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Canada. Parliament. House of
Commons. Select Standing Comm.
on Mines and Minerals, 1923.
Canadian fuel supply.

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HOUSE OF COMMONS

SELECT STANDING COMMITTEE ON MINES AND MINERALS

CANADIAN FUEL SUPPLY

Proceedings and Evidence

PRINTED BY ORDER OF PARLIAMENT



OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1923

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HOUSE OF COMMONS

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HOUSE OF COMMONS

SELECT STANDING COMMITTEE ON MINES AND MINERALS

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ORDERS OF REFERENCE

HOUSE OF COMMONS,

MONDAY, February 12, 1923.

Resolved, That the following members do compose the Select Standing Committee on Mines and Minerals:—

Messieurs

| | | |
|----------------------------|--------------------------------|--------------------------------|
| Arthurs, | Drummond, | Munro, |
| Black (<i>Yukon</i>), | Forrester, | Pelletier, |
| Bird, | Gendron, | Prévost, |
| Boucher, | Hanson, | Roberge, |
| Cahill, | Hunt, | Ross (<i>Kingston</i>), |
| Carroll, | Knox, | Shaw, |
| Carruthers, | Lapierre, | Speakman, |
| Church, | Logan, | Spence, |
| Clark, | Macdonald (<i>Pictou</i>), | Stewart (<i>Argenteuil</i>), |
| Davies, | Macphail (Miss), | Stork, and |
| Déchène, | McBride, | Warner.—37. |
| Denis (<i>Joliette</i>), | Marcil (<i>Bonaventure</i>), | |
| Dickie, | Marler, | |

And that the Quorum of the said Committee do consist of Ten Members.

Attest,

W. B. NORTHRUP,

Clerk of the House of Commons.

Ordered, That the Select Standing Committee on Mines and Minerals be empowered to examine and inquire into all such matters and things as may be referred to them by the House; and to report from time to time their observations and opinions thereon, with power to send for persons, papers and records.

Attest,

• W. B. NORTHRUP,

Clerk of the House of Commons.

HOUSE OF COMMONS,

TUESDAY, February 20, 1923.

Ordered, That the name of Mr. Meighen be substituted for that of Mr. Clark on the said Committee.

Attest,

W. B. NORTHRUP,

Clerk of the House of Commons.

HOUSE OF COMMONS,

MONDAY, March 19, 1923.

Ordered, That the following Resolution be referred to the said Committee:—

“That, in the opinion of this House, the time has arrived for Canada to have a National Policy in relation to its coal supply and that no part of Canada should be left dependent on a United States coal supply. And that the whole question of fuel supply for Canada, together with

the question of costs, transportation, desirable interprovincial action and other means whereby Canada may be self-sustaining and self-supplying as regards fuel and to inquire into the necessity and possibility of supplying substitutes for coal be referred to the Standing Committee on Mines and Minerals and that said Committee report to the House."

Attest,

W. B. NORTHRUP,
Clerk of the House of Commons.

HOUSE OF COMMONS,

MONDAY, March 26, 1923.

Ordered, That the name of Mr. Garland (Bow River) be substituted for that of Mr. Speakman on the said Committee.

Attest,

W. B. NORTHRUP,
Clerk of the House of Commons.

HOUSE OF COMMONS,

WEDNESDAY, April 11, 1923.

Ordered, That the said Committee have leave to print their proceedings from day to day for the use of the Members of the Committee, when deemed advisable, and that Rule 74 be suspended in reference thereto.

Attest,

W. B. NORTHRUP,
Clerk of the House of Commons.

HOUSE OF COMMONS,

WEDNESDAY, April 11, 1923.

Ordered, That the said Committee be given leave to sit while the House is sitting.

Attest,

W. B. NORTHRUP,
Clerk of the House of Commons.

HOUSE OF COMMONS,

FRIDAY, April 20, 1923.

Ordered, That the name of Mr. Kennedy (Edmonton) be substituted for that of Mr. Shaw on the said Committee.

Attest,

W. B. NORTHRUP,
Clerk of the House of Commons.

HOUSE OF COMMONS,

WEDNESDAY, June 27, 1923.

Ordered, That, in accordance with the recommendation contained in the Third Report of the Select Standing Committee on Mines and Minerals, the minutes of proceedings and evidence with reference to Canadian Fuel Supply be printed in blue book form and as an appendix to the Journals of the House, and that Rule 74 be suspended in connection therewith.

REPORTS OF THE COMMITTEE

FIRST REPORT

March 22, 1923.

The Select Standing Committee on Mines and Minerals begs leave to present the following as its First Report:—

Your Committee beg leave to recommend that the proceedings be printed from day to day for the use of the Members of the Committee, when deemed advisable, and that Rule 74 be suspended in reference thereto.

All which is respectfully submitted.

W. F. CARROLL,
Chairman.

SECOND REPORT

April 11, 1923.

The Select Standing Committee on Mines and Minerals begs leave to present the following as its Second Report:—

Your Committee recommend that they be given leave to sit while the House is sitting.

All which is respectfully submitted.

W. F. CARROLL,
Chairman.

THIRD AND FINAL REPORT

The Select Standing Committee on Mines and Minerals begs leave to present the following as its Third and Final Report.

Your Committee has been considering the possibility of an independent fuel supply for Canada.

This question came before your Committee by virtue of a resolution of the House, dated March 19, 1923, and which follows:—

That, in the opinion of this House, the time has arrived for Canada to have a National Policy in relation to its coal supply and that no part of Canada should be left dependent on a United States coal supply. And that the whole question of fuel supply for Canada, together with the question of costs, transportation, desirable interprovincial action and other means whereby Canada may be self-sustaining and self-supplying as regards fuel and to inquire into the necessity and possibility of supplying substitutes for coal be referred to the Standing Committee on Mines and Minerals and that said Committee report to the House.

Your Committee has heard much evidence from various parts of Canada on every phase of the questions submitted to it in said resolution.

One statement may be made without any hesitation, that is, that it is absolutely necessary that every step possible should and must be taken at once by Canada through its Government, its transportation companies, its coal operators and manufacturers of other fuels, to make Canada independent of other countries for its fuel supply.

The economic question alone should move all Canadians to put forth every exertion to attain this object. Canada cannot for long continue paying to foreign countries millions of dollars yearly for fuel and hope to maintain its

economic independence. One has only to consider this for a short time to see where such a condition will ultimately land us. Yet another consideration along this line is the fact that the United States, our chief source of supply, could not last year give Canada the usual supply, and many cases of extreme hardship and suffering were brought to the attention of the Committee through lack of domestic fuel. No fault, however, can be found with the United States Fuel Control Board for this shortage, as they treated Canada fairly; but a note of warning was sent out by the Fuel Board last winter, which should be taken to heart by Canadians. That was in effect that Canada could not hope in the future to get the usual supply of anthracite from the United States.

Your Committee is able to point out from the evidence adduced that Canada has ample resources of coal for all purposes for ages to come. The chief sources of supply are in Nova Scotia, New Brunswick, Alberta and British Columbia. One fact struck your Committee very forcibly, that is, that a large percentage of the population of Central Canada have strange delusions regarding Canadian coal. They think we have no suitable domestic coal.

What is wanted in this connection is propaganda, an advertising throughout Canada of the true value of Canadian coal and in this connection your Committee would like to point out that up until two years ago the fuel needs of Winnipeg were supplied to the extent of 85 per cent by United States anthracite. Through the continued efforts of the Alberta Government and coal operators, 90 per cent of the Winnipeg coal needs are now supplied from Alberta.

Your Committee suggests that the Department of Mines, through its Intelligence Branch, should at once undertake an educational campaign as to the necessity of national fuel supply for Canada and the value of Canadian coal as domestic fuel and the proper method of using such coal.

Your Committee also investigated transportation costs in connection with coal. Many expert witnesses were called and some considerable volume of evidence taken. The views expressed were very divergent and inconsistent. The witnesses independent of the railways gave evidence of the possibility of a fairly fair freight rate on coal from Alberta to Central Canada.

The railway companies were asked for a rate from Alberta to Ontario centres. Formerly the rate was about \$13 per ton. The Canadian National quoted a rate of \$9 per ton in trains of fifty car loads, for the months of May, June and July, with a similar decrease in rates from Maritime points. The C.P.R. state that the actual cost of carrying coal from Lethbridge to Ontario points in 46-ton car-loads is \$9.90 per ton. The operators of Western Canada maintain that the rates quoted make any large movement of coal from Western Canada to Ontario impracticable.

Your Committee is forced to the conclusion that the rates quoted will in no way assist in solving Canada's fuel problem. A proportionate railway rate from the mines of Nova Scotia will not assist in any large movement of coal to Montreal or points farther west.

Your Committee recommends that the Minister of Mines call immediately at some central point a conference of coal operators, representatives of transportation companies, representatives of the various Provincial Governments and of the Federal Government, with a few members of the Committees of the House of Commons and Senate dealing with the fuel question. It is hoped that much good may come from such a conference and strong efforts made by the interests concerned to assist in the matter of an independent supply of fuel for Canada, which is one of the most important and far-reaching questions facing the Canadian people to-day.

Your Committee also investigated the question of coke as a domestic fuel. The general trend of evidence in this connection goes to show that coke is as

APPENDIX No. 6

good, as clean, and as valuable a domestic fuel as is the very best anthracite. Coking plants in the large centres of Canada might assist largely in solving the domestic fuel supply.

Your Committee further recommends that the Government undertake an independent investigation immediately, through whatever channels it deems best, to ascertain the actual cost of carrying coal from eastern and western points to Central Canada. We believe that our National Railway should carry fuel at cost in this crisis, and your Committee suggests that the rates quoted are not cost rates but much higher.

Your Committee also heard evidence on the peat proposition, and is convinced that peat as a spring, summer or autumn fuel is very valuable. The Department of Mines has done much research work in this connection, but very little peat is being used in Canada, although it seems there are large resources.

Some difference of opinion exists between the officials of the Mines Department and certain outside interests as to the best method of treating peat for fuel purposes, particularly by the Graham method. Your Committee, therefore, recommends to the Government that \$1,250 be granted for the purpose of investigating this method, provided that Mr. Graham contributes an equal amount for the same purpose, the investigation to be carried on by one engineer or expert from the Mines Branch, another appointed by Mr. Graham, and a third independent expert.

Your Committee submits herewith minutes of proceedings and evidence, and recommends that the same be printed in blue book form and as an appendix to the Journals of the House, also that Rule 74 be suspended in connection therewith.

All which is respectfully submitted.

W. F. CARROLL,
Chairman.

JOHN T. DUN

House of Commons

MINUTES OF PROCEEDINGS

HOUSE OF COMMONS,

THURSDAY, 22nd March, 1923.

The Committee met at 11 a.m.:—

Present: Messieurs Carroll (Chairman), Arthurs, Black (*Yukon*), Church, Davies, Dickie, Drummond, Forrester, Knox, Lapierre, Macdonald (*Pictou*), Ross (*Kingston*), Spence, Warner—14.

Mr. Church submitted a list of suggestions, outlining action he thought the Committee should take, and distributed copies of said list to the members present.

On motion of Mr. Warner,

Ordered, That H. Stutchbury, Trade Commissioner for the Province of Alberta, be requested to give evidence on Thursday, 12th April.

On motion of Mr. Macdonald (*Pictou*),

Ordered, That F. L. Wanklyn, Province of Quebec, Member of the Federal Fuel Advisory Committee, be requested to give evidence at the next meeting.

Mr. Church read and filed a letter received by him from the Norwich Municipal Coal Association, relative to coal freight rates from Alberta to Ontario.

On motion of Mr. Macdonald (*Pictou*),

Resolved, That the Chairman of the Committee confer with Mr. Carvell, Chief Railway Commissioner, to ascertain which officials of the Railway Commission should be summoned to give evidence regarding railway rates on coal.

On motion of the Chairman,

Resolved, That leave be asked to print the proceedings of the Committee.

The Committee adjourned, to meet on Tuesday, the 27th instant, at 11 a.m.

JOHN T. DUN,

Clerk of the Committee.

HOUSE OF COMMONS,

TUESDAY, 27th March, 1923.

The following members convened at 11 a.m.:—

Messieurs Carroll (Chairman), Arthurs, Black (*Yukon*), Church, Davies, Dickie, Lapierre, Warner—8.

Mr. Wanklyn, summoned to give evidence, was absent on account of sickness.

There being no quorum, the Committee adjourned until 12th April, at 11 a.m.

JOHN T. DUN,

Clerk of the Committee.

13-14 GEORGE V, A. 1923

HOUSE OF COMMONS,

WEDNESDAY, 11th April, 1923.

The Committee met at 11 a.m.:—

Present: Messieurs Carroll (Chairman), Arthurs, Church, Dickie, Drummond, Forrester, Gendron, Lapierre, Macdonald (*Pictou*), McBride, Roberge, Ross (*Kingston*), Spence, Warner—14.

Mr. Wanklyn, one of the representatives of the province of Quebec on the Federal Fuel Advisory Committee, was called, sworn, gave evidence and was discharged.

On motion of the Chairman,

Resolved, That leave be asked to sit while the House is sitting.

The Committee adjourned, to meet to-morrow at 3.30 p.m.

JOHN T. DUN,

Clerk of the Committee.

HOUSE OF COMMONS

THURSDAY, 12th April, 1923.

The Committee met at 3.30 p.m.

Present: Messieurs Carroll (Chairman), Arthurs, Church, Drummond, Garland (Bow River), Knox, Lapierre, Ross (Kingston), Shaw, Spence, Stewart (Argenteuil), Warner—12.

Mr. H. Stutchbury, Trade Commissioner for the Province of Alberta, was called and sworn.

On motion of Mr. Garland (Bow River).

Resolved. That Mr. Stutchbury be not examined at present, but that Mr. J. Errington, Mining Engineer, Province of Alberta, in attendance, be asked to give evidence.

Mr. Errington was called, sworn, gave evidence and was discharged.

On motion of the Chairman,

Resolved. That Mr. W. F. O'Connor of Ottawa, in attendance, be asked to give evidence.

Mr. O'Connor was called, sworn, and gave evidence.

On motion of Mr. Ross,

Ordered. That Mr. John F. Sowards, Coal Dealer, Kingston, Ont., be summoned to give evidence on Tuesday, 17th April, at 11 a.m.

On motion of Mr. Garland (Bow River),

Ordered. That Messieurs McAulay, Davidson, Tupper and Thayer, all of Drumheller, Alberta, and at present in Ottawa, be summoned to give evidence to-morrow at 3.30 p.m.

On motion of the Chairman,

Ordered. That Mr. W. E. Campbell, Railway Commission Traffic Officer, Ottawa, be summoned to give evidence on Tuesday, 17th April, at 11 a.m.

The Committee adjourned, to meet to-morrow at 10 a.m.

JOHN T. DUN,

Clerk of the Committee.

APPENDIX No. 6

HOUSE OF COMMONS,

FRIDAY, 13th April, 1923.

The Committee met at 10 a.m.

Present: Messieurs Carroll (Chairman), Arthurs, Church, Dickie, Forrester, Garland (Bow River), Gendron, Hanson, Lapierre, Ross (Kingston), Spence Warner.—12.

Mr. W. F. O'CONNOR, of Ottawa, resumed and completed his evidence, and was discharged.

As suggested by Mr. O'Connor, and on motion of Mr. Arthurs,

Ordered, That the Clerk procure copies of the following publications for each member of the Committee, viz.:

"The Coal Resources of the World"—Volume 2.

"The Coal Resources of the World"—Atlas (Morang & Co., Toronto, 1913).

"Coal Fields and Coal Resources of Canada"
By D. B. Dowling. (Memoir 59. Geological Series No. 55).

"Analyses of Canadian Fuels"

By E. Stansfield and J. H. H. Nicolls. (Mines Branch, Bulletin No. 22, 1918.)

"Geological Survey, Summary Report, 1918"

"Geological Survey, Summary Report, 1919"

On motion of Mr. Hanson,—

Ordered, That Sir Thomas Tait, of Montreal, be summoned to give evidence.

The Committee adjourned, to meet again at 3.30 p.m.

The Committee re-assembled at 3.30 p.m.

Mr. H. STUTCHBURY was recalled and gave evidence.

Mr. D. A. McAulay, Mining Engineer, Drumheller, Alberta, was called, sworn, gave evidence and was discharged.

On motion of Mr. Spence,—

Ordered, That Mr. W. H. Cox, of the W. H. Cox Coal Company, Toronto, be summoned to give evidence on Thursday, 19th April, at 11 a.m.

The Committee adjourned, to meet on Tuesday, 17th April, at 11 a.m.

J. T. DUN,
Clerk of the Committee.

13-14 GEORGE V, A. 1923

HOUSE OF COMMONS,

TUESDAY, 17th April, 1923.

The Committee met at 11 a.m.

Present: Messieurs Carroll (Chairman), Carruthers, Davies, Drummond, Forrester, Garland (Bow River), Knox, Ross (Kingston), Shaw, Stork, Warner—11.

Mr. J. F. Sowards, Coal Dealer, Kingston, Ont., was called, sworn, gave evidence and was discharged.

Mr. W. E. Campbell, Chief Traffic Officer, Board of Railway Commissioners, Ottawa, was called, sworn and gave evidence, and will continue his evidence at the next meeting.

On motion of the Chairman.

Ordered: That Mr. C. A. Magrath, of Ottawa, Chairman, International Joint Commission, be summoned to give evidence on Thursday, 19th April. at 11 a.m.

On motion of the Chairman.

Ordered: That Captain E. M. Dickson, Sydney, N.S., be summoned to give evidence on Thursday, 26th April, at 11 a.m.

The Committee adjourned, to meet on Thursday, 19th April, at 11 a.m.

JOHN T. DUN,

Clerk of the Committee.

HOUSE OF COMMONS,

THURSDAY, 19th April 1923.

The Committee met at 11 a.m.

Present: Messieurs Carroll (Chairman), Arthurs, Black (Yukon), Church, Davies, Dickie, Garland (Bow River), Gendron, Knox, Lapierre, Shaw, Spence, Warner—13.

Mr. W. H. Cox, President of the W. H. Cox Coal Company, Toronto, was called, sworn, gave evidence and was discharged.

Mr. C. A. Magrath, of Ottawa, Member of the Federal Advisory Fuel Committee, was called, sworn, gave evidence and was discharged.

The Committee adjourned, to meet to-morrow at 11 a.m.

JOHN T. DUN,

Clerk of the Committee.

HOUSE OF COMMONS,

FRIDAY, April 20, 1923.

The Committee met at 11 a.m.

Present: Messieurs Carroll (Chairman), Arthurs, Black (Yukon), Church, Davies, Dickie, Drummond, Forrester, Garland (Bow River), Gendron, Lapierre, McBride, Ross (Kingston), Warner—14.

APPENDIX No. 6

Mr. W. E. Campbell was recalled, gave evidence and was discharged.

On motion of the Chairman,

Ordered, That Mr. H. C. Martin, Freight Traffic Manager, Canadian National Railways, Montreal, be summoned to give evidence on Tuesday, the 24th instant, at 11 a.m.

On motion of the Chairman,

Ordered, That Mr. W. B. Lanigan, General Freight Traffic Manager, Canadian Pacific Railway, Montreal, be summoned to give evidence on Tuesday, the 24th instant, at 11 a.m.

Mr. H. Stutchbury was recalled and gave evidence.

The Chairman tabled a letter received by Hon. E. M. Macdonald (Pictou) from Mr. M. J. Butler of Oakville, Ont.

On motion of Mr. Arthurs,

Ordered, That the Clerk have a copy of Mr. Butler's letter sent to each member of the Committee before the next meeting.

On motion of the Chairman,

Ordered, That M. J. Butler of Oakville, Ont., be summoned to give evidence on Tuesday, the 24th instant, at 11 a.m.

The Committee adjourned to meet on Tuesday, April 24, at 11 a.m.

JOHN T. DUN,
Clerk of the Committee.

HOUSE OF COMMONS,
TUESDAY, April 24, 1923.

The Committee met at 11 a.m.

Present: Messieurs Carroll (Chairman), Arthurs, Davies, Dickie, Drummond, Forrester, Garland, (*Bow River*), Gendron, Kennedy (*Edmonton*), Knox, Lapierre, McBride, Ross (*Kingston*), Spence, Warner—15.

Mr. Lanigan, General Freight Traffic Manager, C.P.R., was indisposed and unable to be present.

Mr. Martin, Freight Traffic Manager, C.N.R., not being in this district at present, could not attend.

Mr. M. J. Butler, of Oakville, Ont., requested to attend, was absent.

On motion of Mr. Arthurs,

Ordered, That Mr. M. J. Butler, of Oakville, Ont, be summoned to attend on Thursday, 26th instant, at 11 a.m., to give evidence.

On motion of the Chairman,

Ordered, That Mr. J. E. Dalrymple, Vice President, Traffic, C.N.R., be summoned to attend on Thursday, 26th instant, at 11 a.m., to give evidence.

The Committee adjourned, to meet on Thursday, 26th instant, at 11 a.m.

JOHN T. DUN,
Clerk of the Committee.

13-14 GEORGE V, A. 1926

HOUSE OF COMMONS,

THURSDAY, April 26, 1923.

The Committee met at 11 a.m.

Present: Messieurs Carroll (Chairman), Arthurs, Davies, Déchéne, Drummond, Forrester, Garland (*Bow River*), Gendron, Kennedy (*Edmonton*), Knox, Lapierre, McBride, Spence, Stork, Warner—15.

Mr. H. C. Martin, General Freight Traffic Manager, C.N.R., was called, sworn, gave evidence and was discharged.

Mr. M. J. Butler of Oakville, Ont., was called, sworn, gave evidence and was discharged.

On motion of the Chairman,—

Resolved, That Mr. Butler's letter to Hon. E. M. Macdonald, M.P., dated April 12, relative to supplying Central Canada with Canadian coal, be incorporated in the evidence.

The Committee adjourned, to meet to-morrow at 11 a.m.

JOHN T. DUN,

Clerk of the Committee.

HOUSE OF COMMONS,

FRIDAY, April 27, 1923

The Committee met at 11 a.m.

PRESENT: Messieurs Carroll (Chairman), Arthurs, Déchène, Dickie, Drummond, Garland (*Bow River*), Kennedy (*Edmonton*), Lapierre, McBride, Ross (*Kingston*), Warner—11.

Mr. E. M. Dickson of Sydney, N.S., was called, sworn, gave evidence and was discharged.

On motion of the Chairman,

Ordered, That Mr. W. B. Lanigan, General Freight Traffic Manager, C.P.R., be summoned to give evidence on Tuesday, May 1, at 11 a.m.

On motion of the Chairman,

Ordered, That Mr. E. P. Mallory, Director of Operating Statistics, C.N.R., be summoned to give evidence on Tuesday, May 1, at 11 a.m.

On motion of the Chairman,

Ordered, That Mr. D. Crombie, Chief of Transportation, C.N.R., be summoned to give evidence on Tuesday, May 1, at 11 a.m.

The Committee adjourned, to meet on Tuesday, May 1, at 11 a.m.

JOHN T. DUN,

Clerk of the Committee

HOUSE OF COMMONS,

TUESDAY, May 1, 1923.

The Committee met at 11 a.m.

Present: Messieurs Carroll (Chairman), Davies, Dickie, Drummond, Forrester, Garland (Bow River), Gendron, Lapierre, McBride, Spence, Warner—11.

Mr. D. Crombie and Mr. E. P. Mallory, Canadian National Railways, and Mr. W. B. Lanigan, Canadian Pacific Railway, summoned to appear, were absent.

The Chairman announced that Sir Henry Thornton, President, Canadian National Railways, telephoned last night requesting that Mr. Crombie and Mr. Mallory be not examined until a statement regarding freight rates on coal from Alberta to Central Canada, now in course of preparation, is completed.

The Chairman read a letter received from the Chief Clerk, General Freight Traffic Manager, Canadian Pacific Railway, expressing regret at Mr. Lanigan's inability to attend on account of continued sickness.

On motion of the Chairman,

Ordered, That Mr. J. Graham of Ottawa, be summoned to give evidence on Thursday, 3rd May.

On motion of the Chairman,

Ordered, That Mr. J. D. Oigny, of Montreal, be summoned to give evidence on Thursday, 3rd May.

On motion of the Chairman,

Ordered, That Mr. J. Boivin, of Wrightville, Que., be summoned to give evidence on Thursday, 3rd May.

On motion of Mr. Lapierre,

Ordered, That Mr. A. F. A. Coyne, of Sudbury, Ont., be summoned to give evidence on Tuesday, 8th May.

The Committee adjourned, to meet on Thursday, 3rd May, at 11 a.m.

JOHN T. DUN,

Clerk of the Committee.

HOUSE OF COMMONS,

THURSDAY, May 3, 1923.

The Committee met at 11 a.m.

Present: Messieurs Carroll (Chairman), Arthurs, Church, Davies, Dickie, Drummond, Forrester, Garland (Bow River), Knox, Lapierre, McBride, Spence, Warner—13.

Mr. Oigny of Montreal, summoned to appear, was absent, Mr. Boivin, also summoned, was present.

On motion of the Chairman,

Resolved, That the evidence of Mr. Oigny and Mr. Boivin be taken on Tuesday, 8th May.

On motion of Mr. Church,

Ordered, That Mr. D. Chisholm, Coal Commissioner, City Hall, Toronto, be summoned to give evidence on Friday, 11th May.

13-14 GEORGE V, A. 1923

On motion of Mr. Church,
 Ordered, That Mr. A. Hewitt, General Manager, Consumers' Gas Company, Toronto, be summoned to give evidence on Friday, 11th May.

Mr. J. Graham of Ottawa, was called, sworn, gave evidence and was discharged.

The Committee adjourned, to meet on Tuesday, 8th May, at 11 a.m.

JOHN T. DUN,

Clerk of the Committee.

HOUSE OF COMMONS,

TUESDAY, May 8, 1923.

The Committee met at 11 a.m.

PRESENT: Messieurs Carroll (Chairman), Church, Davies, Déchène, Garland (Bow River), Gendron, Knox, Lapierre, Logan, Ross, Spence.—11.

The Chairman read a telegram received by him from Sir Henry Thornton, President, Canadian National Railways, offering a nine dollar per ton rate on train load lots of coal from Alberta coalfields to Ontario, during May, June and July, and promising consideration of coal rates from Maritime Provinces to Ontario.

The Chairman read a telegram received by Mr. Garland (Bow River) from the Red Deer Coal Operators' Association complaining that the special freight rate on coal announced by Sir Henry Thornton should have been six dollars.

Mr. D. Chisholm of Toronto was called, sworn, gave evidence and was discharged.

On motion of the Chairman,

Ordered, That Mr. E. P. Mallory, Director of Operating Statistics, Canadian National Railways, be summoned to give evidence on Tuesday, 15th May.

On motion of the Chairman,

Ordered, That Mr. D. Crombie, Chief of Transportation, Canadian National Railways, be summoned to give evidence on Tuesday, 15th May.

On motion of the Chairman,

Ordered, That Mr. W. B. Lanigan, General Freight Traffic Manager, Canadian Pacific Railways, be summoned to give evidence on Tuesday, 15th May.

On motion of the Chairman,

Ordered, That Mr. A. McEachern, General Superintendent, Dominion Coal Company, Glace Bay, N.S., be summoned to give evidence on Thursday, 17th May.

On motion of Mr. Logan,

Ordered, That Mr. N. T. Avard, General Manager, Maritime Coal Company, Joggins, N.S., be summoned to give evidence on Thursday, 17th May.

The Committee adjourned, to meet on Tuesday, 15th May, at 11 a.m.

JOHN T. DUN,

Clerk of the Committee.

HOUSE OF COMMONS,
TUESDAY, May 15, 1923.

The Committee met at 11 a.m.

Present: Messieurs Carroll (Chairman), Church, Davies, Forrester, Garland (Bow River), Gendron, Kennedy (Edmonton), Knox, Lapierre, Logan, McBride, Ross (Kingston), Spence—13.

Mr. Crombie, Chief of Transportation, Canadian National Railways, was called, sworn and gave evidence. Witness stood aside.

Mr. Mallory, Director of Operating Statistics, Canadian National Railways, was called, sworn and gave evidence.

Mr. Crombie was re-called, and thereafter gave evidence with Mr. Mallory.

The Committee adjourned at 1 p.m., to meet again at 3.30 p.m.

The Committee re-assembled at 3.30 p.m.

On motion of Mr. McBride,

Ordered, That Dr. Camsell, Deputy Minister of Mines, Ottawa, be summoned to appear on Friday, May 18, to give evidence.

On motion of Mr. McBride,

Ordered, That Mr. Haanel, Chief Engineer, Fuels and Fuel Testing Division, Department of Mines, Ottawa, be summoned to appear on Friday, May 18, to give evidence.

The examination of Mr. Crombie and Mr. Mallory was resumed and completed, and they were discharged.

The Committee adjourned, to meet to-morrow at 11 a.m.

JOHN T. DUN,

Clerk of the Committee.

HOUSE OF COMMONS,

WEDNESDAY, 16th May, 1923.

The Committee met at 11 a.m.

Present: Messieurs Carroll (Chairman), Arthurs, Davies, Dickie, Forrester, Garland (Bow River), Gendron, Kennedy (Edmonton), Lapierre, Logan, Spence, Warner—12.

Mr. W. B. Lanigan, General Freight Traffic Manager, Canadian Pacific Railway, was called, sworn, gave evidence and was discharged.

Mr. Garland (Bow River), filed a certified copy of Item 125 of Canadian Pacific Railway Tariff C. R. C. No. W-2657, which is printed as an appendix to the evidence taken this day.

The Committee adjourned until to-morrow at 11 a.m.

JOHN T. DUN,

Clerk of the Committee.

13-14 GEORGE V, A. 1923

HOUSE OF COMMONS,

THURSDAY, May 17th, 1923.

The Committee met at 11 a.m.

Present: Messieurs Carroll (Chairman), Déchène, Forrester, Garland (Bow River), Kennedy (Edmonton), Knox, Lapierre, Logan, McBride, Prévost, Spence, Warner—12.

The Chairman read a letter received from Mr. D. Chisholm of Toronto, containing information supplementary to the evidence given by him before the Committee on the 8th instant.

Mr. A. McEachern, Chief Inspector of Mines, Dominion Coal Company, Glace Bay, N.S., was called, sworn, gave evidence and was discharged.

On motion of Mr. Knox,

Ordered, That copies of all evidence taken by the Senate Special Committee on the Fuel Supply of Canada be procured for the members of the Committee.

Mr. G. R. Pratt, Fuel Engineer for the Alberta Government, was called, sworn and gave evidence.

The Committee adjourned, until to-morrow at 11 a.m.

JOHN T. DUN,

Clerk of the Committee.

HOUSE OF COMMONS,

FRIDAY, May 18, 1923.

The Committee met at 11 a.m.

Present: Messieurs Carroll (Chairman), Forrester, Garland (Bow River), Gendron, Kennedy (Edmonton), Lapierre, Logan, Spence, Warner—9.

Mr. G. R. Pratt was recalled and gave further evidence.

Dr. C. Camsell, Deputy Minister of the Department of Mines, Ottawa, and Mr. B. F. C. Haanel, Chief Engineer, Department of Mines, Ottawa, were together called, sworn and gave evidence.

On motion of Mr. Logan,

Resolved,—That Dr. Camsell and Mr. Haanel be recalled at a future date.

Mr. N. T. Avard, General Manager, Maritime Coal, Railway and Power Company, Joggins Mines, N.S., was called, sworn, gave evidence and was discharged.

On motion of Mr. Logan,

Ordered,—That Mr. R. W. Robb, of the Robb Engineering Works, Ltd., Montreal, be summoned to give evidence on Tuesday, May 22.

The Committee adjourned until Tuesday, May 22, at 11 a.m.

JOHN T. DUN,

Clerk of the Committee.

APPENDIX No. 6

HOUSE OF COMMONS,

WEDNESDAY, May 23, 1923.

The Committee met at 11 a.m.

Present: Messieurs Carroll (Chairman), Arthurs, Church, Drummond, Forrester, Gendron, Kennedy (Edmonton), Knox, Lapierre, Logan, McBride, Ross (Kingston), Spence, Warner—14.

Mr. R. W. Robb, Robb Coal Carburetor Company, Montreal, was called, sworn, gave evidence and was discharged.

On motion of Mr. Logan,

Resolved, That the statement, "Cost and Relative Economy of Heating with Different Fuels", submitted by the witness, Mr. Robb, be incorporated in the evidence.

The Chairman read a letter from the Minister of Labour relative to the peat process of Mr. Graham of Ottawa, and an informal discussion ensued.

On motion of the Chairman,

Ordered, That the Clerk write to Dr. Camsell, Deputy Minister of Mines, Ottawa, for a copy of the Second Report by Dr. Porter, Fuel Expert of McGill University, on Mr. Graham's Peat System, and for a copy of the Report of Professor Angus, Fuel Expert of Toronto University, on Mr. Graham's Peat System.

On motion of the Chairman,

Resolved, That Messieurs Lapierre, Spence and Kennedy be constituted a Sub-committee to take evidence regarding the peat process of Mr. Graham of Ottawa, and to report thereon to the Committee.

Mr. Spence submitted samples of a patent fuel made from sawdust, garbage, etc., also some explanatory letters.

On motion of Mr. Spence,

Ordered, That said samples of patent fuel be sent to the Government Fuel Testing Division for examination and report, together with copies of the letters.

The Committee adjourned, to meet at the call of the Chair.

JOHN T. DUN,

Clerk of the Committee.

HOUSE OF COMMONS,

THURSDAY, June 14, 1923.

The Committee met at 11 a.m.

Present: Messieurs Carroll (Chairman), Church, Davies, Drummond, Forrester, Garland (Bow River), Gendron, Kennedy (Edmonton), Knox, Logan, McBride, Ross (Kingston), Spence.—13.

A discussion took place regarding the alleged mis-reporting of the evidence of Mr. Haanel and of Mr. Avard, taken on May 18. On motion of the Chairman,

Ordered, That the list of corrections submitted by Mr. Haanel be printed in the next issue of the Committee's proceedings.

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The Chairman read telegrams sent by him, one to the Alberta Coal Operators' Association, Calgary, and one to the Premier of Alberta, inquiring if anything was being done towards helping the coal situation, also reply thereto from the Secretary of the Red Deer Valley Coal Operators' Association, stating nine dollar ton rate prohibitive.

The Chairman submitted a report from the Government Fuel Testing Division regarding the samples of Havana fuel made from sawdust, which report is incorporated in the printed discussion.

Mr. Mewburn, by permission, addressed the Committee respecting the manufacture of coke for domestic purposes, and a discussion ensued.

The Chairman read a telegram from the Edmonton Board of Trade advocating Government subsidies for coal transportation and for equipment of engineering experts to determine any possible cost reduction of Alberta coal for Eastern Canada.

Mr. Garland (Bow River) read a letter from the Supervisor of Freight and Traffic of the Department of Railways and Telephones, Alberta, disputing the accuracy of the evidence given by Mr. Lanigan before the Committee, and a discussion followed.

With a view to a Report being made by the Committee to the House, the Chairman moved, and it was

Resolved, That Messieurs Garland (Bow River), Logan, Spence and Ross (Kingston) be constituted a sub-committee to consider suggestions therefor, and to report on same to the Committee.

The Clerk read a resolution passed by the Engineering Institute, and, on motion of Mr. Garland (Bow River), it was

Resolved, That said resolution be filed.

The Chairman made reference to a synopsis received respecting the Graham Peat Fuel Proposition. Mr. Graham, being present, was allowed to make a statement.

The Committee adjourned.

JOHN T. DUN,
Clerk of the Committee.

MINUTES OF EVIDENCE

WEDNESDAY, 11th April, 1923.

The Select Standing Committee on Mines and Minerals met at 11 a.m.

The Chairman, Mr. Carroll, presiding.

The CHAIRMAN: Now, gentlemen, we have a quorum, so we may as well start. The Witness for this morning is Mr. F. L. Wanklyn, whom we will now call.

F. L. WANKLYN, called and sworn:

By the Chairman:

Q. What is your occupation at the present time?—A. I am General Executive Officer of the Canadian Pacific Railway.

Q. Have you anything to do with the distribution of fuel in the Province of Quebec?—A. Yes, sir, at the request of the Provincial Government of the Province of Quebec I was appointed one of the two members representing the Province on this Central Fuel Advisory Committee of Ottawa.

Q. Would you tell us briefly, Mr. Wanklyn, what information you have as to the coal condition in Canada, and your connection with the coal industry in Canada?—A. For several years I was Vice President of the Dominion Coal Company, and I relinquished that position about 14 years ago. Prior to that time, I used to spend a considerable portion of the year in Cape Breton and became fairly intimate with the operations of the industry in that district. As you know, they have very extensive coal mines and mine a very large quantity of coal.

Q. You are a coal mining engineer?—A. No, I am a mechanical engineer, but what I have learned of coal mining was learned down there in Cape Breton.

Q. In a practical way?—A. Yes, in a practical way; I used to visit the mines.

Q. You have some suggestions to make as outlined in a little memorandum you handed me this morning?—A. Yes.

Q. Perhaps you might read them?—A. Will you mind having the Secretary read them?

The Clerk:

National Fuel Enquiry

F. L. Wanklyn was appointed by Quebec Government August 17th, 1922, as one of the two representatives of the Province on the Federal Advisory Fuel Committee, the other representative was Mr. A. Picard, of Quebec City.

My experience in this capacity during the past winter indicates clearly the paramount importance of finding a practical solution of the fuel question, especially as to fuel required for domestic heating that will tend, to some extent, to make consumers less dependent on source of supply from the U.S. as at present, which is uncertain when normal conditions at the mines are disturbed by strikes, etc., and is becoming increasingly expensive and of inferior quality.

It was also manifest that the average citizen cannot afford to pay the ruling prices for American anthracite coal, ranging from \$16.50 to \$19.50 per 2,000 lbs., delivered in bulk, and more when "bagged." The evident question is "How can the situation be improved?" My answer is the following:

1. Encourage the use of screened Canadian bituminous coal for cooking and heating where stoves are used. In the U.K. and in the Maritime provinces and our northwest, where the winters are very severe, bituminous coal and the less efficient lignite are practically used for every domestic purpose requiring fuel.
2. Develop the vast peat areas adjacent to large cities and towns to produce air dried peat fuel at low cost and educate the public as to its fuel value for cooking and burning in stoves and open grates.
3. Advocate the installation of central heating plants, especially in the smaller towns where the municipalities own and operate steam driven plants for electric lighting and now waste the exhaust steam from the engines, for raising steam for the operation of plants of this type, the cheapest grades of bituminous coal can be advantageously utilized, smoke nuisance can be abated by use of properly designed furnaces and mechanical stokers. At North Battleford, Sask., a plant of this type is being successfully operated with attractive economic results. Central heating has also been in use for a long time in connection with groups of isolated buildings at our large hospitals and universities.
4. For house heating where hot water furnaces of the ordinary type are installed, now fired with American anthracite coal, metallurgical coke, the product of modern by-product ovens, can be used with results equal if not superior to those now obtained from anthracite coal. Coke is free from poisonous gases, contains less ash and is smokeless. In producing coke of this description the resultant gases and by-products have a great commercial value tending to reduce the price of the coke fuel to practically the same cost as the delivered raw bituminous coal. The sulphate of ammonia for fertilizing, tar for road binder, creosote for wood preservation and benzol to replace gasoline as a motor spirit.
5. Encourage importation of high grade anthracite coal from Wales, having superior analysis to any American anthracite sold in this country, properly manufactured "briquettes," "stovoids" or "ovoids" made from Welsh anthracite coal dust and brise—all of which should be delivered to consumers at a lower price per ton than is now charged for American hard coal and can be satisfactorily used in ordinary house furnaces.
6. An exhaustive study as to the economic possibility of bringing N.W. coal further east than at present should be made and experiments in briquetting lignites should be continued.
7. Consumers should be instructed in the economic method of firing house furnaces—in many instances 75 per cent of the caloric value of the fuel is wasted by improper firing, this by following proper method can be reduced to 25 per cent. See report on the subject from American Society of Mechanical Engineers who have made it a special study.

