prepared to undertake the work, but it would be much more satisfactory to both the Government and the Companies if the former could see their way to find the money and do the work. If we obtained possession of the railway under reasonable restrictions as to the price we should charge to the public, it would place us in a different position, and we could carry the coal at a minimum price.

222. Have you had any conference with the Koranui Company with regard to joint action in the event of the Government declining to do anything?—No. If the Government will not do anything in the matter, we shall simply have to stop our hands—that is to say, we shall have to confine our operations to their present limit. If the Government do nothing it will prevent a large trade being opened up, which it would certainly be if the harbour were improved.

223. Have you any idea as to the amount of money that would be required to be spent in order to get the necessary depth of water on the bar?—I cannot say, from professional experience, but the two telegrams, one from Mr. Macgregor, C. E, Dunedin, the other from Mr. Proudfoot which I now hand in may throw some light on the subject. (Telegrams read, with statement attached. *See* Appendix.)

224. What is the extent of the lease of Cable and Drummond?—3,000 acres.

225. In your memorandum to Mr. Macandrew, you state that in the course of conversation with Mr. Blackett, that gentleman stated that a fraction of one penny per ton would cover the interest on the money expended?—Yes; he stated that the whole work could be done for a fraction of a penny per ton on the whole of the coal in the Company's lease.

226. When did Mr. Blackett make that statement? — Last August. He informed me that he had recommended the Government to put a much larger sum than £2,000 on the estimates for the purpose of developing this work, and he called my attention to the fact that a penny, or less than a penny per ton would cover the whole cost.

227. *The Chairman.*] One penny per ton on 100,000,000 tons would give about £400,000 would it not?—Yes.

228. *Mr. Macandrew*]. It has been stated that an outlay of £50,000 would suffice to give an increased depth of water to the extent of 2 feet on the Buller Bar. Can you supply the Committee with any professional opinion worth having to that effect?—That statement was the result of a conversation which I had with Mr. Macgregor on the subject. He said that in his opinion the carrying out of the inside wall would give an increased depth. I may say that if the two companies guarantee an outlay of 300,000 tons per annum it means the payment of interest on £150,000.

229. How could a guarantee be made that the Companies could put out the proper quantity of coal required, or that they could pay the royalty?—The best way would be to make a fixed rent proportionate to the amount of the guarantee. If we could get a depth of 18 feet certain on the bar we could give a substantial guarantee for the payment of the interest.

230. You have stated that in the event of the harbour being deepened your Company would construct additional works which would enable you to put out half a million tons a year?—Yes, and those works would cost us £70,000 or £80,000.

231. *Mr. Allwright.*] What is the consumption of coal in New Zealand?—About 500,000 tons per annum, but it is increasing at the rate of from 25 to 50 per cent per annum.

232. *Mr. Macandrew.*] What are the collieries with which you have come into contact?—The Bay of Islands, the Kaitangata, Shag Point, and the Canterbury collieries.

233. How much coal does the Union Steam Shipping Company take from you?—About 1,600 tons per month. I may mention that Mr. Mills, the Managing Director of the Union S.S. Company, told me

the other day that his Company intended ordering large steamers for the Westport coal trade as soon as they knew that the harbor was to be improved. *Mr. Dickson.* 21st June, 1882.

THURSDAY, 22ND JUNE, 1882. (Mr. MUNRO in the Chair.)

Mr. A. J. BURNS, examined. *Mr. Burns.* 22nd June, 1882.

234. *The Chairman.*] You are one of the Directors of the Westport Colliery Company?—I am.

235. The object of this Committee is to ascertain what action should be taken in order to improve the Westport Bar, and increase the facilities for shipping goods from the Westport Harbour. It has been proposed that the coal companies interested should guarantee a certain rate of interest on an expenditure of, say, £150,000. Would you inform the Committee as to the nature of the guarantee your Company would be prepared to give?—The two Companies would be prepared to give a guarantee that they would put out 300,000 tons of coal per annum.

