1873.

NEW ZEALAND.

COLONIAL INDUSTRIES,

(REPORTS OF THE SELECT COMMITTEE ON).

Final Report brought up and ordered to be printed, 23rd September, 1873.

ORDERS OF REFERENCE.

Extracts from the Journals of the House of Representatives.

FRIDAY, THE 18TH DAY OF JULY, 1873.

Ordered, That a Committee be appointed to recommend what steps, if any, should be taken to ascertain and develop the producing and manufacturing resources of the Colony; the Committee to have power to confer and act with any similar Committee of the Legislative Council on the same subject, and to make either a joint or a separate Report; the Committee to have power to call for persons and papers; three to be a quorum. Such Committee to consist of the following members: the Hon. Mr. Richardson, Mr. Seymour, Mr. O'Conor, Mr. J. Shephard, Mr. Bryce, Mr. Carrington, Mr. Taiaroa, Mr. Steward, Mr. Webb, and Mr. Murray.

THURSDAY, THE 31ST DAY OF JULY, 1873.

Ordered, That the number of the members of the Industrial Committee be increased to eleven, and that the name of Mr. Sheehan be added thereto.

TUESDAY, THE 30TH DAY OF SEPTEMBER, 1873.

Ordered, That the Petition of Albert Beetham be referred to the Colonial Industries Committee, and that the Committee be authorized to sit again, in order to consider the Petition of Albert Beetham.

REPORT No. 1.

Buller Coal Fields.

THE Colonial Industries Committee desire to present an Interim Report with regard to the management and disposal of the Buller Coal Field Reserve.

Your Committee recommend that, in view of the large expenditure contemplated by the Colonial Government for the development of the Buller Coal Field, the Government should take such steps as may be necessary, without delay, to vest the control and management of the Buller Coal Field Reserve jointly in the Colonial and Provincial Governments.

WM. ARCHD. MURRAY,
Chairman.

5th September, 1873.

REPORT No. 2.

THE Colonial Industries Committee have the honor to report, that with the view to utilizing the valuable Coal Fields of the Buller with the greatest advantage, both immediate and prospective, the Committee took a large amount of evidence (appended hereto), and, after careful consideration of such evidence, have arrived at the following conclusions:—

1st. That a railway can be made from Westport to Waimangaroa in from five to six months, at a cost of £8,000, exclusive of permanent way; and that, without improvement of the harbour of Westport, coal could be at once shipped from this railway.

That a branch line of about one mile in length, which would also be available for bringing down coal, would connect the railway with large quantities of stone suitable for constructing the harbour works at Westport.

That the whole railway could be completed to Ngakawau within nine months.

That the harbour works at Westport, as recommended by Mr. Higginson, and approved by Mr. Carruthers, are likely to be permanent and efficient.

2nd. That the part of the Ngakawau harbour works, as proposed by Mr. Beetham, would cost not less than £20,000, and would require at least twelve months to complete; and that it is doubtful if an available port can be made there, even at an enormous cost. (The Committee desire to call special attention to the valuable evidence of Mr. Higginson on this point.)

That, even with a view of meeting immediate requirements, the advantages presented by the Ngakawau are not equal to those which Westport offers; while as the permanent outlet to the Buller Coal Field, Ngakawau is decidedly inferior.

The Committee, therefore, cannot concur in any recommendation for expenditure at the Ngakawau.

The Committee recommend, that, in the first instance, the railway should with the utmost expedition be pushed forward from Westport to Waimangaroa, and that steps should be taken contemporaneously, by which supplies of coal may be ready for transit by the railway when completed.

WM. ARCHD. MURRAY,
Chairman.

11th September, 1873.

REPORT No. 3.

YOUR Committee having carefully considered the subject remitted to it, have the honor to report, in continuation of former Reports,—

On Coal.

Your Committee are gratified to find that the importance of this great source of national wealth is now being recognized, and that in Otago and Canterbury, by the construction of railways, the vast deposits of coal suitable for domestic and mechanical purposes will be rendered cheaply available; whilst the Province of Auckland, it is to be hoped, by the early completion of the Kawa Kawa or other Railway, will be also cheaply supplied, for on this much of the prosperity of the Thames Gold Fields depends.

On Fish-curing and the Manufacture of Sugar and Paper.

Your Committee have nothing further to add to the recommendation of the Committee of last year.

On the Introduction of Salmon and Trout.

Your Committee received the voluminous papers on the subject of the introduction of salmon and trout from Government at so late a period of the Session as precluded that careful consideration which would justify a report thereon; but your Committee recommend to the consideration of Government the paper by Mr. Butt appended hereto.

On Conservation of Forests.

Your Committee recommend that the Government should invite the various Provincial Governments to consider how best to prevent the wasteful destruction of the forests of the Colony, and to supply statistics and recommendations for the consideration of Parliament.

On Planting Trees.

Your Committee recommend that the Government should continue to procure considerable quantities of the most approved tree seeds, and should sell them at cost price to associations, nurserymen, and individuals; and should also, by way of experiment, procure seeds of the olive, hickory, and cork trees, for the growth of which a large part of the Colony seems well suited.

On Kerosene.

Your Committee recommend that a bonus on kerosene produced within the Colony be offered to the extent of sixpence (6d.) per gallon up to fifty thousand (50,000) gallons, payable on quantities of ten thousand (10,000) gallons at a time, to be sold at a fair average price, the quality being approved by the Government.

On Iron.

It is gratifying to your Committee to be able to report, that besides the deposits of iron sand at Taranaki, vast quantities of the best iron ore exist in many parts of the Colony, and in places convenient to excellent coal, and place of shipment. And your Committee, taking into consideration the value and importance of iron manufactures, recommend, that, subject to existing engagements entered into by the Government on the recommendation of the Committee of last year, a bonus be offered for the erection of a suitable blast furnace for the manufacture of pig-iron in an approved locality, such bonus not to exceed twenty-five (25) per cent. on the cost of erection, and not to be paid till the works are in full operation; bonus not to exceed five thousand (5,000) pounds sterling. And your Committee also recommend, that a bonus be offered for the erection of suitable machinery for the manufacture of bar and rod iron and rails, in an approved locality; such bonus not to exceed twenty-five (25) per cent. on the cost of erection, and not to be paid until the works are in full operation; total amount of bonus not to exceed five thousand (5,000) pounds sterling, and to be available for three (3) years.

Your Committee further recommend, that these bonuses should be in addition to any bonus or land grant given by any Provincial Government, and that the agents of the Colony in Europe should be instructed to encourage Co-operative Associations to come to New Zealand to establish these and other industries, by grants of free passages.

Your Committee would call attention to Mr. Mill's report (appended) as to the quality of New Zealand coal and iron.

Portland Cement.

Your Committee suggest for the consideration of Government, the advisability of the Public Works Department endeavouring to utilize the materials for the manufacture of Portland cement which exist in the Colony.

WM. ARCHD. MURRAY,
Chairman.

23rd September, 1873.

REPORT No. 4.

YOUR Committee having partly considered the Petition of Albert Beetham, request an extension of time to bring up their final report; they also request permission to sit during the sitting of the House.

WM. ARCHD. MURRAY,
Chairman.

1st October, 1873.

REPORT No. 5.

YOUR Committee, having taken evidence upon the matter submitted to them, recommend that the whole of the evidence hereto attached be printed.

1. That, to enable your Committee to come to a decision on the question at issue, it would be necessary to take further evidence, and to make inquiries which the time at its disposal would not permit.

2. That the evidence taken by your Committee shows that statements made by the petitioner, Albert Beetham, before it on the 25th of August last, as taken down by the short-hand reporter, were altered by the said Albert Beetham in several material respects, when delivered to him for signature, contrary to the orders of this House in that behalf.

3. That no action should be taken by the Government, based upon the evidence of Albert Beetham, without further independent inquiry being made by the Government.

WM. ARCHD. MURRAY,
Chairman.

2nd October, 1873.

MINUTES OF PROCEEDINGS.

WEDNESDAY, 23RD JULY, 1873.

PRESENT:

Mr. O'Conor,	Mr. Steward,
Mr. Murray,	Mr. Webb.

Order of reference read.

Moved by Mr. Steward, and seconded by Mr. O'Conor, That Mr. Murray be Chairman of this Committee. Carried.

Moved by Mr. O'Conor, and seconded by Mr. Webb, That the following subjects shall receive the consideration of this Committee; and that the order in which they shall be taken be left to the Chairman:—

1. Coal Fields.
2. Iron and other Minerals.
3. Sugar.
4. Paper.
5. Flax.
6. Timber and Planting.
7. Geological Department.
8. Woollen Manufacture.
9. Dye Stuff.
10. Mustard.
11. Linseed.
12. Preserved Fruits.
13. Glass Manufacture.
14. Chemicals.

Carried.

Moved by Mr. Steward, and seconded by Mr. O'Conor, That notice of any meeting of this Committee shall be given in the Order Paper for the day preceding, and also of the day on which such meeting is to be held: the subject to be considered to be stated. Carried.

The Committee adjourned *sine die*.

TUESDAY, 7TH AUGUST, 1873.

The Committee met pursuant to notice.

PRESENT:

Mr. Bryce,	Mr. Sheehan,
Mr. Carrington,	Mr. Steward,
Mr. O'Conor,	Mr. Webb.
Hon. Mr. Richardson,	

Mr. Murray in the Chair.

The minutes of the previous meeting were read and confirmed.

Letter from Dr. Pollen, dated 24th July, 1873, to the Chairman, informing him that papers relating to the action taken by the Government on the recommendation of the Select Committee of last Session on Colonial Industries, are in course of preparation, and will in a few days be laid before Parliament.

Letter from Mr. Graham, Chairman of "The Poverty Bay Petroleum and Kerosene Company (Limited)," dated Gisborne, 16th July, 1873, submitting that a bonus should be offered on the production of a stated quantity of rectified oil. (Appendix No. 1.)

Letter from Dr. Hector, informing the Chairman he could attend any day he wished.

Letter from Major Campbell, enclosing a treatise on the habits, cultivation, and propagation of the olive tree.

Dr. Hector attended before the Committee, and gave evidence on coal and iron. (Appendix No. 2.)

The Committee then adjourned *sine die*.

WEDNESDAY, 20TH AUGUST, 1873.

PRESENT:

Mr. Murray,	Mr. Webb.
Hon. Mr. Richardson,	

The meeting lapsed, there being no quorum.

MONDAY, 25TH AUGUST, 1873.

The Committee met pursuant to adjournment.

PRESENT:

Mr. Carrington,	Mr. Sheehan,
Mr. O'Conor,	Mr. J. Shephard,
Mr. Seymour,	Mr. Webb.

Mr. Murray in the Chair.

The minutes of the two last meetings were read and confirmed.

The Committee considered the subject of the Buller and Ngakawau Coal Fields.

Mr. Albert Beetham, Managing Director of the Albion Coal Mining Company, made a statement to the Committee, which was taken down in writing and ordered to be attached to the proceedings; he also produced to the Committee a letter from Captain Leech, Harbour Master at Westport, which is attached to the proceedings. (Appendix No. 3.)

Mr. Oswald Curtis, Superintendent of Nelson, made a statement to the Committee, which was taken down in writing and ordered to be attached to the proceedings; he also laid before the Committee a letter from Mr. Dobson, Provincial Engineer at Nelson, which is attached. (Appendix No. 4.)

The Committee adjourned till Thursday, 28th August, 1873.

THURSDAY, 28TH AUGUST, 1873.

The Committee met pursuant to adjournment.

PRESENT:

Mr. Carrington,	Mr. Seymour,
Hon. Mr. Richardson,	Mr. Webb.

Mr. Murray in the Chair.

The minutes of the last meeting were read and confirmed.

The Committee considered the subject of the Mount Rochfort and neighbouring Coal Fields.

A telegram from Mr. Acton Adams to the Chairman, dated 28th August, 1873, referring to the Albion Coal Mining Company's articles of association, is attached. (Appendix No. 5.)

Mr. John Blackett, Assistant Chief Engineer to the New Zealand Government, appeared before the Committee, and was requested to give his opinion as to the transit of coal for shipment from Mount Rochfort and back country.

Opinion taken down in writing, and attached to proceedings. (Appendix No. 4a.)

The Committee adjourned till Monday, 1st September, 1873.

MONDAY, 1ST SEPTEMBER, 1873.

The Committee met pursuant to adjournment.

PRESENT:

Mr. Seymour,	Mr. Steward,
Mr. Sheehan,	Mr. Webb.

Mr. Murray in the Chair.

The minutes of the last meeting were read and confirmed.

The Committee considered the subject of Petroleum.

Resolved, on the motion of Mr. Seymour, That a bonus on kerosene produced within the Colony be offered to the extent of 6d. per gallon, up to 50,000 gallons, payable on quantities of 10,000 gallons at a time, to be sold at a fair average price, the quality being approved by the Government.

The Committee adjourned till Wednesday, 3rd September, at 11 o'clock.

WEDNESDAY, 3RD SEPTEMBER, 1873.

The Committee met pursuant to adjournment.

PRESENT:

Mr. O'Conor,	Mr. Sheehan,
Hon. Mr. Richardson,	Mr. Webb.
Mr. Seymour,	

Mr. Murray in the Chair.

The minutes of the last meeting were read and confirmed.

Mr. Sheehan submitted to the Committee a letter from Mr. McKinny, of Mahurangi, on the subject of the cultivation of European flax, which is attached to the proceedings. (Appendix No. 6.)

After some discussion, it was resolved that an adjournment should take place in order to obtain information on the subject.

The Committee adjourned till 11 o'clock a.m. on Thursday, the 4th of September.

THURSDAY, 4TH SEPTEMBER, 1873.

The Committee met pursuant to adjournment.

PRESENT:

Mr. O'Conor,	Mr. Sheehan,
Mr. Seymour,	Mr. Webb.

Mr. Murray in the Chair.

The minutes of the last meeting were read and confirmed.

Dr. Hector appeared before the Committee, and made statements relative to European flax and Roman and Portland cements. These statements were taken down in writing, and attached to the proceedings.

Mr. O'Conor gave notice of his intention to bring forward the following motion at the next meeting of the Committee:—

1. That the great alteration that will take place in the value of the Mount Rochfort Coal Reserve, consequent upon the large expenditure contemplated by the Colonial Government for the development of that coal field, points to the necessity of some steps being taken to give the Colonial Government a voice as to its future disposal.

2. That with a view to giving practical effect to the foregoing resolution, this Committee present an interim report, recommending that the Government bring in a Bill to vest the Mount Rochfort Coal Field jointly in the Provincial and Colonial Governments, still leaving any revenue derived therefrom to be appropriated as at present.

The Committee adjourned till 11 o'clock on Friday, the 5th day of September, 1873.

FRIDAY, 5TH SEPTEMBER, 1873.

The Committee met pursuant to adjournment.

PRESENT:

Mr. O'Conor,	Mr. Steward,
Mr. Seymour,	Mr. Webb.

Mr. Murray in the Chair.

The minutes of the last meeting were read and confirmed.

Mr. O'Conor withdrew the motions of which he gave notice at last meeting, and having obtained permission to amend the second motion, moved its adoption in the following form:—

"That in view of the large expenditure contemplated by the Colonial Government for the development of the Buller Coal Field, your Committee recommend the Government to take such steps as may be necessary, without delay, to vest the control and management of the Buller Coal Field Reserve jointly in the Colonial and Provincial Governments."

Mr. O'Conor supported this motion by a statement and by reading the report of a Committee of Inquiry on the Mount Rochfort Coal Field Reserve, dated 17th June, 1873, as published in the *Nelson Colonist*, and hereto attached. (Appendix No. 7.)

The motion was agreed to.

Resolved, on the motion of Mr. Seymour, That an interim report be submitted to the House, embodying Mr. O'Conor's motion.

The Committee adjourned till 11 o'clock on Monday, the 8th September, 1873.

MONDAY, 8TH SEPTEMBER, 1873.

The Committee met pursuant to adjournment.

PRESENT:

Mr. O'Conor,	Mr. J. Shephard,
Mr. Seymour,	Mr. Webb.
Mr. Sheehan,	

Mr. Murray in the Chair.

The minutes of the last meeting were read and confirmed.

Mr. Mills, ironfounder at Wellington, appeared before the Committee and made a statement on the subjects of iron and iron ore, which was taken down in writing, when he was requested and consented to draw up a full report on these subjects, and others within his experience, for submission to the Committee on Monday, the 15th September.

The Committee adjourned till Wednesday, the 10th instant, at 11 o'clock.

WEDNESDAY, 10TH SEPTEMBER, 1873.

The Committee met pursuant to adjournment.

PRESENT:

Mr. Carrington, Mr. Seymour,
Mr. O'Conor, Mr. Webb.

Mr. Murray in the Chair.

The minutes of last meeting were read and confirmed.

A telegram from the Mayor of Westport to the Chairman, dated 10th September, was read, and ordered to be attached to the proceedings. (Appendix No. 8.)

Mr. H P. Higginson, Superintending Engineer to the Government, was in attendance before the Committee and gave evidence, which was taken down in writing, and ordered to be attached to the proceedings.