APPENDIX No. 6

"An Act respecting the sale and distribution of fuel and foodstuffs in times of crisis" was passed by the Quebec Legislature (Assembly Bill No. 16) last Session, according to the provisions of the Act it would not come into force except by special proclamation of the Lieutenant-Governor in Council, as set out in Clause 13 of the Act. It was not found necessary, during the past winter, to exercise the authority above referred to."

Q. I have just one more question. Do you know anything about the possible future development of coal in the Maritimes?—A. From the experience that I had, as I told you, 14 years ago, we estimated that the proved areas in Cape Breton were capable of producing 4,000,000 tons annually for over 100 years.

Q. Those are the areas.—A. Which were being worked at that time by the Dominion Coal Company, the new areas that had just been started.

Q. Would you give any estimate as to the possible output of the New Brunswick mines, or are you able to do that?—A. I am afraid I am not in a position to indicate anything that would be of value in that line.

The CHAIRMAN: Now, gentlemen, go ahead.

By Mr. Drummond:

Q. Have the conditions governing the production of coal not changed very materially in the last 14 years?—A. They have in some respects, the haulage is longer, and the pumping is more expensive.

Q. The cost of production has gone up?—A. Yes, and there are other conditions, such as the development of the submarine areas and all these would possibly tend to reduce the output as compared with the years when they were working coal close to the pit's mouth, but at the same time I might add that in a great many cases new veins are being opened, especially in the new districts, and there are areas being worked which were only touched about 14 or 15 years ago, and which are capable of very extensive development under favourable conditions.

Q. But notwithstanding this increased production, the circumstances surrounding mining and so forth of coal have got far more expensive in 14 years?—A. Certainly, the miners' wages were increased materially.

Q. Which would materially increase the prices?—A. Certainly, and not only that, the cost of material required in the mines has increased enormously, the cost of pit props is very much higher than it used to be, and I was going to say the transportation rates by water are very much higher than they used to be before the war. At one time, I have sold coal here in Ottawa, delivered, by the Dominion Coal Company, to the Eddy Company here, at rates which were in competition with the rates of coal from the United States.

Q. And would you say that, taking these things into consideration that the increase in the output of coal was justifiable under the present circumstances?—A. It just depends to what extent the citizens of Canada appreciate the importance of developing its own natural fuel supply. Everybody will have to contribute to that end if it is to be made a success.

Q. And more of these difficulties would have to be overcome?—A. Most decidedly.

By Mr. Warner:

Q. I might ask, what is the condition that you have reference to that must be overcome?—A. I can only tell from hearsay, because I am not now connected with any coal company, but when I was connected with the Dominion Coal Company we were able to place coal on the cars at the pit head at about \$1 a ton, and from information I have recently received, discussing the matter with some of my friends, that has gone up to \$3 and over.

Q. \$3?—A. Yes, sir.

By Mr. Church:

Q. From your experience with the Coal Commission, would you be of the opinion that this shortage is likely to continue a number of years, with corresponding high prices?—A. I do not look for any reduction in the price of anthracite coal, from what I hear.

Q. Do these suggestions apply to other provinces than your own?—A. In the main, Mr. Church they apply to the whole question. That is in the main. There are conditions which are applicable to Toronto as well as Montreal.

Q. Have you any control over prices?—A. No, I mentioned at the end of the report that an Act had been passed late last session by the Quebec Legislature.

Q. And your province gets a good deal of its coal from the Maritime provinces, is that so?—A. In answer to that question, I would state that during the war we received practically the whole of the coal required for industrial and railway purposes from the Maritime provinces.

Q. By rail or water?—A. By water, mostly; I should think 90 per cent.

Q. What proportion do you think would come by rail, and what by water?—A. I should think probably 10 per cent came by rail and that came from the Intercolonial Coal Company.

Q. It comes in both ways?—A. To a very limited extent by rail.

By Mr. Warner:

Q. In coming back to the cost at pit mouth, I would like to ask the witness if he is in a position to make an estimate of how much of that cost goes to labour?—A. I am afraid sir, I have not got that.

By Mr. Macdonald:

Q. The best way to get that would be from the Commissioner of Mines of Nova Scotia, who would have these figures up to date. I was going to suggest that we call the Deputy Minister of Mines of Nova Scotia, who could give you that information correctly.

I was going to ask you, Mr. Wanklyn, in your inquiries in Quebec, what would you say with regard to the coal condition in the United States as affecting the shipments to Canada?—A. That is difficult, Mr. Macdonald, to state precisely. From our general experience last winter, we were led to believe that we must not expect any better treatment than we received last winter at the hands of the United States authorities, that there is very little chance of the price, the delivered price to the consumer being reduced. There is also absolute evidence that the quality is deteriorating. In some cases, I have measured it myself, where it has consisted of from 25 per cent to 30 per cent of incombustible matter, on which you pay full price as coal, and have to pay freight, and have to handle, so you are not getting more than—I should say—1,700 pounds of combustible matter out of every 2,000 pounds delivered to your house.

By Mr. Drummond:

Q. Is that because the good coal is not available?—A. I cannot tell you if the good coal is not available, or whether they are less careful in picking the coal at the screen.

By Mr. Macdonald:

Q. Perhaps you could tell us this I have seen it stated that the available supply of anthracite coal in the United States is decreasing?—A. From all we hear, Mr. Macdonald, it is decreasing quite seriously.

Q. And naturally they would demand the supply which would be available for their own country?—A. That is absolutely evident; they would take care of themselves first.

[Mr. F. L. Wanklyn.]

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Q. So from your experience in regard to that matter, Mr. Wanklyn, would you say that you expect these difficulties and this change in the character of coal to remain so, so that Canada must of necessity—that is Central Canada—must look for a supply of coal within her own borders, to be sure and safe, or elsewhere?—A. My opinion, Mr. Macdonald, is that the question is one of maximum importance to the whole of us, and that the sooner we get down to a basis of providing our own national fuel supply from our own resources, the better.

By Mr. Church:

Q. Just as important as food?—A. I think it is the most important thing before us to-day of any sort, as a nation, and I think we can never be a nation if we depend upon people who can cut us off in five minutes, without firing a shot.

By Mr. Macdonald:

Q. You agree with Mr. Church?—A. Yes, I do, and I would go so far as to say that any expenditure on militia and defence is simply money wasted unless you have your fuel supply assured.

By Mr. Church:

Q. It will affect the industrial life of the country?—A. It will affect everything, the railways and industries and everything.

Q. In view of the importance of the port of Montreal have your Commission looked into the increasing possibilities of Welsh coal?—A. I had some experience during the last winter, I may say, and I want to make the remark here that the coal dealers in Montreal played the game and assisted me in every way.

Q. It is largely a matter of transportation?—A. The transportation is not the biggest difficulty.

Q. Are sufficient ships available for the Welsh coal?—A. In answering your question, I might say that the visible supply of Welsh anthracite coal is somewhat limited.

Q. The Government of Canada at the present time are advertising a large number of the Merchant Marine ships for sale. Could these ships not be fitted out so that they could carry coal right up to the head of the Lakes?—A. I cannot tell you as far as the head of the Lakes is concerned, but there can be no difficulty in getting ocean tonnage westbound. You know, ships have to come here in ballast, to take our wheat, to take our lumber, to take our pulp, to take our cattle. They come here in ballast. They might just as well ballast with Welsh coal. All during last winter and in the autumn they were quoting as low as eight shillings a ton for westbound cargoes, from Wales.

Q. The city of Toronto brought in coal from Wales, and sold it delivered to your house, at \$15.50 per ton. The haul to Montreal would be less than that, and if there was some public assistance given that work, as there is some public assistance given to some extent, subsidies and so on, in the food industry, why should there not be such assistance given in the fuel business?—A. The whole available Welsh supply of pure anthracite coal does not exceed 5,000,000 tons. They have a steady market for that entirely in Northern Europe, they supply coal to Norway and Sweden and to Holland for domestic purposes. This is Welsh anthracite coal. What they do there is, they have in these countries screens and breakers; they take coal from Wales as run-of-the-mine, slack, and everything together, and put it through the screens and breakers in the same way they handle the anthracite coal in Pennsylvania and elsewhere, size it to suit the requirements of the customer, selling it as egg, stove, chestnut, and buck-wheat sizes, and then they have the dust. A good deal of it is retained in Wales and made into briquetts and ovoids and stovoids by binding it with a certain

[Mr. F. L. Wanklyn.]

amount of binder, which makes a very desirable fuel. My opinion is that if you can get the Welsh exporters of coal to establish and continue a steady market here in Canada, that it would be to our advantage, but it will not be to our advantage if they are going to do it in spasms, if they are coming here one year and not the next year; you cannot afford to cut off the supply from the United States until you have the other one established on a permanent basis. The difficulty is going to be to induce these people to come out here and treat their coal and submit it to the consumer in the size he has been accustomed to use, and to get also the necessary machinery to make it a paying proposition.

By Mr. Macdonald:

Q. Mr. Wanklyn, do you not think that what you ought to do is to attempt to get cheap transportation, and delivery of our own coal to the largest possible extent?—A. No question about it. The first duty is to see what we have in our own country. According to statistics, we have 17 per cent of the whole world's known fuel supply to-day.

Q. I was going to say, of course the difficulty here in Central Canada is to understand the use of bituminous coal for domestic purposes to the same extent we use it in the Maritime provinces. 90 per cent of our domestic supply of coal is bituminous coal and comes from our mines, and is very satisfactory. That is not definitely understood in Central Canada, I understand.—A. There is no question about it, that it is not as nice to handle as anthracite coal, but from my own experience in Cape Breton—I have been living in houses where they had furnaces exactly the same as the one I have in my own house in Montreal, and they have a very rigorous winter there, and they successfully warmed their houses on run-of-mine coal delivered at \$2 or \$3 at their door.

Q. I have a house with a fairly large furnace, the same as they use in Central Canada. Ever since I have had a house I have used bituminous coal in the heating, and have kept the house as well heated as any other. You know that, as a matter of fact.—A. I know that your own house is heated, and I know that you do not get any anthracite coal.

By Mr. Forrester:

Q. Is the dust going through your house from using it?—A. I do not think there is so much dust through your house, but there is soot in the sections of the furnace, and the chimney. You will have more chimneys on fire, and you will have to get your man to brush out the furnace more frequently.

By the Chairman:

Q. How about yourself?—A. I have done it myself. With a certain amount of education, there is no reason why anybody should freeze if they were content to use bituminous coal.

By Mr. Church:

Q. As a matter of fact, is it not very largely a matter of education? 40 years ago, the Pennsylvania coal barons had demonstrations all over Canada, and the public became interested in it. It would seem to me that the question of introducing bituminous coal was largely one of education.—A. I remember when I came to Canada about 40 years ago, among the working classes there was very little anthracite coal used at all, and then they were gradually weaned away from the bituminous coal by the American interests who wanted to establish, and did establish a market for their anthracite coal in Canada. At that time, we used to buy excellent anthracite coal at \$5.50 a ton delivered in your house, notwithstanding that there was a duty of 50 cents a ton for the importation into Canada.

[Mr. F. L. Wanklyn.]

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By the Chairman:

Q. There is no duty to-day?—A. No, and the lowest you can buy it for to-day in Montreal, in small quantities, is about \$16.50, and what I paid last May for my supply was \$17.50 delivered, and I have known friends to pay \$18.50 and \$19.50 and over.

By Mr. Macdonald:

Q. In making the change suggested by you, from a foreign supply to a domestic supply of coal, would you anticipate opposition or help from the regular coal dealers?—A. That is a question I do not think I can answer. I do not think it is fair for me to enlarge on that, because they have treated me very well indeed during the last winter, when I was Fuel Commissioner.

Q. As a matter of fact, it would be very difficult for these men to change over?—A. Would you like anybody to upset your business affairs?

Mr. FORRESTER: I met a fellow on the train one day, I knew him and he knew me, and he was taking peat out of a swamp, and he was going down after hours and taking it out himself, and letting it dry, and he said when it dried he could take and throw it up against the house and it would bounce like a rubber ball. He said he warmed his whole house for a few dollars.

By Mr. Drummond:

Q. What is your experience in regard to this peat fuel development?—A. I tried some myself two years ago. I wanted to find out for myself whether there was any real value in it, and I bought a carload of peat from Alfred, Ontario, which cost me \$5 a ton on the car plus the haul to Montreal. I used it pretty extensively all that winter in an open grate, with great satisfaction. I also distributed quite a few bags to some of my friends, and they were delighted and came and asked me where they could get some more, because they liked it better than anything else they had tried in the grate, and instead of putting on a big log late in the evening you could pick up a few blocks of peat, and there was no ash. That would be all right, I think, in the fall of the year.

By Mr. Macdonald:

Q. That would be all right all winter?—A. No.

By Mr. Garland:

Q. Mr. Chairman, before we get into the peat situation, I would like to speak a moment on the point raised by the witness in regard to danger in the event of hostilities. I do not think we need to anticipate hostilities with the United States, but I agree that we must have a coal supply of our own. Would the same objection you raise with regard to the American supply not apply also to the Welsh anthracite supply?—A. Yes, certainly.

Q. The witness would suggest this, that this Committee concentrate if possible upon the question of our own Canadian supply?—A. Absolutely.

By Mr. Macdonald:

Q. Just at the present time, in regard to the American supply and the Welsh anthracite supply, is it not a fact that the demand for British coal throughout Europe is very great, in consequence of the occupation of the Ruhr, and that that demand in Europe will be greater than in the past?—A. I may say, Mr. Macdonald, that I have been in communication with coal operators in Wales, trying to get them to establish proper plants in Montreal and to handle the thing as their own particular business, and I got a letter just by the last mail from England in which they said the matter was still under consideration by their directors, but they wished to call my attention to the fact that owing to the conditions

in the Ruhr district, most of their output was being taken care of there, and their prices were materially advancing, so it is only a limited supply and we can not expect to get all of it.

Q. I have heard of Holland coming to Nova Scotia and wanting to buy coal?
—A. Yes.

By Mr. Church:

Q. We have a very complicated situation in Canada. There is a great deal of talk now about the conditions which may prevail next winter. By whom are these things controlled, by the provincial or federal or municipal authorities? There is now a lot of talk about it.—A. I should say that the elected representatives—

Q. I contend that it is just as important for the Government to regulate the coal supply as it is the food supply. In regard to taking care of the fuel supply, they do it with the food, so why not with the fuel? Is it not just as important that the Government of Canada should do the same thing for the coal supply, to get coal in the cellars of the people?—A. I can only repeat what I have just said, that in my humble opinion the fuel supply of Canada is one of the most important questions you have to consider.

Q. It should be a national problem, should it?—A. I should think it is the most important national problem.

Q. Since the Government of Canada has control of the railways?—A. Yes.

By Mr. Forrester:

Q. The northwest provinces should provide their own fuel from trees; they can do that and have wind-breaks besides, as easily as falling off a log.

By Mr. Spence:

Q. Before we get away from the Welch anthracite coal, you said there was 5,000,000 tons there; do you mean the supply is 5,000,000 tons per annum?—A. 5,000,000 per annum, I believe, is the output of the anthracite supply in Wales.

Q. A few minutes before you said the Dominion Coal Company was producing coal at \$1 a ton; how long ago was that?—A. That was 14 or 15 or 16 years ago.

Q. And you say now the cost of production is up to \$3.50?—A. As far as I am informed it has increased very materially, and I think it is somewhere around \$3.

Q. Have you the figures for the relative cost of anthracite coal at the mouth of the pit in pre-war times and at the present time?—A. No, sir, I have not got those figures.

Q. Another question. Has your Department any information what deposits of coal are up in the district of Sudbury?—A. Nothing except what I have seen in the newspapers.

By Mr. Dickie:

Q. Mr. Wanklyn, with anthracite coal in Canada, why is it necessary to send our money to Wales and Pennsylvania? I live on the Pacific Coast, and we never see anthracite coal, and we get along very nicely indeed. I do not know why we should concentrate on anthracite; people are being spoiled in central Canada. We have enormous quantities of coal there, so let us keep the money in our own country.

The CHAIRMAN: That is what we are here for, Mr. Dickie.

Mr. DICKIE: At a recent meeting of the Institute of Mining Engineers, we had Mr. Dick and he told us that in Alberta alone they had 17 per cent of the coal of the world, and 80 per cent of the Canadian supply.—A. Excuse me,

[Mr. F. L. Wanklyn.]

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sir, that is not quite correct. We have, according to the computations recently made, about 17 per cent of the world's supply in Canada, that is Nova Scotia, New Brunswick, British Columbia, and Alberta, and all the other provinces that produce coal—17 per cent of the world's supply, and I think if my memory serves me right the coal supply in Great Britain is something under 5 per cent of the world's supply.

Q. Do you know Mr. Dick?—A. Very well indeed.

Q. These are his remarks:

“The Province of Alberta contains 17 per cent of the coal resources of the world, and about 80 per cent of the coal resources of Canada. D. B. Dowling, of the Geological Survey of Canada, in ‘The Coal Resources of the World’, has estimated that Alberta contains an actual reserve of over 385,000 million tons and a probable reserve of about 674,000 million tons of coal. This makes a total reserve for the Province of considerably over 1,000,000 million tons.”

These come from very good authority.—A. I know he is a very accurate and good statistician, but I have before me, in my mind's eye, the diagram that was prepared by our Mr. William Pierce; he had a large circle, and he divided that up into segments. He showed one segment of somewhere around 51 per cent, which represented the total supply of the United States, as compared with the total supply of the world. He had another piece, 17 per cent, which was the total proportion of the supply of the world represented in Canada. He had another one, 8 or 10 per cent, representing China, and so on, and England was a little bit of a piece, about 5 per cent. That was on the basis of the world's supply, and he also had pictures or cubes, showing the big cube, which was the whole supply of the world, and the smaller ones representing each country, and again there he gave Canada 17 per cent, including the lignite and anthracite and every other sort of coal, so it is a question now between Mr. Dick and Mr. Pierce. It is pretty good, anyway.

By Mr. McBride:

Q. Have you any data on the coal deposit in the Peace River country?—A. No, sir, that is out of my jurisdiction altogether.

Mr. WARNER: There is a lot of it unknown yet; that percentage would be raised a good deal if we knew all of it.

By Mr. McBride:

Q. What would be the difference between mining coal on ledges or an angle of say 45 degrees?—A. Of course, just from the experience I have had in coal mining, the deeper you get the more expensive it is to mine the coal. With some coal in Pennsylvania, it rolls out of the mines, where the vein is higher than the level at which it is loaded, and the water is all drained out of these mines by gravity, no pumping, no haulage, and naturally, if you can mine coal on the level or in a favourable gradient, it is going to be cheaper than hauling it up mechanically, and pumping water mechanically, and so on.

Q. But where the veins are in the mountains, where it can be brought down by gravity, if coal is mined at an angle of 45 degrees, can it be mined cheaper than on the ledges?—A. I could not tell you that, I really do not know.

By Mr. Macdonald:

Q. It is a generally understood thing in coal mining that the closer the coal is to a vertical situation, the more expensive it is?—A. Yes, the flatter the vein, the more favourable the condition for mining.

Q. Because it is easier?—A. Yes, and if you can pump with gravity, have all your drainage done by gravity instead of pumping, it is so much the better.

By Mr. Chisholm:

Q. That accounts for the cheapness of production in American mines?—
A. To a very great extent, the facility with which the coal can be mined.

Mr. WARNER: I think, Mr. Chairman, what we are trying to get at is whether it is going to be possible for us to furnish fuel to our own people in competition with the United States fuel, no matter whether this coal comes from any part of Canada. Now, if we can get coal cheaper out of Nova Scotia, I do not want to make the people pay more to get it from Alberta; I want to see our money spent in our own country, and that, I think, is what to ask the witness about, to lead up to that kind of information.

By Mr. Drummond:

Q. Admitting that we have a coal supply in Canada, what suggestions have you to make to make that available to the whole of the people in Canada?—A. As I say, my memorandum says that those who will follow me are better able to answer your questions; they have made a very close study of the transportation problems, including our friend Sir Henry Thornton. You saw what he said in the paper to-day at the meeting in Montreal yesterday, that he will be prepared in a few days to give an answer to your question, and there is only one thing you have to bear in mind, that the same mining conditions prevail in Canada as in the United States and elsewhere, where coal can be delivered at the pit's mouth, of equal quality, at the same price, and you must remember there is no duty against the importation of coal from the United States or elsewhere. Then you have to figure out—and this is a very simple sum in arithmetic—can it be delivered 2,000 miles from the point of production to the point of consumption, or 1,000 miles, as in the case of Nova Scotia, cheaper or as cheaply as it can be brought in say 600 miles from Pennsylvania or Ohio.

Q. Your idea is that it is altogether a question of transportation?—A. It is simply a sum in arithmetic.

By the Chairman:

Q. What suggestions have you to make as to a solution of that difficulty?—A. I said before I am not competent to give any opinion on the railway problem. What I came here for was chiefly to assist you in determining whether there were other sources of supply, fuel supply, that might advantageously be used to diminish, as far as possible, the dependence on the United States, and the sending out of our money into another country. That is all I can say.

By the Chairman:

Q. Then it is largely, Mr. Wanklyn, a question of transportation?—A. As far as the problems these gentlemen have put up to me, it is a question of transportation more than anything else.

By Mr. Warner:

Q. I might ask the witness if he has any knowledge as to the feeling of the Canadian Pacific towards this reduced rate for coal from the East or West?—A. I have no knowledge about it whatever. That would be in other hands entirely.

By Mr. Macdonald:

Q. Have you looked in any way into the proposal that you refer to in your statement here, that bituminous coal may be brought to some central place and then by converting it into coke, the price of the coke to the consumer

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could be reduced by reason of their getting by-products which could be sold. I understand that that matter has been considered in Montreal; have you heard of it at all?—A. Mr. Macdonald I think that is a question of paramount importance, because from my own experience and experience in public institutions I am convinced that coke can be used just as advantageously and with the same cleanliness as anthracite coal. There is no question about that. The caloric value of the coke is fully equal if not superior to the caloric value of the so-called anthracite coal. The coke, as you know, is produced from the bituminous coal, the screenings of the bituminous coal; it has to be crushed to be made into coke. Now, at one time Cape Breton had almost to give away screenings, it used to send them down to the New England Coke and Gas Company in Boston at a ridiculously low price to get rid of it. Since then, uses have been made, by the introduction of the steel plants in Nova Scotia, the use of screenings, bituminous coal screenings, has become more developed, but at the same time I do not see that there is any practical difficulty in getting screenings from Nova Scotia and taking them to a point like Montreal or even Ottawa, and having coking plants here, proper by-product oven plants established here for the production of metallurgical coke, assuming always that you have a gas company that can utilize the cleaned gas, that it will take care of the recovery of the by-products which are very valuable, sulphate of ammonia, tar, creosote, and benzol, and all such have a very high commercial value. I am informed that with a proper recovery in the most modern ovens, coke could be put on the market at about the same price as the raw coal at the point at which it is coked.

By Mr. Warner:

Q. That is, per pound?—A. Per ton.

By Mr. Macdonald:

Q. The by-products are very valuable?—A. Yes, sir.

Q. For instance, in Nova Scotia, the men using motor cars use benzol, which is for all purposes as good as gasoline.—A. Yes.

By Mr. Warner:

Q. The by-products would take care of the cost of the process in putting it into coke, with some to spare?—A. I do not know how much would be to spare, when you pay the interest on your plant and the repairs that have to be put on the machinery; that is all to be taken into consideration, but the consensus of opinion is that with a proper plant, the gas which is a by-product goes to pay the cost of production of the by-products, including the gas you sell, and that would be sufficient to pay for the cost of the ovens and the cost of handling the coal.

Q. Just another question. In your opinion, would the cities where these plants would be located be able to use the amount of gas to make coke enough for the demand through the country and rural districts?—A. There is a question, sir, that it would be dangerous to express an opinion on until you knew the extent of the consumption of coke.

Q. I was just asking your opinion.—A. I could not say; I should think, in most cities, the gas mains to-day are pretty well crowded to capacity, and you would have to introduce larger mains, but of course the use of gas for cooking and for other purposes is extending quite considerably, and I have no doubt that in time it will come to be utilized for housekeeping if sufficient gas can be obtained, and I think it is an ideal condition.

[Mr. F. L. Wanklyn.]

By the Chairman:

Q. Then, Mr. Wanklyn, do you think a sufficient by-product could be made from coal in manufacturing coke to make it profitable?—A. I think, Mr. Chairman, you would have to take into consideration the value of the gas sold, as well as the other by-products.

By Mr. Church:

Q. Who should take control of that work, privately owned companies?—A. All I know is this; a man who is largely interested in one of the largest gas companies in Montreal said, "If I received any encouragement from the Government I think my company would consider the establishment of a coking plant."

By Mr. Spence:

Q. You could make coke without taking the by-products out of it?—A. Yes, but it is very expensive. In the old fashioned system they burned all the gas at the top, and you got very fine coke, but it was very expensive.

Q. Would it be any better?—A. No, I do not think so, because they use by-product coke for the smelters at Sydney.

By Mr. MacDonald:

Q. The process is that they concentrate the carbon in the coke, and take the other by-products out, that is it?—A. Yes, absolutely; you simply have pure carbon plus ash, and if you go to the expense of washing your crushed coal before you attempt to coke it, as they do in Sydney, you get a better carbon result.

By Mr. Warner:

Q. I might ask the witness this, it is not your opinion, I take it, that this coking process would be carried on all over the country; but that it would be carried on within a reasonable distance of the mines, and not so far away that the raw coal would not be permitted to go. That is, that it would go to the country between our mines in the West and those in the East. That is, the country in between would be the only country you would suggest that these coking plants would be erected and operated to serve, on account of the long distance from the mines.—A. There is just a question there. Naturally, the most advantageous point at which the coking plants could be established would be the extreme limit at which the raw coal could be carried at reasonable rates. Naturally. Now, I do not know whether it would be possible or feasible or desirable to carry coke to a further distance into these territories in which you are carrying less rubbish and more value, but of course it is very much lighter and very much more to a car load, but at the same time, that is an economic question that I am not competent to express an opinion on, but it strikes me that possibly if coking were done in Montreal, the coke might come as far as Ottawa.

By Mr. Church:

Q. I was a director of the Consumers' Gas Company for a great many years, and they have gone very extensively into this business, and the taxes which the Government have put on in connection with machinery and steel and the sales tax—there is no incentive to private capital to interest themselves in such a venture, and there should be some change made to take care of that, because they are fulfilling a long felt want, and something should be done to put an industry like that on its feet, because as the conditions now are there is no incentive to private capital. There was a large plant in Hamilton of the Consumers' Gas Company, and after the plant was fitted up, the Government came along and taxed them, a very heavy sales tax and a tax on machinery, and I do not think that condition ought to exist.—A. My friend, to whom I referred just now, said,

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"If we receive any encouragement from the Government." Anything you can do to cheapen production of coke is going to be to the advantage of the general consumer. That is all I can say as to that.

Q. There was a complaint made in one of the Committees the other day, from central and western Ontario, in view of the fact that the Globe contended that years ago a large part of the coal came in by water, that is nearly all the coal for central and western Ontario came by water, and now comes across the Niagara Peninsula. Years ago it came across Lake Erie and Lake Ontario, boat after boat. Has your experience as a coal commissioner been that there is any working arrangement between the American and Canadian railways, practically what the Globe calls, "For freezing out water travel"?—A. Mr. Church, you are taking me out of my jurisdiction.

Q. A number of the members from Ontario go down on the day train, and there is a town called Port Hope. They have a large three-masted schooner and one man told me that that schooner brings in a large bulk of the coal for that small town. Why should that not be done all over? It used to be done twenty-five years ago, but I understand it is all frozen out now by an arrangement between the American and Canadian railroads.—A. I might enlighten you to this extent, that I would be inclined to say that that suspicion was not well founded, because, as a matter of fact, to-day the Canadian Pacific Railway gets through Port Burwell a very large quantity of coal, and a very large quantity of coal is distributed to central Ontario, the manufacturing districts, by ferry or barges to Port Burwell and brought across Lake Erie. We also get an enormous quantity of coal in by water to Jackfish Bay, where we have a discharging plant. I do not think it would be reasonable to suspect the railways of trying to increase the price of coal to themselves, by having it come by rail wholly to them, when they can get it by water.

By Mr. Macdonald:

Q. What was the price of American bituminous coal for all purposes last winter in Montreal, do you recollect?—A. I could not tell you off-hand, Mr. Macdonald, but it was, if I remember rightly—one hotel in Montreal paid as much as \$7 and some cents a ton for bituminous coal last winter.

Q. What is the situation with regard to the anthracite coal in the United States? You made the statement that the supply was becoming restricted. Is there any restriction in the bituminous supply?—A. There is a duty on the importation of bituminous coal into Canada of course.

Q. Yes, but I mean in regard to the internal condition in the United States.—A. No, the supply of bituminous coal was, I should say, pretty nearly normal; there was no difficulty in getting bituminous coal in from the United States except, I may say this, that owing to labour troubles in the United States, and the postponement of the repairs to their rolling stock, there were no cars available for the carriage of the coal. As I think it was mentioned in one of these committees before, Canada loaned a good many cars to the United States to enable the coal supply to go forward.

By Mr. Church:

Q. Has the Railway Commission power to fix rates for coal?—A. I suppose so.

Q. Is there any public regulation by the Railway Commission in Canada for the carrying of coal?—A. I do not understand that question.

By the Chairman:

Q. You have given us a figure as to the prices of soft coal, bituminous coal, in Montreal, \$7.—A. As far as my memory serves me.

[Mr. F. L. Wanklyn.]

Q. Between \$7 and \$8. What was the price of anthracite at that time?—A. I can only tell from my own experience. I bought my own supply of anthracite coal last May, and it cost me \$17.50 per 2,000 pounds.

Q. Can you give us some idea of the comparative heating value of a ton of anthracite and a ton of bituminous coal, that is for heating purposes.—A. I was going to say that you could get that absolutely from the analysis of the different coals. You know, there are bituminous coals and bituminous coals. For instance, you remember all the trouble about No. 6?

Q. Yes.—A. I do not think I can give you very much accurate information in answer to that question. I should say that you could get that from an analysis of the anthracite and bituminous coal.

Q. Can you give us some idea; if I bought a ton of anthracite coal and you bought a ton of bituminous coal, and we used the coal in the same way how would the heat compare, between your \$7 coal and my \$17 coal?—A. Now, that depends entirely on how you burn it. If you had burned that coal as they did on the occasion that I am referring to, in a central heating plant, and you distributed your heat from there, I should say that the ton of bituminous coal that they used there was equal to any ton of anthracite they could have put into the same plant. That is with a central heating plant, of course, I do not know about a house furnace.

The CHAIRMAN: I think we should advertise the comparative value of these two coals, to overcome some of the prejudice.

Mr. MACDONALD: Yes, the whole thing turns on B.T.U's. (British Thermal Units), to determine the relative value of a pound of coal.

The WITNESS: 14,000 is high for Cape Breton coal; I think ours used to run about 13,400, and the best Welsh coal runs 16,000.

Mr. DICKIE: I think we could very well advertise the fact that we are sending \$60,000,000 out of our country every year.

The WITNESS: It is more than that, \$100,000,000.

Mr. ROSS: Mr. Chairman, we listened to a member here from British Columbia who said he did not understand why anthracite was used. Where they have millions of tons of coal, what would be the sense of bringing anthracite there, or down to Cape Breton either, but there is a difficulty in central Ontario and in Quebec. Now, I think the whole difficulty is the one of transportation, and we should educate the women, tell them that bituminous coal is just as clean as anthracite. I would like to ask the witness if he has done anything like that in Quebec. We may possibly not think of sending anthracite out to British Columbia, where they say they have weather as cold as it is here, but when they go to England and advertise there, they tell them that British Columbia is the finest country in the world, and that there is no cold weather. Was anything done in Quebec to get the women to see and appreciate that bituminous coal is as clean as anthracite?—A. There is no knowing what you can do when you are put to it, and rather than freeze you know they would rather have a few specks on their washing and not kick about it. When it comes to a preference, there is no question about it that the ordinary housekeeper would much prefer anthracite coal or coke to bituminous coal. There is no use in getting away from that.

By Mr. Macdonald:

Q. In central Canada here, I venture to say that people who have money enough, and have furnaces want anthracite coal, but is it not a fact that in Montreal there are thousands and tens of thousands of people who keep themselves warm in winter with an ordinary stove or two. The poorer man is not concerned about furnaces, he wants to keep himself warm. It is the man with

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the small income who is hit hardest by the price of anthracite coal.—A. My experience during last winter has convinced me that the average working man, clerk, and middle store-keeper, that is to say 75 per cent of our population, cannot afford to pay \$16 and \$17 and \$18 per ton for coal to warm his house. It is for us to find what we can give him at a lower price to do the job. That man has not got a furnace either.

Q. Just a stove?—A. Yes.

By Mr. Ross:

Q. Is it not a fact that this is driving the working man into one or two rooms of the house?—A. Yes, certainly.

Q. My point is this. What can we do to show that there is as much heat in the bituminous coal as in the anthracite, or that it is as cleanly?

By Mr. Macdonald:

Q. It is not quite as cleanly, for all practical purposes. The thing is to keep them warm, and we in Canada try to provide the poorer class of men, with either imported coal or Nova Scotia coal, at a lower price than he has been compelled to pay for anthracite; that is our purpose.—A. Yes, that is the whole question.

By Mr. Warner:

Q. There is an answer to that question in the West, where they used to use anthracite coal and now they have got using bituminous coal in there, and they do not want the anthracite coal; they did not have the inclination to use it; they would not use it however, until they got acquainted with it. If that condition could be overcome here in the East, where they want anthracite, as it was done in the West, I think we can give it to them cheaper than they are getting anthracite coal, and we can keep our money at home.—A. I might say, sir, we have already taken up the use of bituminous coal in the lower provinces. As you say, in the Northwest, where there is a more rigorous climate, there is no anthracite used at all. At Calgary and Edmonton and Saskatoon and all the big cities, they use whatever they can get, lignite and they do not freeze. They are increasing in population and so on.

Q. How are they heated, better than in the East?—A. Some people in Winnipeg tell me that they have no trouble in heating their houses with lignite coal. I know one man who lived at Red Deer for thirty years, and he said, "I never used anything but poplar scrub". Minneapolis and St. Paul at one time used United States coal. It came to such a figure that they could not continue it, so they established by-product coking plants, and to-day they use nothing but coke. At first, there was a prejudice against it, people said it burned out the grates and hurt the furnaces. They put into a large building furnaces of every type used in the city; they had one fired with anthracite and one with coke and a corps of experts to explain the methods of firing and the results, and to-day they have educated the people, and they use coke and not anything else, and they have experts in connection with the city department and if a man went wrong with his furnace he could telephone there and an expert was sent to put him right.

By Mr. Macdonald:

Q. Do you not think that we should talk about the poorer people now. I think the people who suffer most are the poor people who have to buy anthracite coal, when we should give them bituminous?—A. Yes, exactly, we have to preach from the text, "Cheaper fuel for the masses." The people in Montreal used to use wood until it got to \$25 a cord, which it is to-day, for hard wood. You cannot use it, it is worse than coal. They should be taught to use peat;

[Mr. F. L. Wanklyn.]

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have the Government develop the peat bogs, and if necessary have a depot where a man can get 50 cents worth if he wants it. They could have coking plants for those who have furnaces, and let the millionaire buy what he wants

By Mr. Church:

Q. As recommended in your memorandum.—A. Yes; that is all I can say.

After further discussion regarding the future proceedings of the Committee, the Committee adjourned until Thursday afternoon at 3.30 p.m.

HOUSE OF COMMONS,

COMMITTEE ROOM 436,

THURSDAY, April 12, 1923.

The Select Standing Committee on Mines and Minerals met at 3.30 p.m., the Chairman, Mr. Carroll, presiding.

H. STUTCHBURY, a witness, called and sworn.

Mr. STUTCHBURY: May I just ask now whether it is possible—I was before the Senate Committee this morning, and the discussion was rather difficult, that is, there were questions coming from all over—

The CHAIRMAN: I am going to suggest that Mr. Warner and Mr. Garland who are from Alberta should take you in hand. They are from your country, and know more about it, I think, than we do.

Mr. GARLAND: I have a suggestion to offer, perhaps, before we examine this witness. I understand that Mr. Stutchbury has brought with him a gentleman whom I would like to ask some questions. I did not know he was down here, but Mr. Stutchbury tells me he knows all about the field. That of course, will be rather material in our investigation, and he wants to get away to-night. Mr. Stutchbury will be available for examination for several days.

The WITNESS: That will be quite agreeable to me. If I might just ask this, Mr. Chairman; the evidence that you give at a Committee of this kind is necessarily more or less disjointed, because of the questions which are brought up. Is there any opportunity for editing it?

The CHAIRMAN: I think that it would be a good idea, although you may not give your evidence this afternoon, for you to prepare and give a statement.

The WITNESS: I have one statement prepared, and I propose to prepare another covering the general field.

Mr. ARTHURS: Read the statement, and then just speak on the statement.

The CHAIRMAN: Then we will excuse this witness and call the gentleman Mr. Garland spoke of.

Mr. GARLAND: Yes.

JOSEPH ERRINGTON, a witness, called and sworn.

The WITNESS: I might ask, gentlemen, if you want me to give you as short a story as I can of this particular area, or do you want to ask questions?

By the Chairman:

Q. If you have a statement to make, I think that would be best, and then the gentlemen from Alberta might go into the question with you.—A. I will make just as short a statement of the history of this particular area as I can. It is not unusual at all. I had been sent by Sir William MacKenzie to make an

[Mr. J. Errington.]

examination of the Vancouver Island coal industry. That was about 1910, and in going over the situation there I went down the coast to see possible markets. I was disappointed in what I found on Vancouver Island for the money they were asking for it, and I could not recommend the purchase. However, they did go on and eventually organized a company and took over the property. Then it struck me that if we could find a high grade coal somewhere west between Edmonton and Vancouver, there was a big possible market on the Pacific coast. With that idea in mind, I started west of Edmonton; the steel was about at Wolf Creek; I rode from there to the mountains, and the first areas that were taken up were the ones we are now operating at Brule on the C.N. main line, known as the Blue Diamond Coal Mines, and that coal is now being used by the Canadian National Railways between Vancouver and—last year it came as far east as the Great Lakes, during the strike in the East. From there I went north, following the Solomon Creek to the summit, and the Hay river is of the same elevation as the Solomon Creek summit. I went up till I came to the Hay river, and there we took great areas of a little higher grade coal of a little better quality. From there I followed up to the head of the Hay river, and went into the section that is now known as Grand Cache; it was known as that then, although there was no one there. I found in that area a different condition. We followed up the different streams, and I took samples which I do not suppose I got analyzed until back in the winter months, because I did not get out until about November. Then I found that we had many different sections where the coal would run from 76 to 86 in fixed carbon. The next question was, could we get some way of bringing it out. I took the levels from the Athabasca river, towards the upper line of the railway through to the Smoky river, the junction of Sheep creek and the Smoky, and I found the one stream, the stream coming to the south connected with one coming this way, and there is practically a water grade to that area. When I reported it to Mr. McLeod, who was then head of the Canadian National Engineering Department of the railway, they could not believe it, because everyone expected, and the map showed, that nearly all the rivers ran east and west, but that is not so in this case. This is one of my own little old maps, to which some things have been added, and it shows the general directions. Here is one of the railway maps, that would possibly be easier for you to follow. That is one of the ordinary railway maps and it shows the Grand Prairie section, and this shows Vancouver. The areas are just about half way between Grand Prairie and the main line, and the waters on this point run north here and the other one comes down here and connects into the Athabasca. It is not on the Divide, it is on the east side of the mountains, but on the outside of the two streams; that is the lower field, the upper one is on the Smoky river.