236. And the royalty on that at 6d per ton would be between £7,000 and £8,000?—Yes; it would be a substantial guarantee. We could guarantee to put out that quantity provided that vessels of 16 or 16½ feet draught could go in and out on all tides.

237. What additional works would you propose to carry out if the Government agreed to spend the money necessary to deepen the bar?—We would be prepared to construct works which would enable us to put out 500,000 tons of coal per annum.

238. You have resided in Westport for some time?—Yes.

239. What is your opinion about the bar?—When I lived there I was General Manager of the Company as well as a Director, and it was part of my duty to report to my fellow directors respecting these matters. On one occasion I requested the Harbourmaster to take me out with him on the bar, and we went out at dead low water. I took with me some rough boring apparatus for the purpose of ascertaining what the bottom consisted of. I drove an iron rod about 8 feet into the bottom. The first 18 inches consisted of hard pure sand, and then the rod went down for a couple of feet without much difficulty. I then drove to the bottom very easily. I then came to the conclusion that the bar could be deepened by several feet. I came to the conclusion also that the bar was simply a sand-bar. There is occasionally a small deposit of gravel on one side of the channel—I think it is the east side—but that is purely on the surface, and evidently has been left there by floods.

240. *Mr. Fish.*] How would you propose to remove that crust?—By harrowing it, as was done in the inner bar of Otago Harbour. I am confident that an improvement could be made in the harbour by harrowing. It is a well-known fact that when a vessel happens to ground on the bar she manages to make a bed for herself. I am of opinion that the bar could be easily removed.

241. *The Chairman.*] Are the present facilities for shipping satisfactory to the Company?—No; they are not sufficient. The upper wharf would have to be extended, and additions made to the staith accommodation. Eventually, as the trade increased, hydraulic cranes would better suit the requirements of the trade than the present system of shipment, but additions to the present staiths would give increased facilities at small cost.

242. *Mr. Levestam.*] As far as your Company is concerned, would it be willing to undertake the work for an abatement of the royalty?—No; I think not, because our articles of association would not allow us to do so. The harbour would require to become our own property for a term. I am convinced that it would be better for the Government and the Companies if the former found the money and did the work.

243. How many men are employed by your Company now?—About 120 at the mine, and about 70 on board the steamers.

244. How many more would be required to put out the large quantity of coal you have mentioned?—About 1,000. This would represent a population of about 4,000.

245. *Mr. Fish.*] What amount of revenue would go to the railway if you were putting out 500,000 tons of coal per annum?—The Railway Department at present get 2s. 6d. per ton. I will add that there is no business man who cannot see that if this trade is opened up it will be a paying thing for the country.

246. *Mr. Macandrew.*] It has been stated in evidence that your Company would have sent away 100 tons of coal per day more than they have done if the railway had been able to carry it?—Yes; that is the fact. We could have done that if the Railway Department had furnished us with the rolling-stock.

247. And the consequence is that the Railway Department has lost £12 10s. per day, while your Company has lost the profit you would have got on 100 tons of coal per day?—Yes; but the present Minister of Public Works has now promised that we shall have plenty of rolling-stock.

248. Would your Company be prepared to work the railway, paying a rental equivalent to the interest on the money which the Government had already expended at Westport, and subject to such restrictions as to the rates of fares to be charged as the Government may stipulate?—We would. The line should be handed over to us in good condition, and we would return it in the same good order and condition.

249. You said your articles of association would preclude you from undertaking the harbour works yourselves?—Yes; unless you can give us possession of the harbour.

250. Suppose there were any difficulty in the way of the Government expending money on the work, do you think that your Company, in conjunction with the Koranui Company, would be prepared to spend their own money on condition that the railway charges were reduced or modified?—I know we would be prepared to advance money on debentures issued by the Government. Before finally answering that question, however, I should like to consult my brother directors. We have always been exceedingly willing to meet the Government fairly, but I think it would be better for all concerned if Government would construct the works. I would say, too, that we see a market for 500,000 tons per annum if we could get the coal away from Westport.