The Hon. Mr. Bonar, M.L.C., appeared before the Committee and gave evidence, which was taken down in writing, and ordered to be attached to the proceedings.

On the motion of Mr. O'Conor, *Resolved*, That the Reporter be called up to give evidence relative to alterations made by Mr. Beetham in his evidence.

The Reporter was accordingly called before the Committee, and he stated that the report in shorthand, of Mr. Beetham's evidence, as taken by him and translated, was correct, except some verbal alterations, which he pointed out to the Committee.

Resolved, on the motion of Mr. O'Conor, That the Chairman be requested to draw and furnish the heads of a report upon the Buller Coal Field, to be submitted to the Committee at a meeting to be convened for that purpose to-morrow.

The Committee adjourned until Thursday, the 11th September, at 11 o'clock a.m.

THURSDAY, 11TH SEPTEMBER, 1873.

The Committee met pursuant to adjournment.

PRESENT:

Mr. O'Conor, Mr. J. Shephard,
Hon. Mr. Richardson, Mr. Webb.
Mr. Seymour,

Mr. Murray in the Chair.

The minutes of last meeting were read and confirmed.

On motion of Mr. Seymour, the following report was adopted. (See Report No. 2, of 11th September, p. 1.)

Mr. Stewart, a resident at Poverty Bay, and a Director of the Poverty Bay Petroleum Company, appeared before the Committee, in order to make a statement relative to the prospects of the company, of which he is a director.

It was *Resolved*, that Mr. Stewart should be requested to submit to the Committee a written report on the subject, at a meeting to take place on Tuesday next, the 16th September. (Appendix No. 9.)

To which Mr. Stewart assented.

The Committee adjourned till Friday, the 12th instant, at 11 a.m.

FRIDAY, 12TH SEPTEMBER, 1873.

The Committee met pursuant to adjournment.

PRESENT:

Mr. Steward, Mr. Webb.

Mr. Murray in the Chair.

The minutes of the last meeting were read and confirmed.

Mr. Butt, Postmaster at Wellington, appeared before the Committee to make a statement on the subject of the introduction into the Colony of trout and salmon; when it was arranged that Mr. Butt should prepare and submit to the Committee, on Tuesday, the 16th September, a written report on the above subject. (Appendix No. 10.)

The Committee adjourned till Monday, the 15th instant, at 11 a.m.

MONDAY, 15TH SEPTEMBER, 1873.

The Committee met pursuant to adjournment.

PRESENT:

Mr O'Conor, Mr. Steward,
Mr. Sheehan, Mr. Webb.

Mr. Murray in the Chair.

The minutes of last meeting were read and confirmed.

Mr. Mills appeared, and laid before the Committee his report referred to in the proceedings of the 8th instant.

Mr. Mills' report, dated the 15th instant, was read, and it was ordered to be attached to the proceedings. (Appendix No. 11.)

It was arranged that Mr. Mills should submit a further report to the Committee on Wednesday next, the 17th instant.

It was resolved that the meeting of the Committee ordered to take place on Tuesday, the 16th instant, should not take place.

The Committee adjourned till Wednesday, the 17th instant, at 11 a.m.

WEDNESDAY, 17TH SEPTEMBER, 1873.

PRESENT:

Mr. Murray, | Mr. Webb.

There being no quorum, the meeting lapsed.

THURSDAY, 18TH SEPTEMBER, 1873.

The Committee met pursuant to notice.

PRESENT:

Mr. Carrington, | Mr. J. Shephard,
Mr. O'Conor, | Mr. Steward,
Mr. Seymour, | Mr. Webb.
Mr. Sheehan, |

Mr. Murray in the Chair.

Resolved, on the motion of Mr. Steward, That this Committee, while fully estimating the value of the papers submitted to it by the Government and by Mr. Butt upon the subject of introducing salmon and trout, regret that the time at their disposal will not admit of that careful consideration which would enable the Committee to report on the subject.

Resolved, on the motion of Mr. O'Conor, That the Chairman of this Committee, Messrs. Carrington, Seymour, and Sheehan, be requested to wait upon the Government, and to take any other steps that may be necessary to ascertain the position of the "Walduck Company," as regards their obtaining, at a reasonable price, timber land, for the purpose of manufacturing charcoal in connection with the proposed ironworks at Taranaki.

Resolved, on the motion of Mr. O'Conor, That, subject to existing engagements entered into by the Government on the recommendation of the Committee of last year, a bonus be offered for the erection of a suitable blast-furnace for the manufacture of pig iron in an approved locality, such bonus not to exceed 25 per cent. on the cost of erection, and not to be paid until the works are in full operation—not to exceed £5,000.

The Committee adjourned *sine die*.

MONDAY, 22ND SEPTEMBER, 1873.

The Committee met pursuant to notice.

PRESENT:

Mr. Carrington, | Mr. J. Shephard,
Mr. O'Conor, | Mr. Webb.
Mr. Seymour, |

Mr. Murray in the Chair.

The minutes of last meeting were read and confirmed.

The deputation appointed to wait on the Government reported to the Committee that having had an interview with the Colonial Secretary, that gentleman stated that the Government had under consideration the subject of the concession to Messrs. Walduck and Co.; and in the event of the Company establishing ironworks at New Plymouth, in accordance with their proposal to the Provincial Government of Taranaki, it is prepared to assist, to the utmost of its power, in carrying out the arrangements with regard to land between the Province and Messrs. Walduck and Co.

Resolved, on the motion of Mr. J. Shephard, That a bonus be offered for the erection of suitable machinery for the manufacture of bar and rod iron and rails in an approved locality. Such bonus not to exceed 25 per cent. on the cost of erection, and not to be paid until works are in full operation; total amount of bonus not to exceed £5,000, and to be available for three years.

TUESDAY, 23RD SEPTEMBER, 1873.

The Committee met pursuant to notice.

PRESENT:

Mr. Carrington, | Mr. Webb.
Mr. Steward, |

Mr. Murray in the Chair.

The minutes of last meeting were read and confirmed.

Resolved, on the motion of Mr. Steward, That the final report be approved.

A telegram from Mr. Beetham to the address of the Chairman, was read, when it was
Resolved, That Mr. Beetham's suggestions could not be entertained.
Telegram attached.
The Committee adjourned *sine die*.

TELEGRAM from Mr. BEETHAM respecting his evidence relative to the Ngakawau, &c.

Auckland, 18th September, 1873.

Letter just received; reporter had misunderstood me in several instances, and entirely misrepresented my meaning. All corrections were made in his presence and with his consent. Understood you gave me liberty to do so. Report as it stood I could not acknowledge as my evidence.

W. A. Murray, Esq., M.H.R. A. BEETHAM.

WEDNESDAY, 1ST OCTOBER, 1873.

The Committee met pursuant to notice.

PRESENT:

Mr. Carrington, Hon. Mr. Richardson,
Mr. O'Conor, Mr. Sheehan.

Mr. Murray in the Chair.

The order of reference was read.
Mr. Beetham's petition was read and attached to proceedings. (Appendix No. 12.)
Mr. Beetham appeared before the Committee and gave evidence, which was taken down and ordered to be attached to the proceedings.
Resolved, That this Committee will continue sitting at all convenient times, so as if possible to give a report this Session, and that the Chairman be requested to convene meetings at all convenient times without formal notice.
Resolved, That the Chairman be requested to obtain information by telegraph as to the exact expenditure on Ngakawau and harbour to the 24th August.
Resolved, That an interim report be submitted to the House, requesting permission to sit during the sitting of the House, and requesting extension of time to enable the Committee to bring up its final report.
The Committee adjourned until further notice.

The Committee assembled at 7 o'clock p.m., pursuant to notice.

PRESENT:

Mr. O'Conor, Mr. Steward.
Mr. Sheehan,

Mr. Murray in the Chair.

The minutes of the last meeting were read and confirmed.
Mr. W. Berry, short-hand reporter, gave evidence before the Committee at its morning sitting, which was taken down in writing and ordered to be attached to the proceedings.
Mr. Oswald Curtis appeared before the Committee at its morning sitting and gave evidence, which was taken down in writing and attached to the proceedings.
Mr. Beetham, at the morning sitting of the Committee, handed three letters to his address, one of them from Mr. Oswald Curtis, one from Mr. W. Reeves, and one from Mr. John Henderson, which are attached to the proceedings. (Appendix Nos. 13, 14, 15.)
A telegram received from Mr. Humphrey, Mayor of Westport, to the address of Mr. O'Conor, a member of the Committee, dated 1st of October, 1873, was read, and ordered to be attached to the proceedings. (Appendix No. 16.)
A final report was adopted, and ordered to be presented to the House to-morrow.
The evidence thereto to be attached to be first submitted to the Committee.
The Committee adjourned till 10.30 a.m., 2nd October, 1873.

THURSDAY, 2ND OCTOBER, 1873.

The Committee met pursuant to adjournment.

PRESENT:

Mr. O'Conor, Hon. Mr. Richardson.

Mr. Murray in the Chair.

The minutes of the last meeting were read and confirmed.
The evidence as taken and hereto attached was read over by the Committee.
A telegram from the Mayor of Westport, dated 2nd October, and copy of that to which it was a reply, dated 1st of October, were laid before the Committee, and are attached. (Appendix No. 17.)
The Committee adjourned *sine die*.

MINUTES OF EVIDENCE.

THURSDAY, 7TH AUGUST, 1873.

Dr. HECTOR, F.R.S., in attendance, and examined as follows:

1. *The Chairman.*] Will you be kind enough to furnish a statement, for the information of the Committee, as to what has been done in the prosecution of your researches for coal and iron? I can tell shortly what has been done during the past year. (Full information will be found in my reports.) The chief works in progress have been on the west coast of the other Island, wherever sufficient evidence of the existence of coal was found. That is the only district of particular importance, as, indeed, it is the only one in which evidence of the existence of valuable seams of steam coal have been obtained.

Collingwood.—At this field, a drive has been put in in order to test the value of the field. The work has been undertaken by a company, assisted by Government funds. It is making fair progress, and I doubt not will be completed by Christmas. A great many difficulties have been encountered, the drive having been carried through a large amount of hard rock, and a great deal of water has also been met with. In the course of these operations, two good seams of coal have already been met with. One of these, which I expected would be met with from the indications of the outcrop, is very much improved. It is much thicker and freer from shale than we expected it to be. At the surface it was an insignificant seam only six inches thick, but has now increased to sixteen. The second seam is covered by a very valuable band of ironstone. In course of time, it will be worth while working it in conjunction with the working of the ironstone. The outcrop of the coal strata has been traced on the surface for a distance of about five miles on the south side, and for six miles on the north side.

Ngakawau Coal.

2. *Mr. Steward.*] This coal is of good quality: is it perfectly good for steam purposes? I have been using it for about a month past in my own house, and I find it a capital household coal.

3. *The Chairman.*] Would it be good enough for blacksmith purposes—for the requirements of a forge? It is most distinctly good for all purposes of the forge. The coal at present got out of the mine is, however, much more friable than the seam upon the plateau may be expected to be. The company propose to work under Mine Creek, so as to reach the coal at its rise into the hill, and then work it at its outcrop by means of galleries. I have not found more than one seam.

4. *Mr. O'Conor.*] Are you aware if any ironstone has been found in the neighbourhood of the Ngakawau? I have not seen any that could be worked, but have not searched. The overlying clay marls contain clay ironstone.

5. Are you aware that Chambers's party discovered a quantity of ironstone about one mile and a half up the Ngakawau River? No; I am not aware. It must have been discovered since I was there.

6. Were you consulted by the Provincial Government of Nelson as to the disposal of the coal field? Only at the time that a company, consisting of some four or five men, applied for a lease. They held, first of all, a prospecting license, which extended over one or two miles. They then applied for a lease for working the coal, and I represented that great care should be exercised in drawing up the lease so as to secure access to other parts of the field. The Superintendent, I believe, made provision for securing that right.

7. Was that the whole objection you had to the granting of the lease? That was all. I had not any objection to the granting of the lease.

8. Were you consulted relative to a six-square-mile prospecting license, applied for by a person named Walker? No; I never heard of it until the other day. My opinion is, that something might be done, independent altogether of the construction of the railway, so as to get the coal away at once. From the examination of the place, made along with Mr. Dobson, I think that by employing a tug, small vessels could, at a very moderate expense, and with very little risk, be got to take the coal away in the meantime from the river.

9. *Mr. Stewart.*] What depth of water is there available for vessels to get in? The depth of such bars generally varies. It cannot be less than 7 feet with ordinary tides. Sometimes it is as much as 10 or 12 feet. I have just had a letter from Mr. Leech, Harbour Master at Greymouth, which I submit. It reports very favourably on the present state of the bar. The bank which had gathered up at the mouth of the river, consequent upon the late dry weather—the weather having for several months previously been very dry—had disappeared.

10. Have any cargoes of coal been got from the place? One cargo, I believe, was brought up to Wellington, and it gave great satisfaction.

11. What works would you recommend for the Ngakawau Harbour? I certainly would not recommend any very expensive work to be done.

12. *Mr. Carrington.*] Would you recommend that piles should be used? The Otahu, or Little Wanganui River, a little to the north, has a rocky ledge on the south side, and, although a much smaller stream than the Ngakawau, it remains constantly open. Perhaps the study of how this works might prove valuable as a suggestion.

13. *Mr. O'Conor.*] What do you estimate the cost of that operation would be? I merely offer this as my opinion. I could only form an idea of the probable cost from the rough estimates made by Mr. Dobson.

14. *Mr. Steward.*] I wish to know whether you consider the coal to be of equal quality with that of the New South Wales coal; if not, whether it could be supplied at a price so much cheaper as to make up for the difference? I think it is quite equal, and for some purposes superior. As a steam coal, we do not get its equal from New South Wales. Some picked pieces may be as good, if not better, but the average put into the market here is not by any means so good. The actual cost depends upon the facilities for working the mine, and getting the coal taken away.

15. *Mr. Carrington.*] Are the natural facilities offered by this mine as great as those offered by the New South Wales mines? I think so.

16. *Mr. O'Conor.*] If wrought by a cutting machine, would the facilities for working the mine not be greater than could be applied to the New South Wales mine? The coal-cutter is only good for working thin hard seams. The Ngakawau coal seams are too thick and tender to work well with the cutting machine.

17. Could that difficulty not be obviated by leaving a coal roof, as also coal pillars, as supports in the mine? Too much coal would be required for these supports. The Ngakawau coal is much too free from joints, and too friable, for these cutters being used advantageously. I have no experience of the working of these cutters for coking purposes.

18. *Mr. Carrington.*] Is there much sulphur in this coal? No, there is not much.

19. *Mr. Steward.*] Can you state if it is a good gas coal? No, it is too much of a steam coal. It would make splendid coke.

20. *Mr. O'Conor.*] Have you ascertained in what position the Waimangaroa Coal Fields stand at this place; what discoveries have been made as to the nature and extent of this field? It is part of the same field as the Ngakawau. Coal has been found of exactly the same quality and in every way similar to that of the Ngakawau coal. Only a thin seam has yet been found. There is not, however, any reason for supposing that thicker seams will not yet be found.

21. What is the thickest found? About 16 inches.

22. Do you refer to the coal seams in Syme's Claim? No. This coal was found on the south side of the river. Recently some diggers came upon coal, while trying for gold, on the north side of the river; but it has not yet been struck in a prospecting tunnel, which has been driven a distance of 137 feet. My opinion is, that if a coal seam is found on this side of the river, it will be found to occupy a very considerable area.

23. What would be the probable area? (In reply to this question the geological maps of the district were exhibited and described.)

24. Are you aware that coal has been found in Symes' Claim, near the sea level? Only carbonaceous shale with thin seams of coal between the spurs have been found above Symes, and further down the river. In the place where the coal should be, no coal has been found. I traced this shale myself. On account of the uncertainty regarding the thickness and direction of the seam, I caused a tunnel to be put in a distance of 137 feet, but came only upon the shale above mentioned. I expect, however, to receive a fuller report from Mr. Dodson by the next mail.

25. Are you aware what formation they were going through when they stopped the work? I have only the report furnished by Mr. Fisher. They stopped operations when they had got in 100 feet. I caused the tunnel to be put in 35 feet more, and formed as stated above. I am aware that it would be a matter of very great importance, as an argument for constructing the Westport Railway, if coal could be found in this place.

26. Do you know that coal has been got at Deadman's Creek, still nearer Westport? There is the seam at the base of Mount Rochfort which was described in my report of last year. I had a trench cut, and found that it had only been a slip. The Provincial Government spent a large sum of money endeavouring to discover a seam in this situation, but found nothing. They put down a number of bores and got the rods jammed, I believe; so then they suspended operations.

27. Have you examined the place? I have seen the bore, and found the formation to consist of loose broken masses of quartz.

Grey River Mines.

The attention of the witness having been called to these mines, he said,—During the past year I have been endeavouring to obtain data for opening up a mine on the opposite side of the river from that of the Brunner Mine.

MONDAY, 25TH AUGUST, 1873.

MR. ALBERT BEETHAM present, and in answer to the Chairman stated,—

*** The words in italics in the evidence of this witness were struck out by him on reading over his evidence, but were ordered by the Committee to be retained, the reporter maintaining the accuracy of his report.