By Mr. Warner:

Q. You are speaking now of anthracite coal?—A. Your geological survey has determined that; Dr. Dowling, who is, I think, very capable, was sent up there, and made a report on the geological formation; that was done by McInnis and Dowling. A man would be foolish to try to say what tonnage is in the area that is withdrawn. We did not try to take acres of land, we tried to take tons of coal in as small an acreage as possible. Of course, this Hoppe, when he came in, blanketed this country over, I think, maybe, 30,000 or 40,000 acres, and the locations that we have taken only include a small part of the coal in that section. I might say that Brule is located 550 miles from Vancouver, and these areas would be on an average from 50 to 80 miles farther north; that is just half way, as shown on this map, between Grand Prairie and the present main line of railway. The important thing about these particular areas is that there is no coal similar to that mined on the Pacific coast. There is no fuel anywhere that can compare with it, and in addition to that, there is no high grade metal-

[Mr. J. Errington.]

lurgical fuel on the Pacific coast. Vancouver Island fuel will not make a metallurgical coke. That has been proved by the plant built at Granby Mines, within the last year; they have met with failure there, and now are operating at quite an expense, because they transfer it in a crude way from the north. This coal at Hay river is different from the semi-anthracite areas, or anthracite or whatever you call it, and will make a high metallurgical coal. I have here an analysis made by our chemist last year; I did not know there was going to be anything like this required, but I have that with me, it was made for ourselves on some of these areas. It describes each of the different samples of coal from that section, and you will see there is none less than 76.6.

The CHAIRMAN: Would the Committee desire that we put this on the record?

Some Hon. MEMBERS: Yes.

BRULE MINES, ALTA., September 25, 1922.

GORDON F. DICKSON, Esq.,
 General Manager,
 Blue Diamond Coal Co., Ltd.,
 Brule, Alberta.

DEAR SIR.—Following is a report on trip made to the Sheep Creek and Smoky River region in order to secure samples of the coal from the different claims and to get acquainted with the geological formations for the purpose of comparison.

Owing to unexpected trouble with our Indian guide we were able to locate only two of the claims in this region, these being the two Sheep Creek claims lying on the north side of the trail from Smoky River. I secured as many samples as could be carried home from both claims but had no time to make an exhaustive geological examination.

Outcrop No. 1.—The coal seam covered by the most northerly claim (Mackenzie?) is about 15 feet thick and has a pitch of about 35 degrees. The hang-wall is sandstone and the foot-wall is soft shale partly mixed with sandy shale. The entire coal face from hang-wall to foot-wall consists of extremely hard lustrous coal, the cleavage being 90 degrees vertical and about 62 degrees horizontal. The quality of the coal is apparently even through the entire width of the seam, no bands of rock, bone coal or soft coal being observed.

In order to secure fairly representative samples about one foot of surface coal was first removed and the samples taken from the central part of the seam. Following is the analysis of a ten pounds channel sample representing about four feet of the seam.

Sample No. 830—

| | |
|--------------------------|------------------|
| Moisture | 1.5 per cent. |
| Comb. volatile | 16.3 " |
| Ash | 3.2 " |
| Fixed carbon | 79.0 " |
| Colour of ash | Light pink. |
| Coke | Slightly baking. |

The Sheep Creek coal is just like the Hay River lump coal, made up of alternating layers of dull and lustrous coal. The dull coal is a little harder and tougher and goes a little higher in ash. Following is an analysis of the dull coal:—

[Mr. J. Errington.]

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Sample No. 826—

| | |
|-------------------------|------------------------|
| Moisture. | 1.5 per cent. |
| Comb. volatile. | 14.0 " |
| Ash. | 7.2 " |
| Fixed carbon. | 77.3 " |
| Colour of ash. | Light pink. |
| Coke. | Soft, slightly baking. |

An analysis of the bright, lustrous coal shows:—

Sample No. 825—

| | |
|-------------------------|-----------------------------|
| Moisture. | 1.5 per cent. |
| Comb. volatile. | 16.5 " |
| Ash. | 3.9 " |
| Fixed carbon. | 78.1 " |
| Colour of ash. | Pink. |
| Coke. | Very soft, slightly baking. |

This seam, as previously stated, is entirely made up of hard lump coal of an even quality all through and I think one big lump of clean coal should be fairly representative of the whole seam. The analysis of a typical piece of this lump coal shows:—

Sample No. 839—

| | |
|-------------------------|------------------------|
| Moisture. | 1.4 per cent. |
| Comb. volatile. | 15.9 " |
| Ash. | 4.9 " |
| Fixed carbon. | 77.8 " |
| Colour of ash. | Pink. |
| Coke. | Soft, slightly baking. |

Outcrop No. 2.—The next place where samples were taken was the coal seam covered by the claim adjoining the former claim to the southwest (Monaghan's Claim?). This coal seam is about 22 feet thick and has a pitch of about 80 degrees. The hangwall is sandstone and the footwall is shale partly mixed with sandy shale. The outcrop of this seam is only partly uncovered, a hole which has been dug into the hillside exposing about eight feet of the seam.

As much as possible of the surface coal was removed before the samples were taken, but owing to the heavy pitch of the seam moisture from the surface cover will have easier access to the coal and the samples from this outcrop will naturally go higher in moisture than those from Outcrop No. 1, where a heavy top layer of sandstone will prevent surface from moistening the coal.

The analysis of a ten pounds sample from Outcrop No. 2 shows:—

Sample No. 833—

| | |
|-------------------------|------------------------|
| Moisture. | 2.3 per cent. |
| Comb. volatile. | 17.9 " |
| Ash. | 3.2 " |
| Fixed carbon. | 76.6 " |
| Colour of ash. | Pink. |
| Coke. | Soft, slightly baking. |

The coal from this outcrop is entirely of the same appearance and of the same quality as the coal from Outcrop No. 1. An analysis of the clean hard lump coal, which consists of alternating layers of bright, lustrous, and dull, hard, coal shows:—

Sample No. 835—

| | |
|--------------------------|---------------------------|
| Moisture.. | 2.7 per cent. |
| Comb. volatile.. | 16.8 " |
| Ash.. | 4.7 " |
| Fixed carbon.. | 75.8 " |
| Colour of ash.. | Light pink. |
| Coke.. | Very soft, hardly baking. |

At several places in the coal face I noticed bands about 6 inches wide of an extremely black, lustrous coal variety, a sample of which was analyzed with the following result:

Sample No. 834—

| | |
|--------------------------|------------------------|
| Moisture.. | 1.6 per cent. |
| Comb. volatile.. | 19.6 " |
| Ash.. | 0.7 " |
| Fixed carbon.. | 78.1 " |
| Colour of ash.. | Strong orange. |
| Coke.. | Soft, slightly baking. |

The extremely low ash content in this coal is remarkable and a comparison with the analysis of carbonized remains of ancient timber found in the roof of No. 2 South mine in Brule shows that the vegetable origin of this coal has been timber. The analysis of the carbonized logs found in No. 2 South entry is:

Sample No. 787—

| | |
|--------------------------|---------------|
| Moisture.. | 1.9 per cent. |
| Comb. volatile.. | 18.0 " |
| Ash.. | 0.8 " |
| Fixed carbon.. | 79.3 " |
| Colour of ash.. | Orange red. |

A comparison of the chemical and physical properties of the coal from these two claims, and considering the geological formations in the Sheep Creek region, makes it very probable that these two claims cover respectively the left and right limb of the same seam.

This seam will naturally vary in thickness in the same manner as we know it does in Brule, where the steep left limb of No. 3 South seam has a greater average thickness than the flat right limb.

The geological formations at Sheep Creek and Smoky River indicate also that the two claims at the Smoky River cover part of the continuation of the Sheep Creek seam.

The Sheep Creek coal is a highgrade semi-bituminous, with a heating value close to 15,200 B.T.U. and is in several ways very different from true anthracite coal. However, as the analysis shows, it has the same remarkable weather resisting properties as anthracite and the same mechanical strength and hardness. The fairly high percentage of combustible volatile matter increases the heating value of this coal considerably and makes it more valuable for both domestic and steam raising purposes.

There is no doubt that the Sheep Creek seam is identical with the 40-ft. Hay River seam. The difference in the quality of the coal from these two seams is due to a somewhat different ancient vegetation, the vegetation that formed the 40-ft. Hay River seam being mostly composed of ferns and sump plants while the ancient Sheep Creek vegetation has been entirely big timber, which accounts for the extreme purity and density of the Sheep Creek coal.

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As it is a well-known fact that the ancient coal-forming vegetation was sometimes subject to local alterations, it should very likely be possible to find coal seams of the Sheep Creek quality much closer to the Hay River claims.

On my way from Grand Cache on the road home I noticed several large lumps of coal lying in the creek bed at the head of Baptiste River (about 15 miles north of Hay River cabin). These lumps which must originate from an exposed coal seam higher up the creek have been weathered for many years but were just as hard and had the same appearance as the Sheep Creek coal. The analysis is rather remarkable and shows:

Sample No. 831—

| | | |
|--------------------------|------------------------|-----------|
| Moisture | 1.3 | per cent. |
| Comb. volatile | 22.1 | " |
| Ash | 3.6 | " |
| Fixed carbon | 73.00 | " |
| Colour of ash | Light pink. | |
| Coke | Soft, slightly baking. | |

This coal is entirely different from the Hay River coal and can only be compared with the Sheep Creek coal as to weather resisting qualities.

A closer examination of the coal bearing strata north of Hay River would most likely be worth while and would no doubt be very interesting.

"ERNIE BRONLUND,"

Chemist.

By Mr. Church:

Q. Who owns all these mines?—A. The Government, most of them. The properties we have taken are owned by the Temiskaming Mining Company, here in Ontario.

Q. Any railway facilities to them?—A. Not to the hard coal.

Q. I suppose the coal is better in the mountains?—A. I was asked the question of who owned the properties there. I located these different properties in perhaps 1910, if I remember rightly, about two and a half years before Dr. Hoppy came into that country. One of our packers that used to take out supplies in—it is a very difficult country to get into, we used to have to ride 230 or 240 miles over very bad trails, and the country was very difficult to cross. We had men carry our supplies up as far as Brule, and there was coal similar to this taken down to Edmonton. In some way Dr. Hoppy got hold of it, and took it to San Francisco and had it analyzed. He was immediately going into the Pacific coast trade with this coal, and he talked a great deal, and the press was full of his statements, about 1913 and 1914. There is no doubt his statement, as far as quality is concerned, was quite correct, because there is an enormous lot of coal up there, high grade coal, as good as you will find anywhere. There is no better coal anywhere than in that section. These coals here are, of course, a different combination. From the location of this, the market is undoubtedly the Pacific coast. I had travelled the country enough to know that the Peace River country was going to be greatly developed; they could not haul their grain east, and I said that the thing for us to do was to wait. When they built this railroad we could go in and work these claims. In the meantime, we have developed that plant, we have as fine a plant there as you can find, except the one at the Crow's Nest.

By Mr. Church:

Q. Where is your market for all that?—A. The coal we are selling now is used for railway purposes and smelting coal. They are using it as a smelting fuel in every one of the railway terminals between Winnipeg and Vancouver.

[Mr. J. Errington.]

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Q. With better railway facilities, you would have a better market?—A. If we could get into this high grade area, we could have practically an unlimited market, because it could go east as far as Winnipeg, and west to the coast. With any reasonable rates we could more than meet any competition. On the Pacific coast, the nearest coal to San Francisco is either Vancouver Island or coal mined in Utah or Wyoming, and it is very similar to this, and the very lowest it has been sold for vessel trade in the last fifteen years is \$14.50, and to-day it is \$20. To-day we can put that into Vancouver for \$7.

By Mr. Church:

Q. What is it worth at the mines per ton?—A. I believe our opinion is that we can mine this coal as cheap as they mine it any place. That is controlled entirely by the labour unions. At the present time, until we get better labour conditions, you are not going to get cheaper coal.

The CHAIRMAN: Mr. Church, will you allow the witness to go ahead and tell the story of the coal areas of Alberta, and you will have an opportunity of asking him questions afterwards. I think that was his own intention first.

The WITNESS: Yes; I do not want to get this story disconnected, so they will think I do not know what I am talking about. I think I might again repeat that the information that you have on record by your Geological Survey here, covers the area in the hard coal district very fully, as well as I can possibly explain it, and I would only corroborate the statements of Mr. Dowling and Mr. McInnis.

Mr. WARNER: I might say, Mr. Chairman, it would be just as well, if it would not take too long, for us to have that in our minutes, so when people get that they will know.

The CHAIRMAN: What is that?

Mr. WARNER: The description of the area.

The CHAIRMAN: Yes, it has been incorporated, I think. The witness might go on and describe the areas and the possibility of development.

By Mr. Arthurs:

Q. You are not operating hard coal mines?—A. No, sir.

Q. You have certain ones located under the name of your company in the hard coal area?—A. Yes.

Q. How far is that from the railroad at the present time?—A. About 80 miles.

Q. That is the one you have already described as being practically a level line?—A. Yes, it is about half way from the main line of the Canadian National Railways and Grand Prairie.

Q. About 80 miles, without any adverse grade of any account. There are no difficulties there in the grades. I would say it is no worse than the Crow's Nest, and it is no worse than along the Athabasca River; the grade will depend—

Q. In your opinion, there are practically unlimited quantities of hard coal there which will run 80 per cent fixed carbon?—A. I would say from 76 to 82 in fixed carbon. I have had it go as high as 88.

Q. That would be an anthracite coal, it would be so classified?—A. It is classified as such. I had one piece of section here. Just let me look at this statement. This is our own comment made last year. So many different men have looked at it and they all had a different idea. Our man gave a little extract here at the bottom of this statement. He says:

"The Sheep Creek coal is a high grade semi-anthracite with a heating value of 15,200 British thermal units." He says "In several ways it is

very different from true anthracite coal, however, as the analysis shows, it has the same remarkable weather resisting properties as anthracite and the same mechanical strength and hardness."

By Mr. Arthur:

Q. In your experience these are the principal objections to soft coal—not standing the weather?—A. It is just as hard as any coal. In places where it is exposed, where you will see a stream of water cutting across the measure it doesn't wear any more rapidly than the rock nor does it disintegrate. I have sampled lumps that have fallen down and it gives 82 in fixed carbon after that lump has been there from one to ten years.

By Mr. Warner:

Q. What is the thickness of the seam?—A. They average from 8 to 15 feet. There may be smaller ones but we were not looking for the smaller ones.

By the Chairman:

Q. Have you finished your general statement?—A. Yes.

By Mr. Garland:

Q. What is the area of the field to which you are referring?—A. I would say that the areas that are now marked as "withdrawn" on the general maps that you have here in the department, would cover that area in which the hard coal is known to exist.

Q. What would be the extent?—A. I would say possibly 35 miles north and south and 30 miles east and west.

Q. Could you give the Committee an estimate of the number of tons of coal?—A. You would need several adding machines for that.

Q. I understand it has been estimated roughly as one hundred million tons anthracite or semi-anthracite, and four hundred million tons bituminous or sub-bituminous?—A. That is Mr. Hoppe's estimate. I have no doubt that there would be more than that.

Q. Thank you, that is what I wanted to get.—A. There is no question as to tonnage, it is enormous.

Q. It runs into the hundreds of millions?—A. Yes, no doubt about that.

By the Chairman:

Q. Is that anthracite?—A. Yes.

By Mr. Garland:

Q. About a hundred million tons of semi-anthracite is a rough estimate, the witness says. You could of course give no idea of the value as it stands?—A. It has no value to-day at all unless you figure from the transportation standpoint. We have been paying lease rentals from 1910.

Q. If you had transportation facilities?—A. Then it would be very valuable.

Q. Could you give an idea of the value?—A. I don't see why it would not be worth 50 cents a ton in the ground. I think that would be conservative.

Q. Before development?—A. Yes. The Government gets a big revenue which is covered up. You have to pay your dollar rental and ten cents a ton royalty. The most important part of this area is that it is going to supply freight traffic from Brule to Vancouver, which is now not earning very much. They are commencing to take grain which has to go that way. But this will give more tonnage. We are handling at Brule 1,500 tons a day. Last year when the strike was on in the East we fought the strike and delivered coal all the time, but not the full capacity. It was used last year from Vancouver to the Great Lakes on the Canadian National Lines and east of Winnipeg on the main lines, and in fact I saw it down by Cochrane.

By the Chairman:

Q. What do you mean by the Great Lakes?—A. Fort William and Port Arthur.

By Mr. Garland:

Q. Can you give an estimate of the cost of the railway from Brule to your mines?—A. We had that survey made up to what we called our first location. Mr. Rod Mackenzie and myself were the two first interested in this property and had they not lost the railway they intended to go into there as quick as they could. Mr. McLeod, Mr. Turnbull, and Mr. Murray Hill—but they were keeping it quiet in a way until they were in a position to put the line through. We have made a line from Grand Cache, but from that point on I don't know—it is a wide open country.

Q. What I want to know is the probable cost.—A. We figured at that time at \$45,000 a mile, figuring with an 80-lb. rail—it could be built on that basis.

Q. I think you said the coal of this district would be acceptable to the entire shipping trade?—A. Acceptable to any trade. There is nothing on the Pacific Coast that could beat it. There is no coal between South America and Alaska and Canada would have the monopoly.

Q. In your opinion Canada has a tremendous national asset in that deposit if it is opened up?—A. There is no question of it. My idea was—you take the Crow's Nest Pass Railway. It is one of the best earning pieces of road that the C.P.R. has. Why won't this one do just as well? It is going where there is practically no business on the Pacific Coast.

Q. The traffic developed by it would very largely develop the ports of Vancouver and Prince Rupert?—A. Yes.

Q. Where does the shipping from the Pacific Coast get its coal from?—A. Ships coming from the Orient sometimes bring their coal with them to take them back again. The C.P.R. have large schooners. When a big liner comes in they wire ahead and they bring these up alongside, and while they are unloading their freight they are loading their coal with clamshell buckets. The Japanese and other ships go to comox and Nanaimo for their coal and come back for their freight.

Q. Is there not a large quantity of coal used on the Pacific from Japan?—A. There is some, but not much. I would not say very much. The facilities for bunkering in Vancouver, while it is a large shipping port, are very poor.

Q. How does it compare with the Cumberland coal?—A. Do you mean the Pennsylvania?

Q. No, the English.—A. This hard coal is to be compared with any coal mined anywhere. It will not exceed three per cent ash and it will give from 82 to 84 or 86 fixed carbon, 15,000 heat units as an average analysis. There is no better coal mined anywhere.

By Mr. Knox:

Q. Would it be suitable for coking?—A. Not very.

By Mr. Warner:

Q. There would not be much use in coking this hard coal anyway?—A. You would not want to.

By the Chairman:

Q. Do you import American coal up there?—A. We don't where we are—in our end.

Q. You don't know anything of that particular phase of it?—A. No. It is sent the other way.

[Mr. J. Errington.]

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By Mr. Garland:

Q. What are the disabilities in Alberta, so far as future developments are concerned?—A. You mean from the standpoint of coal development? There is nothing to bother us except transportation.

Q. That is the answer I thought I would probably get. Could you give the Committee some idea—suppose you had almost perfect transportation with fair rates—could you give them some idea of the development that might be accomplished there in comparison with what it is to-day?—A. Up in this particular area?

Q. I am talking about the whole thing.—A. It would be very, very difficult. It would take three or four years to get up a very large quantity of coal, but you can mine any quantity there. These coal outcroppings occur all along the valley. You could produce 25,000 tons a day there if you wanted to.

By the Chairman:

Q. What is your production now?—A. About 2,000 tons a day.

Q. I am speaking about the whole province of Alberta.—A. Alberta is producing hard and soft coal, and Mr. Stutchbury has the soft coal figures in detail. We are producing 1,500 to 2,000 tons a day.

Q. The question I want to get an answer to is this, that with a market and proper transportation facilities have you an opinion to offer as to what your possible development would be in that country—the province of Alberta?—A. Well, I could not answer for the soft coal areas and the other areas to the south, but we could have a market and easily sell 5,000 tons a day to the Pacific Coast.

By Mr. Warner:

Q. You could have if you were developed at the present time?—A. We could without development if we had railway facilities.

Q. You have to have this railway of 80 miles?—A. Yes, and it is likely to come because it is half way between Grand Prairie and the main Canadian National Railway.

Q. Do you ship by single car, mixed in with other traffic or by train lots?—A. We have our own locomotives and sidings and our track scales, and they pull them out in compact trains of 50 cars at a time.

Q. Then it is really a train lot service?—A. Yes, but they are keeping it all themselves. It is not going to the public, it is all for the railroad.

Q. For the railroad and steamships of the same company?—A. We have no idea where it goes. It may go to Winnipeg or Vancouver. We don't bother about that.

Q. May I ask the witness, with a train lot rate on coal say of \$6 or \$7 a ton into Ontario, what is your opinion about the price that it would come to—with that kind of rate?—A. It would come into Ontario at between ten and twelve dollars.

Q. That means, then, that you would have how much at the mine?—A. Ordinarily we would figure on four or five dollars. We are away high now, on account of the enormous rate the miners are getting.

Q. You expect the wages of miners would come down if there was enough business to keep them employed the year around?—A. I do, I think they would.

Q. They would be willing to do that?—A. Yes, they would be better off I think. We could mine and put this coal on the cars profitably at four dollars or four fifty.

By the Chairman:

You might stress that point again, Mr. Warner, as to what you can get Alberta coal into Ontario markets for, say with the present rate.

WITNESS: You were asking on a six or seven dollar rate.

[Mr. J. Errington.]

By Mr. Warner:

Q. What is the present rate now?—A. It is around twelve dollars, and it would therefore cost sixteen or seventeen dollars from this hard coal area.

Q. Into Toronto?—A. Yes.

By the Chairman:

Q. Is that wholesale?—A. Oh, yes, that would be on the cars in Toronto.

Q. Have you any information that they are already paying more than that from the Pennsylvania coal mines, which is no better coal than this?—A. It is not so good.

Q. Are they not paying more?—A. They are. Not more wholesale but more retail. Their retail price is higher.

Q. This would be the wholesale price?—A. Yes.

By Mr. Warner:

Q. Your retail price would be higher than this?—A. There would have to be some allowance for delivery, taking it off the cars, and so on.

Q. What is the reason, if there is that much difference in the price, that your coal is not coming this way. Would they not buy it, or were you not in a position to furnish it?—A. We have never been in a position to furnish it. We lack those eighty miles of railway that join up Grand Prairie and the coal mines. We have put all our money into plant development; to build 80 miles of railroads would be to build it for everybody, and we cannot go into the railway business.

Q. This coal would not be equally good for the use of Ontario people as they are using the hard coal from the other side, but your anthracite would be?—A. It would be fully as good or better. Better than what you are getting now. You can figure that out for yourself. The average ash content of the anthracite coming into Canada for the last three or four years has never been under 20 per cent and, if you take the analysis, we show all our surface coals were at no point less than 76 per cent of fixed carbon, and if they have an ash content of 20 and 10 per cent volatile the best they could have is 70 per cent of fixed carbon. So they cannot have a coal of better value than ours would be, they have not got it.

Q. Then what is your opinion, if we get a train lot rate established, say at 6 or 7 dollars a ton for the delivery from there down here, is there anything else in the way to prevent your competing with United States coal in Ontario?—A. Everything would depend on the transportation.

Q. Transportation is the whole thing?—A. That is all, nothing but transportation could enter into it. Our seams are wider and cleaner. They went over most of their areas and now they are going back over again, and they have not so much virgin area.

Q. Are not your miners working under the same Union as those in the States?—A. Yes.

Q. Would they not feel that they should have the same price for the same work?—A. Yes, but that would not make any difference. We would get a greater efficiency on account of better mining conditions than the anthracite men in Pennsylvania.

Q. What are the better conditions?—A. Our seams are wider and we don't have to go after them. They have not a large tonnage near the surface in Pennsylvania and their seams are smaller.

Q. Some of your seams run as high as 18 feet. Is it as cheap to mine from an 18-foot seam as it is from a 7-foot seam?—A. I would rather have a seam of from 8 to 10 feet.

[Mr. J. Errington.]

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Q. How would you manage in an 18-foot seam?—Would you take it out in two layers?—A. It would depend on the position of the seam entirely. If it was lying in a horizontal position we might be able to take out the 18 feet full, but if it was on the slope we would have some difficulty. We would have to drive an entry and work to the top and shrink back.

Q. Then your conditions would give you an advantage in competing with United States coal, provided you had not this long haul?—A. Yes.

Mr. GARLAND: It is just another and better Pennsylvania.

WITNESS: The question as to anthracite or semi-anthracite comes up very often. The public knows very little about the use of coal, but you can understand where you get a coal giving from 72 to 86 per cent in fixed carbon which will develop from 15,200 to 15,600 heat units, low in ash, you have no waste left. This coal will go from 12 to 15 per cent in volatile. It is very firm and very clean and you have a high class coal. None of the analyses are taken from coal more than two feet deep where they have been exposed for hundreds of years, and if it would disintegrate at all you would expect a lower percentage of carbon where it has been stuck out in the air. If you take some coal and leave it for five or six years you would see considerable disintegration, but these hard coals don't disintegrate, they are very firm.

By Mr. Warner:

Q. One thing that has been discussed in getting a different kind of coal to use here—the people that have been using anthracite would not be very willing to learn to use another kind, and perhaps their furnaces would not be best suited for it. Now this coal that you are speaking of, would that require any different adjustment in the furnaces, or any new education in the use of it instead of the anthracite coming from the States?—A. None, it would be just the same.

Q. They would go right on with the same methods?—A. Yes.

Q. Could the softer coals be successfully used in the same grates and furnaces that these hard coals are?—A. I would think that people would have to be instructed how to use those particular kinds of coals after using the others. If they were trained and taught and knew what to do with those other coals, they could get along with them.

Mr. WARNER: Perhaps that question is a little out of line, because Mr. Stutchbury is fully qualified to answer that and expects to have soft coal dealt with in his evidence, but what I was interested in was to bring out the fact that the people would need no new education to use his anthracite coal?—A. We would say no.

By Mr. Garland:

Q. In your opinion the development of this field would mean very greatly increased tonnage and be very profitable for the National railways?—A. That has always been my opinion. You make a comparison of the Crow's Nest Railway or any other coal line in connection with the present railways to-day. There are three coal routes—there is the coal spur to the south, there is the Brazy Line to the centre and the Crow's Nest Line. Now the Crow's Nest Line is the best paying line on the C. P. R. The coal spur is profitable and it only works half the year.

By the Chairman:

Q. Why?—A. It has a heavy tonnage for five or six months. They get trainload after trainload, the equipment is there, and you have the tonnage for it. It is the regular freight tonnage that makes business and profits for a railway.

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By Mr. Warner:

Q. How nearly do you keep your mine employed the year round?—A. Last year the railway came to us and there was great danger of their not having coal enough to keep the railways going. We fought the strike and organized a Home Committee. We built a lot of houses for our married men. We have about two thousand people there. We built schools, churches, and recreation places, water, heat and sewerage, and everything they could have anywhere, and our married men stayed with us and did not want to strike. We kept going on a basis of one thousand to 1,200 tons all the time and kept trains moving, but we were not going at capacity—we should have been getting 2,000 tons.

Q. Did you get men not belonging to the Union to go in the mines working?—A. They had been working. There had been a fight between the United Mine Workers and the One Big Union. Our idea is that if we give them good schools and living places we are going to work into a better class of labour.

Mr. GARLAND: I think this is hardly relevant.

Mr. WARNER: I don't want to ask questions that are not relevant, but this is coming up continually—how are you going to prevent a strike which would cut off our supply?

The CHAIRMAN: I don't think it is what we are here for, but I am not making any objection.

By Mr. Warner:

Q. I want to find out how you operated when the men went on strike?—A. Our married men and better class of labour stayed with us and now they all belong to the same old union and we are not able to control the union.

Q. There would be no more difficulty there than anywhere else where mines are operated?—A. None, I think Mr. Stutchbury could tell you that we have a better condition than any mine company in western Canada.

Mr. STUTCHBURY: I think so, yes.

Mr. GARLAND: I should apologize to the Committee for neglecting to ascertain for them the business of the witness. What is your occupation?—

A. I am a mining man, mining and engineering.

Q. In what official capacity?—A. I am a director of the MacIntyre Mine and Temiskaming Company.

Q. You are a mining engineer?—A. Yes, but I do not follow it closely. I was here with the International Nickel Company for ten years in Sudbury, and I built a good many of those buildings there.

The CHAIRMAN: Mr. O'Connor, have you any question to ask this gentleman?

Mr. O'CONNOR: I am ready to corroborate what he says about that being a better coal than anthracite.

The CHAIRMAN: Any other questions now, gentlemen?

By Mr. Warner:

Q. You are looking to the Pacific Coast for the outlet for your coal, over and above what the railroads take, if you get in a position so you can furnish it?—A. Yes, we anticipate a market, a great market.

Q. Would they use any of this hard coal?—A. They would likely use some on locomotives; I would expect them to.

By the Chairman:

Q. What coal?—A. There is a hard coal running from 66 to 78 fixed carbon which would be cheaper than the grade they are using. They all naturally want a low ash and high grade coal where they can get it.

By Mr. Knox:

Q. Does the witness consider this coal, this sample, much better than the coal shipped from Edmonton?—A. This is Edmonton coal. It is west of Edmonton at Saunders Creek, I understand.

The CHAIRMAN: Anything else, gentlemen? If not, perhaps Mr. O'Connor would give us a brief outline of the situation.

W. F. O'CONNOR, a witness, called and sworn.

By the Chairman:

Q. You are by profession a lawyer?—A. I have been admitted to the bar.

Q. And you were a Commissioner in connection with?—A. I was the Cost of Living Commissioner for Canada for a year and a half, and then for another year Vice Chairman of the Board of Commerce.

Q. And in that connection, you did go into the question of a coal supply for Canada?—A. Yes.

Q. For fuel purposes?—A. Yes.

Q. Perhaps you will give us the benefit of any general statement you have?—A. I will continue from where I left off. In that capacity I investigated anthracite coal, and handed in a report which was printed by Parliament, which went rather to the retail prices, costs, and distribution of anthracite. Necessarily that was United States anthracite, because there was no Canadian anthracite. That report I have not with me but it is easily available, but I doubt if it will be of much value. The soft coal investigations contemplated at the time did not proceed, there were reasons which it is not necessary to go into here, but I think that the chief value I can bring to the Committee is this, that while I was conducting my investigations, I got a good deal of information, and I can tell you just where you can go to get a good deal that you will need, and I can give you considerable of the stuff that you would get if you went to these sources, but I do not propose to give anything of my own knowledge with respect to coal, and you will find, too, that the various witnesses will necessarily rely upon the investigations and report of many men who are now dead, although some of them, if you want to go into the matter of corroboration of data, some of them are still living, but the geological surveys are very complete, and will be very valuable, and the various writers and reporters upon the subject have leaned one upon the other for a long period of time, and I propose at the end of my remarks to give you the sources from which I have derived what I have said. I think that it would be well for me to assume that the members of the Committee, although they probably are not in that position, are in a like position to that in which I was when I started my investigations, with a practically blank mind with respect to coal. I do not know how far you want me to go, but I have a lot of information, and I would be glad if you would stop me if I went too far in any one direction.

Now, getting on to the question of coal, you know they call it "buried sunshine". The reason for this term or appellation is that it is, as the French describe it, "carbon", which is its chief value; carbon is the chief value. The last witness spoke of a 79 and 80 per cent carbon content, which probably meant a great deal to some persons within his hearing, but it may not have meant much to a number of others, but I would say that coal is formed through

[Mr. W. F. O'Connor.]

the sun by the plant growth absorbing from the air and from the soil carbon, then decaying and leaving in the soil carbon, and then it sinks and rises for a period of hundreds of thousands, perhaps hundreds of millions of year, and eventually becomes what we dig up in various places, and call coal.

The last witness was asked as to whether the coal he described was anthracite. A few minutes afterwards, a question being addressed to me, I described it as better than anthracite. It is necessary for me to justify what I then said, and I should perhaps do it by dividing all coals into four classes, and I have the authority of the Twelfth International Geological Congress, which was held right here in Ottawa in 1913, for that division. The four grand divisions of coal are, anthracite, which if you will think of as class A it will be easier; bituminous, which is called B; cannel, which can be thought of as class C; and lignite as class D. Now, I do not want anything that I say to lead anyone to believe me to be saying that anyone of these coals, anthracite, bituminous, cannel, or lignite, is superior, or inferior, to the other. They have different purposes. I can well imagine that a lignite coal, for instance, would be, for a special purpose in mind, superior to the very best of anthracite. I can imagine conditions when the very best of anthracite would be the very best available for the purpose in mind. Likewise, there are purposes for which nothing but bituminous will do, but it is necessary for geologists and mining men to divide them into classes, and they have divided them into four classes. If you need coal for steel making, forging, you will go after one class of coal with a certain analysis. For gas making, it will be another; for coke making another, for steam another. If you want coal for a furnace, and you have the opportunity of making a selection, you get a certain kind. What may be inferior for one purpose will be superior for the other. The geologists have devised an arbitrary rule for dividing coals into these classes. They call it a fuel ration, and any person here, in two minutes, can make himself as capable of dividing all coals into the classes to which they belong as any geologist. They divide the volatile contents into fixed carbon contents, and the quotient will be the fuel ratio, and from that rule, as laid down by the Congress, you will be able to decide for yourself whether the coal is anthracite or bituminous or cannel or lignite. Carbon, I said, is the chief content, it is the chief heat producing element, and that is the acceptable classification, in carbon contents. Now, part of the carbon of coal is fixed; that is, you cannot drive it off by heat as gas in a retort. The gases that can be driven off in the retorts are the volatile matter spoken of. The portion of the volatile matter that can be driven off will be carbon also. Notwithstanding that it is there in what we might call an inchoate state, it still has its value as carbon. You may buy two coals, one of a very high fixed carbon, and the other of considerable carbon gas content, and these coals would be practically of the same fuel value. I am going to put on the minutes, if permitted, the world's geological gross classifications of coal, what I am sure will be very very helpful indeed to the Committee when subsequently the scientific witnesses come on and begin taking it for granted that you know what perhaps you do not know, which is usual with most scientific witnesses as most lawyers will tell you. What is the very A B C of the business to them is unknown to us.

The source of my authority you may find in the Parliamentary Library; it is "Coal Resources of the World," published in 1913 as the result of the International Congress here, and it consists of three volumes, an atlas volume, and one volume relating to Canadian coal, in which there is a vast amount of material in relation to Canadian coal. The volume I have here with me is the atlas volume, with a number of maps which show the coal of Canada in the different provinces and how it lies. That meeting or assembly established these standards. Standard A is anthracite. That is, having a fuel ratio of 12 and

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over. That is, being a coal in which, taking the volatile matter and dividing the volatile matter into the fixed carbon, the quotient is 12 or over; that is anthracite. That anthracite, A1 anthracite, has a fuel ratio of 12 or over. It generally runs, in British Thermal Units, 14,500 to 15,500 British Thermal Units to the pound of coal. That is to say, its fuel value, measured in that way, of British Thermal Units per pound is between 14,000 and 15,000. Class A2, semi-anthracite, has a fuel ratio arrived at in the same way as I have described, running from 7 to 12, and a British Thermal Unit of from 15,000 to 15,500. You see, I am establishing by these illustrations that the classification of the coal into A1 and A2 and B, and so on, does not imply superiority in the order in which they come. Semi-anthracite, then, has a greater fuel value than anthracite up to 500 British Thermal Units. The third subdivision is B1, which embraces anthracite and high carbon bituminous. The fuel ratio of B1 is from 4 to 7. The British Thermal Units of such coal is usually from 15,200 to 16,000. I have made the computation of the coal that was testified to which is here, and it runs a minute fraction below 5, so it falls within the B1 class. It is either an anthracite or a high carbon bituminous. You could settle it by getting the specific gravity of it, as to which class it would come in. The British Thermal Units of it is given in the analysis as somewhere around 15,200. It is therefore, as a fuel, the very best obtainable coal.

By the Chairman:

Q. That is semi-anthracite?—A. That is class B1, in the third class, it is superior to semi-anthracite. As a fuel, to repeat, anthracite or high carbon bituminous is superior to either semi-anthracite or anthracite, and semi-anthracite as a fuel for mere heat producing purposes, I should say, is superior to anthracite.

Now, the next classification is B2, and bituminous coal comes within B2. The fuel ratio of bituminous is from 1.2 to 7, and the British Thermal Units would run 14,000 to 16,000. You will observe this bituminous is as good as anthracite or a high carbon bituminous—I should say the best bituminous is equivalent in heat producing value to the best of anthracite or high carbon bituminous, but it is not as likely to be as good.

By Mr. Garland:

Q. May I interrupt for just a moment. You are quoting the words "British Thermal Units" and I think some of us do not know exactly what you are talking about.—A. I could not myself describe it, not being a chemist, any better than to refer you to the food values, with which we have all got so familiar.

They refer to that there as "calories". I know as little about what a British Thermal Unit is as I do about a calory, but it really does not matter what a calory is or what a British Thermal Unit is, to grasp the subject. If you called it anything else it would be just as good, if you are taking the figures as a way of comparison, 14,000 with 15,000 or 14 and 15, or $1\frac{1}{4}$ with $1\frac{1}{2}$. You will grasp the idea of comparison of the British Thermal Unit. I confess with great pride that I do not know. I started by saying that I knew nothing at all about business.

You will see, as we go along, what is wrong from the heat producing standpoint with the anthracite, as compared with coal such as has been described in the Hoppe areas; that is, there is not sufficient gas in pure anthracite to permit of the most perfect combustion of the carbon contents of the coal. Now, we have passed from bituminous into the next sub-division, which is B3, "Low carbon bituminous". That has a fuel ratio of from 2.5 to 3.3, and the British Thermal Unit is from 12,000 to 14,000. I have to explain at this stage that when they get down to low carbon bituminous coal, gas content of the coal rises so high that the fuel ratio applicable to the coals which I have spoken of already,

[Mr. W. F. O'Connor.]

the gas content in the second case is getting so high that they have to adopt a new means of getting the ratio. The moisture of the coal is getting greater, so what they do is to get the fuel ratio by taking the moisture and half the gas content and adding the two together and dividing the two into the fixed carbon, plus the other half of the gas. If you will leave that on the minutes, maybe some scientific witness coming later on may touch on that, and you may save yourselves having to ask the question of why the fuel ratio of low carbon bituminous is so much higher. That is the reason. Having gotten down to 1.2 in your bituminous classification, as you have a long way to go with the other figures, you have to adopt new means, and that is what they do.

The next sub-division, C, is the cannel coal. Cannel coal cannot be compared with the other classes, it is a different substance. It is not the same as other coal. Cannel coal—the theory is that instead of its being formed of the plant, the disintegrating plants, it is formed instead of seeds and buds and, curiously enough, vast expanses of dead fish, that the ocean has deposited. You have all seen it burn, and it has a very high gas content, running sometimes as high as 60 per cent of the whole. At this stage, you will see why in getting at the fuel ratio of these high gas coals, they followed another procedure. The British Thermal Units of cannel run from 12,000 to 16,000. Some of these gas contents have a very high fuel value. It is possible, for this cannel, as mere fuel, to be as good and better than anthracite.

The next division is D1, lignitic or sub-bituminous. That has a ratio, a fuel ratio arrived at by the second means that I have described of 1.8 to 2.5. It has a moisture of over 6 per cent, that is, there is over 6 per cent water in it. Its British Thermal Units, or heating value, is from 10,000 to 13,000. This coal, if it is the same analysis as the journal coal which is published in the press, the coal produced from the Edmonton district—

By Mr. Warner:

Q. Would it be possible for me to ask a question just now? When you speak of the water content in the coal, do you mean that, when it is first mined it has that, or that it will continue to carry that indefinitely? —A. Within a reasonable time after it is taken from the mine. For instance, arriving here the other day, if this is the same coal, it had 8 per cent. It may have had more when it started, but not much more. A portion of it will remain, I do not know how much, but coal will dry after a while. That is the reason why a high lignitic coal does disintegrate, because the moisture has a congealing effect on it, and as soon as that leaves it it begins to disintegrate, and then picks up moisture again. The coal then would fall into the D1 class. Remember, I am not implying any inferiority to it. You will see it is a pretty excellent coal running up to 13,000 units and for burning in grates and for domestic purposes it is coal of the very highest calibre. It is all lignitic quality, according to the classification. Next to that comes D2, or lignite, where the moisture runs over 20 per cent. It falls into the class of lignite and the British thermal unit of lignite is from 7,000 to 11,000.