Mr. Burns. 22nd June, 1882.

251. Your Companies are prepared to give a guarantee to pay a royalty upon 300,000 tons, which at 6d per ton would amount to £7,500 per annum?—Yes.

252. So that the Government would be in possession of £7,500 as a certainty, and the railway haulage rates as well, there being a probability that they would receive a royalty, and haulage rates on 200,000 tons more.

253. *Mr. Fish.*] You guarantee an output of 300,000 tons, which would yield to the Government a sum of £45,000, including the haulage?—Yes, at present railway rates.

254. But you have no hesitation in expressing your strong conviction that your output would be 500,000 tons instead of 300,000 tons, which would yield to the Government £75,000 instead of £45,000 per annum?—Yes; provided we have the necessary depth of water on the bar.

255. *Mr. Fish.*] What is the capital of your Company?—£400,000.

256. *Mr. Macandrew.*] From your knowledge of Westport Harbour, do you think you could say the expenditure of £50,000 would greatly improve the harbour in the way of increasing the depth?—Yes, I believe it would give us the water we want. At present we have 16 feet on the bar, but we cannot depend upon that. I may say that the wall already erected so far has done good service. Our Company has perfect faith in the concern, and will go as far as our articles of association will allow us.

THURSDAY, 6TH JULY, 1882. (Mr. MUNRO in the Chair.)

Dr. HECTOR, examined.

Dr. Hector. 6th July, 1882.

257. *The Chairman.*] The Committee, Dr. Hector, wish to get information from you as to the extent of the Buller Coal Field?—It has been estimated from the surveys that there are 140,000,000 tons.

258. *Mr. Macandrew.*] We understand that there has been additional information from subsequent surveys, which alters that estimate?—I understand it is reported that the enormously thick seam on one part of the plateau, which was supposed to be 53 feet thick, has proved in one place to be considerably less. Still, the margin that was allowed in making the estimate of 140,000,000 tons would quite cover that, and there would be no deduction required from this estimate. That estimte isa of the coal on the Mount Rochfort Plateau, extending from Ngakawau River to the Buller River over Cascade Creek, and between the Sea Coast and Mount William Bay. This is the amount of coal proved to be there, from actual surveys; it is no mere estimate from isolated observations. In arriving at that result, all blocks of barren ground in the area were left out. The amount was arrived at from measuring observed sections of the seams, and several hundreds of these sections were made in order to get the information in such a form as to be a reliable basis for future expenditure.

259. *The Chairman.*] Is there not an extension of the coal field on the south bank of the Buller?—Yes; recent surveys tend to show that the coal field at Reefton will extend over the whole of the upper part of the Inangahua Valley. The seams rise on the hills in the Taparoa Range in the direction of the Blackwater and the Ohika Creek. Although we had expected that the coal extended in that direction, it had never been sufficiently surveyed to put it on the maps, so that now we shall have to show on the maps a largely-extended area of the coal formation in this district, but as this has not yet been done, I cannot put a map showing it before the Committee.

260. *Mr Macandrew.*] Your estimate of 140,000,000 tons is based upon actual surveys?—Yes.

261. But it is quite possible the amount may be much beyond that?—That estimate is for only a certain portion of the field. The coal area is much more extensive than that, the coal area extends from the Raramea to Greymouth, and it probably goes inland to the source of the Inangahua.

262. Do you know what is the total area of the Buller Coal Field. I see here in a document it is stated to be 129,000 acres?—The Buller Coal Field, if the term is to be applied, will extend to all this new area I have just spoken of

263. What, I should like to know, is the total area of coal-bearing ground to which the Harbour of Westport will be the outlet?—That would depend altogether upon what might be done to provide land communication with the Grey River. If you take the natural outlet, then the Inangahua is a tributary of the Buller, but at the present time the communication with that district is principally down the valley of the Grey.