A short time ago I met Dr. Hector at Nelson, and mentioned to him that I was going to Wellington to see the Government with reference to the report made by Mr. Higginson, on the subject of connecting the Ngakawau Coal Field with the Buller. Dr. Hector said that a Committee was now sitting which would be glad to receive my evidence on the subject. He advised me to telegraph, which I did to Mr. Carrington, and received an answer that the Committee would like to see me. I may say that I am Managing Director of the Albion Company. With regard to the development of the coal field, I understand that it is proposed, in accordance with the report of Mr. Higginson, who was sent down to decide how the money voted last year, and the amount which is to be voted this year, should be spent, that it is proposed to expend £70,000 on making a harbour at the Buller; and a railway from Ngakawau, a distance of eighteen miles to the Buller. The claims of Ngakawau as a possible harbour have been *entirely* ignored by Mr. Higginson. You will notice that in his report he gives up the view of making Ngakawau a harbour, and is in favour of *the harbour being at the Buller, and of* making a railway from Ngakawau to the Buller. I have seen a great deal more of the Ngakawau than Mr.

Higginson, who only saw it under unfavourable circumstances; and I am so satisfied with that river, that I have bought the steamer "Comerang," now trading between Napier and Auckland, and which will carry 150 tons of coal, and am going to send her into the Ngakawau River. On Mr. Higginson's own showing, the river is nearly always navigable for small steamers of not more than 8 feet draught. When laden with 150 tons of coal, the "Comerang" will not draw more than 6 feet 4 inches. The proprietors, who are now represented by the Albion Company, have spent £1,600 on that river in clearing it, and the expenditure is still being continued. In three months' time, I expect to have the "Comerang" coming out of the river with 150 tons of coal. A few days ago, I went down in the little steamer "Result" with Captain Leech, the Harbour Master at Westport, and three other gentlemen, to Ngakawau, and on sounding the bar, the Harbour Master found a minimum depth of 9 feet of water. He admitted that there was nothing to prevent the "Comerang" following us in, except a few boulders, which we are now adopting means to remove. The master of the steamer, who was interested in having the Ngakawau coal exported from the Buller, admitted also that there was nothing to prevent the "Comerang" from following us in. We took 16 tons of coal on board, and in coming out sounded again, when a mininmum depth of 10 feet was found. I again asked, and they admitted that they could see no reason why steamers such as the "Comerang" could not follow us out. I make this statement because Mr. Higginson reports against this river as a site for a harbour. Without a signal station, without a whaleboat or warp-posts, and with nothing at all to assist them, light draught vessels have been going in for the last eight or nine months, and bringing out small quantities of coal, and I think that if some improvement were made, vessels drawing considerably more water could bring out cargoes of 150 or 200 tons. We want the Government to assist us in regard to this Colonial industry, which may be developed indefinitely. I may say that I am an engineer myself, and I am satisfied, notwithstanding what Mr. Higginson has stated, that it is possible to ship coals in large quantities from Ngakawau. I believe that it will be found expedient ultimately to make the railway to the Buller. I do not oppose it being made; but I say that as far as the Albion Company are concerned it would be useless. Besides, I see no immediate prospect of the harbour at the Buller being completed. The Albion Company have by their lease to get out 5,000 tons this year, 10,000 tons next year, and 15,000 tons the year after; but I see no prospect of getting the harbour at the Buller and the railway within three years. *I feel interested not only as a managing director, but as a large shareholder. I have had opportunities of studying the subject to a much greater extent than Mr. Higginson has had.* The Albion Company have *already spent* £10,000, *and they have* now a number of men improving the river; and whether the Government assist or not, we shall have to carry out extensive works.

28. *The Chairman.*] What is your opinion, as an engineer, respecting a line of railway from Ngakawau to Westport? A line can be made at a small expense. I would be willing to take the contract at half Mr. Higginson's estimate: £1,500 per mile ought to be sufficient for that coal tramway; Mr. Higginson's estimate is £55,355.

29. Would your estimate include rolling stock? The rolling stock on such a line as I propose would be of a rough character, merely coal trucks, which would belong to the companies using the line. The only rolling stock would be the locomotives. I have spoken of a line with reference to the Albion Company. I believe that a railway will be extensively useful to the companies working between the Buller and Ngakawau, and that eventually a line must be made. I think that the harbour ought first to be made at the Buller, and then the line.

30. Are you aware that it is necessary to get the line made to procure material for the harbour works at the Buller? Mr. Higginson says so, but I do not know where he proposes to procure it from. I have been some distance up the proposed line, and I have seen no stone available for the purpose. There is suitable stone at Ngakawau, and also up the Buller, but I do not know where Mr. Higginson proposes to get the stone from. I have not studied the subject of a railway at all, except so far as affects the Albion Company; and if a line were made, the Albion Company would probably not use it.

31. How soon could that line of railway be made, in your opinion? I could not say at present. When I say the line could be made for half the cost set down by Mr. Higginson, I spoke of a coal tramway, and not a line of railway, as apparently estimated for by Mr. Higginson. A great deal of the line over which the railway would pass is already cleared.

32. What is the nature of the assistance required to improve the port at Ngakawau? [Witness read part of Mr. Higginson's report, recommending that to improve the Ngakawau two piers would be required, costing £51,250.] I think that the only reason why these piers would be required is in consequence of the coastal drift from the south forming a bar. Mr. Higginson estimates that each pier would have to be 25 chains long, but I think that half that length might be sufficient. I do not think the piers ought to cost above £20,000; and we wish for assistance to that amount, in addition to the river improvements which are now being made by us. I believe that in two or three months we will be able to take the "Comerang" in; and I see no reason why a sufficient number of vessels to supply the whole of New Zealand with coal should not go in, if only £20,000 is spent on the harbour in erecting two pier heads, besides the river clearance above spoken of.

33. *Mr. J. Shephard.*] The pier to the south would be also required for the protection against the coastal drift? Yes. Some time ago, Captain Leech, Harbour Master, made a report on the Little Wanganui River, by which it is shown that a line of rocks just outside the south entrance, by obstructing the drift, gives three or four feet more water on the bar. I do not see why we cannot construct artificially at Ngakawau what nature has done there. We ask the Government to assist us in the erection of the necessary pier-heads to obstruct this coastal drift. The Little Wanganui is a river similar to the Ngakawau, but it has 4 feet of water on the bar when the Ngakawau is nearly dry; the difference being occasioned by the obstruction of the coastal drift in the case of the Little Wanganui.

34. Mr. Leech's report simply confirms the opinion that it is only to the south that a pier is required to direct the course of the drift? When Captain Leech was there, he showed me that when there was a westerly swell coming in, the drift was from the northward, and he has been long aware

that it was so. The amount of drift is not so great as from the south, but occasionally there is a drift from the north. The current, as a rule, is from the south. It varies somewhat, apparently according to the time of year.

35. *Mr. Carrington.*] What kind of bottom is there in the river? I have never driven piles, but I have every reason to think that there is a firm substratum. The other day I noticed a part that had been cleared by the wash of the sea and the river apparently to the bottom. Mr. McNairn, who lives at the mouth of the river, and acts as ferryman, informs me that the river and sea wash down as far as this bottom and no further. This bottom seemed suitable for a foundation.

36. *The Chairman.*] If the Government go into extensive works, what proportion would the company undertake? I do not think it is necessary to go to the expense that Mr. Higginson speaks of. If the Government expend £20,000 on the pier-heads, the company will do the rest. A number of companies besides the Albion may open into the Ngakawau River. Dr. Hector has shown that it is the natural outlet of the Mount Rochfort Coal Field. It is quite possible we may have half a dozen companies discharging coal from the Ngakawau.

37. If the Albion Company undertake these works, possibly they might object to other companies having the use of them? We will not object to other companies using the river improvements up to the present effected by us. We have already spent a considerable sum; and if the Government do not assist us in doing anything for the river, then we will have to make the harbour ourselves. In that case, the company would apply for an Act to enable us to make a charge on using the harbour. Mr. Higginson mentions £51,000 as the cost of the pier heads, but I think the work could be done for much less. I would not run them out so far as 25 chains, and of course one chain at the far end costs double what a chain costs at the upper end.

38. *Mr. J. Shephard.*] Something under £15,000 would be required if a pier was erected on only one side? Yes. Something must be done inside, which should be considered part of the harbour works. The company will have to take this in hand.

39. *The Chairman.*] Are the company disposed to pay the Government interest, or guarantee for advances on any part of that work? The Albion Company is only one of perhaps seven or eight companies that will discharge coals into the Ngakawau. We will pay our share, or become security to a certain amount.

40. *Mr. J. Shephard.*] That is to say, that amongst the companies using the harbour works, the cost should be distributed according to export? Yes. While we are the sole exporters we have to a certain extent a monopoly, and can pay to a fuller extent than when there is competition.

41. *The Chairman.*] What rate of interest would you guarantee to the Government? Mr. Carruthers speaks of sixteen years as the time within which the railway ought to pay its cost. I do not think there is anything unreasonable in sixteen years' purchase. Of course I am assuming that a reasonable amount is spent, and not the large sum spoken of by Mr. Higginson. If only £20,000 were spent, we would pay our share in export charges to cover it in sixteen years. We will do the wharfages and other works required ourselves.

42. *Mr. O'Conor.*] Is the Albion Company a registered one? If it is not registered, it is because the articles of association have to be sent all round New Zealand to be signed. Messrs. Adams and Kingdon of Nelson are the solicitors, *and will furnish copies of the articles of association and memorandum*, and I have no doubt have by this time registered the company.

Mr. CURTIS, Superintendent of Nelson, present and stated,—

I should like, in the first place, to give some information with reference to the evidence given before the Committee last year in regard to the Ngakawau Coal Mine. At that time I stated that it was not my intention to grant a certain application for a lease at Ngakawau to a greater extent than 20 or 30 acres, that being the amount recommended by Dr. Hector, who was of opinion that to grant a larger quantity would lead to locking up the coal field. Afterwards, finding that this area was not sufficient to encourage the expenditure of capital, I consulted again with Dr. Hector, and as full rights of way both over and under the land were reserved, I agreed to grant a lease of 400 acres to the Albion Company. This company has a capital of £60,000, the whole of which has been subscribed for. The company has set to work energetically, and promises to be of great value in developing the coal field. With respect to the question of the Ngakawau being the natural outlet for the mines, I should like to say that engineers take totally different views. Dr. Hector is not an engineer, and probably his opinion will not have so much weight as that of a professional man. The Provincial Engineer of Nelson, who is also the General Government Engineer in the Province, has given an opinion to the contrary effect, which I produce.

43. *Mr. O'Conor.*] To what extent have applications been made for leases over the remaining part of the coal field, or for prospecting licenses? There have been numerous applications.

44. Are you not aware that all that ground has been applied for by members of the Albion Company? I do not think so.

45. Is there not an application from Mr. Beetham, another from Mr. Dobson on behalf of Mr. Beetham, for 640 acres, and one by Field, for the same company? I think there are these applications.

46. Will not these take in the whole of the coal field that is available? No. It would be but a trifling part of the coal field referred to. None of these applications has yet been granted, nor indeed yet considered. All the applications for prospecting licenses and leases have been deferred altogether, not to be considered until the question of the railway is settled, partly at the request of the General Government, partly at the request of the people of Westport, who thought they might prejudice getting the railway. No permanent right has been acquired, only the right to be first considered. Applications can be put in for prospecting licenses over an area of 15,000 acres. These licenses may be granted for twelve months, and are usually granted for six or twelve months. At the expiration of or during that time, the applicant to whom the license has been granted may put in an application for any quantity of land not exceeding two square miles, or 1,280 acres, which application

may or may not be granted. No more than two square miles may be granted to any one company or individual, unless after the expenditure of a considerable sum of money, when a further quantity may be granted. Applications have been sent in for 15,000 acres, two having come in for the same ground, but they will not be considered till I return to Nelson. The coal field is a very extensive one, the reserve being 114,000 acres, and the Provincial Engineer's report only refers to a small portion of it. I sent an engineer to report on the Little Wanganui entrance, where there is a similar coal field. A railway will give the greatest facility for opening up the Mount Rochfort Coal Field by connecting it with Westport.

47. As Superintendent, can you say that no more leases will be granted until the railway has been made? As far as I am personally concerned, I am in favour of granting leases as rapidly as possible, always provided that we are satisfied as to the *bona fide* working of the mine with sufficient capital, to secure which stringent conditions are inserted in every lease, requiring a certain minimum number of tons to be brought to market.

48. How can they work before the railway is made? One application from a company states that they would object to use the railway, on the ground that the land which they apply for is at such an elevation that it will not answer their purpose to take it down and convey it by the railway. They propose to make a wire tramway direct to Westport.

49. How far is that land from Westport? It is at a distance of about ten miles from Westport and eight from Ngakawau. I refer to the Colebrookdale seam, at the head of the Waimangaroa. [Pointed out on map.] I consider, with reference to the development of mines, that this is the time to take advantage of the abundance of capital and the high price of coal which prevails. If we do not see that our mines are developed as soon as possible, we may find in the course of two or three years that we have made a great mistake—that capital may not be so abundant, and that coal may not bring so high a price.

50. There are no other applications which object to the railway? There are several other applications for prospecting licenses, but none, I think, for leases. On that reserve one other application has been granted for a prospecting license, some nine miles from the Ngakawau. That is the only prospecting license that has been granted to Walker.

51. Has the land, in the application in which the wire tramway is referred to, not been granted under a prospecting license to Mr. Walker? No.

52. You say that one company can work without the railway, and proposes to use a wire tramway; are there any other parties that can work without availing themselves of the railway? I imagine that many companies working the high ground nearest to Westport will work independently of the railway. It will most likely be brought down in small trucks, and it will not answer to shift it into other trucks for conveyance for a short distance.

53. What other means of conveyance do you refer to? Either a coal tramway or a wire tramway.

54. With reference to the coal tramway, are you now referring to the line of tramway surveyed to Westport? I am not now referring to any particular line of tramway. I believe that companies will be prepared to work mines and convey the coal by their own lines to Westport.

55. Have you any estimates of the cost of these works? No.

56. No proposals have been made relating to them? I may mention that one proposal has been made, but not in writing as yet. It would have been made in writing, only that I said that owing to the action of the General Government, and at the request of the people of Westport, we are for the present refusing to entertain any applications for any part of these coal fields.

57. *Mr. J. Shephard.*] The power to grant 15,000 acres under prospecting license is granted by the Buller Reserves Act; has that quantity been granted? No; between 6,000 and 7,000 acres have been granted to Walker. That is the largest prospecting license which has been issued.

58. Is there anything to prevent three or four persons, to whom leases are granted, from uniting afterwards? I think the conditions of the lease would probably prevent it. We always put conditions in the leases, providing for the quantity of coal that shall be mined and brought to market under each lease; so that, in point of fact, there are obstacles in the conditions of the lease to a profitable union.

59. The question was put as to what work companies could do before the railway was made: would there not be a large amount of preliminary work going on simultaneously? The prospecting license is granted for the purpose of enabling parties to ascertain what part of the ground it is most desirable for them to apply for a lease over. And after the actual lease was granted, it would be a long time before any of the lessees would be prepared to send down coal.

60. So that if leases were granted now, they would not be much in advance of the railway when they were ready to ship coal? I do not think they would. I am speaking of the field generally. It would take a considerable time to bring coal from the plateau. Where actual outcrops can be got, of course the time would be comparatively short within which the coal could be got.

61. As to the expense of getting coals from considerable heights, I presume there would be no serious obstacles to coals being brought down by self-acting inclines, as in the English collieries? I am not aware of any difficulty.

62. I understood you to say that probably some of these companies would rather carry the coal direct to Westport than be at the trouble and expense of changing trucks; would there be any difficulty in running the trucks on to the line, to have them taken up by a locomotive? It could not be done easily if the coal was brought down by wire tramway in the usual small trucks containing 5 cwt. Especially, it would be difficult to connect a wire tramway with a railway line.

63. Presuming the lines from the higher ground to be self-acting, there is nothing to prevent the trucks from being shifted at the junction, and then being sent on by the railway? No.

64. *The Chairman.*] There would be no difficulty in bringing down coal by a self-acting incline from the plateau? I think not; but I am speaking from the opinion of others. I am not speaking my own opinion, but the opinion of those whom I believe to be well qualified to judge. [Mr. Curtis referred to the opinion of Mr. Dobson, the Provincial Engineer.]

65. Have you any estimate of the cost of carrying coal by wire tramways in such trucks as you speak of? No; I have simply been informed that the cost would be very small.

66. Has there been any obstruction or delay in opening this coal field from any action taken by the Provincial Government? So far from the Provincial Government having offered any obstruction to the development of these coal mines, they have done everything in their power to hasten it.

67. Have you had any communication with the General Government with regard to opening up the Brunner? I applied on behalf of the Province in 1870 for a loan of £30,000 to make a railway from the mine to the port. The Government declined, but stated that they would consider the propriety of making it as a part of the policy of public works. It was afterwards put into the Schedule of Coal Railways, and the Government asked me, as Superintendent of Nelson, to give security for the amount of expenditure. The railway was to be made in the County of Westland, and was to serve to develop all the coal mines on that side as well as on the Nelson side. I declined to give security for the whole of the amount, and the Government subsequently consented to take security for the remaining part from the County of Westland. The security was only to be over the Coal Reserve, not over the Province. There was no delay whatever on my part in the matter.