Now if you care to have some comparisons to show how these fuel ratios work out, and that sort of thing, I don't wish to bother anybody here, I will hand them to the reporter for incorporation in the proceedings. They are specimen analysis under the United States system of analysis. The United States system is exactly the same as the International but it does not make the shift when it comes to the high carbon.

APPENDIX No. 6

W. F. O'CONNOR (SCHEDULE 1)

FUEL RATIO.—SPECIMEN ANALYSES U.S. SYSTEM

| | Water | Vol. M | F. Carb. | Fuel R. | Ash | Sulph. |
|-------------------------------------|-------|--------|----------|---------|-------|--------|
| <i>Anthracite</i> — | | | | | | |
| Lehigh, Penn..... | 1.72 | 3.52 | 88.00 | 25.00 | 5.66 | 0.61 |
| Wilkesbarre, Penn..... | 2.49 | 4.34 | 83.97 | 19.33 | 8.55 | 0.65 |
| Cerillos, N. Mex..... | 2.90 | 3.18 | 88.91 | 27.96 | 5.21 | ..... |
| <i>Semi-Anthracite</i> — | | | | | | |
| Bernice, Penn..... | 1.29 | 8.10 | 83.34 | 10.28 | 6.23 | 1.03 |
| Crested Butte, Colorado..... | 0.72 | 7.62 | 87.51 | 11.48 | 4.15 | ..... |
| ("Journal" Analysis) U. S. Ant..... | 3.90 | 7.30 | 76.50 | 10.48 | 12.30 | ..... |
| ("Journal" Analysis) Welsh Ant..... | 2.10 | 8.00 | 85.40 | 10.67 | 4.40 | ..... |
| <i>Semi-Bituminous</i> — | | | | | | |
| Cumberland, Maryland..... | 0.96 | 19.14 | 72.71 | 3.80 | 6.41 | 0.79 |
| Pocohontas, W. Virginia..... | 1.68 | 17.45 | 75.90 | 4.35 | 4.20 | ..... |
| Spadra, Arkansas..... | 1.11 | 11.28 | 72.84 | 6.46 | 12.04 | 2.74 |

(See Schedule 1—W. F. O'Connor.)

Mr. O'CONNOR: I may as well mention ash is inert, unburnable, and is just the same as water. It is absolutely useless and in the way.

By Mr. Garland:

Q. May I ask a question? Can you state to the Committee the ash content of the alleged anthracite that was sold and burned in Ottawa this year?—A. I presume, reading the newspaper, that this Alberta test is a better anthracite than the coal that was sold as anthracite during the past year. I don't think, personally, we have had any real anthracite for some time sold here. It has been called anthracite but it is in the semi-anthracite class, but were it not for the ash content it might be better because it is semi-anthracite but the high ash content detracts from the heating value and it is a dirty coal.

Q. I do not quite understand what you are saying about the "Journal" coal test?—A. The "Journal", at the same time that it published the analysis of the Alberta coal, published an analysis of the United States anthracite and an analysis of Welsh anthracite, and it compared Alberta coal with the others by way of analysis. It is not very useful to have done that, because of the difference in character and purpose of the coals. I am saying that the "Journal's" published analysis of United States anthracite coal shows a 12.30 ash and a heating unit of 13,700, and I am saying that that low heating unit,—which runs below 14,000—it ought to run from 15,200 to 15,600—is due to the ash content, that is keeping it down.

Q. In a word, can you tell us which is the best heating coal, the Alberta coal or the United States anthracite?—A. When you say Alberta coal, if you mean this Edmonton coal, I can answer decidedly anthracite.

By the Chairman:

Q. For the purposes of publicity we should show that we are not dependent for a high class heating coal on the United States?—A. Not in the least.

Mr. DRUMMOND: The witness has stated that cannel coal is equal or superior to anthracite.

WITNESS: Some cannel coal is.

Q. Has this been arrived at from scientific analysis or practical demonstration? Some of us have burned the coal and that is the reason I ask.—A. I get it from the Twelfth Geological Congress, which had men from all over the world.

Q. I understand the evidence you are giving is from scientific analysis?—
A. I assume that these were men who were scientists, and who so pronounced.

Mr. O'CONNOR (Referring to the schedule published above): You will see that the ash content being low in the Welsh coal and the fixed carbon content being relatively higher, it added a very large percentage of heating value to the Welsh coal and made the Welsh coal so much superior to the United States anthracite. I have also a number of examples of semi-bituminous coal which have been worked out in the same way, and which anybody who cares to check them up may find useful for comparison.

W. F. O'CONNOR (SCHEDULE 2)

| — | Water | Vol. M | F. Carb. | Fuel R. | Ash | Sulph. |
|----------------------------|-------|--------|----------|---------|-------|--------|
| <i>Bituminous—</i> | | | | | | |
| Pratt Seam, Alabama..... | 1-00 | 32-17 | 63-37 | 1-97 | 3-34 | 1-04 |
| Clearfield, Penn..... | 0-55 | 25-19 | 71-02 | 2-82 | 2-65 | 1-58 |
| Saginaw, Michigan..... | 5-82 | 39-79 | 45-15 | 1-13 | 9-24 | 3-83 |
| McAlister, Ind. Terr..... | 2-08 | 37-52 | 56-02 | 1-49 | 4-38 | 0-80 |
| Roslyn, Wash..... | 2-05 | 33-55 | 54-55 | 1-63 | 6-85 | 0-11 |
| Drummond, Pictou, N.S..... | 1-40 | 24-70 | 60-80 | 2-05 | 14-50 | (2-50) |
| Phalen, Cape Breton..... | 3-40 | 35-00 | 59-50 | 1-70 | 5-50 | (1-80) |
| Springhill, Pictou..... | 2-80 | 32-30 | 58-50 | 1-81 | 9-20 | (1-60) |
| Inverness, Inverness..... | 9-30 | 40-00 | 49-60 | 1-21 | 10-40 | (6-00) |
| Port Hood..... | 4-70 | 27-10 | 48-30 | 1-77 | 14-60 | (7-40) |

Now as to lignite, I have worked that out in the same way. I have noted on the side of certain of these the British thermal unit of analysis. I was not able to get it in all cases.

By Mr. Warner:

I might say, Mr. Chairman, that if we would have the witness confine himself and use his time to giving us the relative values of the coals that we have available to use here, it would assist us in the problem that we are trying to solve.

The CHAIRMAN: I think he is doing that very well.

WITNESS: I am doing that.

The CHAIRMAN: I think this evidence will be very valuable to us.

MR. WARNER: I was afraid he was putting in coal that we had no access to.

The CHAIRMAN: He must necessarily compare our coal with other coal.

WITNESS: I want to show that our coal is superior to United States coal. I am taking it from here and there and it shows up very well indeed. Now, coming into the lignite class, I will put in this table.

W. F. O'CONNOR (SCHEDULE 3)

| — | Water | Vol. M | F. Carb. | Fuel R. | Ash | Sulph. |
|------------------------------|-------|--------|----------|---------|-------|--------|
| <i>Lignite—</i> | | | | | | |
| Boulder, Colorado..... | 21-37 | 33-38 | 40-31 | 1-21 | 4-95 | ..... |
| Rock Springs, Wyo..... | 6-98 | 34-42 | 52-60 | 1-53 | 2-00 | ..... |
| Cook Island, Alaska..... | 11-59 | 49-03 | 31-64 | 0-64 | 7-73 | ..... |
| Taylorton, Sask..... | 28-60 | 42-90 | 47-00 | 1-14 | 8-10 | (.60) |
| Taber, Edmonton, Alta..... | 13-00 | 36-00 | 49-90 | 1-39 | 14-10 | (1-40) |
| Edmonton..... | 23-50 | 42-00 | 49-90 | 1-19 | 8-10 | (0-40) |
| "Journal", Alberta Coal..... | 7-40 | 33-40 | 50-50 | 1-51 | 8-70 | |

[Mr. W. F. O'Connor.]

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Of the D-1 class, from the means of classification provided by the Twelfth Geological Congress I would say that this "Journal" coal is of the very highest class of lignite coal. It has a water content of 7.40, volatile matter 33.40, fixed carbon 50.50, fuel ratio 1.51, and ash 8.70. The ash may be a little high but not by any means high as compared with other coal, and for domestic purposes it is superior.

By the Chairman:

Q. Where is that mine?—A. As I understand, it is mined at Harlech, Alberta.

By Mr. Knox:

Q. What is the comparison of cannel coal and anthracite for domestic purposes?—A. If you want to light a fire in your grate, cannel coal would be infinitely superior to anthracite. They ought to be used for different purposes.

Q. If you wanted to heat your house?—A. If I was asked to pick between the two, I would pick anthracite. The gas content of the cannel is so high that you would have so much flame, and flame and heat are not synonymous. The fixed carbon content of the anthracite would make it superior for the furnace.

Q. While it is admitted that cannel coal is superior to the anthracite for lighting a fire it is pretty hard to convince us who have used it that for heating purposes it anywhere approaches anthracite.—A. Scientifically treated in a retort it has the possibility of producing as great a heat.

Q. But scientific treatment in a retort will not heat your house.—A. I have already said I would pick anthracite.

Q. After all is said and done, you would still recommend anthracite for domestic and heating purposes as against any other coal?—A. No, I would not.

The CHAIRMAN: Hear, hear!

By Mr. Knox:

Q. Well, then, what kind would you recommend?—A. It is only a suggestion, as one who for his whole lifetime has used bituminous, being an Easterner, and having had perfect satisfaction from it, as perfect in the one case as the other, I would, if I handled it myself, and did the stoking, select anthracite.

Mr. SPENCE: You would not do much else if you were stoking bituminous.

The CHAIRMAN: My dear man, I used it for fifteen years, and I can put on a fire in the morning that I don't have to touch until four o'clock in the afternoon.

WITNESS: From that standpoint anthracite has that point of superiority, but on the other hand, if it comes to the matter of producing a quick fire, a more easily controlled fire, if you have a variable climate, as the east is, the Easterner will stand up for the bituminous every time, because he can heat the house more quickly and cool it more quickly than he can with the anthracite. The anthracite is a slow acting coal either to heat or cool, the bituminous is a rapid acting coal, so you see they have points of superiority and inferiority depending on what you want. One coal is dirtier than the other to handle. The specific gravity of bituminous is 1.25 to 1.4. The specific gravity of lignite is less, there are some lignites that will float. The specific gravity of anthracite is greater than either of the other two coals. The coking coal requires a low ash and a low sulphur content. In coking the less volatile matter the less coke. On the other hand, if you are looking for a gas coal, the more volatile matter the more gas. A good gas coal will produce 10,000 feet of gas per ton. If you were coking that you will use up two-thirds of the gas in the process of coking and have one-third left for sale. A good gas coal should not have more than about 1 per cent, or under preferably, of sulphur. The objectionable

ingredients of all coals are water, ash, and sulphur. No first-class coal should have more than 7 or 8 per cent of ash.

If anybody is interested in the world's production of coal, I have a table I will put in showing it. Roughly the world's production of coal in 1910—the last available figures, and they are almost as good as the present on account of the disruption of the war—was one billion tons per annum—that is the world's production and consumption.

By Mr. Garland:

Q. Has the witness also got a comparative table showing the area in each of these countries?—A. I think so. At any rate I can get it from a work in the Parliamentary Library.

The CHAIRMAN: Perhaps you might supplement your evidence by putting it in.

WITNESS: Yes, I will. I noticed somebody was asking the average value of the coal of the universe at the pit mouth. For 1910 it was \$1.93 per ton for the world. The average value of British coal at the pit mouth was also \$1.93, the world average and the British average agreed. Only 10 per cent of United Kingdom coal is anthracite, the other 90 per cent is bituminous.

By Mr. Drummond:

Q. Have you any figure to show what was the average cost to the consumer?—A. At that time no, I have not.

Q. Have you figures of the cost of anthracite at the mouth at that period in the United States?—A. That could be obtained but I have not them here. I think you could work it out from this, the proportion of anthracite that is produced from the States as compared with the proportion of bituminous and alter the average figures by the percentages and arrive at either one. I can give you the price for the whole of the United States coal that was \$1.48, the world's cost being \$1.93 and the British being \$1.93. I want to draw your attention to something very peculiar that there was employed at that time during the same year at the industry in the United States 966,264 persons and employed in Great Britain at the same time 690,438. For each person in the United States employed in the industry they produced 538 tons and in the United Kingdom each person produced only 271 tons, which shows why the British cost was higher than the United States cost. Production is easier, one person can produce more. That condition I may inform you, if you need it, obtains also in Canada—perhaps it is a little more difficult to Canada.

By Mr. Drummond:

Q. Would not the miners' wages be different in the United States, to those in England?—A. They would be higher very likely, yes.

By Mr. Warner:

Q. Did I understand the witness to say that the Canadian conditions were as good as the United States?—A. I would judge not as good. I am speaking only on my knowledge of eastern conditions, I know nothing of the western. Some twenty-five years ago I organized a coal company or my office did, and I had to study conditions acting as solicitor for the company, and after I had to do with some foreclosing of companies and that kind of thing, and my impression is that our conditions are not as good for production as the United States.

Q. Would the conditions for production be as good as in Great Britain, or better?—A. I think they would be worse than in Great Britain.

[Mr. W. F. O'Connor.]

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Mr. Drummond:

Q. Do you mean that the production per individual would be smaller in Canada than in Great Britain?—A. I would think so. I would think it would cost more to get it out. In eastern Canada a great deal of our mining is done at very great depth and under the sea. The British mines are also a lot under the sea.

Q. They are all at a great depth, are they not?—A. The conditions are becoming more difficult in England. I am speaking of 1910 conditions. I can give no knowledge personally as it is ten years since I have seen a mine. I am going to hand in a table showing the coal resources of the world actual, probable, and possible, in million tons, dividing the coal into A class, B and C, and D classes.

W. F. O'CONNOR (SCHEDULE 4)

WORLD RESERVES

Actual, probable and possible reserves of the world in million tons

| | A | B & C | D | Total |
|--------------|---------|-----------|-----------|-----------|
| Oceania..... | 659 | 133,481 | 36,270 | 170,410 |
| Asia..... | 407,637 | 760,098 | 111,851 | 1,279,586 |
| Africa..... | 11,662 | 45,123 | 1,054 | 57,839 |
| America..... | 22,542 | 2,271,080 | 2,811,906 | 5,105,528 |
| Europe..... | 54,346 | 693,162 | 36,682 | 784,190 |
| | 496,846 | 3,902,944 | 2,997,763 | 7,397,553 |

The United Kingdom reserves show 189,534,749,920 metric tons.

By the Chairman:

Q. When you say United Kingdom, what do you mean? People might get mixed up?—A. I mean England, Ireland, Scotland and Wales. I must get out of using the term "United Kingdom" but I am speaking of 1910. I must say British Isles, but some people might object to that.

Mr. SPENCE: Not here.

W. F. O'CONNOR, (SCHEDULE 5)

UNITED KINGDOM RESERVES

Bituminous coal greater part less than 10 per cent of reserves conceded to be anthracite.
Reserve to depth of 6,000 feet estimated to be—

| | Metric tons |
|---------------------------|-----------------|
| <i>England and Wales—</i> | |
| Actual reserve..... | 119,943,409,929 |
| Profitable reserve..... | 29,984,000,367 |
| Possible reserve..... | 16,254,500,000 |
| <i>Scotland—</i> | |
| Actual reserve..... | 21,370,493,624 |
| Probable reserve..... | 1,685,000,000 |
| <i>Ireland—</i> | |
| Actual reserve..... | 180,506,000 |
| Probable reserve..... | 110,840,000 |
| Total..... | 189,534,749,920 |

WITNESS: The next table contains details of the North American reserves divided into proved reserves and probable reserves, such as you may compute, from what you already know, that there is probably beyond. The actual reserves are from actual borings and that sort of thing.

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W. F. O'CONNOR, (SCHEDULE 6)

NORTH AMERICAN RESERVES IN MILLION TONS

| | Class A | Classes B and C | Class D | Total |
|----------------------|--|------------------|--|-----------|
| | Anthracite coals, including some dry coals | Bituminous coals | Sub-bituminous coals, Brown coals and Lignites | |
| Newfoundland..... | | 500 | | 500 |
| Canada..... | 2,158 | 283,661 | 948,450 | 1,234,269 |
| United States..... | 19,684 | 1,955,521 | 1,863,452 | 3,838,657 |
| Central America..... | | 1 | 4 | 5 |
| Total..... | 21,842 | 2,239,683 | 2,811,906 | 5,073,431 |

WITNESS: I might be justified in saying roughly that Nova Scotia has, of the B and C classes, 2,138,000,000 actually proved tons and has in addition a probable reserve, that is unworked and largely submarine, of about 7,500,000,000 tons more. Alberta is a tremendously larger holder of coal. Alberta is shown to have 668,000,000 tons of anthracite and 3,209,000,000 of high class bituminous coal.

Mr. GARLAND: Too conservative.

The WITNESS also produced a table showing the world's production of coal annually as estimated by the United State Bureau of Manufacturers in 1910.

W. F. O'CONNOR, (SCHEDULE 7)

WORLD'S PRODUCTION OF COAL, ANNUALLY

IN 1910 AS ESTIMATED BY UNITED STATES BUREAU OF MANUFACTURERS

| Tons | | Tons | |
|---------------------|-------------|--------------------|-------------|
| United States..... | 300,000,000 | British India..... | 12,800,000 |
| United Kingdom..... | 263,774,000 | Australia..... | 10,000,000 |
| Germany..... | 146,507,000 | Canada..... | 9,700,000 |
| France..... | 36,000,000 | | |
| Russia..... | 25,600,000 | | 32,500,000 |
| Belgium..... | 23,000,000 | | 823,181,000 |
| Japan..... | 14,700,000 | | |
| Austria..... | 13,600,000 | | 855,681,000 |
| | 823,181,000 | Others..... | 102,993,000 |
| | | | 958,674,000 |

APPENDIX No. 6

W. F. O'CONNOR, (SCHEDULE 8)

DETAILS OF NORTH AMERICA'S RESERVES

| | Actual Reserve (in million tons) | | | Probable Reserve (in million tons) | | | Total |
|--|-------------------------------------|----------|---------|---------------------------------------|-----------|-----------|-----------|
| | Class of Coal | | | Class of Coal | | | |
| | A | B & C | D | A | B & C | D | |
| Newfoundland..... | | | | | 500 | | |
| Canada— | | | | | | | |
| Nova Scotia..... | | B 2,138 | | B 7,511 | | | |
| | | 50 | | C 20 | | | |
| New Brunswick..... | | | | B 151 | | | |
| Ontario..... | | | | | | | 25 |
| Manitoba..... | | | | | | | 160 |
| Saskatchewan..... | | | | | | | 57,400 |
| Alberta..... | 668 | B 3,209 | 384,908 | 100 | B 194,883 | | 491,271 |
| British Columbia..... | 7 | B 23,764 | 60 | 1,343 | B 43,925 | | 5,136 |
| Yukon..... | | | | | C 1,800 | | |
| | | | | | B 210 | | 4,690 |
| North West Territory..... | | | | | | | 4,800 |
| Arctic Islands..... | | | | | | | 6,000 |
| | 675 | 29,161 | 384,968 | 1,483 | 254,500 | 563,482 | 1,234,269 |
| United States— | | | | | | | |
| Eastern..... | | | | 16,906 | 494,454 | | |
| Interior..... | | | | 363 | 478,232 | | |
| Gulf..... | | | | | | 20,952 | |
| Northern Plains..... | | | | | 41,106 | 1,134,000 | |
| Rocky Mountains and Coast..... | | | | 484 | 335,460 | 692,207 | |
| Coal deeply covered..... | | | | | 604,900 | | |
| Alaska..... | | | | 1,931 | 1,369 | 16,293 | |
| | | | | 19,684 | 1,955,521 | 1,863,452 | 3,838,657 |
| Central America— | | | | | | | |
| Honduras..... | | | | | 1 | 4 | 5 |
| Total estimate for North America..... | 675 | 29,161 | 384,968 | 21,167 | 2,210,532 | 2,426,938 | 5,073,431 |

United States not subdivided into Actual and Probable Reserves.

That is where they are comparing, and there will be a whole lot left yet. They estimate 384,908 million tons. That is the actual reserve. Of the probable, arrived at in the way I spoke of, there is 100 million tons of anthracite, and 194,883 million tons of bituminous, and in addition in the lignitic class, 491,271 millions of tons. The grand total—I am just going to compute it for the moment, would be something like one billion two hundred million of tons of available coal. That is simply terrific. Never, in the history of the world, will you be able to use anything approximating what you have in coal.

By Mr. Drummond:

Q. Have you taken into consideration the total coal in the Sudbury district in Northern Ontario?—A. I have a little note here at the end. The United States reserves are given here also; perhaps the best thing to do is to have them printed, and then they will show up. Now, I want to bring home to you, by an illustration—

By the Chairman:

Q. Would you be able to come down and give us a few minutes in the morning?—A. Yes, I would be delighted, but let me finish for this evening by stating something for us all to go away thinking about. I looked into it as to how much the United States reserves have been impaired, and that will give us

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an idea of how they have been working there. They are the world's greatest coal producers, and very large exporters as well as consumers, and they have a large reserve of coal. It is estimated that the original amount of coal in the seams of 14 inches thickness and over, to a maximum depth of 3,000 feet in the United States reached a total of 3,225 billion, 394 million and 300 thousand metric tons, of which only 11,220 million, 532 thousand, 560 tons have been taken. That is all the production that has been going on in the United States from the beginning of time up to now. Now, compare that condition with Canadian conditions, and you will see what a vast and continuing resource you have here in Alberta.

By Mr. Lapierre:

Q. Is it not a fact, Mr. O'Connor, that the anthracite coal of Pennsylvania is practically inexhaustible?—A. In 1916, from the information I had, I estimated that it would not last at the present rate of consumption, beyond 40 or 50 years, but if it was replaced by anything else or conserved, it might go 100 or 200 years before giving out. They cannot eat their cake and have it too. I have now reached Canada's resources, but I believe you are going to adjourn now.

The CHAIRMAN: Yes.

The Committee adjourned until Friday, April 13th, at 10 a.m.

HOUSE OF COMMONS,

COMMITTEE ROOM,

FRIDAY, 13th April, 1923.

The Select Standing Committee on Mines and Minerals met at 10 a.m., the Chairman, Mr. Carroll presiding. Mr. W. F. O'Connor on the witness stand.

The CHAIRMAN: Mr. O'Connor was giving evidence yesterday afternoon in connection with the general coal outlook, both in Canada and the United States, and generally within the British Dominion. I just forget where he was, but probably he knows himself.

Mr. SPENCE: He was all over the world.

The CHAIRMAN: I am afraid he was going a little deep for most of us.

Mr. O'CONNOR: I have next here a table to show Canada's reserves divided by provinces into metric tons. The grand total is 1,234,269,310 metric tons.

By the Chairman:

Q. For the Dominion of Canada?—A. For the Dominion of Canada. Of that grand total of 1,234,000,000,000 tons, Alberta contains 1,072,000,000,000.

Mr. HANSON: They have got the monopoly.

Mr. GARLAND: Hear, hear!

WITNESS: The classification of these coals is roughly,—and the exact figures are here,—A-2 class, that is, semi-anthracite, of the character discussed yesterday by Mr. Errington, a very fine coal indeed. There are 2,158,950,000 metric tons of that calibre of coal in Canada according to the survey of 1913. Of B-1 and B-2 classes—these take in high carbon and fair carbon bituminous—there are 139,087,360,000 tons of B-3 class and C class, that is, low carbon bituminous and cannel coal, there are 144,500,000,000 tons of that character of coal. The vast bulk of the coal is of the lignitic and lignite class amounting to about 950,000,000,000 tons of the 1,234,000,000,000. British Columbia has 76,034,942,000 tons.

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The CHAIRMAN: I suppose British Columbia would be out of the way altogether for fuel supply for Eastern Central Canada.

Mr. GARLAND: Not necessarily. I understand there is an attempt being made, and successfully, to ship some around by the Panama in competition with the present transportation. But I don't think the coal is of extra special quality.

The WITNESS: I might interject that a British Thermal Unit is the amount of heat that will raise a pound of water one degree Fahrenheit. I am now producing the details of Canada's reserves, that is to say, each province is taken, the area of square miles of coal that it contains is established, the class of coal, the metric tons, whether the coal is actually proved to be there,—that is whether it is an actual reserve proved by borings, and the computed or probable reserve, the quantity which is actually proved and the quantity which is deduced from the proved existence of the other coal. Each province is taken, and it extends even into the Northwest Territories and the Arctic Islands. The coal is divided into two groups, the first group being coal contained to a depth of 4,000 feet, and the second group coal beyond 4,000 feet. As these are subdivisions of what I have already handed in, it will be enough to have them on record. (The witness then filed an exhibit numbered Schedule 8).

By the Chairman:

Q. Are you now proceeding with another subject, because I was going to ask you a question? What is the number of tons of coal imported into Canada from all countries? Do you know? What do we lack ourselves towards making up the total supply?—A. I am going to give you rough figures. They have run a little beyond what I am going to speak of, and also a little below. For practical purposes we consume 26,000,000 tons of coal. We produce under 13,000,000 tons. We have produced at times a little more, we generally produced a little less, but if you take it at 26 and 13 we only supply 50 per cent of what we need in coal. Since you are asking about statistics, I can give you something else which may be useful. The railways of our country consume about the same quantity that the individual in the country consumes. That is to say, if you will take your railway consumption and will apply to each of the practically 9,000,000 people of Canada an equal amount of coal, that is what you will find going into the domestic consumption. You will have to add to that your coal for steel and your coal for factory purposes, and then you will get your whole consumption. Our railways are very large consumers, relatively larger than the railways of other countries, because of our immense distances.

The quantity in New Brunswick is quite limited, the figures are given in one of those tables that I have filed. Roughly the workable coal is about 112 square miles. You will find it worked out in the Geological Survey for the year 1872-3 into three divisions—Newcastle, 32 square miles; Salmon River, 32 square miles; and Cold Creek 48 miles, an aggregation of 112 square miles. The average thickness of these workable seams is 20 inches. The probable coal content as shown in 1913 are 138,346,560 metric tons. Since this Geological Survey of 1872-3, they have discovered about 9 miles more. The details, as to just where they are, are in the books that I have put in, but I have no note as to just where it is.

Mr. HANSON: In Bearsville, Kent County. The Geological people were down last summer. Have they made any further reports?—A. As to last year's work, I was in the Mines Department and had a talk with Mr. McLeish. He promised to give me anything up to date. I have not yet got together all that I might have, but I was going to recommend to the Chairman that Mr. Dowling, who collected this, and who was the author of the Canadian Section of the works to which I am referring, should be asked all manner of scientific questions

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by the Committee. Mr. McLeish, the Deputy Minister of Mines, could be asked these things, and you may want to have a geologist in, or something of that kind. I am only breaking the ground. That is what I am called in here for, so as to get the Committee started away. He would be able to give you the details.

By Mr. Spence:

Q. The witness says he knows very little about this. I would like to ask where he got all this data from.—A. From "The Coal Resources of the World," published as a result of the Twelfth Geological Congress; from the Geological Surveys extending from 1866 down to now; from the mining reports of the various provinces published annually by the various governments; from encyclopedias; from general reading; from questionnaires addressed by myself years ago when in office to various coal dealers; from personal visits to mines; from visits to coal dealers' establishments, looking over their books; from the organization of coal companies personally; from the foreclosure of the coal companies which, for one reason or another, had to be done; and from general information which a fairly well educated man acquires, but does not know how, in the course of his life.

Mr. SPENCE: I thought you had been working for the Statistical Department with all this information.

The CHAIRMAN: I was discussing this thing with Mr. O'Connor and I knew he had compiled a lot of information.

WITNESS: This country paid me for a period of years to do this sort of thing, and you cannot work at a thing for a few years without discovering how to do just a little better than the other man. How to do it is what you have to learn, and where to get it. I have started my evidence by saying I really knew nothing about the subject—I am handling you other men's information. Mr. Dowling and Mr. McLeish will be able to give you more than that, but between the lot of us we will be able to give the Committee facts that will stand the test.

Now, so much for New Brunswick. I may say, as to the New Brunswick coal that it is of high caliber, it is a very good coal; the seams are very narrow, but that difficulty is overcome, although they probably would not be workable if they did not lie so close to the surface, and they can mine it economically. They mine it by stripping, I mean, just stripping off the surface, but there may come a time when that cannot be done.

Somebody asked as to whether there was any coal in Ontario. Geologists, as far as I can find, do not estimate that there is anything that you can call coal in Ontario, except a deposit of lignite which lies on the slope of St. James Bay. This Sudbury coal, spoken of some time ago—I profess I do not know of my own knowledge, but the geologists at any rate do not acknowledge that there is coal there, whether there is or not.

By the Chairman:

Q. You say 25 millions reserve?—A. Yes, 25 millions of lignite in Ontario; that is the deposit on the shore of St. James Bay. The reports that I refer to speak of it in this way, they say it is a lignite of no present economic value; its area is less than 10 square miles, and there is probably 25 million tons of it. If briquetted, it could be transported. If industries were in that vicinity, it could be used on the ground, but for any other use, it should be briquetted.

Q. Has there been any development in Ontario?—A. None at all.

By Mr. Spence:

Q. There is a firm in Ontario which has a sample from the Sudbury district, and they claim they have several millions of tons there, regardless of the

[Mr. W. F. O'Connor.]

reports of engineers. I was approached by a gentleman who asked me to take an interest in the company, but I did not do so. However, I understand there is coal in New Ontario, and I think that will be a solution of the whole proposition if we can get it, and I do not think we are paying enough attention to that. I saw a sample of the coal myself, and it is a splendid hard coal.

The WITNESS: In Manitoba, there are what you may call relatively negligible quantities of lignite, as far as known; there is no bituminous or anthracite. In Saskatchewan there are very large quantities of lignite. In British Columbia there are vast quantities of all kinds of coal. The very best of Canada's coal is probably that high class British Columbia coal, and the highest class of Alberta coal.

By the Chairman:

Q. Has there been any developement either in Manitoba or Saskatchewan?—A. Yes, there is development in Saskatchewan.

Q. What part, do you know?

By Mr. Warner:

Q. Is that coal suitable to be used or to ship and use without briquetting?—A. No, sir. Now, the Chairman informed me that somebody from the West would be able to give details if required of the western mines and production, and I understand the next witness will speak as to that. Such personal knowledge as I have as an Easterner of the East I will give in addition to the details which I have extracted from books, and naturally I have extracted these details for the East to a greater extent than for the West; while I have given the West, I have not summarized the West to the extent which I have summarized the East. I am now going to give a more detailed summary of the Eastern coal, the Sydney reserves in two groups, and the classifications of them. I will not take the time to give them, but there they are, groups one and 2. The Sydney area consists, according to this group, of 73 square miles, with a probable reserve of 2,639 million tons.

By the Chairman:

Q. Does that take in the whole country around Cape Breton?—A. It takes in all the towns down there, New Campbellton, Sydney Mines, Victoria and Lingan, Glace Bay, Port Morien. It takes in the whole district.

By Mr. Hanson:

Q. That is very high grade coal?—A. Most of it.

Q. That is as good as there is in Canada?—A. As we were saying yesterday, it all depends on what you want it for. There may be coal superior to it, depending on the purpose in mind. For all ordinary purposes, that is, the heating value—if I were looking for coke, I would go after a certain kind of coal, and if I wanted it for steam I would go after another. That is Cape Breton. The Eastern district, that is the Nova Scotia district, is divided into four areas; I have just given the Cape Breton area, the Sydney area, the details of the Sydney area, and the other areas are Cumberland, Pictou, and Inverness. I am handing in a detail of the whole Nova Scotia field, which shows an actual reserve, according to the Cape Breton field, of about a little over two billion tons, and a probable reserve of practically five billion tons.

Q. Reverting for a moment to the Inverness field.—A. Just let me finish this. There are five billion tons in Group 1, that is all coal extending down to 4,000 feet, and the second group includes coal below 4,000 feet; that added to the previously mentioned groups makes two billion six hundred and thirty nine million more tons. The mileage is, as previously given, 73 square miles.

[Mr. W. F. O'Connor.]

Q. What do you mean by that 4,000 feet; is that perpendicular?—A. Yes.

Q. I was going to ask you about development in the Inverness area; has there been much done?—A. It is the next one here.

By Mr. Warner:

Q. I might ask this for information, is this coal at 4,000 feet or deeper more likely to be of a good quality than the coal nearer the surface?—A. Nine times out of ten, the coal improves as you go down.

Q. It improves?—A. Yes, nine times out of ten. Now, that does not mean that all the seams improve, as you go down, if you get on a seam and work down, as you go down in the seam, the coal is liable to get better. As to whether an underlying seam of coal is going to be superior or inferior to an overlying seam, there is no rule; it may be one or it may be the other. The Inverness area which the Chairman spoke of is termed by the geologists "Northern Cape Breton Reserve". Yesterday, you had the pleasure of hearing from a Western witness that the western computations had been too conservative, and that there was an area of some hundreds of millions of tons which had not been shown, and he was able to demonstrate that here. I am happy to be able to tell you to-day of my own knowledge that like conditions obtain on the north coast in Nova Scotia, that there are hundreds of millions of tons of coal here that the geological reports, while they suggest their possibility, have not been able to demonstrate, also that the coal is of a very high quality. That is in the Inverness district, and it has been proved, not merely by borings, but by workings. I am handing in a statement which shows the coal on the north Cape Breton coast, the thickness of the seam, the actual reserve, and the probable reserve. As this coal on the north Cape Breton coast is practically all submarine, the furthest that the geologists—most of the work, as you will know, was done back in the 70's and 80's, and the furthest they could go was to judge from outcrops and from borings on such portions of the land as they could get at. Since then, the companies which have been developing and working out under the sea have been able to settle with greater probability, things that the geologists of the 70's and 80's were not able to settle it at all. For instance, we will take here Mabou, on the Inverness coast. The Mabou mine, the Mabou areas are shown in the statement I am handing in on the north Cape Breton coast as containing twelve million metric tons actual, and thirty-six million tons probable. Now, marked under the "probably thirty-six million tons additional" is the word "moderate". That is in the old reports. You can almost fancy the geologist trying to work out what he would put there. On the shore there is the descent of the seam, and it is at a degree of 75, looking very much indeed as if it is an upthrow, as if there has been convulsions of nature, and the coal would probably go down under the sea and be lost, and nobody knew, and nobody could know what was there. In 1913, the report of Dr. Dowling, with respect to that coal area covers less than six lines of the report on the world's reserves. This is what he says:—

"The Mabou area is submarine, though the coal measures outcrop on Coal Mine and Finlay points. Two seams are known, six and seven feet in thickness, both being mined by slopes. The measures dip eastwards at an angle of 75 degrees, or higher but at 540 feet down the slope, the dip changes to an easier angle of about 17 degrees.

That is all Dr. Dowling could collect when, in 1913 he prepared this document for the Coal Resources Committee. At that time though, as a matter of fact, development had proceeded so that the workings were a couple of thousand, 2,000 or 3,000 feet out under the sea at these points, and that inclination of 17 which had been taken up has been proceeding since, and pro-

[Mr. W. F. O'Connor.]

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ceeding under such conditions that the mining engineers are now of the opinion that in the Mabou district there are not merely "one hundred million tons", but, as they pronounce it, "hundreds of millions of tons". I saw a computation made by the most eminent, possibly, of all the mining engineers who ever were brought here by the British Empire Steel Corporation or the old Dominion Coal Company, as to the tons of coal within a mile and a half of the shore in the Mabou district, and he pronounced that there is mineable coal of 150 million tons within about a mile, or a mile and a half of the shore there, just along the front of the Mabou areas. The Mabou areas consist of about 16 or 17 square miles. On that property, although the geological reports say only two seams, 7 and 6, with a total of 13 feet, as a matter of fact, the operations of the company has proved either 5 or 6 seams, I forget which, with a total thickness of 42 feet. These are the proved seams. Another seam of 11 feet has been discovered on the property, not yet proved, so no computation is made as to what it contains, but it is 11 feet in thickness. Get this though, there are 42 feet of coal, mineable coal, on that property. This is something which I want to stress as a likelihood. These seams being discovered on that Mabou property, the Mabou property having a headland that goes out that the other properties on each side of it, such as Port Hood and Margery and St. Rose, and the other properties on that coast have not got, it is reasonable to suppose that these workable seams being discovered on the Mabou property, where the land has been preserved instead of being washed away, that this body of coal is very likely to, although not yet demonstrated, extend to the other properties. It is only within the last few years that it has been demonstrated, and if that is so, Nova Scotia's coal areas, instead of being ten billion tons of a probably reserve, could easily be twenty billion; ten billion is what is computed, but there is no doubt whatever about it that there is an immensely greater coal reserve over on that north Cape Breton coast than was ever thought of before the last few years. I hand in the details as far as worked out, with a note at the bottom, "N.B., subsequent development discloses Inverness area to be much greater in extent". That note is my own. I may say that on these properties along the north Cape Breton coast considerable money has been spent.

By the Chairman:

Q. Why has it not been better developed, what seems to be the trouble?—A. I can tell you the trouble with each mine, as I have been present at the birth and death of everything that has occurred there as far as development is concerned.

By the Chairman:

Q. What, in brief, have been the reasons for the areas not being developed as fully as the areas on the other side?—A. They have been three up to now, up to recently. In the first place, no demand; in the second place, under capitalization; and the third place absence of transportation.

By Mr. Hanson:

Q. No railways there?—A. Yes, but it is owned by one company, and they would not give rates to the Mabou Mines or the other mines that would justified them in exporting their coal.

Q. That is up to the provincial government to control that?

The CHAIRMAN: I think the provincial government has taken over the road, as a matter of fact.

Mr. HANSON: The bondholders owned that before?

The CHAIRMAN: Yes.

[Mr. W. F. O'Connor.]

By Mr. Dickie:

Q. This is all bituminous coal?—A. Yes, it is all bituminous coal, although not of the same class.

By Mr. Arthurs:

Q. You heard the report given by Mr. Errington yesterday of the vast field in the west. You have given a very concise and very clear synopsis of the situation in the East. Mr. Errington, if I remember correctly, said that the area of hard coal there was approximately thirty-five miles square, or in other words, about 1,000 square miles, with seams running up to 18 feet in thickness. In your judgment, taking only these two fields into consideration, have we enough coal in Canada to supply ourselves for many years to come?—A. Unquestionably. I gave figures yesterday to show that purposely. The figures for the United States show that there is a vast amount of coal there yet.

Q. I know this is the fact, but I just want to get it down on the record. There is another consideration. Mr. Errington yesterday talked about hundreds of millions of tons; you talk in billions of tons in a similar area. You would think his estimate was very conservative?—A. As I listened to him yesterday, if the area that he described is there, with very narrow seams, his estimate is away under. I want to say that when I spoke of so many millions of tons like, for instance, outside of the Mabou area, which is only 16 miles, remember I was speaking of the property with seven or eight seams on it with enormous thickness.

Q. Mr. Errington spoke of seams 18 feet in thickness.—A. Yes, sir; he is way under if this area is as he says it is; he did not purport to say it was proved by borings, and if I were in his place and had been asked to make what you might call a witness's guess I would have gone higher than he did.

By Mr. Dickie:

Q. Mr. O'Connor, we had it brought out before that there was some coal being mined in Nova Scotia that would not stand storage in large quantities, because there was so much sulphur in it that combustion took place.—A. Fires have been known to be caused by the high sulphur content in coal, I understand for the same reason that oily waste will catch on fire, that is, under certain conditions.