264. Well, can you say the total area for which Westport will be the probable outlet?—I think for any connection with the Upper Buller country it will be necessary to make connection through the Buller Gorge. If that is done, then Westport would be the best outlet for the whole of this upper country.

265. What would then be the total area?—The mine surveys considerably more than double the area of the coal formation, but I have not yet sufficient information to say what is the actual amount of coal in this extended area.

266. What is its proportion to what has been surveyed?—I think less than half, or perhaps only about one-third of the coal formation for which Westport might be the outlet has been surveyed—that is, not including the Grey field at all.

267. The area surveyed is estimated to contain 140,000,000 tons?—Yes; that includes about one third of the coal formation, the outlet of which would be the Buller. I may say that up to the present time the estimates have not been found erroneous in any way.

268. *The Chairman.*] The Blackwater is a tributary of the Buller?—Yes; so is the Inangahua. At the present time of course there is abundance of coal within easy reach of Westport.

269. You know the overflow at Snag Falls?—Yes.

270. What is your opinion of the cause of the accumulation there?—Originally there was a natural pier-head down at the mouth, composed of snags brought down and shingle thrown up by the sea, both being mixed and hardened by the action of the sea. On that the original township was built. The fairway of the tide is now where actually the town first stood. The miners found it easier to dig out the wood for firewood than fetch it from the bush; and channels were cut in this natural pier-head to get several vessels that went ashore into the river. The result was, that this natural pier-head was cleared away

Dr. Hector.
6th July, 1882.

and the tide now runs further up the river than before. The accumulation at Snag Falls is caused by the tidal waters checking the floods as they come down the river, that is, at the limit of the tide flow. The snags brought down the river, and the shingle thrown up by the tide, raise a barrier there that causes the river to break its banks, and there is an overflow into another creek called the Orawaite. Leaving that accumulation would be dangerous, because if the river were to follow a new channel, any works at the mouth would be entirely thrown away. I have talked with several engineers on the subject. I think that it is the most important point in the Buller harbour works that provision should be made to keep a channel clear for the tide, and to let it run up as far as possible, but take care that it does not cause an accumulation at its turning-point. At Snag Falls an attempt has been made to build dams to keep the river in check, but I do not think that will be a permanent success. It would be better to make a good delivery channel. You might employ the accumulation there to make good the banks, or what would be better, in reclaiming some low ground there. Of course there would be a considerable first expenditure to clear the channel, and it would be necessary to devote an annual sum to keep it clear. I think that would do more good than expenditure in any other way. Of course the expensive works proposed by Sir John Coode are merely to do in a more perfect manner what was done before by the action of the sea and river, in making a pier-head. I think with clearing the falls, you would have the original depth on the bar.

271. *Mr. Macandrew.*] What was the original depth?—They used to have 17 or 18 feet at times.

272. *The Chairman.*] This fall prevents the proper flow of the river?—Yes; the accumulation keeps on increasing.

273. *Mr. Macandrew.*] It would be a continuous work to keep it clear?—Yes; it would be a slight constant expenditure. It would be like the case of the Waimakariri. Many years ago they were going in for a large expenditure for works there when I suggested that they should plant willows and keep constantly pottering at it. That has been done and the continued expenditure has been less than the interest on the proposed expenditure would have been. This case is a similar one, and I think all our New Zealand rivers should be dealt with in a pottering way like that, rather than going in for big expensive works.

274. Then you think if the falls were done away with the natural depth at the mouth would be increased to 17 feet?—Yes; in time. You could not afford to wait until the natural pier head was again formed. You would have to incur some expenditure for works at the mouth, but I think any expenditure there might be thrown away unless you first did the work at the falls.

APPENDICES.

No. 1.

MEMORANDUM by Mr. DICKSON, General Manager.]

Westport Coal Trade.

GOVERNMENT originally bound this Company down to spend £10,000 in the field, and promised Company a railway carriage rate of 2s per ton to the port.

Instead of £10,000 the Company spent £60,000, and in the face of almost insuperable difficulties brought the coal into the market.