68. *Mr. J. Shephard.*] Since the railway has been agreed upon, companies have been formed to work coal seams that have been discovered on the south side, that this railway will open? Yes.

69. So that if the original request of the General Government had been agreed to by you, as Superintendent of Nelson, coal deposits that are said to be equal to those on your side would have been enabled to compete with them at an unfair advantage? Quite so.

70. *The Chairman.*] Have you anything to state with regard to coal on the River Owen? Yes. Coal has lately been discovered on the River Owen at its junction with the Buller, at a distance of sixty-five miles from Nelson. The seam at its outcrop measures 2 feet 6 inches. The coal has been analyzed by Dr. Hector, and proves to be at least equal in quality to the average of coal imported from New South Wales. [Mr. Curtis cited Dr. Hector's report, and pointed out the position of the discovery on a large map of the Province of Nelson.] A railway for twenty miles of the distance (from Nelson to Foxhill) is now in course of construction. The place where the coal has been discovered is on what is proposed to be the direct line of railway running through the whole Island. Forty-five miles of railway only would have to be made to connect the coal mines with the port of Nelson. None of the ports on the West Coast can be entered by the ordinary trading steamers from Australia, nor of course by vessels direct from England.

71. *Mr. O'Conor.*] What is the difference of the depth of water at Nelson and the Buller? At this moment, four or five feet. The difference is sometimes very much greater.

THURSDAY, 4TH SEPTEMBER, 1873.

Dr. HECTOR appeared before the Committeee, and stated that he was unable to give any information relative to the cultivation and manufacture of European Flax beyond that given in his evidence (1871).

As regards Roman cement, he stated, that no true puzzuolana (volcanic ash) has as yet been found in New Zealand; something resembling it has been found near Lyttelton. It may yet be found, particularly in the neighbourhood of volcanic formations.

As regards Portland cement, that there is material in many places for making it; as at Amuri, Collingwood, and White Cliffs. A bonus, if given on cement, should be by the barrel or other measure.

A considerable amount of capital must be sunk in stock, as good cement requires time before coming to maturity. On this subject, for further information, he refers to former evidence.

WEDNESDAY, 10TH SEPTEMBER, 1873.

Mr. H. P. HIGGINSON was in attendance, and was examined as follows:

72. *The Chairman.*] Your attention is drawn to a report furnished by you to the Chief Engineer, relative to the Ngakawau Coal Fields, with a view of determining upon the best means of exportation. In clause 1 of that report you say, "The Ngakawau is nearly always navigable for small steamers of not more than 8 feet draught at high tide, the rise being 10 feet and the bar dry at low water." Will you explain the source from whence you derived that information? I got my information on that point from the Harbour Master and from men residing at the mine. They stated that the rise of the tide was 10 feet and the bar good. The channel runs straight out with 2 feet of water in the channel. That gave 11 or 12 feet, consequently I took 8 feet as a fair average. That part of the report was made upon the faith of statements made by other people. I was assured that the rise of the tide was generally 10 feet.

73. In the next paragraph you state, "A vessel of such size can go up to the mouth of the mine, and lie with safety at low water, there being a pool measuring five by three chains at this point. Between this pool and the mouth of the river (distant three-quarters of a mile) the bottom is nearly dry at low water." Did you take soundings at different parts of this pool? I did at two different parts, with a stick. Under the rock there were 12 feet of water.

74. How many vessels would lie in the pool, drawing 8 feet of water I mean? Only one vessel drawing 8 feet of water. Other smaller boats might also lie in the pool, but there would be no room for more than one drawing 8 feet.

75. Does not the pool slope down from the edge? It shelves for about 40 feet under the rock.

76. You propose in one part of the report to deepen the channel? Yes.

77. How would the deepening of the pool affect the channel? If there is 5 feet of a rise at the mine and 10 feet on the bar, the effect of deepening the channel would be to lessen the water to 5 feet. That is simply a supposition of my own. I cannot say it would be the case definitely.

78. In case it was decided upon to go on with works of the kind you speak of in the report, at the Ngakawau, while these works were pending, what effect would they have upon the trade of the place—I mean on the trade of the Ngakawau; would it add to the facilities of the river, or make it more difficult for vessels to enter? I imagine it would not interfere with the facilities at present existing.

79. Is there not, in your opinion, great danger, where a vessel has got so little sea room to come and go upon, being thrown upon the rocks? There certainly is danger, but it might be avoided by building one pier in advance of the other. If there is travelling shingle it would have the effect of making the bar worse. In that case two piers would be equally exposed as one if the shingle travels.

80. Have you any idea what the weight of stone would be required for building these piers? Certainly the average weight of the blocks would not be less than from 3 to 5 tons at least, or even more than that.

81. The price you estimate for two piers is £51,250; does that include the whole of the material, or merely the labour? No, that covers the cement as well.

82. What proportion of the cost of concrete piers would be spent in labour? The price of the cement would have to be deducted. I calculate that would be nearly one-half of the entire cost.

83. Have you any reason to imagine that you have placed too high an estimate upon the cost of the piers? No, I am sure I have not.

84. What length of time would be occupied in constructing these piers? By pushing the work on, it might be completed in one year.

85. With what material could the work be got done quickest? The concrete could be finished much more rapidly than the stone.

86. Mr. Beetham estimates that the work he proposes could be done for £20,000; what he proposes is, to make the piers not more than 12½ chains long? That could be done for £20,000, but it remains to be seen whether or not it would be of any use after it is done.

87. *Mr. O'Conor.*] Can you state whether or not, by cutting down the length of the piers to one-half the size proposed in your report, the effect would be to bring the termination inside the bar altogether? It depends where you start the work from. If commenced at the place I propose to start from, they would terminate inside the break.

88. Have you contemplated such a contingency as fallen timber coming down the river? Speaking from the information I have got on the subject, there appears to be very little timber come down the stream. The river is hardly big enough to bring down much.

89. If timber did come down, would there be any great danger from the timber getting locked? No, I do not think so.

90. How long would the works proposed by Mr. Beetham take to complete? They would not take less than one year. I estimate that, because some delay must take place in starting them. If they were built of granite blocks instead of stone, the labour alone would take one year to complete. If constructed of concrete, I do not think less time than one year would be occupied in that case either.

91. What time would it take to prepare the inside of the harbour, so that vessels entering might lie in safety? So far as I understand, no provision has been made by Mr. Beetham for that purpose. All the bottom, for some distance, consists of large stones, and being below low water, they cannot be got out by dredging; they must be taken out with the hand. It would be a most expensive undertaking, and I question very much but that the channel would fill up again. In fact, I believe it would be a constant expense to keep it clear.

92. Would it not be necessary to have these stones removed by tide work—that is, work only during certain states of the tide? Yes.

93. *The Chairman.*] Do you consider that the estimate you have given is a fair one? Yes; I consider it is as low as it could possibly be stated for the proposed work.

94. *Mr. O'Conor.*] You are aware that the entrance to the Ngakawau is situated in a bight; if a vessel entering the river found that there was not room to get in, and a south-westerly gale was blowing at the time, how would she get out of the bight again? She must go on shore. It would not be prudent for sailing vessels to enter unless they were towed in. To make the entrance safe during any state of the weather, there would have to be a breakwater constructed outside the piers, so as to render the entrance smooth. That would entail an enormous expense. To make the piers of any use at all, they must be carried right out into deep water.

95. *The Chairman.*] We will now refer to the Buller and the proposed railway. What do you estimate would be the cost of making the proposed line between Westport and Waimangaroa. That is, half the proposed line—I mean the earthwork and other works necessary in order to commence operations? About £8,000.

96. What length of time would be required to complete the work, with say 200 men engaged upon it? From five to six months, including delays.

97. In what time would the whole line be completed if it were pushed on? In about nine months.

98. If the railway was once completed, would there be any difficulty in vessels at once loading at Westport? No. A very small expense only would be required for providing wharfage accommodation.

99. Would this line also be available for procuring stone for construction of the harbour works at Westport? It would, with an addition of about a mile to connect it with the stone; and that addition might also be made available for carrying coal.

100. In your estimate of the protective works at the Buller you set down £4,000 for filling in earthworks; would it not be possible to erect the wall close enough to the existing bank to save that amount? In that estimate I had no real data to go upon; I only supposed a certain amount might be required for filling in earthwork.

101. Are the works proposed to be constructed at Westport all of a permanent character? Yes; I see no reason to think otherwise.

Hon. Mr. Bonar in attendance, and examined as follows:

102. *Mr. O'Conor.*] You are proprietor of the West Coast steamer "Waipara"? Yes.

103. Upon several occasions during the past year did you send her to the Ngakawau River for coal? I sent her to Westport for the purpose of going there.

104. What was the result? She was never able to get in. When at Westport information was got that the bar was not in such a condition as to make it safe for her to enter.

105. Did she go down at any time and make the attempt to enter? She went down for once that I know of for certain. I am not sure but she went down a second time.

106. What draught of water does the "Waipara" draw? She draws about 5 feet when light, and probably about 7 feet when loaded.

107. *The Chairman.*] Do you know Captain Riley? I know he is captain of a small steamer of his own, called the "Result."

108. *Mr. O'Conor.*] Have you ever been at the Ngakawau yourself? I went down with the "Waipara." That was the only time she went there and entered that port.

109. Did you take in any loading? No, they had just commenced to mine then. We took two tons, just to try the coal. That was all that they could give us. I went down just to examine, and see the prospects there were of working the river with the "Waipara."

Wednesday, 1st October, 1873.

Mr. Albert Beetham in attendance, and examined as follows:

110. *The Chairman.*] You have made certain alterations of importance in your evidence given before this Committee on a previous occasion. For instance, you have altered the words £10,000 and substituted the words £1,600. How did you come to make these alterations? I did not say £10,000, and when the reporter showed me the proof I struck it out. What I said was "£1,600 or £2,000."* I put in £1,600, as I think the sum was nearer that than £2,000. I did not want to mislead any one in my statement. I fully believe the sum was about £1,600; at all events, I put that in as being nearer the mark than £2,000. Still I believe that it was not over £1,600; but I am safe in setting it down as £2,000. If you will allow me, I will put in a letter from Mr. Curtis. I asked him to state in writing his views as to the words I made use of. I also asked Mr. Reeves, who was Chairman of the Committee, and he states also that it is his impression that the words I made use of were £2,000.

111. *Hon. Mr. Richardson.*] Was the evidence produced the evidence you gave before the Industries Committee? No, Sir; in some cases I had to correct it. I explained to the Chairman that I was sorry I had made some personal allusions to parties in Westport which I would rather not see in print, as it might hurt their feelings.

112. You see that a large amount of evidence was given; that evidence was taken down in shorthand, and it is quite apparent on the face of the corrections you have made either that the evidence has been taken down wrong, or on reading over your evidence you see alterations to be made so as to express your ideas, or else you gave evidence which you did not intend to give; one or other of these must have suggested themselves to you? The reporter was in fault, and the Chairman had repeatedly to correct him. For instance, the Chairman would ask the reporter what he had taken down, and on reading it over both he and I had to correct him, because he had evidently misunderstood what was said. In one instance, at least, he took down exactly the opposite of what was said.

113. *Mr. O'Conor.*] What expenditure was made by the company in improving the harbour and river? The Albion Company paid £2,000 to the four gentlemen owning the mine, and they paid £2,000 for improvements; at all events, from £1,600 to £2,000 has been spent. Since that time the company have spent money upon the river. I am safe in saying that from £1,600 to £2,000 was spent on the river.

114. Do I understand you to say that a sum of £1,600 has been spent by the predecessors of the company on the improvement of the harbour and river at the Ngakawau. Is that the case? The lessees did not show me their books, but £2,000 was the amount they claimed to have expended.

115. You bought out the old firm? No, Sir.

116. You have got 100 shares in the company? Yes.

117. Are these not part promoter's shares? No.

118. In the evidence as taken down, you are reported to have said, "The Albion Company have already spent £10,000 on that river in clearing it, and on pontoons and other necessary apparatus." Is that what you said? I never said £10,000; I could not say anything about pontoons. I believe the reporter was behind me, and frequently the Chairman stopped me to correct him, which I did. I was not asked questions; I made a statement.

119. Did you not say that the company had spent £10,000 on that river, and on pontoons and other necessary apparatus? I never made such a statement.

120. Your statement now is that the proprietors, who are now represented by the Albion Coal company, have spent £1,600? What I stated was that the company have spent that amount, and are still spending money upon it.

121. At what date did you give your evidence? Three weeks ago. We were at work at that time on it.

122. *Mr. Sheehan.*] The evidence as originally written states, the Albion Company have already spent £10,000 on the river in clearing it, and on pontoons and other necessary apparatus? I did not make that statement.

123. Do you deny making that statement or any portion of it? I do not think I made any portion of it. I made a general statement, but not to that effect at all. The word pontoons is a word I never use.

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* Reference is here made to evidence given before the Public Works Committee. (*See* Appendix, No. 14.)

124. You now say the answer you gave was this: The proprietary, who are now represented by the Albion Company, and the Albion Company themselves, have spent £1,600 on that river, and the expenditure is still carried on? I say it is equivalent to that. I did not go into the accounts of our predecessors.

125. You state the proprietary now represented by the Albion Company spent £1,600 on that river, and the expenditure is still continued. Do you say that the first statement is incorrect, and that you stated what you have now substituted? The proprietors and the Albion Company have spent a sum of about £1,600, or from that to £2,000.

126. You included the proprietors of the former company as well as the Albion Company? Certainly, I meant that.

127. Do you remember whether you mentioned that? I do not remember what I said, but I meant that.

128. The statement occurs again at another part of your evidence. You there state, "The Albion Company have already spent £10,000, and they have now fourteen or fifteen men improving the river." And again, "I feel interested not only as a managing director, but as a large shareholder. I have had opportunities for studying the subject to a much greater extent than Mr. Higginson has had." The whole of that is struck out, and you substitute the words, "a number of men"? I believe that is the right number of men that is stated. I thought it unnecessary to offend Mr. Higginson, and I was sorry I had said it. Had I been answering questions I would not have made these statements before the Committee. I was sorry for having made them, although they were perfectly true.

129. *Hon. Mr. Richardson.*] You state that you did not make use of these words—"that £10,000 had been spent"? Yes, Sir; I did not make use of the words £10,000.

130. *Mr. O'Conor.*] You say that you are a large shareholder of the company? I think I did. I presumed I had liberty to strike out what I thought was unnecessary because it was not right. The next morning after the evidence was taken, I made the alterations in presence of the reporter, and with his consent. I did not wish it to appear in print, because it would have the effect of hurting people's feelings outside.

131. *Mr. Sheehan.*] At another part of your evidence you have struck out the following: "Messrs. Adams and Kingdon, of Nelson, are the agents, and will furnish copies of the articles of association and memorandum, and I have no doubt have by this time registered the company." You will observe you have struck out the most of these words? I thought that it was unnecessary that they should appear in print, still it is all perfectly true.

132. Were they in a position to furnish the articles mentioned? Yes. At that time they were in Dunedin, but they have since come up.

133. Are we to understand that you still adhere to the statement that £1,600 or £2,000 was spent upon the river. I mean in clearing it? Yes, from £1,600 to £2,000.

134. *Mr. O'Conor.*] Have you got the documents or vouchers to show how that sum was expended? No. I merely took the amount from their statements; and judging from the appearance of the river, I assume the statement to be true.

135. Do you wish to convey the impression that that sum of £1,600 does not include the mine and management, and all expenses put to by the persons who had the ground before the Albion Company got into possession? The original proprietors took 10s. per ton for all coal raised from their mine; and they explained that their expenses were £2,000, which was affirmed, or at least it was considered to have been affirmed that their total expenditure was £2,000, the greater part of which had been expended upon the river.

136. *Mr. O'Conor.*] Relative to Mr. Higginson's report. Did you make yourself acquainted with that report before giving your evidence before the Committee? I had read the report previous to giving my evidence.

137. Did you submit that report to Mr. Henderson? I had not seen Mr. Henderson when I gave my evidence.

138. Or before you gave evidence before the Public Works Committee? I had seen him before I gave my evidence before that Committee.

139. Did you show Mr. Higginson's report to Mr. Henderson? I do not know whether I showed it to him or not; I do not recollect.

140. Do you remember that you stated in the Public Works Committee that Mr. Henderson concurred with what you stated as to the cost of piers for the river; that price being £200 per chain? Yes.

141. Are you aware that Mr. Higginson estimated the price at £1,000? I know he did not. I have got a letter from him upon the subject.

142. If Mr. Henderson stated before the Public Works Committee that he did not concur with you in your estimate, would that be right; or can you explain why you stated that he concurred with you? I have a letter from Mr. Henderson stating why he did not concur with me. He explains it in that letter. I have asked him why he did not concur with me, and he explains it there.