Q. You can understand why I am asking you that, because it would need to be brought by water in the summer and stored in dumps.—A. Yes, the danger of fire in bituminous coal all depends on the sulphur contents. If a coal with a high sulphur content is attempted to be stored, it may not catch on fire, but you run that risk with it.

Q. It is the tendency of that coal to have a high sulphur content?—A. No, not a high sulphur content. There are tendencies in certain seams, and certain kinds of coal. I am producing books of analysis of the coals of Canada, and you can identify the coals by the analysis of the gasses into the different component parts. You can avoid buying that coal, if you do not want to, because as a class Eastern coal is not of that nature.

By Mr. Arthurs:

Q. Are all the Nova Scotia coals fit for coke.—A. No.

Q. What proportion, approximately?—A. Two-thirds of it would be fit for coking.

By Mr. Spence:

Q. Will not all classes of coal get on fire in some way by combustion?—A. It depends upon the sulphur contents.

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Q. I saw a pile of coal burned on the other side; it was a huge pile, and they tried to save it by getting a great big machine and digging a hole through the centre of it. There was another pile that was burned right down.—A. That may have been spontaneous combustion. The coal is full of gas, they make illuminating gas out of it. If gas is rising from the coal, and somebody throws a match in, of course that coal will burn, and it burns in the mine at times, but as far as spontaneous combustion is concerned, I have always been led to believe that that was dependent on the sulphur. I may be wrong in that.

By Mr. Dickie:

Q. It would depend to a great extent on the shale and stuff which carries a very high sulphur content.—A. Yes. Now, if the Committee does not want to use detailed maps of the Inverness area for any purpose, I do not want to leave them with the Committee. If they are of any use to the Committee, I will do so.

By Mr. Arthurs:

Q. It is pretty hard to reproduce them in the Minutes of the Committee.—A. Yes, although they are complete detail maps of the district. I have also a book here which I will leave with the Committee, an atlas of the coal resources showing printed on the map where the coal is and the extent of it. You did not ask for the mileage?

Mr. GARLAND: I don't think so. It must have been some other member. I agree with the witness it is not important. I can get that evidence if required.

The ACTING CHAIRMAN: Any further question for Mr. O'Connor?

WITNESS: I am not quite through. I am handing to the Committee the atlas of "The Coal Resources of the World" and also the second volume of "The Coal Resources of the World." The first and third volume will be of no use to you. This contains Canada facts, United States and Mexico facts, and the coal resources of Great Britain, Scotland, Wales and Ireland worked out, and any amount of detail of area, character of coal, and so on, and if a question arises during the course of deliberations of the Committee as to the difference between Canada and United States coal, or United States and Welsh, or Alberta and Nova Scotia, nine chances out of ten you will find it dealt with in that volume.

By Mr. Garland:

Q. I would like to ask the witness if additional copies of that will be available for members of the House.

The ACTING CHAIRMAN: I presume you will get them at the Library.

WITNESS: At the Printing Bureau there are extra copies of that.

Mr. WARNER: If members of Parliament want them and apply for them as individual members, would they be available for them?

The ACTING CHAIRMAN: I will call the attention of the Chairman to that and see if he can get them.

WITNESS: I will next file Bulletin 22 of the Department of Mines, 1918 No. 479. This bulletin is divided into a number of parts. The part that I am filing is Part 1, Maritime Provinces. There are a number of other parts for the different other Provinces which I recommend the Committee to get.

By the Acting Chairman:

Q. They are the ordinary Government documents?—A. Yes, this bulletin is the analysis of Canadian fuels.

By Mr. Dickie:

Q. Are you appearing before the Senate Committee?—A. Not to my knowledge. This Bulletin is available at the Mines Department. I also file "Summary Report 1918, part F." This document contains quite a report on the Chimney Corner and St. Rose areas on the North Breton coast, an area which is also discovered to be larger and more extensive than had been thought. This document also contains an analysis. I also file "Summary Report 1919 F Investigation in New Brunswick and Nova Scotia Mines Department,"—Geology and maps, and that sort of thing. Your future witnesses will be speaking of these things.

The ACTING CHAIRMAN: You understand there are similar reports for other areas and we will want them as well.

Mr. WARNER: Sure.

WITNESS: There is another document you want, while I have broken in on the story of my evidence, but I have not very much more. In 1912 McGill University conducted, at the instance of the Mines Department, a most complete investigation as to the coking and steaming capacity of all Canadian coals, eastern and western, and the results were published in seven volumes. There is a supplement to that, on eastern coals particularly, by F. W. Gray. That document is Mines Department Publication No. 83, of 1912, 7 volumes, and F. W. Gray's Supplement to it, one volume. Your future scientific witnesses will lean heavily on them, and if they are here when these witnesses come, they will be able to answer questions. Somebody asked the coking qualities of Harlech coal. The witness may not know, but looking at the Government test he will be able to tell you all about it. I mentioned Mr. Gray's Supplement to No. 83. If you are interested to go further into this North Cape Breton fuel, its capacity is disclosed by the Geological Surveys. See the Geological Surveys of 1873-4; Report by Charles Robb, the Geological Surveys of 1881-4; the Summary Report of 1918, Part F, the Geological Survey, pp. 8-F to 13-F; Summary Report 1919, Part F, pp. 20-F to 22-F.

We have got this far with the problem, that we need 26,000,000 tons and we produce only 13,000,000 tons, and the problem is getting the other 13,000,000. Where is it coming from? is the first question.

The Acting Chairman:

Q. In your opinion we have it, it is simply a question of transportation?—A. There is no question about having it. At any rate, you have your coal and you want to get it out. I stated in answer to the Chairman the transportation is the first question. That is so. The next question is capital, because the Government is not going to do this for us and there is not going to be a bunch of fairies going to rise up to do it for us. It will be done, if at all, by hard-headed, practical business men, and they will want to know about what it is likely to cost to do it. At this stage I want to say that it is not necessary for Nova Scotia to look at Alberta or Alberta to look at Nova Scotia as rivals, and to say to one another, 'Which of us is going to do it?' The answer is, 'Neither of you is going to do it. If it is going to be done at all, it will be both of you.' The future is so vast that by the time you have reached your necessary extra production of 13,000,000 tons, the Canadian coal consumption would have increased so that you will have to practically begin all over again, and it is idle to imagine that we are going to enable ourselves to be entirely independent of United States for quite a while in the matter of coal. We can only start and go as far as we can.

Now, coming back to this capital cost. Coal mining is odd in this that it differs from the factory. You can enlarge a factory, and as you enlarge you can cut down to a considerable extent your overhead costs usually. But in coal

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mining—although if you have six mines your general manager, his work and the expenses of him, is not much increased because you have six rather than three—if you start three new mines, you have to have a mine manager and a whole mine personnel for each mine, and you cannot take a hole in the ground, that you start with the intention of taking 2,000 tons a day out of it, and profitably turn it into one that you are going to take 10,000 tons out of per day. There is a limit beyond which, when you start mining, your cost run up if you try to run down.

By Mr. Garland:

Q. Haven't you forgotten one thing there, Mr. O'Connor? Where a mine is working on one shift a day of eight hours, would it not be able to operate more cheaply rather than more expensively if they could run sixteen or twenty-four hours?—A. Certainly.

Q. Then their production would be increased by three?—A. Certainly, but as a matter of fact most mines do operate on three shifts. Mines must be operated twenty-four hours a day wherever they can. They don't work on only an eight-hour shift a day. The point I am trying to make is a different one. It is this. That there is a desirable maximum daily production for each hole in the ground, and that, by common agreement, is somewhere around two thousand to two thousand five hundred tons a day. You will find that the most productive and best paying mines are those. You don't better your position by increasing the output from that particular mine.

By the ACTING CHAIRMAN: As a matter of fact, owing to lack of market and other causes, many of our mines are working short time, or closed down.

Mr. WARNER: Part of the time each year.

WITNESS: Why should we be in that situation? Here we are only producing half of what we need.

By Mr. Warner:

Q. I would like to ask, Mr. Chairman, a question. I don't know whether I understood you or not, Mr. O'Connor. Did you aim to say that the increase of population and the use of coal would likely absorb all of the development that could come.—A. You are going to have a beautiful job to overcome it, we are so far behind.

Q. That is what I wanted to know, that you aim to make that point, that the mines are not able to develop fast enough to get beyond what the demand would be.—A. Quite right.

Q. You are not taking into account the coal coming in from the United States. You are taking for granted we would use all our own coal.—A. It is unreasonable to think that we will be able to do it. We will have to strive for a number of years. We cannot do it in a night. My point is this, you have to start—your conception is production from nothingness, you have to start your mine and work it up 2,000 tons a day production. It will take you two or three years to do it.

The ACTING CHAIRMAN: It depends on the situation of the mine.

Mr. WARNER: I don't know how that applies to—

WITNESS: I am speaking of eastern conditions.

Mr. WARNER: What was in my mind when I asked this question of the witness was that the mines in the West at least are not operating full time, or anyway near full time, and I was thinking that with full time operation with whatever extra crew they could put on and work, it would tremendously increase the output, and I was surprised to hear him say that he did not think we could overtake the demand.

The CHAIRMAN: He is speaking largely of conditions in the East, where their mining is submarine and more difficult than our mines in the West.

Mr. WARNER: With the Western mines I am quite sure that increase could come around to a limited extent quite rapidly, by jutting the miners to work the year round.

WITNESS: I have been developing the point that probably the most advantageous and most desirable mine was one with a production of from two thousand to two thousand five hundred tons per day. Under Eastern conditions, such a unit would require to produce it a working capital of about \$2,000,000 outside of the acquisition of the coal measures. That is to say roughly, you can carry in your minds, if you are thinking of cost of development, a million dollars per thousand tons per day output. That is a good rough working measure for development cost.

By Dr. Chisholm:

Q. You are speaking now generally?—A. I was saying that the most desirable mines—individual mine—is one of 2,000 to 2,500 tons a day. You get in your own road if you take 3,000 or 4,000 tons out of the same hole the same day. That seems to be the limit where you begin to lose if you try to get out 3,000. That is your own experience as a coal man with your knowledge, I am sure.

By Mr. Garland:

Q. You are speaking of pit mining? Our condition in the West is different.—A. You can do stripping.

Q. We can drift and open 7 or 8 mines on the same seam.—A. We can do that too. If you start your holes far enough apart not to get in one another's way, you can do it in Nova Scotia, but if you have your mine and management for the one hole or slope, the minute you begin to take out more than 2,000 to 2,500 tons a day you get in everybody's way, but if you have another hole a mile, or half a mile, or a quarter of a mile away, on the same area, you could get it out there.

By Dr. Chisholm:

Q. You have in mind carrying all that coal over one slope?—A. Yes.

Q. You made some reference to the Inverness coal areas. I was sorry I was not in at the time. I think you were asked why it was the development of these areas was delayed and you gave us the reply—transportation.—A. I said there were three reasons, one was that at the time the development was attempted there was not a demand for coal, the coal business was not a profitable business at the time of the attempted development of that North coast, and the other was the transportation situation. The third one was the under-capitalization of the company that attempted to operate them. They had not sufficiently capitalized themselves at the start.

Q. You are pretty well acquainted with that part of the country?—A. Very well indeed.

Q. Have you any knowledge of the estimated quantity of coal in the western side of Cape Breton Island?

The ACTING CHAIRMAN: He has already given those estimates.

WITNESS: I have told the Committee that the Geologists have undoubtedly under-estimated the quantity of coal, but that they have suggested possibilities of greater quantities being there but are unable to state with positiveness; subsequent workings have shown that it has been exceeded by hundreds of millions of tons. On the Mabou property for instance, instead of 13 feet of proved seams there are 42 feet of proved seams, and with another 11 feet of unproved

that makes 53 feet on that property. I did not give the names of the mining engineers, but the names will be known to you, Doctor, and they have computed hundreds of millions of tons of coal there. I suggest the possibility that additional seams might exist all along the North Cape Breton and West Cape Breton coast. If this be so, the Nova Scotian coal reserves, instead of being ten billions as estimated may easily be twenty billions of tons.

By Dr. Chisholm:

Q. The impression seems to have been created by somebody that the production of coal in Nova Scotia was limited and could not take care of the markets available in Quebec and Eastern Ontario. The fact of the matter is that Western Cape Breton Island is a virgin coal field that has practically never been touched, extending 40 miles, under the sea a portion of it, and at the present moment there are 5 mines opened but only one operated and that operated indifferently. I want to put that on record because it just shows what could be done under proper transportation. Do you know anything of the quality of the coal of West Cape Breton which is an important matter?—A. I have put the analysis in and told them where they could get further analyses. I should add, with respect to the analysis, that in addition to this there are further analyses of more recent date not yet published at the Government Fuel Testing Plant that I inspected in the last few days, and by the way, if the Committee would ask Mr. Nichols of the Government Fuel Testing Plant to come you would find a very interesting and well informed witness as to qualities of coal.

Dr. CHISHOLM: That is true.

WITNESS: Now I have come to the end. I said we had 26,000,000 tons of requirements and 13,000,000 tons of production, and I estimate that, speaking from the Eastern standpoint, if the East were to undertake to produce that it would have to provide capital for development of \$2,000,000 for each 2,000 tons per day production. Suppose Nova Scotia, for the purpose of illustration, was undertaking to supply half the demands, that is, 6,500,000 of the shortage, 2,000 tons a day, on the basis of 280 working days is roughly 600,000 tons per annum. Nova Scotia would, to handle this burden, have to start ten \$2,000,000 mines, that is, \$20,000,000 for operation, and then it would have to acquire the areas too. That is, the companies operating would have to acquire the areas, so it is altogether something like a \$25,000,000 operation from the financial standpoint. What that would cost in the west I don't know.

By Mr. Garland:

Q. Would that cover a fairly large field or a limited number of mines?—A. That would cover a field up to forty or fifty miles, or maybe a hundred miles.

Q. How many operating mines?—A. That depends. Each of these companies there might have ten mines or one.

Q. What would be the number of operating mines under that capitalization?—A. If I were asked as to what I would think best, I would think ten would be best, ten of 2,000 tons, not five of four thousand or twenty of one thousand. That would be most desirable.

By Dr. Chisholm:

Q. Do you regard each unit as one mine slope?—A. Yes.

Q. We are now presuming to be looking out for production of coal in the east to carry west as far as we can economically do so. Would you mind telling the Committee how many of these mines could be operated in Western Cape Breton?—A. I think I said it takes years to work up a mine to a two thousand tons a day production. You cannot do it overnight. It would take 2½ to 3 years to reach your 2,000 tons a day production. Now, with that

remembrance, answering your question, in my own judgment, the western side of Cape Breton Island is different from the other side of the island and could produce the whole of the ten that I speak of. I have not any doubt about it, but it would take years to work up to that stage. Over on the other side of the island there are mines operating which are being driven to a greater extent, and opening up old workings that are not for the time in use, better workings being carried on in their place, the southern side of the island could more quickly begin to cope with the need and assist the supply while the northern side of the island was working up to the stage where it could take the burden. The heft of the burden must fall on the north.

Q. You say the north?—A. That is what the geologists call it, the Inverness district.

Dr. CHISHOLM: They are wrong. It is the west. I don't want to be local, and I choose west as different to Inverness. Now, I am at the last, and you will doubtless be very pleased to know it. I am at the last subdivision of my notes, which I have here headed "Government Action." The enquiry naturally arises, indeed, it has been put since the meeting, "What can the Government, any government, do to help out the situation, to relieve the shortage of 50 per cent in our coal consumption?" I say first that the governments, the Dominion governments of the past have done a great deal. I have considerable doubt whether governments can do much more than governments have done. The work of the Geological Survey has been of very, very great importance, and you know that there has been a lot of money spent on it.

Freight rate reduction, of course, while not under existing conditions strictly a government matter, but rather a matter affecting the corporation to which the government has turned over the country's railroads, but freight rate reduction, of course, is at the heart of the situation. It cannot be done at all without freight rate reduction, as far as the Maritime end is concerned. During a portion of the year, from the east, a water rate, a favourable water rate would enable eastern coal, if produced, to come in here. There absolutely must be a freight reduction to allow that coal to enter here at all.

By Mr. Garland:

Q. You have mentioned a water rate, and that is an important question in connection with this. It may be a little out of the general trend of the questions, but I would like to ask the witness if he has any knowledge of whether the Canadian Government Merchant Marine boats could be fitted for such traffic.—A. I do not think they could: I could not give it to you positively.

The ACTING CHAIRMAN (Mr. Arthurs): They have not proper unloading facilities.

By Mr. Garland:

Q. You do not know?—A. I have not any positive information, but I think you will get it from the very first person who has, that they are not.

Mr. LAPIERRE: I may say, Mr. Chairman, that the information of people engaged in lake navigation is that boats built for ocean transportation are not suitable to lake navigation, owing to their deeper draught and small capacity.

Mr. GARLAND: No, I do not mean on the Great Lakes, I just mean up the St. Lawrence.

Mr. WARNER: The boats built on the lakes are not suitable for ocean traffic, either.

Mr. LAPIERRE: No.

The ACTING CHAIRMAN: I may say I have some knowledge of the handling of coal, and it has been proved by the C.P.R. that it is almost necessary to have

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a special class of boat. They say it would be unprofitable to use any other than this special class.

By Mr. Chisholm:

Q. Because, after all is said and done, what is needed in the transportation of coal is a large ship which will take the very largest quantity of coal consistent with the depth of water that we have here. Now, Mr. O'Connor, I would like to ask you one more question. You were asked the question, "What can the government do?" Now, with the enormous amount of coal that is in, say, the Inverness fields, with no adequate means of transportation, what can the government do in that regard?—A. You mean to assist transportation?

Q. To enable these coal fields to be opened up?—A. That opens up rather an old story, and an old sore. You have the Inverness and Richmond Railway in your mind as you are asking that question; you have McKenzie and Mann in your mind also.

Q. They do not own the road now, so we will not be hard on them.—A. The Inverness and Richmond Railway Company owned a coal mine far up the coast, 40 miles up the coast from the strait.

Q. Sixty miles.—A. Up the coast from the Straits of Canso. I think they had the coal before they had the railway, so they synchronized the two, and a railway was built there, from which the people of that vicinity expected a great deal. The railway was supposed to carry the coal of the mining company, and it was also supposed to carry the coal of the Port Hood Company, which was 20 miles below, nearer the Strait, and generally there was to be a splendid development of this coal.

Q. And the Mabou Mines also?—A. Yes; this was about a quarter of a century ago. I am one of those who think the McKenzie and Mann interests killed the goose that laid the golden eggs. Here they had a railway and a coal mine. As coal mine owners, it was not in their interests in the then situation of coal market to have the other mines selling coal in opposition to them, and it was not easy for the other people to get cars at all times. I am not saying the railway did not help all they could, but at any rate they did not help them. It ended in Port Hood and Mabou passing into oblivion as working companies, and the Inverness and Richmond Coal Company survived them, but the Inverness and Richmond Coal Company, its own coal production and its own single mine, was not sufficient to make the railway pay, and so, in consequence, the remaining mine suffered, the railway suffered, the whole side of a rich, productive island suffered, through a miserable half or quarter operated and entirely inefficient railway system. The encouragement to capital to spend money at Port Hood or Mabou or any other place in this district, as long as coal and railway are in the one hands, 20 miles further on, is not great. I knew what was in your mind when you asked those questions, and I knew that you would like to have somebody else bring out these facts. You have never spoken to me about it, but I presume that is what you want, so there it is, that is what it seems has been wrong, that the combination of coal mine and railway company in the same company has been too great a temptation, or it looks like it has been too great a temptation to the coal mining interests to not encourage coal mining on that side of the Island, excepting their own. I am not purporting to say that is what happened, but I am saying it looks as though that is what happened.

Q. That is a very correct statement. I would just say this to substantiate what you have said, that these people charged the Port Hood Coal Company 10 cents per ton more to haul coal 30 miles less, with the end in view of driving them out of business. They would bring them empties when it would suit their company, and leave them filled on the siding until it would be almost impossible for the Port Hood people to meet their contracts.—A. If your object in asking

these questions is to find what government action could be taken there, if the Government should acquire that 60 miles—we had some talk yesterday about some 80 miles in Alberta. This is 60 miles; let the Government take over that 60 miles, and with the Government interested in the promotion of coal production rather than the retarding of it, I cannot imagine where you could find 60 miles of more profitable line than that would be there, and it would cause the whole countryside to blossom. That Line is in a good location, but it is all burdened up with debt, and is in the hands of the Supreme Court of Canada as a receiver.

By Mr. Lapierre:

Q. The western line, the 80 miles, the Government would be required to construct that?—A. Yes.

By Mr. Knox:

Q. That is, to the Hoppe Mines?—A. Yes. I am telling you what the Government can do, and that is something they could do in the east. I think that the best thing the Government could do, if it dared do it now, if anybody dares do it, and that is to assure to us a market. I want you to grasp what that means. Thirteen million tons of coal more produced in Canada and carried in Canada, the labour cost in connection with producing that thirteen million tons paid in Canada, used in Canada, and spent in Canada, then average that at \$10 a ton, and that is away under, but at that it is \$130,000,000 per annum more set working and kept in Canada. Just think of what it means to railway rates, steamship rates, miners' wages, the grocers who supply us with food, those who supply us with clothing, and all that sort of thing, just think what it means to have \$130,000,000 more circulating, and they will grow and grow and grow as they circulate.

By Mr. Lapierre:

Q. That is upon what basis per ton?—A. \$10 a ton only, and that is away out.

By Mr. Warner:

Q. I might say, Mr. Chairman, that that is just exactly what this Committee is trying to do, save that money to Canada, and have it kept here and used here.—A. Here, Mr. Warner, we will get down to this. Notwithstanding the desirability of it, my own calm judgment of it is that it is going to be impossible to achieve, unless something of a drastic nature is done, with which many people will not agree. What I refer to is this. I pointed out that it will take from the eastern standpoint say \$30,000,000 to handle this proposition. If the east were handling the whole, it would take \$60,000,000. If the west were handling half, it would take I do not know how many millions, and if the west handled the whole, it would take twice as many millions as half. Where are you going to get the people—and mind you, the Government is not going to put out its millions, and you cannot expect it, so it has to be private individuals. Where are you going to get the people who will risk their millions in doing this thing unless they are practically sure that they are going to make a profit out of it, and not going to lose their capital? They have to be assured of two things, that their capital is safe and their profit is probable. Now, so long as the conditions which I have described as existing in the United States continue to exist, giving them cheap production, cheaper production than we have, and so long as the glut periods occasionally arise there, where they over-produce just as they do in Alberta once in a while, just so long is our Canadian market going to be invaded periodically by coal sold at \$1.50 and

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\$2.00 a ton. The United States coal dealers are not going to sit with their hands folded in their laps while Canada is undertaking to make herself independent of them in coal. While the Canadian financiers or business interests, interested in producing coal to take care of Canadian business, while the Canadians are at work along that line our friends to the south are going to be busy endeavouring to hold that market, worth to them the same \$130,000,000 or more that it is going to be worth to us if we get it, and they are going to invade this market and they are going to harass the Canadians—and it is perfectly proper from a business standpoint—while the Canadians build up this production. What can the Government do to prevent that? As soon as it is mentioned, you are going to meet active opposition from peoples' principles. I am speaking, of course, of barring the border. You have got to do it or give up your scheme. You can start an individual company, and it is going to succeed here and there of its own force and good management, but if your project be to establish Canadian independence in its fuel supply you cannot, I tell you, effect that so long as you leave your border open, unless with the active consent of the United States coal producers, because they can prevent you as long as they like.

By Mr. Garland:

Q. May I ask the witness a few questions right here. If we should take the drastic steps that you suggest, and establish an embargo, is there not a great danger of reciprocal action on the part of the United States, for instance, in connection with Alberta or Maritime coal going to the United States?—A. Yes.

Q. We would be liable to lose a tremendously valuable market?—A. Yes, but the only point I am making is that you have to look facts in the face; the first thing you want to settle is, "Dare you attempt to make yourself independent of the United States?" You settle that first, and decide whether or not you dare do it.

Mr. KNOX: The big fellows would block you out if they possibly could.

The WITNESS: If our decision is that we dare not do it, then our time has been wasted.

By Mr. Garland:

Q. Is it possible, do you think, if transportation rates were made such that we could, without damaging the railways, bring that coal from east and west into central Canada, that the quality of the American coal could compete with our coal? My question is this; does the witness not think that the very fact of the splendid quality of coal, of our coal, would itself, with education, secure to us the Canadian market, and drive the American trade off?—A. Mr. Garland, you are asking for a special rate, you are asking that it be practically split in half. Suppose you got it down here at about \$6, assuming the coal can be brought in either from Alberta or Nova Scotia during a portion of the year, and assuming that the people will buy their coal, the people of Ontario and Quebec will buy their coal through a portion of the year, you are saying we would like a \$6 rate. Do you know what you are competing against? During a portion of the year the United States can land coal and deliver it in here for \$2 or \$2.50, by rail, and less than that by part rail and part water. You have a \$3.50 differential against you. We in Nova Scotia can land it by rail for a good deal less, and we have never attempted to do it; why? Because we cannot compete with the United States by rail, and there are times when we cannot compete with them by water. Years ago, for the protection of bituminous coal, there was a 53 cent duty put on. It might as well be off, because it amounts to nothing. At the time it was put on, coal was worth about \$1 at the pit mouth, bituminous coal, and it amounted to 50 per cent protection. It now costs the

[Mr. W. F. O'Connor.]

coal companies around \$4 to get that, and the same 53 cents has run down to a 10 per cent or 12 per cent protection. It amounts to nothing, it is no protection at all.

Q. I think the witness yesterday, the gentleman from Alberta giving evidence with regard to the tremendous possibility of developing the trade on the entire United States coast, as well as our own western coast market, thought that was the big future. That would be, in your opinion, a serious loss to this country if we lost that market?—A. Yes; that is why I asked, “Do we dare do this thing?”

Mr. WARNER: Mr. Chairman, I think our witness from Alberta has all of that; he can give us that in detail.

The WITNESS: Yes. There is my suggestion, and then the last suggestion I have to make is that the important thing to consider is the question of whether you can or dare do the thing that you are proposing to do, that is, to make Canada financially independent, because to make her financially independent, or rather independent from the fuel standpoint, you have to have east and west capital to produce the coal that the country is going to consume. Do you imagine that either in the east or west you are going to get people to put money into the production of a coal which hitherto has not been able to make its way along natural lines, has not been able to compete with the United States production, when we are practically soaked in coal from the United States. Do you think any capitalists are going to go into that thing in such a way as to produce that large quantity of coal, subject to the practical certainty of being overwhelmed by the injection into their natural market of the coal produced in the United States? That is your trouble. Now, whether the principles of some of us can be sunk deep enough to grasp it I do not know, this is the situation, that there must be either a protective duty or a straight, absolute prohibition for a period of years, or a sliding scale for a period of years to enable Canada to make herself independent. There is your problem. Now, it may be that there is some patriotism in some people, but it may be that the patriotism is only while they are cold, and as their own temperature goes up, their patriotic temperature goes down, and I am one of those who expect to see considerable of that, but as I said a moment ago, and I say it again, I have put the problem before you, I have put it from the probable standpoint of the financier who will be asked to finance this, because no government is going to finance it, Provincial or Dominion; anything like that is out of the question. Railway transportation rates will not solve it, it is a financial problem back of it all, and you have to get people convinced that they are going to get their capital back and they are going to get a profit, and in order to do that you have to convince them that they are going to get their market, and they are going to ask you, if the Canadian coal producers have not been able to get a market and hold it, how you propose to get a market in the future, and hold it, and if you say that we propose getting it in from Alberta at a \$6 rate, or from Nova Scotia with a low rate, they will say, “Why, Nova Scotia has had an ever so much lower rate than you propose, for years, and has not been able to get this market.”

The CHAIRMAN: It is a different class of coal.

Mr. STUTCHBURY: May I say this, that as far as Alberta is concerned it is not a financial problem; we are now capable of producing at the present time at least half of the 13,000,000 tons we are short.

The WITNESS: You mean you are equipped for that?

Mr. STUTCHBURY: Yes, we have at present the plant and the equipment to produce 4,000,000 tons a year with the present market, and possibly 6,000,000.

The WITNESS: You would have to have further working capital?

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Mr. STUTCHBURY: I think all the mines are capable of carrying on up to that maximum.

The WITNESS: I am very glad of that.

Mr. STUTCHBURY: Our whole question is one of marketing.

The WITNESS: If you can get a low enough rate to compete, from your Alberta standpoint, you could compete not only against the United States, but you will also be in competition with the lower provinces, your output will be such as to enable you to compete with the lower provinces as well?

Mr. STUTCHBURY: May I say this, and very frankly, too, that we are very keen not to get into competition with Eastern Canada coal?

The WITNESS: I should say that you should not be so keen, you should be eager to get into competition with them just as well as with anybody else.

Mr. STUTCHBURY: Our attitude is this, that we are anxious that Canada shall be independent in the matter of its fuel supply, whether that fuel supply comes entirely from Alberta or Eastern Canada. That is not a matter of moment to us, because there is a sufficient market for both of us.

WITNESS: Ample, yes.

Mr. STUTCHBURY: Ample market and then we have the additional advantage in the West of the Pacific slope in South America for our higher grade coals close to the Coast.

WITNESS: This concludes my evidence. Maybe some one wants to ask me some question.

By the Acting Chairman:

Q. There is one question that has occurred to me regarding your Eastern coal. Of your own knowledge do you know that certain Eastern bituminous coal is being supplied to the City of Ottawa at the present time?—A. Not to my knowledge.

Q. You don't know of a special rate being given for a certain quantity of Eastern coal?—A. No, I don't.

The next witness called was Mr. Stutchbury, but as he had an appointment at 12.15, he asked the Committee to excuse him till the afternoon session. The Committee thereupon adjourned until 3.30 in the afternoon.

HOUSE OF COMMONS,
COMMITTEE ROOM,

FRIDAY, April 13, 1923.

The elect Standing Committee on Mines and Minerals resumed at 3.30, the Acting Chairman, Mr. Arthurs, presiding.

HOWARD STUTCHBURY, Trade Commissioner for the Province of Alberta, Edmonton, was again called.

WITNESS Mr. Chairman, might I just state right at the beginning, that the more I have studied this question the more I am convinced that there is not a fuel problem in Canada. The problem is one of transportation and distribution of the immense fuel resources of Canada from their point of origin to their place of consumption.

The ACTING CHAIRMAN: I think it may as well be taken for granted, so far as this Committee is concerned. We are all agreed that we have the fuel. There are just one or two minor points. I would think it would be feasible for you to state to the Committee the different classes of coal that you have there. I know them pretty well—you have steam, bituminous, and two classes of domestic coal, the anthracite and sub-bituminous.

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MR. GARLAND: Might I suggest that the witness has a very carefully prepared and brief statement that we should hear.

THE ACTING CHAIRMAN: I am sorry. I thought that was delivered yesterday when I was not here. By all means go ahead and make your statement first.

WITNESS: I wanted to make first a little general statement, Mr. Chairman, if I may. Canada, we are all agreed, has sufficient coal of all kinds for all purposes to make her immediately independent and free from the necessity of importing one pound from any other source.

MR. SPENCE: You say "immediately?"

WITNESS: Immediately.

MR. SPENCE: A strong word.

WITNESS: I think that will be borne out by the facts. It was not my purpose to speak of any other areas than that of Alberta, except to say that any assistance we people of Alberta can give, looking towards the wider distribution of the high grade steam coals of New Brunswick and Nova Scotia, we will most gladly give. Alberta is outstanding in the matter of its fuel resources, or 'Stored Sunshine' as we call it out there. We have, within the confines of Alberta 14 per cent of the world's known coal resources, 62 per cent of the Empire's and 87 per cent of that of Canada, ranging in quality from the highest grade of anthracite to a relatively low grade of so-called lignite. But our position is this, our geographical location is so far removed from the largest consuming market in Canada, that of Ontario, that the problem, as I stated before, is not one of an amount of coal but a matter of transportation of that coal to consumers.

By Mr. Warner:

Q. It is not a matter of quality either, because they have all?—A. Neither a matter of quality. It is purely a question of transportation, Mr. Warner. Now the total required tonnage for all purposes west of the Great Lakes in Canada is something under 12,000,000 tons per annum, and Alberta at the present time has to share that with British Columbia and Saskatchewan, and, to some extent still, with the foreign products. I would like to say here, too, that it has been already demonstrated that Alberta domestic coal can efficiently replace American anthracite wherever freight rates permit of competition. Winnipeg and other Manitoba points are now using almost entirely, the Alberta products after the sole use, for many years, of American coal.

MR. CARROLL having taken the chair.

WITNESS: The mines of Alberta have a plant capacity of approximately 14,000,000 tons, and a present market for less than half. The result of this is mine idleness, which produces a condition of instability of labour; forces wages upward in excess of that for labour performed; and yet in spite of those high wages miners are suffering because the wages throughout the year are not sufficient.

By Mr. Spence:

Q. They don't work long enough?—A. No. In the domestic field, I think my friends from Drumheller will bear me out, the production period is under six months. Now mine idleness is a very, very serious expense. There is first the loss of efficiency on the part of labour. We all know that if we are away from our job for three weeks it takes us a little time to get down to efficient working again. Then there are the other fixed charges, taxes, rentals, the maintenance of pumping and other plants, timbering, and all those other things which go to

[Mr. H. Stutchbury.]

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make up overhead, whether a mine is operating or not. Now that has led to an excessively high cost production, the only solution of which is an extended market.

By Mr. Arthurs:

Q. Just right there tell us approximately the price at the pit mouth of various coals.—A. Yes, I can give you that based on our last month's report. It varies in the various districts, but what you want is just approximate?

Q. Yes, approximate. We have it already from the East and would like to have yours?—A. For our lump coal—and I may say here, Mr. Chairman, that our people in Alberta and Saskatchewan and Manitoba, where coal is more readily available, have trained themselves until they want coal delivered on a silver platter, dusted off with a feather duster, and that kind of thing.

The CHAIRMAN: You mean Ontario, don't you?

Mr. SPENCE: They get more that way in the West as they get enlightened.

Mr. ARTHURS: They are worse out there because of greater accessibility.

WITNESS: The price for that double-screened lump—and after all, like anthracite, it is a luxury fuel, will vary from \$6.35 to \$5 and even down to \$4.50.

By the Chairman:

Q. You are talking at the mouth of the pit?—A. Yes, at the pit mouth. It is a luxury fuel, what we call a double-screened lump. Mine-run coal will run from \$3 to \$5.

The CHAIRMAN: Is that bituminous?—A. No, I am speaking of domestic coals entirely.

By Mr. Spence:

Q. What percentage of slack would be in the mine-run?—A. That depends entirely on the field. Some fields will give you a very much larger production of slack. In the Drumheller field it would be comparatively small, in some of the other fields very much larger because of the friability of the coal.

By Mr. Warner:

Q. Does it not depend on the way it is mined?—A. To some extent, yes, but it depends much more on the physical characteristics of the coal than even on mining. The stove coal will run from \$4 to \$2.25. This is all domestic.

The CHAIRMAN: I don't understand what you mean by domestic. We think soft coal is domestic down in Nova Scotia.—A. We don't call it soft coal out there. I would like to differentiate between what we know as soft coal later on. The nut coal will run from \$2.90 down as low as \$1.25.

By the Chairman:

Q. Where is that found?—A. Depending on the different fields. Some produce a larger proportion of nuts and you have to develop a market for it.

By Mr. Garland:

Q. We get our coal for nothing. We go out and pull it out, by the back door.—A. Just in that connection the matter came up in the Senate Committee yesterday in connection with the Central Heating Plant at North Battleford, and the Chief Engineer of that plant mentioned the fact that he was buying slack coal at 40 cents a ton at the mine, and he was running a central heating plant with that 40 cents coal.

Mr. SPENCE: That will be all right.

WITNESS: I am not recommending that 40 cent coal with our present freight rates though.

Mr. ARTHURS: The freight rate is the same, no matter what coal is carried.

Mr. SPENCE: You hardly think they could shove it into the cars for 40 cents.

WITNESS: I think our Drumheller friends will tell you there are times during the mining season when it costs money to get slack away from the mines, and if they can get 40 cents, or even 25 cents for it, they are just that much ahead.

Mr. WARNER: And more than that, they don't have to move it.

By Mr. Arthurs:

Q. Would that answer for coking purposes, that slack?—A. No, these are all non-coking coals, and then the furnaces have been equipped with an arch which will burn that high volatile low-grade coal.

By Mr. Warner:

Q. That would be a different furnace to what most of the people have here?—A. That would not be a domestic furnace at all, Mr. Warner. While the furnace would be exactly the same, there would be a difference in the setting and be a larger combustion chamber.

By the Chairman:

Q. Have they taken you off the trend of your general statement?—A. I don't know that it matters very much, Mr. Chairman, I would like to place this other statement on the records first and then perhaps we might get further by question and answer than we could by a general statement. I have given you a general statement of the coal we have.

The CHAIRMAN: Sometimes I feel, with a witness coming on the stand, that he has a statement to make, and if he was left alone he would make it better than if he was questioned.

WITNESS: I do want to make this statement, because it is an economic statement of our present domestic situation. The total production of domestic sub-bituminous coal in Alberta for 1921 was 3,721,742 tons. The average number of men employed in these fields was 5,601; the average number of days worked was 200, and the approximate daily tonnage 18,688. The production for October, 1922, which was our peak month, was 630,000 tons, with an average of men employed of 8,537, and average number of days worked 20.3, and an approximate daily tonnage of 31,450. Continuous operation in the domestic and sub-bituminous fields on the basis of October would increase the production to 7,500,000 tons, and would increase the average number of days worked from 200 to 240, providing for all holidays and possible necessary cutdowns, it would be possible to work continuously for 275 days, which at the same rate of production would give an output of 8,648,750 tons.

By Mr. Warner:

Q. That is, all the mines open now?—A. Yes. The field which produced coal of a quality which could be successfully shipped to Ontario, that is, coal such as you have there, namely, Lethbridge, Drumheller, Three Hills, Carbon, Wabamum, Pembina, Saunders, and Yellow-head, produced during 1922 2,595,945 tons, or an average daily tonnage of 11,177 tons, employing an average of 3,729 men, and working an average of 223 days, or an average production per day man employed of approximately three tons. During the month of October, again the peak month, these fields produced an output of 451,360 tons, employing 6,164 men, and working 22.75 days. Applying these figures to the twelve months period, the production would be 5,416,320 tons, with the same number of men employed. These shipments of anthracite for 1921,—and I have taken 1921 because it was a reasonably normal year—into Ontario were 3,070,217 tons. Quebec got 1,311,712 tons, or a total of 4,381,929 tons.

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By the Chairman:

Q. Would you be able to give us the points in Ontario and Quebec where that coal was shipped?—A. I think so. I am quoting this from the Canadian Bureau of Statistics which I can file if you like. I am speaking very generally, because the various points in Ontario have no particular interest to the people of Alberta, and I have not worked that out, I thought you would get that from your Statistical Branch.

By Mr. Arthurs:

Q. It is almost impossible to get it, because most of the anthracite comes through Fort Erie, and is distributed in car lots all over Ontario. You were speaking of the American imports into Canada?—A. Yes, I am speaking entirely of American coal. If you will add this tonnage to the present production of the mines producing a quality of coal capable of replacing the present American anthracite into Ontario and Quebec, that is 2,595,945 tons, which would require a tonnage of 6,977,874 tons. I am speaking still of anthracite, you see. If this additional tonnage were produced from the mines in the districts previously specified, it would require the services of approximately 8,000 men working 275 days, as against an average of 3,729 men working 223 days. Due to the present seasonal operation of the mines in Alberta, a very large number of miners are either unemployed during the slack season or are engaged in other industries—most of them, I may say, are unemployed. Continuous operation of the mines for twelve months would absorb all miners in their proper occupation with the result that some additional labour would be required to take their places in other industries. There would be also the possibility of still greater production of coal through increased efficiency as a result of continuous employment of miners in their regular avocation. The increase of market would further tend to reduce the present condition of instability of labour, caused largely through lack of continuous operation, and would also take care of mine idleness which is a serious expense, such items as rentals, overhead charges, taxes, operation of pumping and ventilating machinery, necessary timbering due to slaking of roof, and continuous ground movement must be taken care of for twelve months whether or not the production of coal is being carried on. As a result of the purchasing of anthracite coal for domestic use by the people of Ontario and Quebec, there was sent to the United States in 1921 approximately \$52,000,000, made up as follows; value of coal at the mine, \$38,780,071, plus freight of \$3— as we are exceedingly low in that, over U.S. railways, of approximately \$13,145,787, giving us a total of \$51,925,858.65.