As soon as the Company had completed the works and brought the coal to market, the Government refused to implement the promise as to rates, and compelled the Company to pay 2s 6d haulage in addition to a royalty of 6d per ton.

As a result of this payment, out of every three tons of coal the Company raise, the Government receive one ton. The distance hauled is under 12 miles.

The Government seven or eight years ago spent over a quarter of a million of money in constructing a railway seventeen miles in length (with shipping appliances) on which there is not now, and never can any be, traffic save coal. At least five-sixths of the whole coal trade from Westport will be done from the Company's mines.

It will thus be seen that from the excessive royalties, &c., the Government exact from the Company, and the large amount of public money invested in the Westport Railway, that the colony is deeply interested in the successful prosecution of the Company's operations.

The Company's operations are now being conducted at a profit, but the business done is to a great extent derived from successful competition with other New Zealand colleries. This is in consequence of the harbour bar at Westport not having sufficient depth of water to permit the development of the large export trade otherwise open to the Company and which would absorb the whole of the Company's output.

The Company have given the Government ample proof that an export trade of half a million tons from Westport could be reached within two years if the harbour was deepened sufficiently to permit of the free egress of vessels drawing 16ft. to 16ft. 6in. loaded. They have had to decline one contract for Melbourne of 70,000 tons, and to refuse the most pressing invitation to quote for another Victorian contract of 150,000 tons. Orders have actually been promised in Australia for 250,000 tons per annum as soon as the harbour is deepened as above, while liberal offers of support have been received from Mauritius, China, San Francisco and India. 800,000 tons English coals were imported to India last year, the bulk of which was for gas purposes, and a large portion of which would be taken from Westport.

It is unnecessary to allude to the quality of the coal, that has been established beyond a doubt. It need only be mentioned that it stands unrivalled for steam purposes; having been exchanged on the ship "Dunedin" for refrigerating purposes for Scotch coal specially imported by the "Nelson." Large consumers testify that it is 15 per cent. more economical at the same price than Newcastle coal.

That the harbor can be improved to allow of the development of this large export trade, is admitted by all harbor engineers competent to form an opinion, who agree as to the mode of operations, and also as to the comparatively inexpensive character of the works required. Mr. Blackett, the Government Engineer for lighthouses and harbours, states that the whole work could be done for a fraction of a penny on each ton of coal in the Company's leases. Seeing the Government are getting 6d per ton royalty in addition to nearly 1s 6d per ton profit on the working of a railway, otherwise useless, there should be the less hesitation in proceeding energetically with the needed works.

At present the Company's output is at the rate of 60,000 tons per annum. The Company would be prepared, if sufficient water provided on the bar, to guarantee an output of at least 250,000 tons per annum. At 3s per ton this would yield an annual revenue of £37,500 or £25,000 clear profit on railway, without taking into consideration the addition to customs dues, port dues, postal and telegraph services, which would necessarily accrue from this extended trade. To put it in another way, the purely mineral railway, such as the Westport line, could be worked at a profit on present rates of 1s 6d per ton, and with 6d royalty this would yield £25,000—about 11 per cent on the money actually expended on railways, harbour, shipping appliances, and public buildings in Westport up to the present time. This sum of £25,000 earned in one year would, it is estimated, be sufficient to improve the harbour to the extent required.

That an expenditure on harbour works by the Government would be wise, is apparent from the almost boundless character of the coal field. Works of the character required would be a good permanent investment on the part of the Government, and form one of the chief elements to which the country should in future look for defraying interest on the public debt.

It should be mentioned that certain Australian Copper Companies have made overtures to this Company to establish copper-smelting works as soon as suitable vessels can trade to the port.

The Company have expressed their willingness to assist the Government either financially or otherwise to carry out the necessary works, being indifferent to the means so long as the work is carried out, and recognising fully that while this question is one affecting their own interests, it is one in which the colony at large is still more interested.

I have, &c.,
W. Hay Dickson,
General Manager.