143. You stated in your evidence that the Albion Company would certainly never use the railway if made. Do you still adhere to that statement? What I meant to say was, that the expense would be so great that it would never pay the Albion Company to use it. That view I have always maintained. It never will pay them to use it at that price. I mean the expense per ton for travelling on that railway.

144. *Mr. Sheehan.*] Can you say from your own knowledge what amount has been spent by the Albion Company; I mean that company of which you are the director since the company started? I cannot say.

145. Have you no idea? What I have already stated; about fourteen or fifteen men were employed.

146. Can you state what amount was spent by the company to the date of your giving your evidence? I cannot say.

147. Can you not give the Committee an aproximate idea of the amount? I have not seen the accounts. When I state fourteen or fifteen men, that is as near as I can go.

148. When did the Albion Company take over the property from the original proprietors? I cannot say. I could say roughly, but not precisely.

149. *Mr. O'Conor.*] The work done by the company was the employment of these men. That was the expense they were put to? Yes, and the providing of cargo boats and other things.

150. These boats are decked over, are they not? I believe that there are two boats decked together.

151. *Mr. Sheehan.*] Have you any idea of the amount spent by the original proprietors? No further than their own statement. I do not remember to have seen the accounts, although I believe they offered to show me the accounts.

152. What was the amount they represented to you as having been spent upon the river? The sum of £2,000 was stated to have been the total expenditure, which they adhered to.

153. Is that the total expenditure upon both the river and the mine? £2,000 was what the Albion Company paid them for their expenses.

154. That was the total for both the river and the mine? That was the sum, £2,000, paid for the mine.

155. You have rented the ground? Yes.

156. Have you seen upon the river itself evidence of any expenditure having been made at all equal to that sum? That is a very difficult matter to say, especially when you consider that there is a deal of deep water, and deep-water blasting required. I can say that a very considerable amount has been spent on the river before the Albion Company took it in hand.

157. Had any considerable expenditure taken place upon the mine or the management of the concern apart from the clearing of the river? The coal produced cost 4s. 9d. per ton. They got 10s. for it, which was considered to have covered the expense of working and the other expenses of the mine, and part of the other expenses in the construction of wharfs and shoots, the clearing of the river, and for other purposes. In the statement which I made I did not intend to say that the £2,000 was expended exclusively upon the improvement of the river.

158. Was there no estimate made at the time the company took over the property from the original proprietors as to what proportion of the £2,000 had been spent upon the improvement of the river? No, I never heard of any.

159. You have stated that you cannot furnish the Committee with an approximate estimate of the amount spent by the Albion Company up to the date you gave your evidence? I do not believe I could remember the amount at this length of time. I cannot tell what was the cost of the plant.

160. At the time you took over the property from the original proprietors, what proportion of the total expenditure had been incurred in improving the navigation of the river; I mean what basis have you for your estimate that £1,600 or £2,000 was spent in improving the navigation of the river? From what I had seen done before the Albion Company took the thing in hand, and from what I knew the Albion Company to have done since taking it in hand.

161. *Mr. O'Conor.*] Do you remember being at the Buller and having a meeting there? Yes.

162. Do you remember on that occasion whether or not you stated anything about engaging workmen to clear the harbour at the Ngakawau? I do not remember saying.

163. What I want is to fix the date when the Albion Company took over the mine? The Albion Company commenced about the date you speak of; about the date of that meeting.

164. Before or after? I took the foreman down with me at that time. There were some men on before that. I had got a manager from the Thames, and others arrived afterwards. I had an outdoor or river manager I knew, and he had commenced with work upon the river.

165. Have you no idea of the date when that meeting took place? You have got the date there, I presume.

166. Would it be two days before that meeting that the property was taken over by the Company? I recollect I brought down a mining manager. I think the manager left Nelson about August 6th.

167. When were the boats purchased and removed to the river? About that time; the time the meeting took place.

168. Did the boats leave Westport before you left there? No; the weather was bad, and they were detained.

169. Did the men to work these boats leave previous to that? I think they did. They travelled overland.

170. Are you in a position to state that the work was commenced previous to your leaving Westport on the 22nd August? I was not there then, and I have not been since.

171. Did you visit the Ngakawau previous to purchasing the interest of the old company on behalf of the Albion Company: had you visited the claim previously? Yes; I did.

172. Were you there in January or February, 1873? I do not know. I think I was there later.

173. Did you see any work going on? I saw that a great deal of work had been done on the river.

174. Are you aware that the Provincial Government spent money on the river? I am not.

Mr. W. Berry present and examined.

175. *The Chairman.*] You took the evidence of Mr. Beetham before the Colonial Industries Committee? Yes.

176. Are you satisfied of the accuracy of your report? Yes. I may say that in taking down such a statement as Mr. Beetham's, a mistake may be made in figures, although I never remember making such a mistake as shown by the correction. If those who were present, and can speak from memory, say that the amount was not as originally written, then I must have mistaken Mr. Beetham's utterance.

177. *Mr. O'Conor.*] You heard Mr. Beetham's evidence to-day, when he said that he did not mention anything about pontoons, nor about the expenditure being the Albion Company's expenditure? On those points, I have not the slightest doubt that my report is correct.

178. Is it possible that if he said £1,600, it would have been put down £10,000? Certainly not. He must certainly have spoken of thousands.

179. You heard Mr. Beetham's statement relative to your having consented to his making the alterations? I neither consented to his making the alterations, nor dissented from his doing so. I told him when he had finished, that the evidence would have to go back to the Committee.

180. What did he say with reference to my not seeing it? Mr. Beetham asked me one day if you were likely to see the evidence before it was printed. He referred to those passages which he had deleted, in which he had spoken of the Westport people.

181. You can vouch as to the general accuracy of your report? Most certainly I can.

Mr. CURTIS, Superintendent of Nelson, present and examined.

182. *The Chairman.*] You have sent a letter relative to Mr. Beetham's matter—that is substantially correct? Yes.

183. Do you remember of Mr. Beetham in his evidence stating about the sum of money expended at Ngakawau? Yes.

184. Do you remember what Mr. Beetham stated? My recollection is, that he said £2,000. I should be perfectly positive if the reporter had not taken it down differently. Otherwise I should be quite positive, more particularly as I was pretty well acquainted with all the circumstances, and would have known that £10,000 was out of the question.

185. *Mr. O'Conor.*] Did you hear the whole of Mr. Beetham's evidence? Yes; I was in the room when he entered and when he left.

186. You heard him say £2,000 in the Public Works Committee? Yes.

187. Did you hear Mr. Richardson ask a second time if £2,000 had been spent upon the river works? I do not recollect that. It is very likely.

188. Do you recollect Mr. Richardson questioning the accuracy of his statement? No, I do not.

189. Did you see Mr. Beetham's first petition? Yes.

190. Did you see a statement in that about other companies using the Ngakawau River? Yes.

191. Did you hear him make a statement to that effect? Yes.

192. What other companies use the river? Are there other companies in existence? I did not understand him to refer to companies in existence, but that other companies would be prepared to use the Ngakawau.

193. What is the meaning of that if there are no other companies in existence? Although not in existence they are in course of formation; there are applications for leases.

194. Who are the applications for leases from, in the Ngakawau? I cannot recollect them all. There is one by Mr. Rochfort on behalf of a number of persons.

195. Are you sure that that is in the Ngakawau? The ground extends right up to the Albion Company's lease.

196. Have you ever stated that it was within ten miles of Westport? Yes. It extends both ways, and goes right down to the Albion Company's lease.

197. When has that application been made? Since I have been here. I do not recollect exactly the date.

198. Are those applications usually made to you or to the Waste Lands Board? Usually to the Waste Land Board. I think they should more strictly be made to me. I am not certain as to Mr. Rochfort's application; I think it was made to the Waste Land Board.

199. I infer from what you have stated, that you believe that would be the application to which Mr. Beetham referred? I do not suppose he referred to any particular application. I understood him to mean that other companies would work ground at Ngakawau, and would use the river that was what I understood from his evidence.

200. Are you aware what sum of money the Provincial Government spent at Ngakawau? I would say between £40 and £100; not more than £100 and not less than £40; just in removing two or three boulders.

201. Was application made by the proprietors of the Albion Company for assistance to remove boulders? I think it was before the Albion Company was formed that the money was expended.

202. Do you remember their application? There was more than one application. One was made when I was in Westport, in February last.

203. You acceded to that? Yes; to the extent, I think, of £20 or £25.

APPENDIX.

No. 1.

Mr. A. GRAHAM to Mr. W. A. MURRAY.

SIR,— Gisborne, 16th July, 1873.

I have the honor to submit for your consideration that a company is now being formed to bore for petroleum, and for the manufactory of kerosene therefrom in the Poverty Bay District. That the direct benefits which would accrue to the Colony at large upon the successful establishment of this industry would be very considerable. Amongst these might be enumerated,—

The amount of employment and the attraction which this would offer to labour in the various processes of boring, refining, tinning, casing, transit, and shipping.
The fostering and enhancing the returns of other existing Colonial industries.
The production of a valuable commodity entering largely into ordinary consumption, for which large sums are annually expended in foreign markets, which would thereby be retained and circulated in this country.
An addition to the exports of this Colony, largely increasing the tonnage of shipping trading with New Zealand ports, and giving an impetus to various commercial interests.
That the successful initiation of this company would be probably followed up by the establishment of many more; the surface indications pointing to the existence of petroleum over an extensive district towards the East Cape.

Taking into consideration the liberal policy of the Government in fostering the opening up of various new industries, none of which present a greater claim to consideration than this, we would respectfully submit that similar encouragement be offered to this, by a bonus of such an amount as your honorable body shall deem fit to recommend for appropriation by Government on the production of a stated quantity of rectified oil.

We have, &c.,
The Provisional Directors of the Poverty Bay
Petroleum and Kerosene Company (Limited),
Per Andrew Graham, Chairman.

The Chairman, Colonial Industries Committee, Wellington.

No. 2.

Memorandum by Dr. Hector, relative to the Iron Ores of New Zealand.

Almost every known variety of iron ore has been discovered in the Colony, but none have yet been successfully worked, chiefly owing to the want of enterprise and practical acquaintance with the subject.

Until lately, the amount of iron required in the Colony has also been limited, and imported iron has been cheap; but the recent rise in price, and the demand for rails and other ironwork required in connection with the public works now in progress, are causing attention to be directed to this branch of our natural resources.

For the purpose of classification the iron ore may be divided into *Granular* and *Massive*, the former group including all the varieties of iron sand (which have always had great, and, I think, undue, prominence given to them in New Zealand); and the latter including all the ordinary ironstones, occurring either as stratified masses or as vein-stones.

I. *Granular Ores or Iron Sand.*—Iron sand, or black sand as it is usually termed, is found in every part of New Zealand, there being few soils or stream gravels that will not yield a considerable quantity when washed in a pan in the same manner that the gold diggers prospect for gold. The chief deposits are, however, to be found on the sea shore of the west coast of both Islands, the best known deposit being that at Taranaki, where the shore between tide marks is, for many miles, almost wholly formed of this black iron sand, to the depth of several feet.

Several companies have been formed, both in England and in the Colony, to manufacture steel from this iron sand, and very considerable sums have been spent, but as yet without success. Lately, a large extent (about five miles) of the beach has been leased to a new company, and they are now erecting furnaces. At the Manukau Heads, near Auckland, a similar deposit of iron sand has also been worked, but the company failed.

Before describing the processes which have been employed, and those which are adapted to this class of ore, a few words may be said on the variety of mineral compositions it presents, and the geographical distribution of those varieties, which is somewhat singular.

Samples from twenty-six different localities have been analysed, as shown in the appended Table I. The iron they contain is present as magnetite ($Fe_2 O_3$ Fe. O.), hematite ($Fe_2 O_3$), or as titaniferous oxide ($Fe O Fe_2 O_3$). The acidic rocks, such as the granite of the South Island and trachytes of the North, have been the chief source of the magnetite. The metamorphic schists afford the drifts abounding in hematites or specular ores, while the titanic oxides are derived from the diorites and basaltic rocks.

These observations give a fair indication of the formations where, in future, the different ores may be looked for in the massive form.

The various methods which have been proposed for working these iron sands were described in my evidence before the Colonial Industries Committee last year as follows:—

"Iron sand was first worked in 1842 by Mr. Horne, a steelmaker and cutler in London, who extracted 60 per cent. of malleable iron from iron sand obtained in America, and which he converted into steel. The Japanese and natives of India have also long used iron sand as ore for the production of a fine quality of malleable iron for conversion into steel. Patents were granted for producing cast steel direct from these sands in crucibles, being, in fact, an extension of the ordinary method used in the laboratory; but it was not found possible to produce uniform results on a large scale. In 1845, Heath proposed to reduce ores such as iron sand by the addition of a small proportion of charcoal, and thus produce a spongy mass of malleable iron, which was then plunged in a bath of molten cast iron, in a proper proportion to make steel of the compound. A modification of this process is now in use in Sweden, but requires the use of crucibles. In 1868, Leckie, of Montreal, proposed to mix the iron sand up into a lump with charcoal, and place it in a hearth at the back of a bath of molten cast iron in a reverberatory furnace. After the reduction, the lump was to be tipped into this bath. This was an attempt to work with a single furnace without crucibles, and by a continuous process. It does not yet, however, appear to have been a success. In 1868, Ellerschausen proposed to decarbonize pig iron

by the addition of oxides, such as iron sand, while the metal was flowing from the furnace. This process, which requires very peculiar machinery, is now in use at Pittsburg, in the United States. In 1851, Stenson obtained a patent for working the iron sands of New Zealand by means of a blast furnace, the sand being worked up with clay containing a small proportion of lime, ground in a pug mill and formed into bricks. These bricks were then treated as common earthy iron ores, the result being a pure cast iron, which might be converted into steel by a second process. Many patents have been taken out relative to the New Zealand iron sand, which have all relation to some supposed virtue which they possess from their containing titanium, and which would give them such extra value for the production of steel, as to warrant the employment of expensive processes of manufacture. None of these have been a practical success. We thus have four processes for the conversion of these iron sand ores: (1.) By cementation with charcoal, the result being malleable iron. (2.) Being mixed with clay, they are reduced by a flux in an open blast, the result being cast iron. (3.) The cement sponge, obtained by a process like No. 1, is plunged in a bath of cast iron, the result being steel. (4.) The decarbonization of cast iron by the addition of the iron sand, the result being malleable iron of a fine quality. There is no necessity for experimental research being undertaken, as the iron sand is the same in New Zealand as that which has been and is being tried on a large scale in other countries."

The method employed by the company in Auckland, was to mix the iron sand with scoria or volcanic slag, which abounds in the neighbourhood. A small quantity of iron was produced, but, as might be expected, was most uncertain in quality.

At Taranaki, the method proposed is to mix the iron sand with calcareous clay and some carbonaceous matter, and to form bricks, which are afterwards to be treated as iron ore. The introduction of impurities into a naturally pure ore, and the uncertainty of the product, whether iron or steel, is the defect of this system.

The only practical trial which has been made on this plan, resulted in the formation of a large ball of cement stone and a small quantity of impure cast steel.

In working these granular ores, the chief difficulties to be met with are,—

1. In the collection of the ore in the pure form.
2. In getting pure fuel (coke or charcoal) sufficiently cheap.
3. In getting the labour required to carry out the annealing process.
4. Or, if any of the newer processes are attempted, to get the requisite apparatus and skilled labour.
5. The cost of export from the exposed coasts where the granular ores most abound.

II. *Massive Ores.*—The massive iron ores have not yet been applied to the manufacture of iron in New Zealand on a large scale; but in one case, pig or cast iron of excellent quality has been manufactured on a small scale, as an experiment, from a brown ore at Parapara, near Collingwood. The same ore is also used in Nelson for the manufacture of iron minium, or ochre pigment.

A selection of the principal iron ores which have been examined is given in Table II.

No. 1, though placed with the massive ores, is really the common black sand, which in certain localities becomes cemented by oxidation, so as to form a very compact stratum, which can be broken up and worked like an ordinary ironstone. This form of ore is tolerably abundant south of the Manukau Heads, and might be obtained for admixture with other varieties.

No. 2 is from a vein of loadstone that occurs in chlorite schist in the interior of Otago. The rock at this place is a very compact, foliated diorite, having crystals of magnetite dispersed in the same way that garnets occur in mica schist. No attempt has been made to ascertain the thickness of this lode, as its position is at present too inaccessible to permit of its being worked.

No. 3 is from a lode of hematite, or specular iron, 6 feet in thickness, that occurs in mica schist in the vicinity of the Wakatipu Lake. Other veins of a similar nature, and also lodes yielding 20 per cent. of copper, have been found in this district. Limestone also occurs in the vicinity, and as charcoal can be obtained in abundance from the extensive forests, there is a fair prospect of metallurgical operations being commenced when the railway now in course of construction, to connect the Lake with the Bluff Harbour, is completed.