By Mr. Arthurs:

Q. That is for anthracite only?—A. I am speaking only of anthracite. Now, you can see what this means, not only to the people of Alberta, but to all Canada. We have very large capital expenditures in our mine operations; we have a capacity there that is capable of producing, I think I would be safe in saying, three times the amount that is being produced now; we have the instability of labour elements, high labour costs; we have labour unrest and in addition to that Canada is losing the \$52,000,000 which might be turned over and over and over again.

By Mr. Arthurs:

Q. Just to make one point clear, before we leave this subject. You are speaking entirely of domestic coal as a substitute for anthracite?—A. May I just ask you to withdraw the word substitute; I object to it very strenuously.

[Mr. H. Stutchbury.]

Q. To substitute in our market your coal for the American anthracite.—A. If you will say, "replace".

Q. Replace your coal for the American anthracite. You have no desire to enter the market in Ontario in the bituminous class?—A. Not at the present time.

Q. Then, consequently, there is absolutely no conflict between your interests in Alberta and the interests of the coal miners in Cape Breton.—A. Absolutely no; I would like——

Q. That is the point I would like to bring out, that the man in Cape Breton is catering to an entirely different market.—A. Yes, and I would like to form an offensive and defensive alliance with him to help out.

Q. I think that is very important, that we should not let these two come into conflict at all.—A. There cannot be a conflict of interests between us.

Q. Just one more point. You heard the evidence of Mr. Errington yesterday?—A. Yes.

Q. Have you had any experience in that field, have you ever looked it over?—A. Yes, I saw that property about a year or more ago.

Q. Would you confirm the estimate made by him?—A. I think it was very conservative, from my own observations.

Q. You would think that an area of approximately 1,000 square miles, as he described it, would have a great deal more coal?—A. Very much; he was speaking simply of his own coal.

Q. Just one other point. You brought down one or more specimen cars from the West?—A. Yes.

Q. What was your freight rate?—A. The freight rate from Saunders was \$13.40.

By the Chairman:

Q. Per ton?—A. Per ton.

By Mr. Arthurs:

Q. Do you know how that rate compares with the ordinary freight rate, say on wheat?—A. Somewhat higher.

Q. Coal is higher than wheat?—A. Yes.

Q. Have the railway companies given you any reason for that?—A. No; as a matter of fact, we have not discussed that phase of it with the railway companies; we have asked them for a flat rate covering all the coal fields of Alberta to a central point in Ontario.

Q. As a matter of fact, in your opinion the rate on coal should be lower than the rate on wheat.—A. No doubt about it, the cost of the cargo itself would establish that.

By Mr. Ross:

Q. What kind of car does it come in?—A. We ship in box-cars.

By the Chairman:

Q. You just have two cars?—A. Yes; several cars have gone to Toronto, and there are two cars here.

Q. If it was shipped in large quantities, say 20 or 30 cars, would the rate be different?—A. Yes, it should be.

Q. Have you any understanding with the railway companies as regards that particular fact?—A. There are just three factors that we put up to the Canadian National Railways. There is at the present time and there will be collecting up until the grain movement, thousands of box-cars on every siding in Alberta and Saskatchewan. They are going to remain idle until the grain

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movement commences again. They have all kinds of engines idle also. The railway companies are faced with practically the same situation as the coal operators in Alberta. They have a seasonal freight haul, and we felt that taking these three factors of the idle markets, our mines are practically closed now, that is, our domestic mines—the idle cars and the fact that pretty generally throughout Ontario people buy, when opportunity affords, in the early part of the season, and I think we can safely say that this year, as a result of last year's experience, they will be delighted at the opportunity to buy early if it is offered them.

By Mr. Warner:

Q. Right on that line, just a little further on that line, I wish to ask Mr. Stutchbury, you have no uneasiness, and no hesitation in saying that the mines there could practically and immediately fill the demands that would be made by the United States coal not coming in, or you are capable of replacing the amount of United States coal that is coming in?—A. Quite.

Q. Practically immediately?—A. Yes.

By Mr. Arthurs:

Q. Anthracite?—A. Yes, we are speaking of anthracite.

By Mr. Garland:

Q. It has not yet been brought out, I think, Mr. Chairman, the particular qualifications of the witness that would entitle him to speak here. I would like to ask him that, so we may have it on the record.—A. I am the Trade Commissioner for the Government of Alberta.

Q. You have been connected with the coal industry for a long time?—A. For a good many years, prior to my taking over this position.

Q. What would you estimate would be the amount of additional capital required to bring the Alberta mines up to say, a quota of one-half the total requirements of the eastern markets?—A. In anthracite?

Q. Yes.—A. None at all.

Q. No additional capital at all?—A. No.

By Mr. Warner:

Q. I understood Mr. Stutchbury to say they were all ready now to do that?—We have the equipment now, and this statement I have filed would, I think bear that out.

By Mr. Garland:

Q. What is the average cost, say, of starting one of these units? The witness this morning spoke very frequently about the efficient working unit of from 2,000 to 2,500 per day?—A. That would be very difficult for me to say, because it varies in the different classes of coal. We have coal out there where we simply strip off from six to ten feet of cover and uncover one hundred feet of coal. The capital expenditure is not there, it is simply a labour proposition. Of course, that is not the class of coal that would suit this market, but it is very difficult because of the varying conditions that we have there to set up any definite standard. Mr. McAulay, who is a mining engineer, could give you more information on that perhaps than I could.

Q. I would like to ask the witness then, following the evidence given this morning, what in his opinion the Government could do to assist—shall we say the education of the eastern people in this matter of the replacement of their present American supply by a Canadian supply?—A. I think that might be answered by our own experience. If I might be allowed to give you our

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experience in the Province of Manitoba. In 1922, in June of 1922, when I took over this position, my first trip after making a tour of the mines was to go to Winnipeg, which I felt was our fighting ground. I found people there—I went to see a great many people I knew, and asked them if they were burning Alberta coal. “No, my God, we do not want to burn the house down. If we burn that coal we could not get any insurance. Our families would be in danger from gas and all sorts of things”, and I found that very prevalent. When I made known the fact that I was there there were letters of protest against the introduction of Alberta coal into the Province of Manitoba. There was a protest from even the Canadian Manufacturers Association, who have as their slogan, “Buy goods produced in Canada”, and even they were not willing to get behind us at all, that was due entirely to the ignorance of the value of the Alberta product. What we did to offset that, and what I think the Dominion Government might do to a very much larger extent than a small province is capable of doing, we opened a demonstration plant in Winnipeg; we put it in charge of a very competent fuel engineer, a man who knew Alberta coal, who had been a combustion engineer for many years, and we placed his services at the disposal of the people of Winnipeg, and then started a publicity campaign on the value of Alberta coal, and advised them that this engineer’s services were at their disposal. We got a few people to try Alberta coal. This engineer—I went out myself and he and I would light fires; I would go into a person’s house there and light a kitchen fire. I tried to get the women as much as possible, those connected with the Ladies’ Aid and that sort of thing, that I knew would do a lot of talking, and we showed them the facility of Alberta coal, how easy it was to handle, how clean it was, that it was just as clean as anthracite, and have gone on from that and then we distributed a great deal of literature of this kind. It is very expensive, but the results have been enormous. We put on there as well—our fuel engineer now, I think, gives four or five lectures a week, with lantern slides. He will take a group of engineers or a group of janitors, he will find out the particular problem of some group, he makes his own slides and they have a heart to heart illustrated talk on that particular problem. He will do the same thing with large block owners, the same thing with engineers of large plants, and we expect to continue to do that. Now, may I say here, Mr. Chairman, or may I interject the conversation Mr. O’Connor and I just had at the close of the Committee meeting? People in the East and people in the West as well have made more or less of a fetish of the B.T.U. The great bulk of the people do not know what the B.T.U. is, but if a coal has 10,000 B.T.U.’s, and another coal has 11,000, and another one 14,000, the 14,000 B.T.U. coal must be the better coal, but that is not necessarily so. Every coal, as Mr. O’Connor said yesterday, has its own particular purpose. If you are buying coal to produce gas, then the chemical analysis has some bearing on it, because it is going to be burned in a plant particularly designed to produce from that coal what you want, but if you are buying coal simply for heating purposes, you buy coal on a practical rather than on a scientific basis, and I would like to place on the record at this time the statement that I made as to our demonstration in the Manitoba Government buildings. The Manitoba Government—they have a wonderful central heating plant there, the Government Buildings, the Lieutenant Governor’s residence, the Court House, and the Gaol, and Land Titles Office are all heated from the one plant, and this plan was specially designed for the use of Youhigheny or Pittsburgh No. 8, inch and quarter slack. When I went to Winnipeg first, I went into the offices of dealers, and I went to see large buyers, I called on the American dealers as well, and I found the statement of the American dealers was this, that if Alberta coal was efficient, was of any service at all, the Mani-

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toba Government, a very friendly government to Alberta, would use it. Now, that was a most difficult argument to overcome, I had no answer, so I asked the Honourable Mr. Norris, who was then Premier, if I might borrow his heating plant and put on heating tests under the direction of his own engineer, and he might call in any engineer that he desired, but the test and the readings and all that sort of thing would be done by their own men and checked by ours. I agreed that if at the end of ten days—may I say just here that through the publicity we were able to get, the Government was being attacked for not buying Canadian coal—so I agreed with the Premier that if at the end of the time set we were not able to show a coal from Alberta which was as effective on a dollar for dollar basis as the American coal, I would write him a frank letter for publication. Thank God I did not have to write it, but the point I wish to make is this, that we started out with the finest coal we had in the province, the finest steam coal we had in the province, high in B.T.U., high in everything that people imagine has to be in a coal to make it efficient, and we got no results. I do not mind admitting that I was very nearly heartbroken at the end of three or four days, for we were getting nowhere, and I did not want to write that letter.

Mr. O'CONNOR: What was the matter with it?

The WITNESS: Not suitable.

Mr. O'CONNOR: Too high an ash?

The WITNESS: No, it simply would not burn in this particular type of furnace. The furnace, as I say, was definitely built for a particular coal. Now, the fifth day we commenced on the sub-bituminous coals, these domestic fuels, and we made a preparation of about the same size as the American preparation, that is an inch and a quarter slack, and we immediately commenced to get results. Before the end of ten days we were able to show to the Government that we had discovered coal a little more efficient, that is, efficient in two ways, we got a higher boiler rating, and in the economic test we got a greater number of pounds in evaporation.

I am simply making this statement because of the fetish, as I say there is, in regard to heat units.

May I just quote from a letter I received a short time ago, which I quoted in a letter I submitted to Sir Henry Thornton in regard to freight rates? This is a letter I received from Winnipeg in reply to a circular letter, and may I say just here that although we have this demonstration plant in Winnipeg, we continue to advertise in every suitable way; we use the Boards of Trade in Alberta, and we keep dinning in the facts in regard to Alberta coal in Winnipeg until we have driven American coal entirely off that market.

By the Chairman:

Q. Your coal is given the preference to-day?—A. Our coal is given the preference to-day, and this letter confirms that. This is a letter I received from Mr. C. M. Harris, of the Burton McLean Company, Winnipeg. You are at liberty to use his name.

“I was a confirmed American hard coal user”—

May I say that I met this gentleman in Winnipeg on my way down; he was born in Pittsburg.

—but American hard coal and slate at a little better than \$20 a ton started me to do some thinking. The result was that I gave ‘Alberta’ a trial, and then got the shock of my life.

“Listen to this; I used to buy about eleven tons of American hard coal each year. This I shovelled into the furnace, getting a return of

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about fifteen tons of ashes and two tons of unburned coal, which I could have sifted out if I wanted”

That may seem an exaggeration, but you gentlemen who have used some of the American anthracite coming in this year should know the ask bulk, because it looks as if you were getting as much or perhaps more than you put in of coal in ashes. At least that has been the experience in Winnipeg.

“But a man can't sift ashes and retain his self respect.”

The CHAIRMAN: That man should freeze.

WITNESS: “Sometimes the house was warm, and sometimes we were not so lucky. Hard coal is very temperamental stuff, but we could nearly always get lots of heat if we waited five or six hours and had luck. Now I burn Alberta coal, about twelve or fourteen tons a year. I have, I would say, about a third of the ash I had with hard coal. If the furnace is properly tended, we get heat, lots of it, and get it instantly any time we want it, without fuss and without prayer. I am not putting it too strongly when I say I would sooner pay \$20 a ton for good Alberta coal than I would for the same amount of American Anthracite.”

By Mr. Spence:

Q. He is a real booster.—A. That man was born in Pittsburg, but burns Alberta coal. This letter came quite unsolicited, and is simply a sample of hundreds of letters I have in my own office. We only want letters of that kind from men who are actually burning our coal.

By a MEMBER: If the witness wants another letter from one who has burned both of these coals, I will write one and it will be much of the same character. There is a great deal of prejudice here against the use of coal other than that to which they are accustomed. They will have to change their stoves or furnaces, at least that is what is alleged.

Q. Is there anything in that?—A. No; the furnaces, stoves, and all our equipment in the West are built in the East. I use a Clare Brothers furnace, of Prescott. I built my house seventeen years ago, and put this furnace in. I have not put in a new grate, and I have not had a single repair done, except that I had an accident the other day and broke the handle off the door. That is the only repair I have had to make to it in the seventeen years I have been using it, and I told them I objected to paying for it.

By Mr. O'Connor:

Q. Your Alberta coal must be cleaner than what we are getting of American coal?—A. Yes.

Q. Any bituminous coal we are getting is certainly dirty: They have had more fires in Toronto lately than they have had in three years through people burning soft coal, and to-day every paperhanger, painter and decorator is so busy that he cannot get one-half his work done cleaning up houses after this winter's use. I have never seen a soft coal yet that was clean.

Mr. WARNER: May I make a statement? We burn soft coal altogether, in several stoves, and you can take the stove lids, turn them upside down, rub them, and you cannot get anything on your fingers.

WITNESS: The ash contents of our domestic fuel, about the maximum would be 7. A gentleman said to me to-day that he had burned half a ton of this coal, and was particularly anxious to find out how much ash he got; he got less than a bucket from half a ton.

By Mr. Warner:

Q. The ashes are finer, and much less of them?—A. Yes. As to dirt, seven years ago a heavy wind blew some of the bricks off my chimney, and I had to

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have it cleaned. That was the first time I had had it cleaned, and it has not been cleaned since.

By Mr. Garland:

Q. Will you tell us the difference between our coal and the bituminous coal to which this gentleman refers?—A. They are coking coals, heavy in all of these products which go to make up smoke. Our coals are non-coking coals. We have what you know down here as the soft coals, in Alberta, that is, in the Crow's Nest Pass, up in the Coal Spur, and at Brule, and at Brazeau.

Q. Which was spoken of yesterday?—A. Yes. These are heavy coking coals, but we do not use them for domestic purposes. We would have just the same difficulty in burning that type of coal in Alberta as you have here. We use this type of coal entirely for our domestic requirements, because it is clean, more easily available and less expensive. There are those three factors. Probably if we found this type of coal, and we were looking for the same market as we are looking for now, we would make a special study as to how it might best be burned.

May I say just here that even in the matter of soft coals, there has been an entire lack of education on the part of the Government or on the part of the coal dealers, on the part of somebody anyway, in connection with efficiency in handling the type of coal you have had to use this year.

Q. You mentioned a moment ago the fact that in addition to these non-smut coals a quantity of bituminous coals, something similar to what they have been using here; how do you propose to protect the consumer from that type of coal being imported into Ontario?—A. There are two ways; there is the one factor that the bituminous mines have neither any hope nor any desire to enter the domestic field. They know that there are limitations to the use of some of our coals, and certainly there are limitations in our minds as to the use of bituminous coal for domestic use. In addition to that, there is this, which is familiar to you all, that in Alberta we do not control our own resources; we cannot legislate, except by permission of the Federal Government, in the matter of our resources, and I am asking for the re-enactment of a regulation governing shipments of coal that was in effect during the war, which was enacted under the War Measures Act, and which became ineffective of course with the abolition of the War Measures Act. I think there will be no difficulty in getting that through. It is called a regulation in regard to the inspection and designation of Canadian coals. Perhaps I might quote the Order in Council, although I have not the number of it.

Q. May I ask a further question. The operators in Alberta are quite willing that some such protective measure should be brought into effect?—A. I would not say generally, Mr. Garland, but I would say that the operators who have any vision are quite willing. The men we want to protect the consumer against, and the men we want to protect the industry against are the men without that vision. If they were all willing, there would be no need of the regulation, because care would be taken by the operator to see that his coal was so prepared and so delivered that poor coal would not enter the market. But we are in the unfortunate position of having almost Heinz's 57 varieties in Alberta, and many of them are absolutely unsuitable. That is why I was quite willing to state the fields which in our opinion produce a coal suitable to replace the present anthracite. We have many other fields that we have felt are quite unsuitable.

Q. Did you find an attempt being made, when you first entered the Winnipeg market, to unduly exploit the consumer in that respect?—A. That attempt is still going on, and it is for that I want a regulation such as I am asking for. We have attempted to do it provincially, but it is ultra vires. We

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could handle it so far as the Province was concerned, but just so soon as the coal left the confines of the Province we had no further control.

Q. It is an exploitation by the dealer rather than the operator?—A. By both. So far as the dealers are concerned, there are a great many honest dealers, but there are some dishonest dealers. I have gone into coal yards in Winnipeg; I went into one about a year ago and asked the man if he had any Alberta coal; he said he had, and asked what I wanted. I asked him if he had any Drumheller coal; he said "Yes, here is some Drumheller coal." I went in again the next day and asked another yard man if he had any Taber coal; he replied "Yes, here is a fine lot of Taber coal", and he took me to the very same pile. I suppose I could have bought every known variety of coal in Alberta off that one pile.

By Mr. O'Connor:

Q. We have a regulation respecting sugar in Canada, and if it is under a certain amount of colouring matter the sugar is embargoed?—A. Yes.

Q. The idea behind that nominally is the protection of the consumer from deleterious compounds?—A. Practically what is behind it is, to enable the Canadian refineries to do business. Suppose Alberta's efforts to enter into the Eastern market for the purpose of supplying the domestic coal trade were facilitated by all Canada, east and west, what do you think the Alberta people would feel like, with respect to a provision which would compel Canadians who wanted to burn smoky coal to burn their own smoky coal, that is, a coal which produced smoke, bituminous coal, frankly of the United States variety, which I claim will cause a great deal more trouble than people think? These I think should be excluded, thus going a long way to preserve the Canadian markets for Canada.

Q. You are speaking of coals which would produce smoke; suppose you did it in the interests of the health of the public, to prevent our atmosphere being polluted with the smoke of foreign coal?—A. How would you determine the coals which produce smoke?

Q. I don't know; you are speaking of hall-marking certain coals?—A. Yes.

Q. One of the coals is that kind we are talking about?—A. I suggested to the Honourable Mr. Drury the other day that they set up a permanent Fuel Control Board.

By the Chairman:

Q. Canadian?—A. Canadian and Provincial, both.

Q. Co-operative?—A. Before coal enters for the Ontario market, from information obtained from the Alberta Government or any other source they thought desirable, that they should set a hall-mark on the coal which in their judgment was a proper coal for the consumers to buy. I am speaking now purely of Alberta coal.

By Mr. O'Connor:

Q. Not with respect to imported coal?—A. I don't know that we would have the right to say, or even the right to suggest from Alberta what Ontario should do as to other coals; we might say this, we might make a suggestion that in the regulations which we propose to ask to be enacted, there should be this provision, that every coal mine in Alberta shall have a mine name, that is, it shall have a hall-mark of its own. The man who is proud of his mine and of his operation is going to see that that hall-mark is not besmirched. The public will get used to buying coal that has that particular name. If coal other than that is supplied under that particular name, we have provided for

certain fines and even for imprisonment. It might be reasonable to suggest that this sub-section of the regulations be enacted for any coal produced not only in Canada but imported into Canada, and "inspected at point of shipment" could be changed to "points of entry" stamped on the face of all documents covering any coal shipped, "if said coal contains in his judgment an excessive amount of slack or other impurities." It might be quite reasonable to suggest that the scope of this regulation should cover imported as well as home-produced coals, and I think it would be a very reasonable thing for this Committee to suggest; it would come perhaps with better grace from this Committee than from the Government of Alberta, which is a seller of coal.

By the Chairman:

Q. I think that is a very good suggestion.—A. I would be quite prepared at any time to assist as far as I can.

By Mr. Garland:

Q. Will the witness tell the Committee the sulphur content of this domestic coal from Alberta?—A. The sulphur content in all our coals in Alberta is negligible, about one-quarter of one per cent, and that only applies in some of our bituminous fields. In the domestic field it is entirely absent.

Q. How in your opinion would this kind of coal put into the cellars of householders in the City of Toronto or the City of Ottawa stand storage?—A. It would stand storage indefinitely.

Q. You know there is a prejudice against these coals, because of the danger of slacking?—A. Yes.

Q. Of course your opinion is that that does not take place when it is put into the cellars?—A. Not at all. It would not be possible to ship many of our coals which are quite suitable for this market to Ontario in open cars; we could not use the big American gondolas.

By Mr. Warner:

Q. It would keep in good condition in storage, so long as it was wanted, before the people wanted to burn it?—A. Yes.

MR. WARNER: I know I have kept it into the second year, and it burned as good as it did when I first put it in, as far as I could see.

WITNESS: It has been my practice for many years, almost ever since I went to Alberta, to put my own winter's requirements of coal into my basement in either March or April, not that I could buy it any cheaper or that I had any difficulty in getting it when I wanted it, I have always felt that I got a little better results from coal that was stored.

By Mr. Spence:

Q. You would not want it exposed to rain?—A. No; it should be under reasonable cover. As long as it is away from the rain and out of the hot sun, you are not going to see much disintegration. It will stand a reasonable amount of handling.

Q. Have you established any testing places?—A. Where?

Q. In Ontario?—A. Not yet. The Fuel Board have been instructed by the Minister to establish tests in the Fuel Board Administration Building here, and I hope to have the pleasure of a visit from this Committee next week.

A MEMBER: My proposition was to bring dealers here, but I am afraid they would be absolutely opposed to it.

WITNESS: There would be a lot of scientific tests. What we propose to do in the fuel testing plant is this; we have there now a small hot water boiler, and we will take the household requirements as they obtain in Ottawa.

By Mr. Ross:

Q. It is all a matter of getting the women of Ontario to believe that this coal is a clean coal?—A. Quite so; they are just as anxious to be national and patriotic as anybody else.

Mr. GARLAND: All right, let us get the women here.

Mr. ROSS: I am telling you the objection. We have been listening to statements from Alberta and from Nova Scotia. All we want to do is to put clean Canadian coal into Ontario, and the people will burn it; the women will do it, but you will have to get the women persuaded that this is a clean coal.

WITNESS: What is being done in Ottawa to-day is this; I think there are possibly 150 people who have now in their basements a quantity of Alberta coal.

By Mr. Ross:

Q. Is that through the *Journal* experiment?—A. That is through the *Journal* experiment, and the Government car as well. There was a car sent down at my suggestion, so that I might demonstrate it to you gentlemen. It is being demonstrated, with our printed instructions as to how to burn it. A questionnaire is being sent out, to be filled up at the end of a week. Before getting into this market we want to be sure, because it is going to cost us a lot of money to get into the market.

Q. This month is the month to get it into Ontario?—A. Yes, but it will cost us a lot of money.

The CHAIRMAN: Somebody must take the lead.

By Mr. Ross:

Q. I think it is up to somebody to do it. All our coal on the front now, if we could possibly get it, would be bought in April, May and June. As soon as the lake is open, coal will come over. The earlier we buy it the cheaper we get it, all along the lake front. I get it 15 or 20 cents a ton cheaper in April than I can get it in May, and cheaper in May than I can get it in June.—A. Our position is this, gentlemen, that we are still confronted with a freight rate of \$12.70, and unless we can get a reduction in that there is not very much use in our spending a lot of money on it.

Mr. ROSS: Yes, but when people have the information and the knowledge that this coal is hard, clean coal, we will settle the freight rates.

WITNESS: I am very glad to hear you say so.

Mr. GARLAND: A witness referred to the difficulty of overcoming the natural market with the natural supply and painted rather a black picture necessitating even an embargo to overcome it. Does this witness think that would be essential?

WITNESS: Frankly, I would be very sorry to see an effort on the part of Canada to embargo American coal.

By the Chairman:

Q. We can't afford it just yet?—A. I don't mean because we could not afford it, because I think we would be quite capable of taking care of anything.

Mr. ROSS: You don't need an embargo or anything else if the coal is as good as pictured.

By the Chairman:

Q. Who paid for your demonstration in Winnipeg?—A. We do, the Alberta Government.

Q. And your coal operators?—A. Indirectly, yes, we have a coal tax. It is a revenue tax.

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Q. Have you any suggestions to make as to what the Federal Government should do as to advertising the resources of Alberta or Nova Scotia coal as regards the supplies of Canada?—A. I think the Dominion Government might supplement our efforts in that regard by training men to properly handle and properly train other people in the most efficient methods of burning Alberta fuel, or any other Canadian fuel, because there is a most lamentable lack of knowledge in that regard.

By Mr. Garland:

Q. There is a suggestion that we should get the Premiers of all those provinces that are producing coal to meet with the Premiers of Quebec and Ontario—

Mr. ARTHURS: The Premier of Ontario is too busy now.

By the Chairman:

Q. Could you give us any concrete or definite idea of what you think the Dominion Government could do towards advertising our native fuel?—A. There is only one way to teach people. Our experience in Winnipeg has taught us that is by actual demonstration, as General Ross has said. You may send out pamphlets by the million, they are wonderful supplementary things, but the real crux of the thing is to show the woman of the house how easily you light that fire and how easily it is controlled.

By Mr. Arthurs:

Q. The suggestion has been made by several towns in Ontario—they have expressed a willingness to take a trainload of Alberta coal and supply it to inhabitants of their town as a town proposition. Would it be possible to send a man there to demonstrate in a case of that kind? From that beginning it would soon stretch?—A. I would think so.

Q. That would be one of the most efficient ways?—A. We are training in our mining engineering class in Alberta—It might be interesting just here to say that attached to the University and controlled jointly by the University and the Government is a scientific and industrial research council. They are making a most exhaustive study of the fuel problem, that is, how best to burn, the various types of furnaces, and testing those types of furnaces, carbonizing briquetting, and everything that has to do with coal. The students in the mining engineering class, are given a special course in combustion, looking towards their getting into that field which is a very large and productive field for a student. The man who is in charge of our Winnipeg plant now, while Mr. Pratt is away, is a graduate of last year, who is doing remarkable work. We hope to have quite a number of boys of that kind that we can draw on. There should be a number in the various other universities. I think the universities might be approached to put on a special course in combustion.

Br. Mr. ARTHURS: I think that would not be a very good idea. It might lead to the idea that in order to burn this Alberta coal you had to have a professor.

By Mr. Ross:

Q. There are in connection with the universities certain foundations given to graduates who would carry on scientific or research work. He can select his own subject. Why not have these fellows take up that? He not only does the work but he is paid for it while he is doing it.

WITNESS: I don't mean scientific demonstration.

Mr. Ross: He follows up the thing as his own subject and at the end of his time he gets the benefit of his research. He is paid for it at the time and he can select his own subject.

WITNESS: Alberta coal does not require any special technical knowledge to burn it, but it needs explanation to you people down here, who have been used to burning hard coal. There is not the amount of gas, there is not the amount of volatile, that has to be burned off which is part of the fuel value of the coal in anthracite that there is in the higher volatile coals of Alberta. As a consequence, you burn those with a wide open draught, even if you don't burn off your gases because you don't raise heat enough. With the Alberta coals you burn practically without draught, and you must burn air over the top of the furnaces. These are the only two differences but they are very essential differences. It has been said that you will burn three tons of Alberta to one of anthracite, but our own experience has shown that Alberta coals will compete almost ton for ton.

By Mr. Garland:

Q. That is a proven fact, that the Alberta coal will equal in heating almost ton for ton?—A. With the additional advantage of their facility. You have not got to imagine the weather for six or seven hours with Alberta coal. If it turns suddenly cool you have a hot fire in ten minutes.

By Mr. Garland:

Q. There are three other brief questions I would like to ask the witness. You heard the evidence given by Mr. Errington with regard to that tremendously valuable deposit of steam and hard coal in the area of Smoky River, or the Hoppe Area. In your opinion, is he within the limits when he said, we had a potential development there of an immense Pacific market, and it would be a great national asset?—A. There is no question.

Q. And it would be quite within the bounds of reason to build that railway line of 80 miles for the purpose of developing that area?—A. I think it will be one of the most profitable lines that could be built. Any coal line that would develop a tonnage like that would be a profitable line.

Q. And wherever coal fields have been developed and cut by a railroad, the tonnage has made all those sections prosperous?—A. Unquestionably.

By the Chairman:

Q. Did I understand you to say that you have the equipment in the mines in your province to make an output three times what it is now?—A. Yes.

Q. Without further investment of capital?—A. Yes, without further development capital.

Q. And in your opinion, from what I gather, the great difficulty to-day in getting your coal into central Canada is the railway freight rates, apart from advertising the qualities of your goods?—A. Yes, there are three essential difficulties. Perhaps not three essential difficulties, but three problems. One, the problem of transportation, the next of distribution, and the third, education. Those are the only three problems that, in my judgment, prevent Canada from being entirely free and independent in the matter of coal supply.

Q. Would you give some idea of what your demonstration plant in Winnipeg costs per annum?—A. Probably \$10,000, not any more.

Q. And I think you made some statement regarding the necessity of demonstrating the qualities of this fuel in the central provinces?—A. Yes.

Q. What would the initial outlay of a plant of that kind necessitate in money?—A. Very little, for this reason—

Q. Suppose you had one in Toronto?—A. We have one in Toronto that will be opened to-day. By the courtesy of the city we have the old Bay Street Fire Hall. We will have three or four domestic furnaces, stoves, and kitchen ranges, and will conduct a public demonstration for a month or six weeks, perhaps longer. If we get the freight rate, it will become permanent.

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By Mr. Spence:

Q. There is no difficulty about getting any amount of places for such demonstrations. This is just the time to get into this business, on account of the lack of coal this past winter. People are so discouraged that they will take a chance of buying practically anything to get it in the cellar, and the first thing we should do is to see if there is a possibility of getting any reduced freight rates. If I was a dealer, I would hardly dare buy 50 cars of this coal now for fear that in six months time the freight rate would be reduced and my competitor would come along and dump in coal at a cheaper rate than I could get it now. I have had an experience like this. I shipped potatoes out West and they reduced the freight rate 12 cents and the opposition shot in a lot behind me with the obvious result.

WITNESS: It would be very unfair to us to attempt to sell coal right now until the freight rate question is settled.

The CHAIRMAN: We will have some railway officials here next Tuesday.

By Mr. Warner:

Q. I should like to ask one question. I take it from your statement previously that your hope in getting a reduced freight rate lies in the fact that, at the same time that our mines are now idle, railway equipment is idle also, and that the people in the East are in the habit of buying coal at that time of the year, that we could ship it.—A. Quite.

Q. That is where your hope lies in getting a reduced freight rate?—A. Yes, and may I say that in a conference with Premier Drury and several of these gentlemen from the West, as well as myself, with Sir Henry Thornton in Montreal on Tuesday night, Sir Henry himself made that a point. As a matter of fact he argued our case for us. He pointed out that he had all this idle equipment, that it was not earning any money anyway, that if we could demonstrate to him that the coal could be efficiently burned and was a suitable coal for this market, and provided he would get the consent of the C.P.R.—as he preferred to have the consent of the C.P.R.—he was quite prepared to meet us very, very closely.

By Mr. Garland:

Q. That would be for the months of April, May and June? They could get more coal out in those months than those who could afford to put it in now would need.—A. That is just the kind of market we want for those months.

By Mr. Lapierre:

Q. In the event of your demonstration in Toronto being successful and freight rates allowing you to bring coal into Ontario, are your mines in shape to furnish us with coal for the coming year?—A. They could be mobilized immediately. I might add, by arrangement with the Minister of Mines, the test which will be run by the fuel testing plant under the direction of the Fuel Board will be not only on the one boiler that is already there. I have asked them to set up a kitchen stove and a hot air furnace. As soon as those are set up the Minister has agreed to put a number of cars at the disposal of the members of this Committee, and other members of the House, and we will arrange a time so that you may all visit it. There is not a great deal of room, and you would have to be taken down in relays—we are not running the test ourselves, I prefer to have the Federal Government make its own test—but I have suggested this, first that they make a careful observation as to the time it takes for the coal to ignite, its freedom from soot and smoke and then to bank the fire, and that, after all, is important to you people—we know what it will do in the West.—To bank the fire at night so that you may know whether you can carry on till

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the morning without getting up in the middle of the night to re-stoke. Those are the three things rather than the scientific test that will be of most value to the people of Ontario and this Committee.

By the Chairman:

Q. Would you mind if we asked you to step aside for the time and perhaps we might call you again later, as I understand there are two or three other gentlemen who are leaving to-night and who would like to give some evidence?—A. Certainly.

By Mr. Warner:

Q. Before you go, just one more question. Would you suggest, along with that other suggestion that you have made, that a record should be kept of the effect on the furnaces, if it be burned long enough, for showing any injury coming to the furnace through the burning of soft coal. That seems to be the fear with a good many people—that this coal will burn their furnace out and destroy it.

By Mr. Spence:

Q. I think it was coke they said would burn it out.

MR. WARNER: No, it was soft coal.

WITNESS: We can provide for that very easily.

By Mr. Warner:

Q. I can vouch for the coal in regard to that, I have a furnace that I have burned since 1912, and never put a cent's worth of repair on that furnace, and I have burned it quite hard too.—A. Those things are so obvious to us that we hardly see the necessity, but I can quite appreciate the necessity of determining that so far as the people of Ontario are concerned. If you people can suggest any kind of practical test that you want us to carry on, we would be delighted.

MR. O'CONNOR: The best test would be to open every draft of the furnace and let it go at full heat.

WITNESS: We could do that.

CHAIRMAN: This is a very important witness and as he will be in the city for a few days we might ask him to come again.

WITNESS: Before I leave, if any of you gentlemen can think of any question that you want answered next time, I shall be glad, because we get further with questions than direct evidence.

DONALD A. MACAULAY, Mining Engineer in the Drumheller Mines, was next called as a witness and sworn.

By the Chairman:

Q. How long have you been employed in the Drumheller?—A. Eight years.

Q. Have you a general knowledge of the coal deposits and workings of the province of Alberta?—A. Yes, I have been in Alberta fourteen years.

Q. And previous to that you were occupied in the coal areas of Nova Scotia in the same capacity?—A. Yes.

By Mr. Garland:

Q. I would like to ask the witness some questions. His evidence will, of course, be very much of a substantiative, corroborating character. You know the Drumheller field very well?—A. Yes.

[Mr. H. Stutchbury.]

Q. That is the field you are engaged in?—A. Yes.

Q. This coal here is from the Drumheller fields. Do you say that it is a coal that would give perfect satisfaction to the Ontario householders?—A. I have no doubt about it.

Q. This sample does not represent the general run of your lump coal?—A. There is a lot that is larger. We prepare our coal out there in different sizes.

Q. Is there any difference between the bituminous coal you talk of in the East and this Drumheller coal of yours?—A. A very great difference. I found, particularly since I have been on this trip to Ontario, that we have a great deal of difficulty in explaining to the people we see the actual difference. They only appear to know two coals, that is, bituminous coal as it comes from the United States, and anthracite coal. Now this Drumheller coal is a coal that I am free to admit I had no knowledge of myself, although I have been coal mining all my life until I went to Alberta. I used the coal in Nova Scotia, I used anthracite in the United States when I was down there for two years, and I used bituminous coal in Alberta before I went to the sub-bituminous field. I was surprised that there was such a fuel in Canada that would give such real satisfaction for household purposes. It is a fuel that has very little smoke, no ash, and stays in all night, and will burn up quickly in the kitchen range, and we use the same kind of furnaces.

By Mr. Spence:

Q. Will it burn in a self-feeder? They burn a soft coal in them and it pours down all right?—A. The nut sized coal is probably half the size of egg, and that will burn in the self-feeder just the same as anthracite. I might state my position in coming down to this part of the country. We left home on the invitation of the Premier of Ontario, to go with him to interview Sir Henry Thornton on the reduction of freight rates. We felt that the same situation is in Ontario to-day that was in Manitoba some years ago that gave us an opening. People were talking about their fuel supply and it gave us an opening to go in and demonstrate our fuel and show them we had something that was of real value. So I have no written out statement to put before this committee because I did not expect to come here when I left home, but we feel there is an opportunity now. Now is the opportune time. If we can get a freight rate we can compete with the anthracite coal in Ontario. It will mean a little different handling. It will mean that this coal will have to be handled either out of the cars into the consumer's basement, or stored in a shed. Not a shed as I see around the different cities here where they shove the car up and drop the bottom out and it falls down. That is not the kind of shed that will be suitable for this coal, and anyway, the coal will come in box cars.

By Mr. Spence:

Q. It will be more expensive to handle that?—A. I don't think so, in this way. If this coal is handled from the car into the consumer's basement you shovel it out of the car and straight into the wagon and then into the consumer's basement. If you have to unload it out of the car into the bin or shed, then load it up into the wagon, and then into the consumer's basement, it will be about 25 cents more expensive. The first is the system that is followed in the West in handling this coal.

By Mr. Garland:

Q. Is there very much dirt, bone, slate, stone, and that sort of thing in your coal?—A. It is unusually clear of that. We have very keen competition out

[Mr. D. A. Macaulay.]

that country, and it is important for everybody to prepare their coal in the very best possible way. None of our coal will run over 7 per cent ash.

Q. What is the cost f.o.b. car in Drumheller for this lump coal?—A. That lump coal, as Mr. Stutchbury pointed out, is luxury fuel, but we have coal that will sell from \$3.50 to \$5 that will be suitable fuel for any household user.

By Mr. Spence:

Q. In that there would be a certain percentage of slack?—A. Only what it would make itself in the handling. You can burn that slack in the furnace along with the other coal if there is not too much of it.

By Mr. Garland:

Q. Would the witness tell the Committee that the slack there is used freely in stoves and furnaces? I have used it myself, so I know, but it would be perhaps more valuable if the witness said so?—A. Some of the people in the West are using the pea coal in their furnaces. That is a smaller character of coal that we make, and at night, to keep that pea coal in, they throw a shovelful of ashes on it, and the pea coal stays in all night and starts up in the morning and they have a fire. But this pea coal is used largely for generating steam, with the slack in it in stationary boilers. It is not suitable for locomotives on account that it will blow through the smoke stack with the heavy draught. This coal has to be burned with a slow light draught.

Q. Have you used any of the coal they have in Ontario this year, seen it in use, or used it?—A. I have heard a great deal about it since I came to Ontario, and we heard rumours in Alberta. The ash content is unusually high for anthracite coal.