No. 2.

Telegram from Westport Colliery Company to Mr. Dickson.

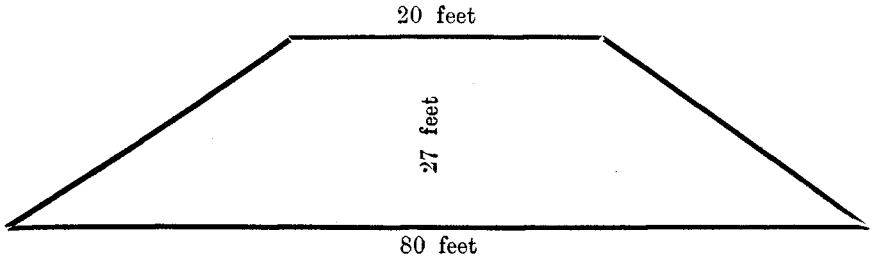
(Telegram.) Dunedin, 20th June, 1882.

Gibbs, Bright, and Co. want nine hundred tons coal for "Bowen," at end of the month.—Westport Colliery Company.

No. 3.

Papers relating to probable cost of Harbour Works at Westport.

Mr John McGregor, C.E., states the cost of a rubble mole at Oamaru of the following dimensions:—



at under £10 per lineal foot, and gives his estimate for Westport training-walls according to Sir John Coode's plan, but not his cross sections, at £15 per lineal foot, exclusive of haulage of stone over Government Railway from Fairdown Quarry. This will give the cost as

10,400 feet (two breakwaters) at £15	£156,000
As this is a Government work the haulage should not be reckoned, but supposing one shilling per ton to be charged (distance 7 miles) gives	44,000
	£200,000

David Proudfoot, contractor, Dunedin, states that for a rubble wall both north and south breakwaters constructed as above he would have no hesitation in undertaking the work at 7/ per cubic yard, finding all requisite plant. This would give cost as:—

500,000 cubic yards at 7/	£175,000

No. 4.

Westport Colliery Co. (Limited).

STATEMENT shewing Output from Opening of Works to 31st May, 1882.

				Tons	Cwt.	Tons	Cwt.
Wesport Colliery Co. Limited,—							
August 31, 1880	...	...	...	24	10		
September 30, 1880	...	...	...	378	16		
October 31, 1880	...	...	...	1,020	18		
November 30, 1880	...	...	...	1,386	7		
December 31, 1880	...	...	...	1,353	2¾		
January 31, 1881	...	...	...	1,860	10¾		
February 28, 1881	...	...	...	1,619	11		
March 31, 1881	...	...	...	2,302	3		
April 30, 1881	...	...	...	1,596	10		
May 31, 1881	...	...	...	2,592	15		
June 30, 1881	...	...	...	1,485	8		
July 31, 1881	...	...	...	2,566	12		
August 31, 1881	...	...	...	1,855	10		
September 30, 1881	...	...	...	2,279	15		
October 31, 1881	...	...	...	1,433	3		
November 30, 1881	...	...	...	2,440	3		
						26,195	14½
Westport Coal Co. Limited,—							
December 31, 1881	...	...	...	2,166	0		
January 31, 1882	...	...	...	3,021	6		
February 28, 1882	...	...	...	3,738	16		
March 31, 1882	...	...	...	4,532	6		
April 30, 1882	...	...	...	4,019	13		
May 31, 1882	...	...	...	4,752	15		
						22,230	16
Total Tons ...	...	...	...	...		48,426	10½

No. 5.

STATEMENT of MR. ROBERT GILLIES, Chairman Westport Colliery Company, Limited.