No. 4 is from a vein from the serpentine series of the Dun Mountain, or what is known as the mineral belt of Nelson. This series forms a range along the east side of Blind Bay, which is singular in having a barren appearance, due to the large amount of magnesia mixed with the soil. The sections of these hills show them to consist of slates, limestones, and indurated sandstones, containing triassic fossils, that pass in ascending series to diabase breccias, associated with diorite, and a peculiar form of compact olivine rock known as dunite. This rock appears at the surface as large masses, several miles in extent, and is speckled with grains of chromic iron; but the principal deposits of ore are in a band of serpentine lying between the dunite and a limestone formation. The serpentine is traversed by dykes of felstone, diallage, and a variety of other minerals; the district being one of the most interesting in New Zealand to a mineralogist. It is here that the hematite vein was found in 1853, along with red, grey, and blue oxides of copper. The thickness was not ascertained at the time, and the works have now fallen in.

This sample of hematite is interesting on account of its containing an appreciable amount of gold.

A company was established in London for working the mines at this place, and after expending large sums of money, without, however, any systematic mining exploration being performed, they last year finally wound up their affairs, abandoned the ground, and sold off all their appliances. Only the chrome ore was worked, 5,000 tons having been raised. The mine, which is at an altitude of 2,500 feet above the sea, was connected with the Port of Nelson by a railway, 12½ miles in length, and having a gradient for a great part of its course of 1 in 18; but the rails have now been removed and sold.

No. 5 is a sample of mixed hematite and magnetite, containing a marked percentage of manganese, and is found in brecciated sandstones and slates, probably of triassic age, on the west side of the Gulf of Thames. Pure manganese ores are very common in this formation, and have been worked on the Island of Pakihi, and also near the Bay of Islands. The occurrence of copper lodes at Kawau and the Great Barrier, in connection with the same formation, affords an indication of its being worthy of a more thorough mineral exploration than it has yet received.

The above are only a few of the many anhydrous massive iron ores which exist in New Zealand; and the next group consists of those ores which contain a large proportion of combined water, and are generally known as brown or hydrous ores.

No. 6 may be taken as a type of the bog iron ore which forms in swampy localities, generally near the outcrop of the brown coal formation. From the quantity of sulphur generally contained in this ore, it is not adapted for making good iron; but it could be obtained in considerable abundance, and under favourable circumstances for working, being generally close to supplies of coal and limestone.

No. 7, from Raglan, may be taken as an average sample of the brown iron ores from the tertiary coal formations, which occur generally as ball-stones or concretionary masses dispersed through the shale, and can generally be obtained in large quantities wherever that formation prevails. As this ironstone is of great practical importance, a detailed analysis of its composition has been made, as follows:—

(No. 1,395) L		
	Sesquioxide of iron	72·69
	Oxide of manganese	·56
	Alumina	1·16
	Lime	·27
	Magnesia	·69
	Phosphoric acid	·70
	Sulphide of iron	traces
	Siliceous matter	6·30
	Water { hygroscopic	4·61
	Water { constitutional	13·02
		100·00

No. 8 is a hydrous hematite, formed by the decomposition of the hematite ore associated with the manganese veins alluded to under No. 5. This particular sample is from the Island of Kawau, but this ore is generally to be found in thin, irregular veins wherever the sandstone formation has undergone decomposition into a form of laterite, which takes place to a very great depth in some places. As an iron ore, however, it would be very difficult and expensive to collect, unless to supplement a supply derived from better defined deposits of ore.

No. 9 is from a deposit of hydrous hematite that occurs in the upper tertiary drifts at Parapara, in the Province of Nelson, but is also not infrequent in many other localities.

The ore occurs as the matrix of a quartz conglomerate, but often containing large masses of nearly pure ore, of several hundred pounds weight. On breaking these there is frequently a kernel of undecomposed sulphide of iron, showing the origin of the ore to be probably from the denudation of a mineral vein. The deposit at this place covers about fifty acres in extent, and is 100 feet thick, and, as previously mentioned, is worked on a small scale for the preparation of pigment.

Taking the foregoing as typical samples of the different varieties of hydrous iron ore, it now remains to notice the occurrence, in the upper secondary coal formation, of iron ores containing a sufficient percentage of carbonate of iron to entitle them to be classed with the black bands or spathic iron ores, which are generally considered the most favourable for the purposes of a blast furnace. Nos. 10 and 11 are samples of this ore, taken from two veins that occur along with coal seams at the Collingwood Coal Mine, and on account of their importance, I also give the following detailed analyses of their composition:—

	No. 1296.	No. 1351.
Protoxide of iron	35·23	40·38
Sesquioxide of iron	25·77	5·26
Oxide of manganese	1·10	traces
Alumina	2·11	·40
Magnesia	1·94	·63
Lime	·71	·66
Silica	·90	·55
Phosphoric acid	not determined	not determined
Sulphuric acid	traces	traces
Carbonic acid	21·12	21·97
Sulphide of iron	·41	·09
Water	1·96	·39
Organic matter	5·72	12·98
Silicates undecomposed by acid	3·03	16·69
	100·00	100·00

These ores occur at Collingwood under circumstances very favourable for their being worked, as they can be mined along with coal of the very finest quality that occurs in New Zealand, the only drawback being that the coal seams are not more than 3 feet thick, while the ore is from 10 to 20 inches. The coal measures are now being explored by a tunnel 700 feet in length, and so far as it has gone, they show an improvement from what was anticipated from the examination of the outcrop. Close to the coal mine there is abundance of fine crystalline limestone, belonging to an older formation; and deposits of graphite and also micaceous hematite, that might be useful in working puddling furnaces, are found in the same district.

The area of country near Collingwood occupied by a similar formation, is about ten or twelve square miles; and as Golden Bay offers very favourable conditions for the erection of deep-sea wharves, I think it likely that this locality will be the first in New Zealand where the mineral resources will lead to the establishment of a manufacturing industry.

An estimate of the cost of the erection of suitable blast furnaces has been obtained from a reliable source, which shows that with a capital of £22,000 invested, 18,000 tons of pig iron could be produced annually, at a cost of less than £100,000 for working expenses. (See Parl. Papers 1873, E. 10, p. 25.)

I.—Tabular Statement of Iron Sands.

No.	Locality, and Matrix from which probably derived.	Magnetite.	Hematite.	Titanite.	Per cent. of Iron.	Accessory Minerals.
1	Upper Buller River, Nelson—Hornblende rocks	87·5	9·4	...	70·2	
2	Lower Buller River—Tertiary gold drift of diorite slate...	54·0	...	42·3	59·0	Auriferous
3	Upper Molyneux River, Otago—Mica schists	82·7	...	9·7	65·9	Auriferous
4	Lower Molyneux River—Mica schist and tertiary strata...	74·4	...	2·5	58·7	Auriferous, and with 12 per cent. of glauconite
5	Mountain Stream, Canterbury—Palæozoic slates, &c. ...	62·7	37·2	...	66·2	
6	„ Otago „ ...	86·1	10·5	...	58·5	Auriferous
7	Tuapeka, Otago—Old gold drift	2·2	92·8	...	63·8	Auriferous
8	Wakatipu, Otago—Mica schist	80·0	7·6	...	52·9	Auriferous
9	Mataura River (Upper)—Diorite slate	9·8	...	70·9	41·2	
10	„ on a spur close by—Old gold drift ...	63·5	16·1	8·0	60·6	
11	Stewart Island—Granitic rocks, with greenstone dykes ...	77·8	...	20·1	57·3	Auriferous
12	„ Hornblende rocks	71·5	20·0	8·2	70·1	Auriferous
13	Anatoke, Nelson—Granite and hornblende	79·8	7·7	3·4	60·2	Auriferous
14	Mahinepoa Lake (old channel of Hokitika)—River drift from diorite rocks	...	...	58·0	29·1	Auriferous, with garnets, topaz, disthene, &c.
15	Sea Beach, Hokitika—Sea sand drift	75·0	...	...	54·0	Auriferous
16	Motueka River, Nelson—Tertiary strata and granite ...	33·0	32·5		42·0	Auriferous
17	Wairau River, Marlborough— „ „ schist	21·0	48·4		38·9	Auriferous
18	Wanganui River, Nelson—Granite and tertiary	54·0	13·0		43·2	Auriferous
19	Saddle Hill, Otago—Basaltic	58·3	...	25·6	52·9	
20	Green Island, Otago— „ or sea beach...	53·3	...	29·6	50·3	
21	Hooper Inlet— „ „	20·0	74·2		53·0	
22	W. Bluff, Southland, Foveaux Straits—Diorite, or sea beach	12·2	...	40·6	28·6	Auriferous and Platiniferous
23	D'Urville Island, Nelson—Diabase and Granite	78·6	...	...	57·4	Chrome iron
24	Taranaki Beach—Trachyte	91·9	...	6·2	70·1	
25	„ „	71·0	...	8·0	56·1	Olivine and hornblende
26	Tauranga Beach— „	87·4	8·6	...	68·0	

Table II.—Massive Iron Ores, Oxides, and Titanites.

No.	Variety.	Locality.	Centesimal Composition.					Percentage of Iron.	Remarks.
			Magnetite.	Hematite.	Titanic Iron.	Siliceous matters.	Water.		
1269	Impure magnetite ...	Manukau, Auckland ...	60·20	37·90	traces	1·90	...	70·06	
426(*b*)	Magnetite	Dunstan Gorge, Otago ...	86·32	...	traces	13·68	...	63·60	
426(*a*)	Hematite	Dunstan, Otago	...	96·11	...	3·89	...	68·30	
	Magnetite	Dun Mountain, Nelson ...	...	90·60	...	7·60	1·8	63·40	
1274	Mixed magnetite and hematite	Maramarua, Auckland ...	2·24	87·10	traces	10·66	...	62·30	
22	Bog iron ore ...	Spring Swamps, Auckland	...	73·17	...	13·83	13·00	51·22	
1395(*b*)	Brown iron ore ...	Raglan	...	72·69	...	9·68	17·63	50·88	
1199	Brown iron ore ...	Kawau	...	67·98	...	19·65	12·37	47·58	Manganese oxide, 1·38
1230	Hydrous hematite ...	Parapara, Nelson ...	...	62·68	...	24·08	13·24	43·87	Contains a little manganese

Black Bands or Spathic Iron Ores.

No.	Variety.	Locality.		Protoxide of Iron.	Sesquioxide of Iron.	Carbonic Acid.	Silicates.	Percentage of Iron.	
1296(1)	Black band	Collingwood, Nelson ...	...	35·23	25·77	21·12	3·93	46·06	
1351	Black band	Collingwood, Nelson ...	...	40·38	5·26	21·97	16·69	35·12	

No. 3.

Mr. S. A. Leech to the Directors, Albion Coal Mining Company.

Gentlemen,— Harbour Office, Westport, 15th August, 1873.

At the request of Albert Beetham, Esq., your managing director, I accompanied that gentleman to the Ngakawau River in the steamer "Result," to explain, on the spot, my views of straightening and improving the navigation of the river up to the mine, as the channel in its present state is difficult to navigate, except with small vessels like the "Result," notwithstanding a considerable expenditure on it by the original promoters and the Nelson Government.

To make the channel comparatively straight, it will be necessary to remove two overtopping points or spits, composed of boulders of various sizes, but nearly all loose and portable; these can be removed best by barges, and discharged at convenient spots on the banks of the river.

The removal of certain obstructions in the deep basin opposite the mine is of paramount importance, and a depth of at least 7 feet should be obtained at the lowest spring tides prior to the discontinuance of operating on those dangers.

The largest stones in the channel should also be removed, particularly those on the fall where the river has to be crossed, which is the shallowest water between the bar and the mine; this place should be well cleared.

When these works are completed, the river navigation will be pretty safe for suitable vessels with careful commanders.

The draught of water for Ngakawau, all the year round, should not exceed 5 feet, but as no steamers that carry sufficiently are available of that draught, you must do with what is available at present. But nothing drawing over 6 feet, or 6 feet 6 inches deeply laden, should be purchased.

A paddle boat with disconnecting engine is the proper vessel for the Ngakawau, or else a twin screw, but the paddle is preferable.

I have, &c.,
S. A. Leech,
Harbour Master, Westport.

To the Directors of the Albion Coal Mining Company.

No. 4.

Mr. C. D. Dobson to His Honor O. Curtis.

Sir,— Provincial Engineer's Office, Nelson, 14th July, 1873.

I have the honor to hand you the following Memorandum upon the Mount Frederick coal seams:—

The chief outcrops are about a mile and a half south of the Ngakawau River and outside the block leased to the Albion Company, and are found at elevations varying from 1,000 to 1,500 feet above sea level.

Although the Company's lease is of great value from its being immediately available, I do not consider it to be so valuable, taken acre for acre, as the land on the plateau, where the coal seams are more regular, less broken, and lie nearly horizontal.

The plateau can be easily worked by tramways on easy gradients carrying the coal to the seaward face of the mountain, and lowered with self-acting inclines to the level ground about two miles south of the Ngakawau River, from whence it can be taken either to the Ngakawau or Buller for shipment.

The fact of the company holding the lease for the lower ground cannot in any respect interfere with or prejudice the working of the plateau.

I have, &c.,
C. D. Dobson, Provincial Engineer.

His Honor the Superintendent, Nelson.

No. 4A.

Mr. John Blackett, Assistant Chief Engineer to the Government of New Zealand, appeared before the Committee, and was requested to give his opinion as to the transit of coal for shipment from Mount Rochfort and back country.

Mr. Blackett stated that he was of opinion that coal might be brought down from Mount Rochfort and back country partly by self-acting inclines, and partly by steam power; the trucks running on such lines might be used on the railways. That shifting coal from small to large trucks would not be so serious as might at first appear. That wire tramways could not be worked to advantage, for the reason that the quantity so brought down would be very small as compared to railway carriage.

As regards improvement to harbour of adjacent coast, he was of opinion that suitable stone might be procured at distances of from seven to nine miles; that is, in view of the railway being constructed, along the proposed line of which the stone is to be found.

No. 5.

From Mr. Acton Adams, in reply to Chairman requesting copy of Articles of Association and List of Shareholders of Albion Company.

Would gladly forward articles, but they are not finished yet.—Acton Adams.

No. 6.

Mr. R. McKinny to Mr. J. Sheehan.

Sir,— Mahurangi, 11th August, 1873.

As you are anxious to get information regarding European flax, my friend Mr. Palmer, knowing that I come from the most flax-growing part of Ireland, has suggested to me the writing of a note to you on the subject.

I may say, then, that in my opinion there is no country in the world better fitted for the growth of European flax than New Zealand—at all events, this northern part of it. I believe, indeed, that

the northern part of New Zealand is most especially suited for its growth. Flax does not require rich soil. I have seen growing in Mahurangi about half an acre of European flax, quite as good as any I ever saw growing in Ireland. This flax was grown from seed furnished by the Government.

With the appliances that are now used for the preparation of flax there is not a great deal of work about its production, and as it sells at home at from £60 to £100 a ton, it could be easily sent to any market.

I hope some encouragement may be given by Government for its growth. Were it grown by the northern settlers of New Zealand, instead of seeing them struggling and in poverty, we would soon, I believe, see them if not wealthy, at any rate comfortable and prosperous.

Trusting you may be able to do some good in this way,

I have, &c.,

J. Sheehan, Esq. R. McKinny.

P.S.—Nobody knows better than Mr. Palmer does all about the flax, the putting up mills for it, &c.

No. 7.

Report of the Mount Rochfort Coal Field Inquiry Committee.

Your Committee appointed to consider and report upon all leases and licenses applied for or granted upon any part of the Mount Rochfort Coal Field, have the honor to report that they have examined persons and papers in connection with the subject referred to their consideration, and that the following is a brief summary of the facts elicited by the inquiry:—

There are at present two rights in force upon the Mount Rochfort Coal Field—namely, a lease of 400 acres at the Ngakawau, granted to Messrs. Field, Chambers, and Thorpe; and a prospecting license, extending over 6,720 acres, in the neighbourhood of the Waimangaroa, granted to Mr. Albert Walker.

Relative to the lease at Ngakawau, your Committee finds that in April, 1872, Messrs. Field and others applied to the Waste Lands Board for a prospecting license, which application was postponed till the receipt of a report from Dr. Hector.

24*th June.*—"Dr. Hector's report not being yet received, the Board decided to issue a prospecting license for three months, considering that the issue thereof would not interfere with the adoption of any recommendations as to extent of lease afterwards to be granted."

30*th September.*—The Board received an application from holders of the prospecting license for a lease of two square miles. "No report from Dr. Hector having been yet received, the Board decided that they would not definitely settle what quantity of land should be included in the lease, but requested the Commissioner to write to the Superintendent at Wellington on the subject, and propose at least 400 acres."

30*th October.*—The Superintendent being present, the Board resolved, "That the Superintendent should be recommended to offer for their immediate acceptance a lease of from 30 to 40 acres without any special conditions; but if they declined to take such lease, and wished to take a larger area, then that the following special conditions should be required." The conditions were, shortly, that a lease should be granted for a term of fifteen years upon a company being formed with a capital of £20,000; subject to the raising of a certain quantity of coal annually, the payment of rent, and the leaving of one or two chains between the lease and the river.

Until the 4th of December, it appears that the Superintendent (in deference to objections raised by the chief of the Colonial geological establishment, Dr. Hector) was averse to granting a lease for any greater area than 30 acres. About the 4th of December, Dr. Hector "waived his objections," and the Superintendent then intimated to the Waste Lands Board, and to Messrs. Field and others, that a lease would be granted upon conditions set forth in a letter dated 9th December, 1872.