Q. A point I want to get from the witness is that this coal could compete in heating qualities, and in fact be very superior, to the type of coal they are using at the present time?—A. I would say it would be equal. I might be blamed for exaggerating if I said it was better, but I believe it would be the equal of the anthracite coal being received, in heating. There is one point that I think is very important that has been found out by experiment throughout the prairies. There the country is much colder than here, and in an ordinary house with the ceilings not too high, an eight to 9-foot ceiling, we find that when a man wants to order in enough fuel to keep him all winter, the dealer will tell him that one and a quarter tons to one and a half tons per room will heat his house for the season. That does not include the coal used in his kitchen range; that is the consumption of his furnace. I believe that our best general argument to show the people of Ontario that we have something of real value is our experience in Winnipeg. I have taken just a Government book that I found here to-day, and I found that in 1919 there were 478,784 tons of anthracite coal shipped into Western Canada. That was in 1919. In 1922, the total amount is 50,000 tons shipped in, and in that length of time the difference has been replaced by Alberta coal. That shows that there are people living in the city of Winnipeg, they live in the same kind of houses, they do their work in the same kind of offices, and they find that they can get satisfaction from our coal, otherwise they would not buy it.

By Mr. Spence:

Q. The price cuts a big figure there.—A. When you offer anything or anybody something to sell, you must expect to give him value for his money. With the freight rate we are asking for into Ontario, which is \$6 a ton, at \$6 a ton we feel we can offer the people of Ontario value for their money; if we did not we would stay at home.

By Mr. Garland:

Q. I would like to ask you, if at the present time in the Drumheller Valley, they have any other market other than the Canadian market?—A. We had a small market this year in North Dakota and Minnesota. We are hampered in that respect on account of the duty put on our coal by the United States under this Fordney Tariff, and we made application to the Government, pointing out that the Fordnel Tariff should not apply to the class of coal we were producing, because that same class of coal is not produced in the United States, and is not shipped into Canada. Anthracite coal comes into Canada free, and the coal we are producing in Alberta, sub-bituminous coal, is not produced in the United States, it is not shipped into Canada, so the Fordney Tariff should not apply to this sub-bituminous coal.

By the Chairman:

Q. To what Government did you make these representations?—A. To the Dominion Government. So we felt that the Dominion Government would not lose any revenue because there was none of that coal coming into the country, and the way they have the Act reading, it covers all other coals, so the United States, when they enacted the Fordney Tariff, immediately put the 53 cents on our coal, but there is none of the class of coal coming in.

By the Chairman:

Q. There is no duty on the hard coal coming into Canada from the United States.—A. No, and there is no sub-bituminous coal coming into Canada.

By Mr. Garland:

Q. I think the point the witness is raising is that Canada has a duty against sub-bituminous coal from the United States.

The CHAIRMAN: No, I think not.

Mr. GARLAND: Yes, and the Fordney Bill enacts that against any country that at the present time imposes a duty on American coal, it also imposes a reciprocal duty against it.

The CHAIRMAN: I thought I understood from the witness that we did not get any of that kind of coal.

The WITNESS: Exactly, but the way our tariff reads the American customs officials charge us 53 cents.

By the Chairman:

Q. That is, if such coal were coming in from the United States, there would be that duty against it?—A. Yes.

By Mr. Garland:

Q. Yes, they put that into the bituminous class. Does the witness really think there would be very much of a market in that part of the United States for the coal from Alberta; could it be developed to any extent?—A. It could have been considerably developed this year, but it would be speculative as to whether conditions prevailing in the United States would allow us to ever develop it next year, but we were sure that we should have got a bit further. That 53 cents was just the difference keeping us from going in further than we did. We sent in quite a little tonnage—I am not quite prepared to say exactly what it was.

By Mr. Spence:

Q. Up around Vancouver Island, is oil not taking the place of fuel quite a good deal?—A. Only on the railroad.

By Mr. Lapierre:

Q. What distance do you have to haul your coal into Dakota and the adjoining states?—A. Some was trans-shipped from Winnipeg; Winnipeg is 800 miles, and I suppose some of that had gone 300 or 400 miles further than that.

Q. What was the freight rate from the extreme points?—A. The freight rate—I do not remember the freight rate into Dakota; I remember the Winnipeg freight rate.

Q. Under these existing conditions you could lay coal there in competition with American coal?—A. We did do it this winter, to a large extent.

Q. Due in a large measure to abnormal conditions.—A. I think that might be taken for granted. We have always been shipping a few cars of coal.—before the Fordney Tariff came in, we never had to pay duty.

By Mr. Spence:

Q. How many miles would it be from the Drumheller mines to the Dakotas?—A. About 1,100 miles.

Q. And that costs you \$6?—A. I do not know what it is.

Q. Your friend said around \$6. Have you any hope from the president of the Railway Board that you will ever get a \$6 rate to Ontario points?—A. I think we will, in fact I think we got every encouragement in Montreal the early part of this week.

Q. If you do, you will certainly have won a great victory, but I do not see how it can be possible; that is 30 cents a hundred, and we pay that now for a 150 mile haul on potatoes and other stuff.

Mr. WARNER: I might say, Mr. Chairman, that that would not be a bigger price or a lower price than they are already hauling wheat for from the West.

Mr. SPENCE: Wheat at the head of the Lakes is \$6, and coal is \$9, is it not?

Mr. GARLAND: These gentlemen would be interested to know that at the present time there is a rate from Edmonton to the Coast, and if put into effect from Ontario to the Coast that is just what we are after.

Mr. STUTCHBURY: With the permission of the Chairman, I will give you that.

The CHAIRMAN: Certainly.

Mr. STUTCHBURY: There is a rate now from Edson west to Prince Rupert, about 700 miles.

By Mr. Garland:

Q. Through the mountains?

Mr. STUTCHBURY: Yes, that is in territory governed by the mountain scale of rate of \$3.40 a ton. That is, on car lot shipments. Applying that same rate over the mileage from Drumheller to Toronto would give us a rate of \$8.22; that is on a car lot basis, under a mountain differential. That is the reason why we feel we have a right to expect a lower rate taking into consideration the fact of all the idle cars on the railways, and the fact that we are asking for that rate on a train load haul.

By Mr. Garland:

Q. At a special time of the year?

Mr. STUTCHBURY: Yes, and over a prairie haul and not a mountain haul.

[Mr. D. A. Macaulay.]

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By Mr. Garland:

Q. And with the removal of the differential, as comparing with the haul on the plains—

Mr. STUTCHBURY: It would give us the \$6 rate, or around that.

By Mr. Spence:

Q. You do not expect to get a lower rate than it will cost to operate the line?—A. No.

Mr. STUTCHBURY: Figures I have been able to get would show that that would be a profitable rate.

The CHAIRMAN: \$6.50?

Mr. STUTCHBURY: \$6.

By Mr. Warner:

Q. How many cars in train?—A. Take 50 cars, or 58; 58 is about the capacity of a spur.

By the Chairman:

Q. Have your any other statement?—A. I might say that the Drumheller field began operations in 1911 or 1912, and in that time they have developed a sufficient market that when the orders are received they can produce 10,000 tons per day.

Q. How many mines?—A. Approximately 20 mines. They are small units owned principally by individuals; no large companies.

By Mr. Warner:

Q. Practically 20 mines.—A. Yes. There is an unlimited supply of this coal, it is not hard to get at like some of the mines in Nova Scotia which require a large capital expenditure before there is ever a pound of coal produced.

Q. How deep is that under ground?—A. This coal?

Q. Yes, how much earth over it?—A. The openings are located in the Valley of the Red Deer River. This valley runs from half a mile to a mile and a half in width in places, and the river runs approximately in the centre. The other side is a rolling prairie 350 to 400 feet above us. We go down 40 feet below the ordinary bottom of this valley, and strike the first coal seam, and work underneath the prairie, and in that case we have from 350 to 450 feet of cover, under the prairie.

Q. I might ask, to get information on that line, how much per ton, or how much per day—how many tons per day do you think it is possible to take out of each one of these fields, working at full capacity?—A. That capacity, altogether at the present moment is 10,000 tons per day.

Q. You mean each mine?—A. Provided we had the market each unit could be developed to increase that tonnage probably 25 per cent in six months, and they could keep on increasing it indefinitely with very little further expense.

Q. Out of each hole you would get 500 tons a day, on the average?—A. Some are producing 500, some 800, while others are producing close to 1,000 tons a day.

Q. There are none producing more than 1,000 tons a day?—A. The reason in that country is that on account of our short season we find it is more economical to have two openings producing 500 tons apiece than one producing a thousand.

Q. You can produce more economically?—A. Yes. We can start them up quicker when the season comes back again and get our organization going

faster in two 500 ton mines than we can in one 1,000 ton mine, and the upkeep, the overhead during the summer is not so great. On our airways, haulage roads slopes and shafts the expediture during the idle time is not so great on two small units as it would be on one large unit; at least that is our experience.

Q. Your calculation then would be that where you operate about half the year, in operating the full year you would take out about a thousand tons per hole as well as you could take out 500 at the present time, that is, if you operated throughout the year?—A. Operating throughout the year would be a different proposition; no doubt the industry would develop along a little different lines. Probably we would get larger companies, and they would go in for larger units, as is generally done, say 1,200 to 2,500 tons a day possibly. At the present time the market does not warrant that. We might say the company we are working for has three mines, and we presume from 2,300 to 2,500 tons a day out of the three. I am positive it is cheaper to produce those 2,500 tons out of the three than it would be out of one, because we have had experience with 2,500 ton mines.

Q. What I am getting at is this; if the miners worked throughout the year they could, on account of having steady work, perhaps work at a little less wage when they could have steady work, and in that way reduce the cost of your out-put?—A. Yes. We find in negotiating our agreements with the men, that that is one of the things they are always arguing. The men say they can only work so many days, and they have a family to keep, and everything like that, and that they cannot work for less money. That is the big argument they have. They show up their total earnings for the year. While men will go into the mines out there and earn from \$14 to \$15 in eight hours, still they have not the opportunity in the domestic mines of earning that the year round, because they do not work.

Q. If you had a demand for their labour the year round, do you think they would be willing and able to work for less money?—A. I think that is absolutely true.

Q. It would mean that you could put your coal out for a little less money than at the present time?—A. We would not have the overhead we have at the present time. I have heard them say this, that they could do so.

Mr. SPENCE: The point is, would they?

WITNESS: The wages in the mines in Alberta will have to come down some day.

By the Chairman:

Q. That is, if there is good work all the year round?—A. To show you what we are paying out there today, in 1914 the class of labour that was paid \$3.30 for an eight-hour shift is to-day paid \$7.50.

By Mr. Lapierre:

Q. It is all Union labour?—A. It is all Union labour.

By Mr. Garland:

Q. The wages in Alberta are higher than they are in any other part of Canada?—A. Yes. They are on the same basis as in the competitive field in the United States, where your bituminous coal comes from to Ontario.

Q. Are they affiliated with the mining Unions in the United States?—A. Yes, the United Mine Workers.

Q. And you have to pay exorbitant wages in Alberta for labour?—A. The wages we have to pay are exorbitant. We signed an agreement at the end of March for another year; it will not expire until the end of March, 1924.

Q. Based upon the wages prevailing in the United States?—A. Yes, and they signed the same kind of agreement in the United States.

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By Mr. Garland:

Q. Have you the scale of wages; have you any figures of that?

By Mr. Warner:

Q. In your opinion it would be better for the miners if they had work the year round, and, as you have mentioned, part of the price comes from the lack of steady employment, and you think they would be better off and more contented if they had a little lower wage and steady work?—A. Yes; their aggregate earnings would be higher.

By Mr. Lapierre:

Q. Where miners are engaged the year round in the United States, are the wages lower than they are in Alberta?—A. The difficulty in the United States is the lack of a car supply, which is a big factor in their idle time in the United States. If you take the statistics of mining operations in the United States, you will find a great lack of steady employment in the mines in the United States as well.

Q. Would that be due to the shortage of the car supply?—A. Very often to the car supply, and in ordinary times, when they produce more than they consume, there is an over-production. That was not the case at the time of the strike in the United States.

By the Chairman:

Q. There is a statement going in, which you will describe. Tell us generally what it is?—A. This is a statement of wages paid to miners and mine labourers in Alberta, to contract miners, averaging \$9.57 per day.

By Mr. Lapierre:

Q. Of eight hours?—A. I might explain that that eight hours does not mean eight hours work; it means eight hours until they return to the surface again; they travel into the workings, eat their lunch and travel back in the company's time.

Q. Is that included in the eight hours that constitute a day's work?—A. Yes, that is in the eight hours.

By Mr. Spence:

Q. You pay them for eating their lunch?—A. Yes. Here are the figures:

| | <i>Alberta</i> |
|------------------------------|-----------------------|
| Contract Miners | \$9.57 per day 8 hrs. |
| Machine Miners | 8.02 " |
| Hand Miners | 7.05 " |
| Drivers | 7.21 " |
| Labourers, Surface | 6.58 " |
| Machinists | 8.14 " |
| Carpenters | 8.14 " |
| Blacksmiths | 8.14 " |

The average cost of staple foods in Alberta, \$10.26; Nova Scotia, \$10.65; British Columbia, \$11.39.

The CHAIRMAN: It is now six o'clock. We have three other gentlemen here.

Mr. GARLAND: Mr. McCullough is prepared to deal with the local output from the Drumheller fields, and can give any facts the Committee wants in connection with it.

The CHAIRMAN: I think with the last witness he has covered the ground fairly well.

Mr. SPENCE: We have heard from the representatives of Alberta, also from the province from which you come.

The CHAIRMAN: Not yet.

Mr. SPENCE: That is right, we have not. We have heard from the Maritime Provinces and Alberta, but we have not heard anything from the traffic people or the dealers. We have a number of real coal dealers, reputable citizens, and I am frank in telling you that I have only paid \$15.50 this past winter for good hard coal. While we have heard of \$18 and \$20, I am getting mine from a legitimate coal dealer for \$15.50.

The CHAIRMAN: In Toronto?

Mr. SPENCE: Yes, sir, in Toronto. I think we should bring somebody from there at some future date, in order to get their views.

Mr. LAPIERRE: Are you not afraid when you make that statement here that you will have to pay \$17 for your coal next winter?

Mr. SPENCE: Not a bit.

The CHAIRMAN: We will have to decide upon two and perhaps three freight rate men. General Ross has given us the name of a dealer in Kingston.

Mr. SPENCE: My views are that I do not think it is the intention of the Committee to kill the old channel through which we have done business. Mr. Cox can be subpoenaed; I do not know when he will be here. We should also try and get some information on freight rates at our next meeting, which I hope will be on Tuesday.

Mr. LAPIERRE: There is the position at the lake ports, which it appears to me requires investigation, that is, coal coming from the United States to certain ports at preferential rates. It appears to me that that should be investigated.

The CHAIRMAN: If Mr. Church can give us some information about that before we call the freight rate men here, I think it would be well.

Mr. SPENCE: We have had men here who said there was nothing in that. The Fuel Controller of Quebec did not think there was anything in it.

The CHAIRMAN: If Mr. Church corroborates the statement he made, I think we should have it.

Mr. SPENCE: The Fuel Controller in Toronto said they could not charge more than \$15.50, but other dealers got in who were not in the ring, and supplied coal at higher prices. Of course we could not always get it; we had to buy soft coal part of the time, or some soft coal. I do not want to antagonize the coal trade.

The CHAIRMAN: Regarding the hour of our meeting, while I am willing to come here at ten o'clock, the members do not get around until about eleven o'clock. The members who do the work get around at ten o'clock, but we have some correspondence that must be attended to. Let us meet at eleven o'clock. I do not care at what hour we meet in the afternoon.

Mr. SPENCE: Just as you say, Mr. Chairman.

The CHAIRMAN: No, it is for the Committee to say.

Mr. LAPIERRE: I agree with the Chairman. It gives us a little time to get through in the morning.

Mr. WARNER: I am agreeable to meet at eleven o'clock; if we are all here at eleven o'clock, we can get a lot of work done, but if we say eleven o'clock and come here at half past eleven, it will make a lot of difference.

WITNESS: Mr. Spence suggested the difficulty that we had with the dealers in Winnipeg, when we got in there first. They were old anthracite enthusiasts, and they did not want to start any revolution in their business; they fought us

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for all they were worth, they plastered propaganda in the papers and had editorials written against this stuff that came from Alberta, saying that it wasn't any good. We expect the same thing in Ontario, from dealers who have been for years in the anthracite business, and naturally so. If I were in their place, I would expect to fight to keep the old line of business, because nobody likes to have his business broken into or uprooted in any way.

MR. SPENCE: If they can make some money out of your coal, why shouldn't they do so?

WITNESS: We came down and had a meeting in the Premier's office, then went to some other building, when Mr. C. A. Magrath was Chairman of the Fuel Board during the war. We had dealers from Winnipeg, who got on the train on the way down; we had a special car of our own. We had 25 men from Alberta, some got on at Winnipeg and some at Port Arthur. They had coal mining men from Nova Scotia; it was a bad time in mining all over Canada; they were not getting enough coal. The Government called us down to find out what was the best thing to do; the one thing was, to put an embargo on anthracite coal going west. A prominent dealer in Winnipeg got up in the meeting, with 75 or 100 people there, and told the representatives of the Government that the people of Winnipeg could not possibly live through the cold weather out there with anything but anthracite coal, and just before he concluded his speech he unrolled a piece of paper and took out a piece of coal that had been taken from the outcrop exposed to the sun and the cold for untold ages and said, "Here is the stuff the people of Alberta are trying to offer the people of Winnipeg." I saw that man in Winnipeg when I was coming through, and he is the greatest Alberta booster in Winnipeg, the very man who made that speech in 1917 right in Ottawa.

By the Chairman:

Q. That showed the effect of education?—A. Absolutely.

By Mr. Warner:

Q. The coal has proved itself?—A. Yes.

By Mr. Spence:

Q. We get opposition in all lines of business; you cannot get it all your own way, at least I never did.—A. We expect opposition.

MR. LAPIERRE: You should not be afraid of what will happen to you in Toronto.

MR. SPENCE: The *Star* newspaper got two cars of this coal down there.

WITNESS: But it should be shown in London, Hamilton and other places. If we can get the right freight rate, we are willing to spend some money to show them. The Dominion Government is collecting a royalty upon every ton of coal we produce in Alberta, and we would like to have the Dominion Government spend a small proportion of that money in demonstrating this coal in Ontario, in co-operation with us. The more coal is mined in Alberta, the more money we will pay to the Dominion Government, as long as they hold the natural resources as they do to-day.

MR. SPENCE: I would like to see them able to get anthracite down to Toronto; of course as yet that is impossible.

WITNESS: If you burn this coal one-quarter as long as you have burned anthracite, you will not want to burn anthracite any more.

THE CHAIRMAN: I am in hopes that the people of this country will come to the conclusion that even if they are inconvenienced a little in burning Alberta coal, they will burn it.

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Mr. WARNER: All those things will adjust themselves.

The CHAIRMAN: We will adjourn now until Tuesday morning next at eleven o'clock.

(The Committee adjourned until Tuesday, April 17, 1923, at 11 a.m.).

HOUSE OF COMMONS,

COMMITTEE ROOM NO. 429,

TUESDAY, 17th April, 1923.

The Select Standing Committee on Mines and Minerals met at 11 a.m., the Chairman, Mr. Carroll, presiding.

JOHN F. SOWARDS, coal dealer at Kingston, called and sworn.

By the Chairman:

Q. What is your name?—A. John F. Sowards.

Q. You live at Kingston. What is your business?—A. Coal dealer.

Q. You supply both domestic coal and steam coal?—A. Both kinds.

Q. Where do you get your coal from?—A. Do you mean what port?

Q. I mean what country, Canada or the United States?—A. All from the United States.

The CHAIRMAN: Now, General Ross, you have some questions.

By Mr. Ross:

Q. There are two or three points that have been raised in connection with the coal business. For domestic coal your demand is altogether for anthracite?—A. Yes, in our part of Ontario they don't care to use anything else.

Q. What is your opinion of the supply of anthracite from the United States? Is it lessening?—A. Yes, the past few years it has been pretty hard to get, particularly last year. It was the hardest year of all on account of the strike lasting so long.

Q. And is the possible amount lessening?—A. Well, I don't know that I could say as to that. I believe from what I am told Ontario will have a fair supply of anthracite for this coming year, if what they say on the American side is right, that is, that by the fall they will have their car supply back.

Q. What was the price of anthracite before the war?—A. We sold for \$8.

Q. And what is the cause of the increase?—A. Well, the war was the first cause on the American side. Then strikes and the advance in railroad rates.

Q. The advance in railroad freight rates perhaps? Which is the greatest cause? Is it the increase in rates?—A. I would say so, yes.

Q. Is there anything in the point raised that there is a combination between the railroads and the coal dealers?—A. That would be beyond me. I don't know what they do on the American side.

By the Chairman:

Q. What is your question?

By Mr. Ross:

Q. The point was raised the other day that there was a combination between the coal barons, as they said, and the railroads, which would tend to prevent the use of any other coal but the American coal. Do you know anything of it?—A. I don't know of anything of that nature.

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Q. That would be a secret, I suppose?—A. What I mean to convey to you is this, that there might be such things take place on the American side, but we have not any knowledge of it in Ontario.

Q. How is most of it brought over?—A. It is brought to a lake port on the American side and then brought over by boat. I am talking for Kingston, but I believe Toronto brings theirs mostly by rail.

Q. Kingston gets it mostly by water?—A. Yes, if we can.

By the Chairman:

Q. Cheaper?—A. Yes.

By Mr. Ross:

Q. Is the cost of anthracite likely to go lower or higher?—A. I do not know, but it may go a little higher for this reason, that the anthracite miner has \$5.50 a day and the bituminous labour is \$7.50. They have given notice that on August 1 they want \$7.50 a day, and that may increase the price of coal.

By Mr. Davis:

Q. What constitutes a miner's day's work?—A. Eight hours, they say.

By Mr. Ross:

Q. Have you considered the use of any other coal than the American coal?—A. No, we have tried substitutes for anthracite coal, and have always got into trouble because they would leave it on our hands.

Q. What were the substitutes?—A. Coke and soft coal. Of course they had to use it last winter. I was not home but I was told so.

By the Chairman:

Q. That is something that should be made a very careful note of—they had to use it last year?—A. Yes.

By Mr. Ross:

Q. They had to use coke?—A. I was not home, but they told me there was a lot of coke and soft coal used in Kingston.

Q. But your reason for not using it is that the demand was not there for it?—A. Yes.

By Mr. Warner:

Q. How were the people satisfied with the coke as compared with the anthracite?

By the Chairman:

Q. Will you let General Ross go ahead with the witness first, and we can ask him questions afterwards.

By Mr. Ross:

Q. The reason I thought it wise to bring some of our dealers is that I want to know what were the objections—why could we not get them to use the Western coal and the Eastern coal?

WITNESS: The greatest objection I see to that in our neighbourhood is that our flues are not made for soft coal—they are made for anthracite.

By the Chairman:

Q. Does that make a difference?—A. You bet it does.

By Mr. Ross:

Q. There is something in that?—A. No doubt about it.

Q. It was pointed out that if our furnaces were clean and our chimneys clean that we could use it?—A. Yes, if you do it twice or three times a week. Forcing your fire with soft coal you would have to clean it two or three times. Or you could get along by burning a piece of zinc. That would clean out your furnace at once. But that costs money unless you can find some old batteries that are made out of zinc.

Q. But there is no objection on your part as dealers to using Western or Eastern coal in preference to American?—A. It does not make any difference what coal we use as long as the people will buy it.

Q. Your point is to sell coal, no matter what it is?—A. Yes, I put in an advertisement thirty-two years ago, "Sowards keeps coal and coal keeps Sowards."

Mr. Ross: I am through.

The CHAIRMAN: Now, Mr. Warner.

By Mr. Warner:

Q. He was speaking of coke being used instead of anthracite coal, and I was asking how they liked it in comparison with anthracite.—A. They would only take it in a great many cases when they could not get any anthracite, but I have known of one or two people who liked the coke so well for use in their kitchen ranges that they are going to continue to use it.

Q. How does the price compare?—A. Coke sold for \$18 to \$20 a ton, I believe, but I am not certain.

The CHAIRMAN: Then I advise you, my friend, if you are not certain, not to mention it.

WITNESS: I won't say, but I heard that was what it was this winter. I was away.

By Mr. Forrester:

Q. It is \$15.50 now in Toronto, coke.

The CHAIRMAN: That is what I understand.

By Mr. Drummond:

Q. Are you aware of the fact that when an order was sent into the mines for coal it was necessary for the person ordering to take three carloads of soft coal to get one of anthracite?—A. I never had that trouble. I do not know as to that.

Q. You never had that?—A. No, we never had to take anything but what we wanted.

Q. We have had that in Western Ontario for the last two winters.—A. I believe you have had a lot of trouble up there, but we have not had it.

Q. Have you ever heard anything about a charge that has been made that some of the dealers having to get their coal that way have side-tracked their supply of anthracite until they have disposed of their supply of soft coal?—A. No, I have not had that trouble.

By Mr. Garland:

Q. The witness referred a moment ago to supplies, and said if what was said on the American side was true there would be plenty of coal available for next winter.—A. I base that on a talk I had in New York a few weeks ago with the head of the company we buy from, and he said as far as we were concerned he would be able to give us a full supply unless a strike happened again.

Q. Do you place much reliance on reports of that kind?—A. I have always known most people to be truthful; they have acted that way with me.

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Q. You mentioned, shortly after, that you anticipated the possibility of a demand for increase in the wages of the miners in the anthracite field.—A. I guess they might pay it before they have trouble because it is coming off in August.

Q. You have either a strike in the anthracite field or an increase in price? —A. You might not have an increased price for this reason, that every year they drop 50 cents a ton. Now they are at the peak; have been since the strike last year.

Q. The witness won't argue that by increasing the labour cost you are going to increase the price of the fuel.—A. Oh, no, I would not do that.

Q. But in all probability the rates on anthracite will go up instead of down?—A. I don't believe it will go up, to be honest with you. I don't think it will, although on the face of it it looks as if it should.

Q. You mentioned that they work eight hours a day, would that be bank to bank?—A. I am not familiar with mining conditions.

Q. You spoke about flues, in your district, not being good for soft coal, and that being one of the objections to using Canadian coal?—A. Yes.

Q. But we had evidence the other day—you were not here and perhaps it is hardly fair—but we had evidence that our coal is not what you understand as soft coal. It does not deposit smut content on the flues, and your flues are the same as we use in the West, your ranges are the same, your stoves are the same. If that is the case, you could use our coal, could you not?—A. I don't think I could answer that, I couldn't say whether you could until I saw it burnt. I know it is very awkward to burn American soft coal.

By the Chairman:

Q. You made a statement and you are subject to cross examination on it? —A. I don't know anything about Alberta coal. I made it on American soft coal and will go as far as you like on that.

By Mr. O'Connor:

Q. Were you one of the dealers that reported for a period to the old Board of Commerce?—A. Yes.

Q. And reported on anthracite coal?—A. Yes.

Q. Were you one of the dealers who previously—during the fall of 1916 and early in 1917 reported to the Cost of Living Commission?—A. Probably, I would not say for sure.

Q. You do not remember that?—A. No.

Q. Perhaps you will remember—do you remember my own report on the anthracite coal industry in the spring of 1917?—A. Yes.

Q. Do you remember that report?—A. Yes.

Q. Have you read it?—A. I think I have.

Q. Is it a fair document, is it fairly expressive of the coal conditions of 1917?—A. I would have to refresh myself a little on it now; I remember you got a report.

Q. Was your impression of it then as you read it fair or unfair?—A. I think at that time I thought it was fairly fair; I might criticize it a little here and there.

Q. But on the whole a fair representation of the anthracite industry in Canada?—A. I believe it was.

Q. I will put a copy of that in. That report dealt with prices and costs, and it showed—and I am not endeavouring to open up anything contentious—it showed that the retail coal dealer at that time was satisfied with what we will call a velvet profit around 50 cents a ton?—A. Yes.

Q. Has that been your experience?—A. Yes.

Q. Would you be pleased if you could clean up what we will call, technically call, a velvet fifty cents a ton?—A. That would be quite satisfactory under the conditions that prevailed then and do now.

Q. Do about the same conditions prevail now as prevailed in 1917? Think before you answer, because the Committee may build something on that report of 1917, by way of comparison with 1923; so get the full purport of my question; what are the differences now prevailing in the anthracite coal industry from those which prevailed in 1917 from the standpoint of a retail coal dealer?—A. I would say probably the higher cost is the only difference, and the conditions that were made by the strike.

Q. As you answered it before it struck me you were leaving something out of account; there is a change in the value of money, is there not, from what there was in 1916? Money is not worth as much now as it was in 1916 or 1917?—A. I cannot recollect how it was then.

Q. If there is a difference?—A. That would make some difference, yes.

Q. That would account somewhat for the difference in price?—A. Yes.

Q. And that would affect every item you would be dealing with with respect to cost and price both?—A. Yes.

Q. If money is worth less now than it was in 1917 everything ought to be higher, every cost would run higher and every price would run higher?—A. Yes.

Q. Now, I want to know if you have ever read anything about anthracite so as to qualify yourself to say anything about the introduction of anthracite on the market when anthracite was a new thing, when hard coal was a new thing—have you ever read anything about it?—A. Yes, that they could not burn it.

Q. I did not know that you would know; I have just struck you on it—you have read about it?—A. Yes.

Q. As a matter of history you believe in it, and you can cite it as a matter of history and not testifying your own oath to it?—A. Yes.

Q. As to anthracite by coal dealers and consumers alike when it was attempted to introduce anthracite on the market in the United States?—A. Yes.

The CHAIRMAN: And Canada.

Mr. O'CONNOR: Canada followed the United States.

Q. As corollary to your own evidence as to the difficulty of getting people to use bituminous now, tell the Committee what difficulty there was about the use of anthracite?—A. There was an agent of one company that started, and I think he said it was four years he was trying to get some people in New York or some place to use this coal. There are a hundred stories about it but I think it took four or five years before they got it going satisfactorily.

Q. Did you read about the man who in Pennsylvania brought in several loads of this anthracite into the city of Pittsburgh and attempted to get people to buy it or to burn it?—A. You have reference to where they set it on fire, and two days after he came back it was burning?

Q. No, I mean as to whether he succeeded in getting them to take it at all. My reading tells me that it was absolutely unsaleable and that they used it for ballast on railroads, used it for building roads; they could not even sell it?—A. I guess that is right; I think there is some story to that effect.

Q. The difficulties that these gentlemen from Alberta are experiencing in getting people interested in their coal are by no means commensurate with the difficulty gentlemen experienced who first tried introducing anthracite coal?—A. Yes.

Q. There may be something in this coal of theirs after all?—A. Yes.

[Mr. J. F. Sowards.]

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Q. And it may win out?—A. Yes; I am not saying it could not be used; you can use anything.

By Mr. Warner:

Q. In your opinion is there any prejudice against the soft coal by the people here in Ontario, against the burning of the soft coal?—A. I will answer for our own district, our own city; yes, for this reason, if a woman has a fire of soft coal in her kitchen and she has been burning anthracite all her life time and she had to use soft coal, she generally dirties up the kitchen pretty well every time she takes the lids off, the soot will come right out and go to the ceiling. That is one objection the women have to it.

By Mr. Drummond:

Q. Is it a matter of education to overcome that difficulty?—A. It may be.

By Mr. Warner:

Q. Prejudice against the soft coal from Alberta, for instance, would be founded on the experience with the soft coal from Pennsylvania and the other side of the line?—A. Of course I have never seen your Alberta coal.

By the Chairman:

Q. Do you know if that is or is not true of the Alberta coal, the soot question?—A. No.

Q. It has been stated that it is not?—A. I do not know.

By Mr. Warner:

Q. I was just coming to that; I want to have the evidence of the witness there showing how this prejudice would originate against the soft coal, and it has been stated, and I know it to be a fact that the Alberta coal does not have that difficulty of the soot deposit, and you can turn a lid up after burning a full stove of this coal for any length of time you like and you will not black your finger on the under side of the lid, so that that objection would be altogether removed when you come to the Alberta coal, by their experience with it.

By Mr. Garland:

Q. Have you ever had any experience with Alberta coal at all?—A. No., just seen it on cars as I went through the country.

Q. You know nothing whatever about it?—A. Not a bit.

By the Chairman:

Q. You made the statement that if you lifted up the lid off a stove using soft coal that there would be a dirty soot, smoke, come from the stove; have you had experience of that yourself?—A. I have seen that myself.

Q. Not much experience?—A. No, but I have gone into kitchens where we have sold some.

Q. That was American soft coal?—A. Yes.

Q. And was unscreened coal, run of mine?—A. No, that would be prepared size.

Q. What do you mean by "prepared"?—A. We have three sizes of anthracite—chestnut, stove and egg.

Q. We are talking of soft coal?—A. Yes, but we have three sizes, and when you ask them for prepared soft coal they make them the same sizes as they do anthracite.

Q. Is it possible to prepare soft coal in sizes as anthracite?—A. It has been done this winter.

Q. Is it possible to do the same with soft coal in proportion as to sizes as it is with regard to anthracite?—A. You can size it the same, but you have more waste.

Q. As a matter of fact in sizing small coal, is it not broken up into such small particles, very fine, that it is impossible to size it to make it the same dimensions, egg, and so on, as anthracite?—A. What would go through your screen you would put into screenings and use it for other purposes.

Q. In handling would your sizes be broken up some?—A. Yes, a big waste.

Q. More than anthracite?—A. Yes.

Q. You say that the people in your district do not care to use—I understood it to be western coal—was that your statement?—A. No, I would not say that, because we have never had any of it there.

Q. You do not know, as you answered my friend Mr. Garland, anything as to the qualities of Alberta coal?—A. No.

Q. Never used it?—A. No.

Q. Never saw it used?—A. No.

Q. And when you talk about the soot from the kitchen stove you have reference to an American soft coal?—A. Yes, American soft coal.

Q. Did you ever use western soft coal, or did you ever see western soft coal used in a range?—A. No.

Q. Did you ever see eastern soft coal used in a range?—A. Yes, I think I saw some of it in Montreal one time, and if I am not mistaken it was a stove that was made to burn soft coal.

Q. I am coming to that question; do you say that there are two sorts of stoves, kitchen ranges for example, one made specifically for the burning of hard coal and the other made specifically for the burning of soft coal?—A. I could not say that; I know there are stoves made for burning hard coal, and I have heard about the others, and I think I saw one once, but I am not sure.

Q. You are not quite certain on that point?—A. No.

By Mr. O'Connor:

Q. Are the stoves built with a back damper, the hard coal stove?—A. Yes, they have a back damper.

Q. How does any woman let the soot puff over the house if there is a back damper? If she puts up the back damper the soot cannot come out in front, or the smoke or the puff; you can take lids off the top of the stove and put the back damper down and your fire will burn without anything coming up, with a roar—it must have been very careless handling of a stove?—A. Probably not; after that stove had been burning two or three hours there might not have been any draft through there.

Q. That indicates a very strong disposition on your part to be other than fair; it is a strong thing for an Examiner to say to the witness, but your suggestion is that within two hours the chimney using soft coal will possibly so choke as to be unable to overcome the lifting of one of the doors or one of the covers from the stove; you certainly do not mean that, realizing a few minutes ago you took an oath—you do not want to suggest that the normal chimney will possibly choke after two hours use of bituminous coal?—A. I did not say it would; but you started to talk about the damper on the stove, and how large is that damper?

Q. I want you to stick to the point?—A. They are made for hard coal; they are only small dampers.

Q. You suggest that within two hours?—A. I said a couple of hours would probably block it up.

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Q. Might block it up. Upon what do you base that theory?—A. I stick to it yet, that I have seen those stoves, the lid come off and the soot come up that way out of it.

Q. That will be so if your damper is up, certainly will happen and nothing else can happen; but I am suggesting with the back damper down; and when I suggested it you suggested contrariwise that possibly within two hours the stove—

The CHAIRMAN: A couple of hours.

By Mr. O'Connor:

Q. A couple of hours that the back flue might be closed up by the soot, and your answer evidenced so strong a prejudice in yourself against bituminous coal that I felt it my duty to ask you how far your experience goes and if you have seen anything like that happen?—A. I tell you, yes.

Q. You have seen within a few hours the back damper of a stove blocked?—A. No, I did not say that; I have seen what I said to you.

By the Chairman:

Q. In other words you do not know of your own knowledge of soft coal choking up the damper of a stove in which it was used within a couple of hours?

—A. I don't think you should ask me that question.

Q. You made a statement of your own knowledge, do you know that to be a fact?—A. I did not tell you that it would choke up tight, but I have seen the stove where you have only that space (indicating about two inches deep) where the flame goes through and you have only one of those little dampers that drop down, and it was coated very very heavy in there.

Q. After two hours?—A. After a few hours.

Q. What make of stove was that?—A. A Happy Thought.

Q. You still stick to your theory that there are two kinds of stoves, one for burning soft coal and one for burning hard?—A. I will tell you why—

Q. I am asking you that?—A. I believe there are.

Q. Do you know as a matter of fact that there are?—A. Yes.

Mr. STORK: I do.

WITNESS: You do not have them in our town, because we do not have them.

By the Chairman:

Q. You do not have any stoves for the burning of soft coal at all?—A. No.

Mr. ROSS: I think this is going a little too far. I wanted to get people to come, and I brought what I thought was a dealer here to find if there was any objection as far as they were concerned or any prejudice, and not to take and thump it right down the throat; I am dealing with a situation where we have been using hard coal, and I want to get down to a solution.

Mr. FORRESTER: We are probing it.

Mr. O'CONNOR: The witness went off and—

Mr. ROSS: I don't know what you have to do with it, but I think your question was a most objectionable one to a witness.

The CHAIRMAN: I don't think it is objectionable. I have asked Mr. O'Connor, who gave evidence here the other day, to come here and watch the proceedings. It is not costing the country anything, and I think he is doing a great favour to this Committee.

Mr. STORK: This witness never said the soft coal plugged up the flues in two hours and caused an explosion.

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The CHAIRMAN: Mr. O'Connor did not ask him to say anything of the kind and cause an explosion; if you eliminate "causing an explosion" I will say the witness said that.

Mr. WARNER: I might say that I think the answers to my questions to the witness solve this problem as far as that soot is concerned, because the coal we are talking about and trying to introduce does not have the soot quality. That was the coal that they got from the United States, the soft coal that came in there that did have the soot; but the evidence has been given by other witnesses, as well as my suggestion, that our coal does not have what they object to in the soft coal that they have been handling.

By Mr. Carruthers:

Q. How about Nova Scotia coal?

By the Chairman:

Q. I was going into that question of flues being made for hard coal particularly. I suppose your theory is that flues may be made smaller if they are to burn anthracite, domestic coal?—A. Yes.

Q. And that as a necessity you must make them larger for the burning of soft coal?—A. Yes.

By Mr. Garland (Bow River):

Q. The witness a moment ago with his hands indicated the size of a back draft of a kitchen range.—A. Yes.

Q. Something about that size, about 5½ or 6 inches wide by about 2½ inches high?—A. Something like that.

Q. I might inform the Committee that that is exactly the size of the back draft in the ranges we use in the west. It is almost uniform in every range. We never clean our flues or ranges more than once a year. We clean them every fall, when the hot firing season comes on. That is our experience with our Alberta coal. Do you know of any stoves that are made any different for your anthracite coal?—A. I am not familiar with all the makes but I happen to—

Q. Have you seen any of the flues in the west?—A. No. The only place I have seen them for burning soft coal is in England.

Q. It may be of some interest to say that since I came down here to Ottawa this year I have been doing most of the stoking and feeding of my own kitchen fire, and I shake it up in the morning and the drawpipe and everything is exactly the same as we use in the west. There is no difference at all.

Mr. O'CONNOR: How about the Old Country?

Mr. GARLAND (Bow River): I do not know about the Old Country.

The WITNESS: What kind of coal have you been using?

Mr. GARLAND (Bow River): What you call soft coal. It is not a soft coal. It is not a bituminous coal or soot coal. It is clear burning, practically no soot, no smoke coal.

The WITNESS: I said nothing about that.

Q. I want this differentiation quite clear. You have left a slight confusion in the minds of the Committee, and there is a danger it might be left in the evidence. There is no comparison between these coals. None whatever.