IN 1878 the Westport Colliery Company was formed for the purpose of amalgamating the numerous existing leases, and working the same. This was done at the invitation and suggestion of the Government of the day, with a view to the efficient working of the coal industry. Before the Company had committed itself in any way to any expenditure, or come under any obligations, they desired to obtain from the Government certain concessions and rearrangements in connection with the leases. Accordingly, in May, 1878, Mr. A. J. Burns and myself as the accredited representatives of the Company, proceeded to Wellington. We had repeated interviews with the Government, and received every encouragement from them to go on with our proposals. Promises of support and facilities for working and carriage over the railway and improvement of the port were freely made, the one anxiety and condition laid down then being, that we would really construct works and create a trade in the coal. The whole of the correspondence shows this clearly. We have more than fulfilled our part of the bargain as can be clearly shown. An agreement was drawn up dated 10th June, 1878, embodying the direct concessions made to us. By the eighth clause the Minister of Lands agreed to abandon the back rents on what was known as Webb's Lease, and to apply certain money paid in another direction. The Government subsequently compelled us to pay up these back rents, and a money loss was entailed on the Company of several hundred pounds.

All through the negotiations the Government and their officers over and over again intimated their intention of reducing the rates for railway carriage as soon as the traffic was begun. We wanted to get the rates fixed on account of our having to run over part of the Wellington Company's line, but we were told repeatedly that we had nothing to fear, that the maximun rate we would be charged was 2s per ton, and no terminal charges, and that we had nothing to do with getting the rates upon the Wellington Company's line fixed. So liberal were the promises held out as to reductions in the future below the maximium rate stated, 2s per ton, that we did not think it advisable or necessary to press this, and in fact began rather to fear that the railway rate might be made so low as to enable the Buller Company, which had not then amalgamated with us to compete with us, and hence sought rather to get a promise from the Government that no graduation of railway rates would be entertained by them. This was agreed to (*vide* Clause 11). As matters of fact we paid for two years the excessive charges on the Wellington line over and above the Government rates, and when we came to put down coal all we could get from the Govenment was a rate of 2s 6d per ton, including terminal charges, though we hold a letter of Mr. Werry's that no terminal charges would be made. We have paid 2s 6d per ton on all the coal we have hitherto sent along the railway.

Subsequent to the above, promises were made of any number of waggons to carry on the trade, but, as a matter of fact, these have not been kept, and the trade has been greatly impeded for want of proper, and sufficient number of waggons.

Last September the trade of the Company and the demand for the coal had increased to such an extent as to render it advisable for us to reconstitute the Company under the name of the Westport Coal Company, increasing its capital to £400,000 sterling. For that purpose I proceeded to Melbourne, and whilst there, was fully satisfied from many quarters that a trade of many hundreds of thousands of tons is open to us there whenever the harbour is so improved as to admit vessels drawing 16 feet of water,

entering and leaving. For instance, Mr Labortouche, Secretary for the Victorian Railways, though an utter stranger to me, sent me a note saying that as he heard I was connected with the Westport Company, I would oblige him by calling on him. I waited on him, when he told me that the railway authorities were fully satisfied our coal was the best for their locomotives, that the Newcastle was inferior, and they had great difficulty in getting what they required, pressed me to tender for their contracts, and assured me the Government would stretch the point to give us a contract for 150,000 tons. I told him frankly we could do nothing till Westport Harbour was deepened by the Government, so as to get vessels of 1,000 tons in. He still pressed me, offering to subdivide the contracts down to 20,000 tons, if we would only let them have the coal. I told him we had any amount of coal, but our difficulty was bottoms, he then offered to vary the specifications, so as to take delivery at Westport Wharf. This, I said, would suit us, but I warned him that the difficulty of getting vessels to go there would be as great for them as for us, and I was afraid nothing could be done notwithstanding this; the Victorian Government actually advertised over here in New Zealand for tenders, offering to vary the contracts from 150,000 tons to 20,000 and giving the alternative of supplying it on Westport Wharf. Of course it came to nothing, but it shows their extreme anxiety to get our coal.