On the 20th of February, 1873, a letter was forwarded from the Colonial Secretary to the Superintendent, enclosing Dr. Hector's report, dated 19th February, 1873. In this letter, the Colonial Secretary remarks,—"Before taking any further action, or incurring the expenditure recommended by Dr. Hector, the Government is desirous of ascertaining what is the true position of the Coal Reserves, how far they have passed from the charge of the Provincial Government, and what steps the Government purpose taking to facilitate the working of them." It appears that both this letter, and the enclosed report, were "overlooked."

On March 13th, another letter was sent from the Colonial Secretary's Office to His Honor the Superintendent, in which it was stated that Mr. Chambers had applied for the construction of the railway to Mount Rochfort Coal Field, and furnished the Minister for Public Works with a copy of a letter from the Provincial Secretary, dated December 9th, defining the terms upon which it was proposed to grant a lease of 400 acres at the Ngakawau, and also stating,—"Before the Government can go any further in this matter, it is necessary that they should be informed of the real position of the Mount Rochfort Coal Reserves. As your Honor is aware, the Government are going to considerable expense in exploring the above reserve, and they view with surprise the proposal of your Government to grant a lease on such terms as those now submitted to them, as it would appear, from the best information now in the hands of the General Government, the portion of land now proposed to be leased is the key to the whole of this valuable coal field." No written reply appears to have been given to this letter; but His Honor has favoured your Committee with the following explanatory memorandum:—

"The letter from the Hon. Mr. Waterhouse, dated 20th February, arrived during the absence of the Superintendent on the gold fields, and appears to have been overlooked. That from the Hon. Mr. Bathgate, dated the 13th March, was received shortly after the Superintendent's return; and as he proposed to visit Wellington in the course of a few days, he preferred to answer the letter in person, the more especially as it was of a character likely to give rise to an angry correspondence.

"The Superintendent accordingly had an interview with the Hon. the Minister for Public Works on the subject about the 3rd of April, and gave him all the information required.

"OSWALD CURTIS,
Superintendent."

Regarding the prospecting license granted to Mr. Albert Walker, your Committee finds that Mr. Walker applied for 6,720 acres, by letter, dated Auckland, March 7th, 1873. His application was granted for six months by the Waste Lands Board, March 19th. On the 28th March, the Westport Coal and Railway Committee telegraphed to the Superintendent, recommending "that no further rights be granted over coal fields in the district, in view of pending arrangements with the General Government relative to the construction of a railway from Westport to Ngakawau. On the 28th March, a letter was received from the Warden at Westport, enclosing a letter from Messrs. McLeod and Organ, apprising the Government of the discovery of coal at Waimangaroa, and applying for grants of land in that neighbourhood, and other rights to enable them to construct a railway. The Warden, in his letter, remarks "that should the coal beds turn out to be extensive and easily workable, its situation would render it highly important, being nearly on the proposed line to Ngakawau, and only half the distance." On the 7th April, the Warden also telegraphed to the Superintendent, "With reference to applications for coal prospecting licenses in the district, I would suggest for your consideration whether it would not be better to refuse all such, and grant only leases to such parties as are prepared to take and work them. I fear that prospecting licenses will injuriously lock up ground and hinder others from doing anything." No record appears of Messrs. Organ and McLeod's application having been dealt with by the Waste Lands Board until June 3rd. On the 24th April, the Waste Lands Board considered the application made by Mr. Albert Walker, in a letter dated Auckland, March 25th, in which he inquires the result of his former application, asks what he will have to pay, and requests that the time of his prospecting license be extended to twelve months; the extension asked for was granted, and a license was subsequently issued, dated April 1st, having a currency of twelve months, comprising 6,720 acres of the reserve, including the Waimangaroa.

At the same meeting the following applications for prospecting licenses enclosed by the Warden at Westport on March 28, were suspended in consequence of a telegram from the Westport Coal and Railway Committee, dated March 28:—

Mulholland and others, 640 acres, Waimangaroa.
Roche and others, 1,200 acres, Waimangaroa.
Martin and Findt, 1,200 acres, south of Mount Rochfort.

The refusal of the Board to entertain the above application for part of the reserve already awarded to Mr. Walker appears strange, considering that not only was the land already disposed of, but the Board had at the same meeting conceded an extension of rights to Mr. Walker, thereby practically disregarding the spirit and letter of the Westport Committee's recommendation. This has been attributed by the Superintendent and the Commissioner of Crown Lands to the Waste Lands Board, supposing that Mr. Walker's license included only the table land upon the Mount Rochfort plateau. The following resolution, passed by the Waste Lands Board, June 3, 1873, may, if acted on, prevent Mr. Walker from claiming any advantage derivable through the exertions of those who have discovered coal in quantities at Waimangaroa, where a seam is now being proved at the expense of the Colony:—

"That the Board granted a prospecting license to Mr. Albert Walker on the 19th March, with the understanding that any application made by him for a lease would be upon the table land of the Mount Rochfort range, and they will not include in any lease which may be granted to Mr. Walker any of the small portion of land within the area of his prospecting license which extends beyond the western edge of the table land."

In conclusion, your Committee recommends the following resolutions for your adoption:—

1. "In the opinion of this Council it is desirable that no further rights or privileges should be granted over any portion of the Mount Rochfort Coal Field without the concurrence of the General Government, pending their decision as to the construction of the railway from Westport."

2. "That, in the event of any contingency arising to prevent the General Government proceeding with the Mount Rochfort Coal Field Railway, the Provincial Government should then make arrangements either with private persons or with a public company for the construction of the railway and other works necessary for the adequate development of the Coal Field."

3. "That the important matters intrusted to the Waste Land Boards make it desirable that the number of members of the Board should be increased to five."

E. J. O'CONOR,
Chairman.

Nelson, June 12, 1873.

MEMORANDUM of APPLICATIONS for portions of the Buller Reserve and adjoining Country not in force on June 13th, 1873.

June 26, 1872, T. J. Jones, Mohikinui, 640 acres.

March 1, 1873, A. Beetham, Ngakawau, 640 acres. Granted March 19; withdrawn by letter from Mr. Dobson, dated April 24.

March 8, 1873, T. Field and others, Ngakawau, 640 acres. Refused by the Waste Lands Board, 19th March, 1873.

April 1, 1873, Mulholland and others, Waimangaroa, 640 acres.

April 1, 1873, Martin and Findt, Paparoa, 1,200 acres.

April 12, 1873, E. Roche and Co., Waimangaroa, 1,280 acres.

The consideration of these three applications was deferred at the request of a Committee at Westport, on April 24th.

April 24th, 1873, A. Beetham, Ngakawau, 640 acres. Renewal of former application by letter from Mr. Dobson, dated April 24th.

McLeod and Organ, Waimangaroa. Grant for construction of a railway to Waimangaroa. Considered by the Board on June 3rd.

Spence and O'Conor, proposal for construction of a railway and other works to Ngakawau, dated 31st March; replied to by Superintendent on June 8th, "That pending the construction of a railway from Colonial funds, the Provincial Government were not in a position to give a definite answer."

E. J. O'Conor,
Chairman.

No. 8.

Mr. W. A. Murray to the Mayor of Westport.

10th September.

Please forward replies from captain of "Result," greatest, least, and general depth of Ngakawau Bar; whether Riley has always been able to enter; draught of "Result;" rise of tide at mine.

Wm. Arch. Murray,
Chairman, Committee Colonial Industries.

Mayor of Westport.

Mr. J. W. Humphrey to Chairman, Colonial Industries Committee.

10th September.

Captain Riley reports of greatest cast Ngakawau bar, 10 feet; general depth 5 to 7 feet. Ordinary rise of tide at mine, 5 feet 6 inches. "Result," loaded, draws 4 feet 6 inches. Depth of water on bar often insufficient for "Result;" at times almost closed.

J. W. Humphrey, Mayor.

No. 9.

Mr. Stewart's Report on Petroleum Springs, Poverty Bay.

Sir,— Wellington, 15th September, 1873.

I have the honor to report that in May last I visited the petroleum springs of Pakake a Whirikoka, at Poverty Bay, from which the sample of oil analysed by Mr. Skey was obtained, and found it occurring as a coating or scum on the surface of salt water contained in small circular basins about 2 feet in diameter, from the bottom and centre of which basins descended a pipe or tube in a perpendicular direction, as we ascertained by probing with sticks, presumably, in the direction of the subterranean source through which an occasional bubble of inflammable gas made its way to the surface, accompanied by a small quantity of oil.

About a dozen of these springs occur within a radius of about 30 yards on the top of a blind spur, from a hill forming part of a ridge running from the Waipaoa River in a north-east direction. At a lower elevation, running into the two creeks which bound the blind spur, and which join together below it in one stream, we found also several other springs or exudations which gave to the water, for a long distance below, the peculiar bluish scum like that of ferruginous springs, and rendered it quite unfit for use from the strong taste and odour of kerosene communicated to it.

The character of the range in which these occur, appears to consist of soft clayey limestone and papa rock, with sandstones interspersed, and the dip of the strata, so far as can be seen in the neighbourhood, is towards the eastward or coastwise.

From this spot where the springs exist, the oil makes its appearance in exudations at various points, but all at a lower elevation, even down to the very township of Gisborne, about thirty miles distant, where a well, dug alongside of the river for the purpose of furnishing water to the ships' boats entering the river, had to be abandoned, from the occurrence of the oil in the spring.

The soil immediately surrounding these springs is of a peaty bituminous appearance, and, when dry, highly inflammable from its saturation with bituminous matters.

At Waiapu, upon the coast, near to the East Cape, some eighty miles from the site of these springs, other and even apparently more promising springs are found; and the Natives assert, that in the country between these two points other springs exist, which, if true, would point to the existence of a very large area of oil-producing country.

On refining myself a sample of the oil which I procured from the spring, I was particularly struck by the absence of the very light and inflammable oils which I should have expected to find; and if the proportion should not increase when the oil is struck in bulk, the result will be a much safer because less explosive or inflammable oil than that of the States.

As to the quantity in which the oil can be found, nothing can be said prior to boring operations being initiated, further than that the surface indications are much more extensive than those which induced search being made for the mineral in Pennsylvania.

As to the requisites and plant for boring and refining the oil, in addition to the peculiar boring apparatus used and perfected in America, consisting of a system of jointed rods, with wire rope, &c., for putting down the shaft to reach the oil-bearing strata, and pipes to conduct the crude material from thence to the refining house, Gesner's work on Mineral Oils—the only authority, it is believed, here procurable—gives the following particulars:—

Four stills and condensing worms.
Two superheaters.
Two boilers.
Two washers, with agitators.
One settling tank.
Two underground receivers.
One underground receiver, larger size.
One-horse power steam-engine, with two steam-pumps.
Gearing, &c., pipes, cocks, fittings.
Buildings, and erection of plant.

Which he estimates, in the year 1863, at the sum of say £2,400 for the mere necessary plant of a moderate-sized establishment. From information, however, received from an expert and practical refiner and owner of works in New South Wales, and taking into consideration the immense rise in the price of iron, it is believed that a considerably larger sum, say from £4,000 to £5,000, would be required to cover this; to which must be added the cost of boring gear, say £150; engine and plant for pumping apparatus, and sheds, provision for fuel, &c., say £1,600.

Cost of boring—average distance bored being about 400 feet, though sometimes extending to 600—for each shaft say £150; and many shafts may have to be put down before oil may be struck, though sometimes, but not often, a lucky hit is made.

As regards the cost of refining, the same authority, referring to his own experience, believes that it will amount to say one shilling and fourpence per gallon of refined oil.

I have no information in my possession as to the number of hands that such a manufactory would give employment to. All that can be done is to refer to the various branches of trade and employment to which it would furnish occupation:

Skilled and manual labour to bore and pump, when found.
Bushmen to furnish timber as fuel.
Distillers and helpers in the refinery.
Carriers for transit of manufactured article, or labour required to provide other means of transport for a distance of some twenty-five miles.
Carpenters and coopers for barrels.
Tinsmiths for cases.
Shipping required to place product in market.

Thus it will be seen that occupation would be given to a very large number of persons to an extent which no other new industry can parallel, and so far has a claim for consideration and assistance which a Government whose policy has been and is the establishment of new industries by judicious incentives to local enterprise, will, it is confidently believed, not fail to recognize the due importance.

I have, &c.,

The Chairman of the Committee of Colonial Industries. Wm. Stewart.

The different operations in the process of rectifying the crude pretroleum are as follows:—

1. The oil is allowed to settle in large vats, where any mechanical impurities and water are got rid of.

2. It is then distilled, until it parts with from 10 to 20 per cent. of its volume of naphtha, and other light foreign inflammable products, which are received and drawn off by themselves. The remainder is then continuously distilled at as low a temperature as possible, which produces an oil that does not vaporize at about 115° Fahrenheit.

3. The remainder is then agitated with a certain proportion of sulphuric acid, which precipitates most of the bituminous impurities. After being allowed to settle, the top stratum is drawn off: agitated well with water. Again it is treated with a solution of caustic soda, to neutralize any free acid formerly used. The product, after being allowed again to settle, and being separated from the alkaline solution, is again washed with water; and then redistilled. The product resulting from this distillation yields the oil of commerce, after being bleached for some time in open tanks well exposed to the action of air and light.

I might also mention the statistics of the yield of oil-bearing wells in America, which, in connection with the question of quantity, may be interesting:—

McKinlay Well, Pennsylvania, yielded 3,000 barrels per day; this was the largest. Many give from 50 to 200 barrels. A yield of 50 is considered a very good one; but the first yield is generally the largest, and afterwards they often decline, and frequently after a term dry up, but sometimes again reappear. In Peru, the yield, I am informed, is from 100 to 600 barrels per day.

No. 10.

Mr. Butt's Report on the Introduction of Salmon Trout.

Sir,— Wellington, 15th September, 1873.

I have the honor to acknowledge receipt of your letter of the 11th instant, requesting me to give my experience to the Industrial Committee as to the introducing of salmon and trout to the rivers of this Colony, and to bring any papers on the subject I may have with me. I accordingly attended as desired, and received your permission to render a written paper on the subject.

Presuming that what you require is to obtain as far as possible my experience as to the success obtained by the Southland Society (with which I was connected) in the past, so as to be a guide to further operations in the future, I proceed in the first place to take the brown trout.

This fish, as you are no doubt aware, has been so thoroughly acclimatized throughout the Middle Island, that it is needless to expatiate upon that subject. Its acclimatization has been successful from one end of the Island to the other. In Southland, a number of the rivers have been supplied with young fry, besides which there are some 3,000 twelve months' old fish ready to be turned into the streams in the vicinity; and 50 breeding fish retained in the ponds, which would yield this winter from 70,000 to 80,000 eggs.

Of salmon trout (a fish which is worthy of the highest consideration, as being equal in every respect to the true salmon, except as to size), the Southland Society obtained 150 ova from Hobart Town in 1870.

The hatching of their ova was not nearly so satisfactory as that of the brown trout eggs brought over from Tasmania at the same time.

A much larger percentage died before hatching, and there did not appear to be so much strength in the young fry, many of which died in the baby stage.

I cannot at all account for this delicacy of constitution in this naturally hardy fish, except on the presumption that the parents having been excluded from the salt water, which is their natural habitation for a portion of the year, the progeny became delicate in consequence.

The society have only succeeded, I believe, in rearing some half-dozen of these fish; but I am glad to learn that after my departure from Southland they had commenced spawning, and as the parent fish will now spawn every year, there will be a good quantity of young fry, which may be turned into the streams annually. There is every hope, therefore, that the acclimatization of this fish may now be considered as secured.

Regarding salmon, the evidence I can give must be necessarily limited, from the fact that only two shipments have been made in which I had any personal share; the first being a complete failure, from the extreme length of the voyage; and the second, unfortunately, being attended with a very small modicum of success.

I will briefly narrate the management of the ova after arrival at Port Chalmers, the packing and shipment of them having been fully described by the Agent-General in letters addressed to the Government. Shortly after the arrival of the vessel, our Curator (who was sent to Dunedin for the purpose) went alongside her with a steamer chartered to convey the ova to the Bluff.

The eggs, which were packed in small boxes, containing about 800 each, were placed within two large cases, resting upon straw sacks to prevent concussion, and covered with large blocks of ice. On arrival at the Bluff, a special train conveyed the ova to Wallacetown, within two miles of the ponds, whither they were conveyed in hand-barrows. The water having been sufficiently cooled, and a proper temperature attained, the process of unpacking commenced, and in all these operations the greatest precautions were adopted to prevent failure from slovenliness or want of proper care on our parts. Some few of the boxes turned out excellently, the moss being beautifully green, and the greater part of the eggs bright and apparently healthy, the eyes of the fish in most cases being distinctly visible. This was the case unfortunately with but a few; in the generality of instances the boxes had an appearance as if a sort of dew or mist had settled on the moss. In all these boxes the eggs were principally bad; in many cases not a good ovum in the whole box. Altogether, about 10,000 apparently healthy eggs were placed in the hatching-house.

These eggs kept their bright appearance for the first two or three days, only a small percentage turning opaque. In the course of a week or so, and towards hatching, they died off very quickly, the result being that of the whole number only about 700 were hatched. The result of this I attribute solely and entirely to the length of passage from home, the eggs having been in ice for considerably over 100 days before being placed in their natural element. In consequence, the vitality of the ovum was so much weakened that there was not sufficient strength for the embryo to emerge from the shell, numbers dying just at the point of hatching.

I believe, also, there were a large number of blind or unfertile eggs sent, which would account for a great number of dead eggs which were received.

It is quite possible, however, that even with this small number of salmon fry, success in acclimatizing this fish may be attained. But it is very hazardous, as it is certain that some of them will die, from various causes, before they are ready to go to sea, and there are some deformed fish which will be useless.

Probably 350 will be about the number that may survive, of which only half will lose the parr mark in the first season.

There appears, however, to be one method in which success may be rendered as nearly as possible certain, and that would be by placing say 100 of the fish (as an experiment) in a salt-water pond.

For this Southland has every facility, as the Bluff Railroad cuts off small bays of sea, from which the water flows in and out by means of a culvert under the railway. This being secured by wire netting, you have a perfect pond, where the fish, secure from their natural enemies, would have every chance of growing to maturity. I have the greater confidence in this experiment being successful, as I see that they are experimentalizing in this direction at the Brighton Aquarium, and so far successfully. This appears to me to be the best method for successfully managing the small number of salmon fry in our possession.

No doubt, however, it would be desirable, if possible, to obtain a further shipment or two from home. But if this were done, it should be insisted on that the ova be shipped in a clipper vessel from the Clyde, which vessel should call at the Bluff to deposit this portion of her cargo. I pointed out the necessity of a Clyde shipment most strongly to the Government, and also to Mr. Frank Buckland in England; and Dr. Featherston, I observed, acknowledged having received such recommendations. For reasons, however, which were no doubt good, but which I believe were not communicated, the shipment was made from London.

There is one other method by which I believe salmon ova could be brought out successfully to New Zealand, and that is by screw steamer from England to Melbourne. At the latter port the vessel might be met by the Curator of the Southland Ponds, who would see to the transhipment of it to a steamer direct for the Bluff.

It has been urged that the vibration on board a screw steamer would be dangerous to the vitality of the ova. I am inclined to think, however, that this danger is exaggerated, because I may mention that in 1870 I brought 2,000 trout ova from Hobart Town to the Bluff, via Melbourne, in steam vessels, the passage for the most part being an exceedingly stormy one, and on unpacking them at the Southland Ponds there were only ten bad eggs. If, therefore, on a passage of about eight days the result was so favourable, why should it not be proportionately so were the time extended to sixty days?

Finally, I would beg to point out to the Committee, that if it intends to recommend to the Government a further shipment of salmon ova from Great Britain for one or two years more, which, in the interests of the Colony at large, I should very strongly urge, the order for a shipment this year must be made by telegram.

If it is done by letter, the instructions would not reach London till the 22nd December, by which time every preparation for shipping the ova should already be made, December being the month at which the ova can be most readily collected.

I am not aware that there is anything more that I can add upon the acclimatization of salmon with which you would desire to be acquainted. I can only add, therefore, that if there is anything I have omitted which you desire to be informed of, I shall be happy at all times to communicate it, if in my power to do so.

I have, &c.,
EDWD. BUTTS,
Late Hon. Secretary, Southland Acclimatization Society.

W. A. Murray, Esq.,
Chairman, Industries Committee.

No. 11.

INFORMATION respecting the produce of Coal and Iron in the Colony of New Zealand. In answer to questions put to me at a meeting of the Industrial Committee (General Assembly) on the 8th instant.

Lion Foundry, Wellington, New Zealand, 15th September, 1873.

1. COST of producing pig iron in New Zealand? This I estimate at from £5 to £5 10s. per ton, taking for granted that the works will be erected in close proximity to both ore and fuel.

2. Cost of plant for producing bar, rod, and sheet iron from pig iron? I estimate the necessary plant for turning out about fifty tons of bars and rods per week can be set up in New Zealand for about £18,000. If required to produce rails, say, £21,000.

3. Cost of producing bar and rod iron from pig iron? I believe the cost of converting pig iron into bars and rods would be about £5 per ton, so that the total cost of production would be about £10 or £11. A very considerable quantity of wrought iron scrap is shipped away from New Zealand every year: this could be made into first-rate bars for about 90s. per ton.

4. Best means of encouraging the foregoing productions? I consider a bonus of so much per ton, the fairest means of encouraging the production of iron and steel. Bearing in mind the large outlay required for the necessary plant and buildings, I am of opinion the Government should extend the bonus to a much larger quantity than now offered—say to 4,000 tons, extending over one, two, or three years. I would also suggest that a bonus of say £3 per ton be offered for the production of bar and rod iron and rails made from New Zealand pig iron, and that the above bonus be extended to bars and rails made from the titanic iron sands of New Zealand.

5. Reason of failure of the Fitzroy Iron Works, Sydney? I believe to be as follows:—The ore, which is a rich brown hematite, gave considerable trouble in smelting with the flux obtainable, which was not well suited for the purpose; and the iron having to be produced in competition with that imported, which could be laid down at that time at from 80s. to 85s. per ton, together with the high price of money, and scarcity of labour. The above conditions are now nearly reversed, money being plentiful and cheap in the Colonies, and iron dear in England: it cannot be landed here under £8 to £8 10s. per ton.

6. Coal? I have used a considerable quantity of Grey coal both for smiths' fires and steam purposes, and consider it preferable to New South Wales. It also makes a most excellent coke. The present and probable future high price of Australian coal, offers the greatest encouragement to the development of our own mines.

7. Fire-clay? I believe there are excellent clays in the Province of Canterbury and in the West Coast district, suitable for the manufacture of fire-bricks. I have not yet had an opportunity of testing them myself.

8. Labour? I consider it absolutely necessary for the development of the above industries, as well as the ordinary requirements of the Colony, that a considerable influx of labour should take place. It is now dearer, at any rate in this portion of the Colony, than before the re-commencement of immigration some two years back.

Bearing in mind the general good that must result from the development of our coal fields and mineral resources, I am of opinion that the Government should assist, by every legitimate means, the speedy realization of the above objects.

A large area of the waste lands of this country will then become the source of the greatest wealth, and we may look forward to New Zealand in a few years deserving the name of the Britain of the South.

E. W. MILLS.

P.S.—Accompanying this is a sample of wrought iron made from the ore obtained in the Collingwood District.

E. W. M.

Additional Memoranda.

Lion Foundry, Wellington, New Zealand, 15th September, 1873.

I CONSIDER the producing powers of the plant stated in the report handed to me, greater than is required in New Zealand. I estimate the cost of erecting, in New Zealand, one furnace with the necessary plant and buildings capable of turning out 180 tons of pig iron per week, at £15,000.

The estimated cost of producing pig iron, I think, is a fair one, and almost identical with that made by myself, the difference being as follows:—

English Estimate.

	£	s.	d.
Ore	2	10	0
Labour	0	8	0
Management, interest, and depreciation	0	6	1⅓
	£3	4	1⅓

My Estimate.

	£	s.	d.
Ore	2	0	
Labour	0	15	
Management, &c.	0	10	
	£3	5	0

The value set down for the iron I considered high, £9 being the full market price of pig iron at the present time in this market. I have seen hematite iron ore found in the Province of Nelson. I am aware that a quantity was forwarded to Melbourne some three months ago, and converted into cast and wrought iron. I produce to the Committee a piece of wrought iron made from the above ore. I consider it of first-rate quality; it was twisted and bent cold in my establishment this morning.

I have been in the Colony thirty-two years; twenty years in business as hardware and iron merchant, and the last fifteen years proprietor of the Lion Foundry.

E. W. Mills.

No. 12.

To the Honorable the House of Representatives of New Zealand, in Parliament assembled, the Petition of Albert Beetham.

Humbly Showeth,—

That, on the Order Paper for this day, the 29th day of September, 1873, a Notice of Motion appears, numbered 7, containing a suggestion of untruthfulness on the part of your Petitioner in the evidence lately given by him before the Colonial Industries and Public Works Committee.

Your Petitioner therefore prays that your Honorable House will cause such inquiry to be made as may afford him an opportunity of relieving himself from so serious an imputation.

And your Petitioner, as in duty bound, will ever pray, &c.

Albert Beetham.

Motion referred to.

Mr. O'Conor to move, That the Colonial Industries Committee be instructed to inquire and report upon certain evidence given by Albert Beetham before the Colonial Industries and Public Works Committee, with a view to reporting to the House whether in the giving of such evidence the said Albert Beetham has or has not given false evidence, in violation of Standing Order No. 218.

No. 13.

Mr. O. Curtis to Mr. A. Beetham.

Sir,— House of Representatives, Wellington, 29th September, 1873.

In answer to your inquiry, I have no hesitation in saying that, to the best of my recollection, the sum you stated, in your evidence before the Colonial Industries Committee, had been spent at the Ngakawau was £2,000.

I was not a member of the Committee, but I was present during the whole time that you were giving your evidence, or rather making your statement, and I paid particular attention to it.

I feel very confident that had you mentioned such an amount as £10,000 as having been expended at the Ngakawau, I could not have failed to notice it, as I well knew that no such expenditure had taken place. You are at liberty to make any use of this letter that you may think desirable.

I am, &c.,

Albert Beetham, Esq., The Club, Wellington. Oswald Curtis.

No. 14.

Mr. W. Reeves to Mr. A. Beetham.

Sir,— 29th September, 1873.

In reply to your letter asking me what sum you stated, before the Committee of Public Works, had been spent on the improvements of the Ngakawau River, I beg to say that the sum named by you was £2,000.

I am, &c,

W. Reeves,

A. Beetham, Esq. Chairman of Public Works Committee.

No. 15.

Mr. J. Henderson to Mr. A. Beetham.

"*Ngakawau.*"

Sir,— Wellington, 29th September, 1873.

In giving my evidence before the Committee, I stated that I had seen you on the matter, and heard your views when you showed me the plan, and upon that information I gave what evidence I did. I do not say £200 per chain would not have stone down to low water; but to make it a job such as would stand and be beneficial, I proposed extending the protection works below low water; hence the price per chain I mentioned, from £600 to £700.

I am, &c.,

Albert Beetham, Esq. John Henderson.

No. 16.

Mr. E. J. O'Conor to the Mayor of Westport.

Wellington, 1st October, 1873.

Ascertain from Captain Leech and Riley, and Mr. Field, what expenditure taken place improving Ngakawau River and harbour, from 17th January, 1873, until Albion got possession. Distinguish Companies from Government. How much Albion expended till August 25th. Immediate reply, free.

Mayor of Westport. E. J. O'Conor.

Mr. J. W. Humphrey to Mr. E. J. O'Conor.

Westport, 1st October, 1873.

From 17th January, 1873, until Albion Company get possession, Ngakawau Company expenditure on river was under £20, their total expenditure about £100. Cannot ascertain actual amount expended by Albion Company till August 25th. Wages on river about £30 weekly. Gross amount expended by Albion Company on mine and river till 13th September, £557.

J. W. Humphrey,

E. J. O'Conor, Esq., M.H.R., Mayor.

No. 17.

Mr. W. A. Murray to the Mayor of Westport.

Wellington, 1st October, 1873.

Immediate reply to O'Conor's telegram requested. State total expenditure by Ngakawau, Company from 17th January; also when Albion Company began work in River Ngakawau. Did Beetham buy interest of any original Ngakawau shareholder?

Wm. Archd. Murray,

Mayor of Westport. Chairman, Colonial Industries Committee.

The Mayor of Westport to Mr. W. A. Murray.

Westport, 2nd October, 1873.

Expenditure by Ngakawau Company from 18th January on river under £20. Albion Company commenced works on river on or about the 16th August. Beetham has purchased the interest of two original shareholders, John Brown and William Chambers. I answered O'Conor's telegram within an hour of its receipt; yours only reached me at 6.15 last night, after office closed; this to explain apparent neglect in answering telegram.

J. W. Humphrey,

Chairman, Colonial Industries Committee, Wellington. Mayor.

No. 18.

Mr. D. M. Luckie to Mr. W. A. Murray.

Sir,— Wellington, 4th September, 1873.

I have the honor to enclose, for submission to your Committee, two letters by Mr. W. Akerston, of Nelson, having reference to coal and iron workings on the eastern seaboard of the Nelson Province. I shall feel obliged if you will cause these letters, and the subject of which they treat, to be brought under the consideration of the Committee over which you preside.

I have, &c.,

The Chairman, Colonial Industries Committee. D. M. Luckie.

Mr. W. Akerston to Mr. D. M. Luckie.

Sir,— Nelson, 14th August, 1873.

During a recent and brief conversation with you as you were leaving Nelson, I promised at your request to write to you, to show how (in my opinion) "this Province, and New Zealand generally, might be benefited by a moderate outlay."

I will now endeavour to fulfil it. It does not require me to tell you that, generally speaking, this is not an agricultural Province; and although there are many patches of good land of very considerable extent, it is not from these that Nelson can come to the front. It is from other natural resources; central position, fine weather, abundance of coal near a good place of shipment, that will effect that.

The possession of an unlimited supply of good coal is not of much value if it is inconveniently situated; and I am free to admit that there is a considerable drawback to the successful working of the Brunner and Ngakawau Rivers, caused by the absence of a good port of shipment; and although it is intended to improve the ports of the Grey and Buller Rivers, yet they are ports on shingle and sand-bearing rivers, with shifting channels, and bars of no mean order, on a lee shore, exposed to the full force of ocean swell of thousands of miles fetch, and all the money the whole Colony of New Zealand could spare would not make them even third-class ports.

Nevertheless, the steps taken to connect the mines with the ports are judicious, because, notwithstanding the disadvantages above referred to, there will still be a trade in coal, as back freights or limited shipments in specially constructed vessels carrying small cargoes. But no ocean steamers or ships can load otherwise than by tender.

What is required is abundance of good coal easily workable, within a short distance of a capacious port or well-sheltered bay, with safe anchorage for vessels of the largest tonnage.

Nelson possesses such a place, and which I will briefly describe here; and if you think it by the description suitable, I will name the place in my next. (I have some further information to get.)

The place of shipment would be on the weather shore of a bay sheltered round twenty-four points of the compass, and from the prevailing winds. The remaining points are not exposed to any ocean swell, the anchorage is unexceptionally good, and deep water to be had within a short distance from the shore, no rocks or hidden dangers are in the vicinity; that faithful nautical monitor, the lead, can be used with certainty, as the bottom is gradually shelving for miles. A wharf suitable for large vessels, say up to 2,000 tons, could be constructed under £10,000, and would be within four miles of abundance of very fine steam and gas coal, superior to Newcastle, within three miles of another seam of good house coal, and ten miles of a third seam of the acknowledged best coal for closed grates, with no engineering difficulties to the construction of a railway; vessels could arrive and depart with safety all hours of the day and night, uninfluenced by tide, and unaccompanied by a pilot.

The place is only a few miles out of the direct line of Cook Strait. There is abundance of timber for the construction of wharves, or works, water-power to work hydraulic cranes; and at no great distance, minerals of value can be had.

In another letter I shall send particulars as soon as able. In the mean time,

I have, &c.,

D. M. Luckie, Esq., M.H.R., Wellington, New Zealand. WILLIAM AKERSTON.

Mr. W. AKERSTON to Mr. D. M. LUCKIE.

SIR,— Nelson, 24th August, 1873.

Reverting to the subject of my last letter, subsequent inquiries have only confirmed the facts therein set forth.

Your surmise in telegram as to the locality is nearly correct. The place referred to is near to Tomatea Point, Golden Bay, about half-way between Pakawau and Collingwood, and in the neighbourhood of which place is abundance of iron ore, plumbago, marble, and limestone.

In the course of inquiry, Port Hardy was spoken of as a possible rival coaling station. Looking at the map, it seems inviting, standing boldly out in the line of Cook Strait; but although it is a deep-water harbour it is very seldom used, from the following reasons:—

The anchorage is very deep, the bottom rocky and uneven, the shore steep to; very heavy tide-rips run across the entrance; the harbour is liable to sudden and violent squalls, with the possibility of sailing vessels being wind-bound occasionally.

However, were coal discovered there in a convenient place, there is no doubt the port would be largely used; the objections above noted would of course have less force in the case of steam vessels properly under command. There are many advantages in favour of Tomatea Point over Port Hardy, the latter being on a barren island, lying off the most barren part of the Province, washed on all points by angry and troubled tidal waters, over rocky and dangerous shores, and fully exposed to the prevailing winds and sea.

Should you require any special information on the matter, not referred to here, I shall be glad to furnish it to you if within my power.

I have written strongly and truthfully on the matter; as, having settled in New Zealand, I should feel glad to see the country independent of New South Wales for a coal supply. That our mineral as well as agricultural wealth will be opened up by the public works policy I have no doubt; and, in conclusion, should the Government now turn their attention to this portion of the Colonial estate, large and substantial benefits will accrue to the whole of New Zealand.

I am, &c.,

WILLIAM AKERSTON,
Marine Surveyor by appointment of His Excellency
Governor Gore Browne.

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