At the same time, the various gas companies in and around Melbourne all urged us to supply their wants, and promised to take now any cargo of coal we liked to send over at any time. The Victorian Government also reserved this right in their contracts, and are ready now to take any shipments of coal we could send them, irrespective of existing contracts. The strong desire of manufacturers, and large consumers of coal in Melbourne and in Adelaide to get our coal, aided us very materially in getting the large capital required so readily subscribed. In the month of March last, Mr Bend, the Chairman of the Metropolitan Gas Company, Melbourne, came over to Dunedin, and called on me for the purpose of seeing if he could not make any arrangements for the supply of our coal. We talked the matter over, and he offered us a contract of 80,000 tons, at a remunerative price. We were compelled to decline it on account of not being able to get vessels drawing 16 feet of water over Westport Bar, and told him the best thing he could do would be go on to Wellington and interview the Government on the subject. This he did, and I believe Mr Hall was very much impressed with the urgency of his suit.

When in Melbourne, Captain Stevens, the General Manager of the Eastern Steam Navigation Company, told me that if we got 16 feet of water on Westport Bar, they would send their own steamers for our coal. The Chinese coal, he said, was very inferior, and ours was so much superior to Newcastle as to more than make up for the little extra distance.

Many shipmasters (such as Captain Logan) have told me that if there were 16 feet of water on Westport Bar, many of the numerous vessels which now leave here in ballast for Newcastle to load up with coal for San Francisco and elsewhere, would load up at Westport instead.

The Company have had plans and surveys made for opening up the 53-feet seam of coal at Granity Creek, at a cost of nearly £60,000 sterling, and capable of putting out 300,000 tons, and with the existing Waimangaroa works, of 500,000 tons per annum. This the Company are prepared at once to enter upon if the Government undertake to so improve the harbor as to admit of vessels drawing 16 feet 6 inches entering. Most of this would be export trade.

The Company has six steam vessels now employed in their trade. Two new steamers of 600 tons burthen each have been contracted for, and one of them is now in the water, the other is building—there are other new steamers also building specially for this trade.

The coal is unrivalled as a steam and gas coal, and for household consumption is greatly preferred whenever obtainable.

I believe the future export trade of this coal is simply limitless, and that there is no shadow of a doubt as to the magnificent returns this coal field will yet give to the colony in many ways. The only limit to the extension of this trade is the amount of money the Government see fit to expend in improving the harbour, and the very highest estimate of the cost of that will not be a fraction percentage on th returns which will come back into the coffers of the colony.

ROBERT GILLIES,
Chairman Westport Coal Company.

No. 6.

New Zealand Railways.

RETURN of Tonnage and Dues Collected at the Port of Westport during the Year ended 31st March, 1882.

IMPORTS.			EXPORTS.		
Description.	Tons.	Amount.	Description.	Tons.	Amount.
		£ s. d.			£ s. d.
General Goods ...	4,139	398 7 10	General Goods ...	608	73 9 5
			Coal	28,278	Free.
Total	4,139	398 7 10	Total	28,886	73 9 5

Railway Department,
Head Office, Wellington, 29th June, 1882.

No. 7.

HEIGHTS OF TIDES, BULLER BAR.

Month, 1882.	Springs. Feet.	Inches.	Neaps. Feet.	Inches.
January	13	6	11	0
February	13	3	10	9
March	13	6	10	9
April	13	0	11	0
May, 1st half	11	2	10	2
May, 2nd half	14	6	12	2
June 9	...		13	0

No 8.

MR. THOMAS MACKAY to CHAIRMAN WESTPORT COAL TRADE COMMITTEE.

SIR,— Government Buildings, Wellington, 7th July, 1882.

I have the honor in reply to your letter of 1st instant to inform you that the total receipts from the lands comprised in the 3rd and 4th Schedules to the "Westland and Nelson Coal Fields Act, 1877," up to 31st March last, amount to £8,491 4s 9d. I can only furnish the return in this form, as the Treasury does not seem to have kept separate accounts for each reserve.

I have, &c.,

THOMAS MACKAY,

Agent for Coal Fields.

By Authority: GEORGE DIDSBURY, Government Printer, Wellington. 1882