By Mr. Stutchbury:

Q. Is there now, any objection, so far as you are concerned, for the Alberta coal men to get their coal into Ontario? There is no objection to your dealers handling it?—A. Not a particle.

[Mr. J. F. Sowards.]

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Q. They would be pleased to handle it?—A. Yes, if we could get the people to take it. We would far rather leave the money in Canada.

Q. Might I make a remark here. The witness will know this, and it throws a good deal of light on the attitude of the dealers. Last week in Toronto there was a convention of fuel dealers, and our engineer who happened to be there, was kindly invited to give a talk. The next day a resolution was passed by the Ontario dealers memorializing the Government for a better freight rate on Alberta coal to Ontario points. I think this Committee ought to know that there is apparently no real conflict of interests between the dealers and Alberta. We appreciate very much that there was that kind of feeling.—A. Might I ask what that costs delivered to Toronto?

Q. It is prohibitive now. The freight rate would be \$12.70.

The WITNESS: What is the coal worth up there?

Mr. STUTCHBURY: That would be the size you would use—it would run about \$3.25 at the mine.

By Mr. Warner:

Q. I might make this statement, following up what our member for Bow River said in regard to the variety of stoves. We do not pay any attention to the kind of stoves we are getting in our country. Any stove we get can burn our coal. We have no trouble in that way, and I have a McClary range in my house, that I put there in 1912. We have never cleaned the flue or the pipes above the top of the stove. We have never cleaned them in all of that time, and burn coal from all the different mines that are handy to us there, so the difficulty that our witness has cited there with the other coal cannot possibly be a difficulty here, because we have never cleaned that flue. We have never cleaned the pipe even above the top of the oven in that stove in that time, since 1912. It is a McClary stove and I know they use a lot of them in this part of the country.

By the Chairman:

Q. When you were quoting the price of coke a few minutes ago, did you deal in coke last winter?—A. Yes. I handled a few carloads only.

Q. You are not prepared to say now that the price was as you quoted, \$18.00?—A. I asked them the other day. They said they sold it at \$18.00. The coke that was sold at \$20.00 was bought at high prices.

Q. It was American coke?—A. I would imagine so.

By the Chairman:

Q. What was the prevailing price of anthracite last winter?—A. \$16.50.

By Mr. Ross:

Q. What is your opinion in regard to controlling the price of coal? Has it anything to do with supply? The fuel controller sets the price.—A. He sets the price, yes. He bases it on the price charged at the mines by the big coal companies, not by the independent fellow. I think the way he arrived at our price was, he based it at \$8.50 at the mines. \$16.50 is a fair price, but there has been coal sold at \$20.00. There is coal bought at \$13.00 at the mines.

Q. What do you mean by the independent dealer?—A. That is some little fellow who, when the price gets good, he starts a little mine on his own farm, and the big independent fellow is the fellow that starts a little breaker of his own and sells coal and gets the high price. Then there are some large

independent companies. I believe there are one or two big companies that produce a lot. They call them independent, and the Government allows them to charge a higher price than the regular line fellows, that is, the American Government.

Q. That does not look fair?—A. No, but it has happened.

By Mr. Davis:

Q. Do I understand the witness to say the American Government controls the selling price at the mines?—A. The Inter-State Commerce law I think allowed the independent to charge 75 cents more than the straight line fellow.

By Mr. O'Connor:

Q. I suggested to the General I should put a couple of questions to you to clarify this. The large anthracite coal dealers of the United States are referred to in the trade as the "trust"?—A. Yes.

Q. You do not mean by that that there is a trust, to separate them from certain other people? As a matter of fact there is supposed to be rather a line of connection between the large coal operators, and you refer to those who produce the great bulk, about 85 per cent of the anthracite, as the "trust"? Outside of those who produce about 85 per cent there are a number of small dealers who produce about 15 per cent, but you are referring to the independents. There are quite a number of these independents?—A. Yes.

Q. And they are localized by representatives in New York?—A. Yes.

Q. The trust is rather localized in Pittsburgh and thereabouts?—A. Philadelphia, is it not?

Q. Philadelphia. Now, as a matter of fact, to which of these classes do you customarily compulsorily pay the highest price, to the trust or to the independent?—A. To the independent.

The CHAIRMAN: They are the trusts.

By Mr. O'Connor:

Q. It is the reverse order. What is the practice of the independents. Do they or do they not sell in periods of plenty?—A. Yes, they do. Not them all, the large independents.

Q. The system of the independent, so-called, is to accumulate coal awaiting the period of scarcity?—A. I suppose it is.

Q. You find the independents have coal when the trust have not got it?—A. Yes.

Q. Then the independents control what is commonly called the "spot grade," that is to say, when there is a scarcity of coal it has to be had regardless of the fixed price, you will find that coal in the possession of the independent?—A. They can generally give you a few cars.

Q. Indicating that they amass it awaiting a period of scarcity?—A. Yes.

Q. Your experience over a period of years is that customarily the independents are always able to secure a higher price than the normal?—A. Yes.

Q. Now the trust, so-called, must have a sort of a loose arrangement, because unanimously in April customarily they dropped the price in the last couple of years, 50 cents a ton in April?—A. The 1st of April.

Q. And then advance it 10 cents a month for the succeeding five months until it reaches the normal again?—A. Yes.

Q. That has been the unanimous custom of the so-called trust covering a period of years?—A. Yes.

Q. On the whole then, you get decided and better treatment from the trust than from the independents. Do those independents—I am going to use a

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strong word—gouge you when they can? Do they make you pay the high prices when they can?—A. Well, you do not buy from them except when you cannot help yourself.

Q. When they can?—A. You have to buy from the independent every little while. During the last two or three years we have had to pay 50 per cent of the flat price of coal, and we call it a 50 per cent independent, in order to get a decent supply.

Q. Customarily paying the independent higher prices? I am trying to work it out as to how it happens. You customarily have to pay the independent higher prices?—A. Yes.

Q. Of late you have had to buy a great deal from the independents?—A. A great deal. The same company that would sell you certain priced coal would sell you the independent and ship it as independent.

Q. These are jobbers and they buy from the others?—A. I do not know where they get it, but they know enough to charge 75 cents more anyway.

Q. Will you answer me another question. I think that discloses it from the dealer's standpoint, as far as anthracite is concerned, as to why they have to pay more for it some times than others. Is there something like that condition in the bituminous field, something like that condition of buccaneering and holding you up every little while?—A. The price changes so often; there are so many different qualities that you can get soft coal at, any price and all prices.

Q. I consider this a most important question which I forgot. You sometimes buy bituminous coal at ridiculously low prices.—A. You can buy lump coal at \$2.25 now.

Q. You buy it sometimes at \$1.50?—A. Not for some years.

Q. In 1922?—A. For a day or two it did come down.

Q. \$1.50, \$1.55, \$1.60?—A. It only lasted a few days.

Q. After a few months it had shot up to what?—A. \$5, \$6 and \$7.

Q. The same coal?—A. Yes.

Q. And that accounts to a certain extent for the tremendous variation in charge that you have to make to the consumer. These are fair questions to you.—A. It does not make any difference to us what we pay for it.

Q. You are satisfied with your little 50 cents, if you will get it?—A. That is all we want.

By the Chairman:

Q. Were Canadian dealers charged more for American coal than the American dealers, cutting out freight rates?—A. No, they did not charge any more. For instance, take the two places across the lake. I think coal was a dollar a ton cheaper on the other side than it was in our town. We paid a dollar a ton more freight. Ogdensburg was, I think, \$1.50 cheaper.

The CHAIRMAN: Any other questions?

By Mr. Ross:

Q. It would look to me as if controlling of price ties up the supply very often.—A. Yes. I think it was a mistake in the province of Ontario to have them set a price, because people could not get coal. If you had to sell coal at \$16.50, and you had to pay \$13 from some independent fellow, you were not going to lose three or four dollars by bringing coal to our town. That is just what happened. I think the price is still on, and if you could sell it for ten dollars, you could not sell it for less than sixteen. Is that right?

Mr. O'CONNOR: I don't know whether the price set was a maximum or a minimum.

WITNESS: I know two or three dealers that could have got in a lot of coal last winter but would not get it with the fixed price.

The CHAIRMAN: That is important. The scarcity of coal was due to the fact—

Mr. O'CONNOR: To some extent—

The CHAIRMAN: Perhaps that is the better way of putting it, to some extent, to the fact that the rate was controlled.—A. Yes. We could not charge more than \$16.50. Rather we could charge more this way, if Mr. Ellis was told that we paid more than \$8.50 at the mines and we showed him that. One dealer would have in coal at \$8.50, and you go and pay \$11, \$12 and \$13, you could not sell it at any price as long as coal was selling at \$16.50. If they knew it was going to be a long hard winter some might have taken a chance and brought it in and when others were sold out could have got their own price for it.

By Mr. O'Connor:

Q. Profit fixing instead of price fixing would have operated a little better but still unsatisfactorily?—A. Yes, that would be all right.

By Mr. Warner:

Q. All the witness's reckoning is on a cash basis all the way through?—A. Yes.

Q. In buying and selling?—A. Yes, we don't sell a ton of coal to anybody unless they have got the money. We quit that some four or five years ago. We had \$27,000 on the books, and I guess it is still there, most of it, and so we went in for cash.

Q. In a good many businesses there is some difference between cash and time prices?—A. I don't see why there should be, when you pay cash.

The CHAIRMAN: We thank you for your evidence.

WITNESS: If there is anything else I should be only too pleased to give it to you.

The CHAIRMAN: I have just shown to Mr. Sowards a certificate of character given to Alberta coal from C. M. Hawes of the Burton McLean Company of Winnipeg, and I would like to incorporate this in the minutes. The witness says he sees a difference now, that is, advertising does a whole lot.

The SECRETARY read the following statement:

"The following certificate as to the value of Alberta domestic coal as compared with Pennsylvania anthracite was recently received by Howard Stutchbury, Provincial Coal Commissioner, from C. M. Hawes of the Burton McLean Company, Winnipeg:

"I was a confirmed American hard coal user, but American hard coal and slate at a little better than \$20 a ton started me to do some thinking. The result was that I gave Alberta a trial and then got the shock of my life. Listen to this: I used to buy about 11 tons of American hard coal each year. This I shovelled into the furnace, getting a return of about thirteen tons of ashes and two tons of unburned coal which I could have sifted out if I wanted. But a man can't sift ashes and retain his self-respect. Sometimes the house was warm and sometimes we were not so lucky. Hard coal is very temperamental stuff, but we could nearly always get lots of heat if we waited five or six hours and had luck.

"Now I burn Alberta coal, about twelve to fourteen tons a year. I have, I would say, about a third of the ash I had with hard coal. If

[Mr. J. F. Sowards.]

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the furnace is properly tended we get heat, lots of it, and get it instantly any time we want it, without fuss and without prayer. I am not putting it too strongly when I say I would sooner pay twenty dollars a ton for good Alberta coal than I would for the same amount of American anthracite."

The CHAIRMAN: I suppose he is not a propagandist for your business and the West.

Mr. STUTCHBURY: No, that was in reply to a circular sent out by the Calgary Board of Trade and there were hundreds of letters of that kind, but that was particularly well written, that was why I used it.

Mr. FORRESTER: Mr. Stork here says he has used it in preference to anthracite.

Mr. STORK: I might say a word or two before the next witness goes on. In the matter of introducing Alberta coal into Ontario there are several factors that should be taken into consideration. I think you will find this, that in the Province of Ontario it has been the common practice to attach the stove to the chimney by the longest possible route. That is, they will run the smoke pipe all around the house in order to extract all the heat possible. That I think is a common practice and I think the size of the stove pipe also has a lot to do with the burning of the coal.

The CHAIRMAN: Would that not be in the country more than in the cities?

Mr. STORK: No, in the cities.

Mr. FORRESTER: In the country, too.

Mr. STORK: They have two sizes of stove pipe on the stove. You can use either a six inch or a seven inch stove pipe and I think that for soft coal a 7-inch pipe is preferable. You will find on all stoves, especially cooking stoves, the collar calls for 7-inch and it is quite a common practice to put a taper pipe and reduce the size from 7 to 6 and convey the 6-inch all around the house to the chimney. In British Columbia we use on our cooking stove a 7-inch stove pipe and we have the stove fairly close to the chimney, with four or five lengths of stove pipe. In burning soft coal you get the best results from that. I have used, for the last twenty-five years, nothing but soft coal in Alberta and British Columbia, and I can say, practically without any prejudice in the matter, that if I had to choose between buying a ton of hard coal and a ton of soft coal at the same price, I would prefer the soft coal.

The CHAIRMAN: Can you give us your reasons for it?

Mr. STORK: There is more heat to it, it burns better, and you get much quicker results. In Ontario here, I think the people have automatically got into the habit of using hard coal because they believe that it holds the fire all night in the stove. We can accomplish the same results with Alberta coal. I have no difficulty in keeping a fire all night in my stove, but in Ontario here people just acquired the habit and I think that in the use of Alberta coal or soft coal, it is largely a matter of prejudice. Personally, I would have been glad to have seen the Americans put an embargo on coal recently as was somewhat anticipated. It might possibly have caused some inconveniences in the East in regard to the shortage of coal but, in the long run, in the development of the coal business and the welfare of the people as a whole in keeping the money at home, it would have been a mighty good idea if the Americans had put an embargo on coal, and we would have used our own coal mines at home.

The CHAIRMAN: Absolutely.

[Mr. J. F. Sowards.]

Mr. ROSS: The hard coal must last longer in the Old Country and through France, where we were. The stove was always put right up against the wall. They use the fire only a short time. We keep our stoves away from it and run right across the room.

The CHAIRMAN: The climate is not so severe.

Mr. ROSS: Not so severe but there must be something to it.

Mr. STORK: I have often thought that the stove-makers in Canada don't follow up their stove business from a scientific standpoint. You have noticed in many houses in the East, especially in Ontario, where you have a leaky chimney. You will see chimneys leaking all down through the house, you see on the outside of the chimney what we call condensed smoke. That is due to the fact that the stove is so far away from the chimney that there is not sufficient heat in the fuel to carry the heated smoke to the top of the chimney. Whenever smoke becomes cool it will condense and it is due largely to the desire to extract the last unit of heat from the fuel that they attach to these stoves the long circuitous stretches of pipe. Combustion is better where you place the stove close enough to the chimney so that there is heat to the top of the chimney. A lot of our combustion and stove troubles, fuel troubles, and problems would, I think, be obviated if some person would take up the question of combustion and would issue a treatise on that, or if stove salesmen would undertake to educate the people who are starting in to use stoves. I think at this particular time, when we are embarking on a programme of endeavouring to educate the public to use what is practically a new brand of coal, that the question of combustion, the question of heating apparatus, should be thoroughly explained so that this test will not fall down.

The CHAIRMAN: I was going to suggest to you, General Ross, with regard to the matter of stoves and ranges in the Old Country, that they are not so much used for heat as they are for cooking.

Mr. ROSS: Sharp heat.

By Mr. Garland:

Q. I am in accord with all that Mr. Stork has said, excepting that there may be an impression left that there is a difference between 6-inch and 7-inch pipe in the burning of our Western coal.

The CHAIRMAN: I do not think you want to leave that impression.

Mr. GARLAND: I don't think so. He said soft coal. I use a 6-inch stove pipe.

W. E. CAMPBELL, Chief Traffic Officer of the Dominion Railway Commission, was then called and sworn.

The CHAIRMAN: Is Colonel Arthurs here?

Mr. FORRESTER: No, he is at the caucus.

The CHAIRMAN: I am glad to see General Ross is not there—has he left the Tory Party?

To the WITNESS: What is your business?—A. I am Chief Traffic Officer for the Board of Railway Commissioners.

Q. How long have you been in the employ of the Railway Commission?—A. About a year.

Q. This perhaps will be the most important witness we have because I think we have come to the conclusion that freight rates are at the bottom of the Canadian fuel supply for Canadian purposes. How long have you been in the employ of the Commission?—A. About a year.

[Mr. W. E. Campbell.]

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Q. And before that time?—A. I have been in railway service in connection with the traffic department for twenty-five years.

Q. And in that connection was your principal business the matter of rates?—A. Yes, sir.

The CHAIRMAN: I had in mind that Colonel Arthurs had made a special study of this freight rate business, and I was going to suggest that as Colonel Arthurs cannot get here this afternoon that we should adjourn until 9,30, in order to give him the lead on this subject, unless there is some other gentleman who would wish to take up this matter and ask the witness certain questions.

WITNESS: I would like to make a statement in order that there may be no misconception as to the character of the information I can give this Committee. I would like to suggest we are ready to furnish any information as to facts that we have available, rates or anything pertaining to the movement of traffic that comes under the jurisdiction of the Board, but, with all the numerous tariffs and rates from various points that there are, it is almost out of the question to come here saddled with the information that might be asked for from one quarter or another. Of course I don't know just exactly the nature of the information you want, but it might be that if we knew what you wanted, and prepared that in the way of a statement, it would be just as satisfactory as any other procedure.

Mr. WARNER: I think your suggestion, Mr. Chairman, is good, if Colonel Arthurs has been thinking along this line and has some particular questions. He lives at this end. We have talked a good deal from the other end and Colonel Arthurs lives down here in Ontario, and I think it would be a good suggestion if he should be here and put his questions. That would not, however, interfere with the witness giving a statement, but at the same time if he gives a statement it would be better for Colonel Arthurs to hear that statement, and let him question the witness this afternoon.

By Mr. GARLAND: I have every desire that Colonel Arthurs should secure all the evidence possible. No doubt he can get a typewritten copy of the statement, but I would suggest that we go ahead for a time. Some of us have gone to a little trouble in preparing a statement which we would like to put to the witness and get him to answer.

The CHAIRMAN: I am in your hands.

Mr. GARLAND: Well then, that being so, we have here prepared a statement showing the total cost of a trainload of coal over sixteen divisions from any average point of Alberta to Toronto. This statement is estimated, I may say, by an experienced railroad freight man who has been connected with one of our largest systems for a number of years. For obvious reasons he prefers that his name be not given unless it is absolutely necessary. He estimates:

| | | |
|--|----|--------|
| 16 engineers at \$12 | \$ | 192 00 |
| 16 firemen at \$8. | | 128 00 |
| 16 conductors at \$8 | | 128 00 |
| 32 crew at \$6 | | 192 00 |
| Add fifteen per cent for delays | | 96 00 |
| 100 per cent for despatching and supervision . . | | 736 00 |
| 50 section men at \$3 per day each division divided between fifteen trains, \$10 per train, 16 divi- sions | | 160 00 |
| 16 inspectors at \$5 | | 80 00 |
| 100 per cent for supervision | | 240 00 |
| 16 engine despatchers at \$5 | | 80 00 |

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|--|-----------|
| 192 tons of coal at \$7 per ton | 1,344 00 |
| 384,000 gallons of water at 15c per M. | 58 00 |
| Repairs to cars | 500 00 |
| General repairs to locomotives at \$10,000 per 100,- 000 miles, 2,200 miles | 220 00 |
| Running repairs | 220 00 |
| Train supplies | 200 00 |
| <hr/> | |
| Total | 4,574 00 |
| Add 50 per cent for general supervision | 2,287 00 |
| Allowance of 60 per cent for returning empties . . | 4,116 00 |
| <hr/> | |
| Total | 10,977 00 |

Approximately \$4.62 per ton.

At the rate of \$6.00 per ton the railway Company would receive \$14,250.00 per train.

I would like the Committee to take notice that many of these items give you a total cost of one train and yet that cost could be carried for many trains without any increase.

The CHAIRMAN: Are you asking the witness a question?

Mr. GARLAND: Yes, I am going to hand him this statement and ask him if it is a fair estimate of the approximate charges going to make up the cost of operating a train of 50 cars each having a capacity of 47½ tons or 2,375 tons?

WITNESS: Your question is one I am totally unable to answer for the reason that the question of movement of coal from Alberta to Ontario is new; I never heard of it moving or contemplating moving it until recently, and before I could express an opinion or the Board could it would be necessary that the matter be submitted to the Board and they call upon the railways and the shippers to appear before them, and have a regular investigation in connection with it. I could not express a word as regards this statement, sir. It is really the railways that primarily can tell you what they can haul coal for; and I might say that under the provisions of the Railway Act, and speaking in the large, the railway initiates ordinarily rates and the Board largely adjudicates upon questions relating to those rates. If there was an investigation or a complaint or something dealing with the rates—

By the CHAIRMAN: Do you think the Board of Railway Commissioners would deal with that question in detail if this Committee undertook to submit it to them?—A. I think it would be first up to the railways to tell the committee what they would make in the way of rates.

Q. Has not any individual the right to show a grievance before the Board of Railway Commissioners?—A. Yes; there could be a complaint to the Board against the rate that is now in effect.

Q. Suppose this committee made a complaint to the Board and said there was a grievance against the rates on western coal into this country, do you think that they would deal with it as a question of rates?—A. I think the Board would deal with any complaint; I think it would be compelled to deal with any complaint lodged in accordance with its rules.

By Mr. O'Connor:

Q. You have to act upon the basis of cost. If you went to the Railway Commission the Commission would not compel a railway company to carry for less than it is costing?—A. No; the railway would have to deal with the matter however on the fundamental rate making principles as long recognized by it.

Q. And the initial of that is cost?—A. Yes.

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Mr. GARLAND: I wish to make one remark before any questions are asked: no provision, you will find, is made here for interest on capital expense; specifically, for the reason that whether you are using your road or not you have to keep it up, and if during the summer months your whole line was idle you would still have that overhead and that interest to pay; possibly the wear and tear on the road would not be so great; but we show you here where the railways can make a profit of over fourteen thousand dollars per train load, that is not taking into consideration interest on capital investment.

Mr. FORRESTER: Why do you add 50 per cent for supervision?

Mr. GARLAND: The whole statement was prepared in the most liberal fashion to be quite sure we were within our figures.

Mr. FORRESTER: Is not that superfluous?

Mr. GARLAND: The Commission may rule it to be; I hope it will; but we wanted in making this statement to make it very liberally, so that we would know we would be on the outside anyhow.

Mr. DRUMMOND: Are those figures compiled on the basis that has been given?

Mr. GARLAND: These are figures prepared by an expert and checked by others.

Mr. DRUMMOND: A railroad man?

Mr. GARLAND: A railroad man for sixteen years.

Mr. DRUMMOND: Employed in the railroad service?

Mr. GARLAND: He was employed; he is not now.

The CHAIRMAN: What would you think of the suggestion that this committee frame some sort of resolution as a grievance to the Board of Railway Commissioners, submit this memorandum we have here, and suggest to them they investigate the whole business. Our grievance would be against the rates at present between the mines of Alberta and Toronto, or any point in Central Canada.

An Honourable Member:

Q. Is there any rate for Alberta coal to Toronto?

The CHAIRMAN: I understood from Mr. Garland it cost \$12.50 a ton.

Mr. GARLAND: To Ottawa it is over \$14; to Toronto it was estimated at \$12.50 a ton I think.

Mr. KNOX: Would not this same argument apply to any other commodity that was handled by the railways?

The CHAIRMAN: Absolutely.

Q. You put this memorandum in the hands of the witness, and he says he does not care to deal with it.

The WITNESS: I could not deal with it; it would be up to the railway to analyze that and verify it or otherwise.

The CHAIRMAN: And it would be up to this government for example, to appoint counsel and go before the Railway Commission, and as this is a national question I think they should do it and have an argument at an early date.

Mr. WARNER: The Senate Committee I understand have requested Sir Henry Thornton—I don't know whether they have the C. P. R.—to say what they can haul coal for, what they are willing to undertake to haul coal for from Alberta, and this is hardly in the shape of a grievance yet. It is not far enough

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along for that. I think it would be up to this committee to ask the railways first to make a statement what they could do, rather than for us to file a grievance with the Railway Commission; that is the way it looks to me.

The CHAIRMAN: Are there any questions as to facts which you would like to ask this witness? He does not care to give opinions, and I do not blame him, because he is in the service of the Railway Commission, which is a court.

Q. Do you know anything about the freight rates on coal for example, from Drumheller mines in Alberta to Toronto?—A. I have the tariff here with the rates, and I could just quote the rates as a matter of record. These rates were published recently. Ottawa and Toronto, the same to both points.

From Evansburg, Alberta, 65 cents per 100 pounds.

From Foothills, Alberta, 66 cents per 100 pounds.

From Harlech, Alberta, 67½ cents per 100 pounds.

From Mountain Park, 66 cents per 100 pounds.

From Rosedale, 63½ cents per 100 pounds.

From Saunders, 67 cents per 100 pounds.

From Sterco, 66 cents per 100 pounds.

From Wayne, 63½ cents per 100 pounds.

From Drumheller, 63½ cents per 100 pounds.

These are the only rates I ever saw published.

Q. And that refers to both the National Railways and the C. P. R.?—

A. The C. P. R. do not originate coal at all these points, but where they do they are the same.

Q. Have you any schedule of rates from the Maritime provinces, either the Minto Mines or the coal mines of Cape Breton to Toronto by rail?—A. There are no special rates published; that is coal is usually moved under what is known as a commodity rate, and the movement of coal from the Nova Scotia mines has not been normally beyond Montreal and Ottawa; the result is there is no commodity coal rate to-day published from the Nova Scotia mines to Toronto.

Q. Would you give us the Montreal rate and the Ottawa rate?—A. From Springhill Junction to Montreal it is \$3.60 per net ton.

Q. That is 2,000 pounds?—A. Yes. From Sydney Mines to Montreal \$4.50 per net ton. From Stellarton to Montreal \$3.90. Those are typical shipping points.

Q. Have you Sydney?—A. Just the same as Sydney Mines.

Q. It is the same from Sydney Mines?—A. Yes.

Q. Do you know anything of the water transportation from Sydney to Montreal?—A. No, sir.

Q. Do you know anything about a special rate that was granted from Minto Mines to Ottawa—the Minto Mines is up in New Brunswick—by the C. P. R.?—A. There was a commodity rate published from Minto to Ottawa. I could not for the moment give you the rate.

Q. Will you get us that information?—A. Yes, sir.

By Mr. Drummond:

Q. Have you not got a commodity rate from Montreal to Toronto?—A. There is a mileage rate from Montreal to Toronto.

Q. Could you give us that?—A. I have not that here. I could get it.

Q. That added to the \$4.60 would give us the rate?—A. It would give you the rate; but if there was a movement to Toronto under rate making principles—

Q. You could give us the rate now?—A. Yes, but I imagine that would not necessarily be the rate that would be published if the traffic was moving.

Q. It will give us a basis to work on anyway.

The CHAIRMAN: Yes.

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By Mr. Garland:

Q. What is it from Lethbridge to Toronto?—A. I don't think they have published any from Lethbridge.

Q. Is that a C. P. R. point?—A. Yes.

Q. Entirely C. P. R.?—A. Yes.

Q. The C. P. R. have not published a rate?—A. I do not think so.

Q. Can you tell why?—A. No, I would not be able to tell why.

By Mr. Shaw:

Q. I suppose no traffic moving?—A. I would say offhand that Lethbridge and Drumheller are usually on the same basis and going into the realm of speculation I imagine if there was a movement from Lethbridge to Toronto it would probably be on the same basis as from Drumheller; the rates from those two points to Winnipeg are the same.

The CHAIRMAN: Have you any questions to ask, Mr. Stutchbury?

Mr. STUTCHBURY: So far, there is no complaint on the part of either the Alberta Government or the Alberta operators as to rates. A request has gone in from the Alberta Government for a rate, and I frankly would not be inclined, so far as I am concerned, to go to the Railway Commission until the Railway Company have given us their reply on the matter.

Mr. GARLAND: I do not know that I like to see that statement go out in that exact form, that there is no complaint yet; it is simply a case of we do not know whether there will be or not.

The CHAIRMAN: I think the public will understand what Mr. Stutchbury means by that.

Mr. STUTCHBURY: We do not know.

Mr. WARNER: We do not know what their answer will be yet.

By the Chairman:

Q. Have you gone into the possibilities of a cheaper rate from the coal mines both east and west into central Canada?—A. No sir.

Q. Could you give us the name of a witness attached to your commission who has made a study of this matter?—A. I am not aware that the Board have studied it, because it is not a question that has come before them.

Q. You just take up questions which come before you and investigate them?—A. Speaking in the large, yes.

Q. Have you any suggestions to make as to a competent witness either in the employ of the C. P. R. or the Canadian National Railways who could enlighten the committee along freight rates and the possibilities of lower rates?—A. Based on the newspaper reports that Sir Henry Thornton, and I suppose the C. P. R. are considering the question of rates from Alberta to Ontario, I think it only natural to infer that their traffic officials have been giving close study to the question within the last two or three weeks; and of course as far as the C. P. R. is concerned I imagine that the official who would be fully conversant with it and who worked on it would be Mr. Lannigan, the General Freight Traffic Manager; and the corresponding official in the Canadian National Railway is Mr. Martin of Montreal.

By Mr. O'Connor:

Q. Is it possible to answer a question like this: how much cost does sixty additional miles of railway haul under normal conditions add to a rate existing, that is if you add sixty miles more?—A. In a long haul?

[Mr. W. E. Campbell.]

Q. Yes, a haul of a thousand or more miles?—A. Sometimes it would be ignored entirely, and other times it might not be.

Q. The actual cost, could you tell me what it will be supposing they did not ignore it?—A. No sir, I could not in a general way.

Q. Would it be insignificant?—A. I think it would depend on the situation; for example if your original mileage now at say one terminal or divisional point—

Q. I will have to give the facts; on the Canadian Northern Railway line in Western Alberta there is a very large deposit of very excellent coal, it is 60 miles from the main line; there is a movement to build that 60 miles of line. Supposing the 60 miles of line were built, it would be a downhill haul, mostly, from where the coal is situate to the main line, and presenting no extraordinary difficulties; now, supposing we had a rate from a point of contact on the main line of say \$6 a ton between Ottawa and the point near which this coal is, and supposing that railway were built and in operation—you will have to consider this built having in mind the taking out of the coal, so that you will have to add something to the rate—what would be the normal rate for 60 miles under the circumstances—A. Well, in connection with the rates between eastern and western Canada, the territory in both the east and west is grouped. For example, your rate from Montreal and Toronto and Windsor to Edmonton is exactly the same. All this territory, Montreal and west, is one big blanket. There is a smaller group in the west at destination points, and it may be that you are speaking of moving coal from western to eastern Canada. We find quite a large blanket would be subject to the same rate.

Q. Let me put it to you as it appears to me. This would be good railway business. Would it not, suppose you could add to your main line traffic many thousands of tons of coal per day over a 60 mile spur reaching the main line, it might pay the main line to even carry at a lower rate over 60 miles, might it not?—A. They may so consider it, if there was not—

Q. Is there any reason why any extraordinary extra charge should be made for carrying it over the new 60 miles? There is not any reason why there should be any appreciable difference between the rate now existing between say Bruele and Ottawa when you come to get an immense accretion to the carriage on the main line?—A. Off-hand I should not think there would be any appreciable difference.

Q. There might be no difference. It might be good business to make a low rate in order to induce traffic on the main line. That would seem to be good business?—A. Sometimes they do make rates having in mind all those conditions.

Q. Is it not a fact that under some circumstances, points from 400 to 500 miles, main line points between say, Montreal and Vancouver, that freight is carried as cheaply from Montreal to Vancouver as it would be to Edmonton or Calgary, 400, 500, 600 or 700 miles shorter distance, that is, under the long haul?—A. In many instances, yes.

Q. That is a fact that that is done?—A. On some commodities yes.

Q. That is what Mr. O'Connor was talking about, under the long haul. 60 miles would not make any material difference, the way freight rates are generally based?—A. No, sir.

Mr. O'CONNOR: You understand what I am driving at? It is the high class coal.

The CHAIRMAN: I think we will ask this witness to come back on Thursday morning at 11 o'clock. Would that be inconvenient or convenient for you?

The WITNESS: All right.

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The CHAIRMAN: Now, I was going to suggest that Mr. Martin and Mr. Lanigan be called. Do you think it would interfere in any way with the decision that they must give as to the rates?

Mr. STUTCHBURY: I was just wondering whether it might.

Mr. SHAW: Why not ask them to come subject to only having reached a conclusion in connection with the consideration of the problem?

The CHAIRMAN: That might be. I would not like to interfere with their decision. If they come here we might ask them questions which might embarrass them in their final decision.

Mr. STUTCHBURY: They are keenly interested in trying to find a solution.

The CHAIRMAN: I had their names from Mr. Carvell, the Chairman of the Railway Commission some time ago, and perhaps we had better let them go for the time being.

Mr. SHAW: Why not write them yourself and state that the Committee desire to hear them but only in the event of their having arrived at a conclusion in connection with their deliberations.

The CHAIRMAN: If that is satisfactory to the Committee we will do that. We will have on Thursday morning Mr. Cox from Toronto, who is President of the W. A. Cox Coal Company.

The Committee adjourned until Thursday, April 19, 1923, at 11 o'clock a.m.

HOUSE OF COMMONS,

COMMITTEE ROOM 436,

THURSDAY, April 19, 1923.

The Select Standing Committee on Mines and Minerals met at 11 a.m., the Chairman, Mr. Carroll, presiding.

W. H. Cox, called and sworn.

By the Chairman:

Q. What is your business, Mr. Cox?—A. Coal business.

Q. A coal dealer, from what city or town?—A. Toronto.

Q. How long have you been in that business?—A. Twenty-nine years.

Q. And usually you get your supply of coal from where?—A. From the United States.

Q. Both hard and soft?—A. Yes.

The CHAIRMAN: You might go ahead, Mr. Spence, and ask any questions that you have to.

Mr. SPENCE: I thought, Mr. Cox, if he has prepared a statement, might go ahead and make it the same as other witnesses.

By the Chairman:

Q. Have you any statement to make regarding the fuel supply? Give us an idea on rates, freights, and so on.—A. I could make a general statement, but it might not be what you want. It might be better to answer questions.

Q. Can you make a general statement as to source of supply, rates, cost, and that sort of thing?—A. Is it anthracite you have reference to, or bituminous?

Q. You deal in both?—A. Yes.

Q. Give us a general statement on both.—A. It is coal for household use you have in mind, not for steam plants?

Q. Yes.—A. Well, generally, the householder in Ontario, it is Ontario that I am in touch with, of course, asks for anthracite because we have been accustomed to burning it, and it is so very satisfactory as compared with bituminous. The anthracite coal is controlled by a number of companies, who are practically controlled or owned by several railroads in the United States. They have the bulk of the coal. Outside of that there are some operating companies, called independent companies. The line companies have upwards of 75 per cent of the entire output, and the independents in the neighbourhood of 25 per cent.

By Mr. Garland:

Q. What is that again?—A. I say, the line companies, the large operating companies called line companies, control about 75 per cent of the output.

Q. That is what is popularly known as the trust?—A. I have never heard them called the Trust—they are line companies.

Q. They form a sort of trust or combination?—A. They say not. They would not plead guilty to that.

Q. What is the percentage again?—A. About 75 per cent.

Q. And the independent?—A. The balance, 25 per cent. Now the line companies are the larger operators. Their costs are less than the independents, and their prices to the retail dealers have been more in accordance with their costs, and consequently, considerably lower than the independents have been selling coal at. The dealers, naturally, try to get their supplies from the line companies, but they did not have very good success in Ontario through last winter, outside of a number of large dealers in large centres. The line companies do not cater to the small dealer trade generally. That trade is handled through the wholesalers very largely. The smaller dealers in the smaller towns have to look to the wholesalers for their supplies, because they have no other source, not being able to make connection with the line companies, and not being in touch with the independents. The independents have been charging the wholesaler prices several dollars a ton in excess of the prices fixed by the line companies, that is, through the conditions that prevailed last year. That is not an ordinary condition. The line companies' prices to the dealers run from about \$8 to \$8.50 at the mines, per gross ton. The independent prices run from \$9.25 up to as high a figure as they could get, almost. The larger of the independents, and the better of them, fix a price.

By Mr. Knox:

Q. What is meant by the gross ton?—A. 2,240 pounds.

By Mr. Spence:

Q. That is what we thought, only we wanted to be sure.

By Mr. Garland:

Q. You were saying the larger independents—A. —fixed a price at \$9.25, although that price was not available in Ontario to any great extent. They did fix a price for coal at home, but it did not apply to us, to a very great extent. We paid in excess of that. We had to get coal, and we paid as high as \$12.50; in one or two cases we paid as high as \$13 at the mines for coal.

By Mr. Warner:

Q. Then would the freight be added on to that. Or would that be the price laid down in Toronto?—A. That would be at the mines. I am talking about mine prices and gross tons. So there was all that spread between the prices of the line companies, from \$8 to \$8.50 a ton as high as \$12.50 a ton, and

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in some cases more than that, but that did not cut very much figure. \$12.50 was practically the maximum of the independents.

Q. Does the witness know, or has he an idea, why it was harder to get coal from the line companies this year than before?—A. In accordance with their production they distributed their coal pretty much as they had been doing for some years past, some of the line companies, at least, have been gradually dropping out the smaller retailer in the smaller places, for reasons that are easily understood. In the smaller places, the demand is for the chestnut size and the stove size, and that is practically all. They don't take egg, or the broken or grate coal, very little pea coal, and none of the steam sizes. And in preparing the coal, a good deal of that gets into it, and the small places take none of that. They have no pea coal, very little egg coal, and no grate coal, and their demand is for chestnut and stove. The operating companies have to mine their coal as they reach it, and they naturally sell to those who can buy from them the whole range, the run of the workings, and it is for that reason largely, or to some extent, that the smaller dealers in the towns cannot get their supplies from the line companies. Further than that, their credit is not firmly established, and the line companies do not want to take any chance. So they are letting the small dealers go, to a certain extent, and that is where the wholesaler comes in. He buys from the mine, taking their full range of sizes, and he finds a market for all sizes, and is able to give the chestnut and stove to the small dealers throughout the country.

Q. There is no effort, on the part of the line companies, to prevent people buying from the independent companies?—A. Oh, no, none whatever, every company looks after their business in their own way, they don't bother about the other fellow at all, they have enough worries of their own.

Q. You were speaking about people who had got used to the anthracite coal. I think we have perhaps, had the same reason given before, but I might ask you what difficulties you find in selling the soft coal, instead of the hard coal, to those who are used to using the hard coal?—A. There is a wide difference in price, and unless hard coal is not available, there is no reason why the householder should buy the bituminous coal, which is not so satisfactory, which gives more trouble, and with which there is more or less dirt, and all the other inconveniences. Hard coal is, of course, the ideal fuel for the household, when it is available at a reasonable price.

Q. Do you know anything about the use of the Alberta coal?—A. Nothing very much. I have heard a little about it lately, and I heard a talk by Mr. Pratt, the engineer from Alberta, who is in Toronto at the present time demonstrating the burning of some Alberta coal there.

Q. You have the idea that some difficulty would prevail in the use of Alberta coal?—A. The Alberta coal is a bituminous coal. It is moderately high in volatile, and it is volatile that makes smoke and dirt, and all the rest of it. It is very low in heat units. We would not regard it as a high grade coal at all in comparison with the Pennsylvania article.

Q. How would it compare with the soft coal that you have been getting from the other side?—A. We go a great deal by the heat units. The Alberta coal, according to the figures that have been furnished to me, that Mr. Pratt has here, and that the Committee of Alberta operators has furnished to us, shows from 11,000 to 12,300 heat units, as compared with the Pennsylvania coal of about 13,500 up to 15,000 heat units, and so I would regard Alberta coal as a low-grade coal in comparison.

Q. Have you any knowledge as to the result of the tests that have been made?—A. Well, of course, the tests do not signify very much. Any bitumin-

[Mr. W. H. Cox.]

ous coal will burn and they have been demonstrating the fact that Alberta coal will burn. It certainly will burn. You cannot get away from the fact, though, that it is a high volatile coal, and that it is the volatile matter that makes the smoke and dirt, and that is the thing we want to escape.

Q. Would people who use it, and are satisfied with it, be a good test, from the dealer's standpoint?—A. It all depends if the anthracite coal was available at even price. I cannot conceive it possible that they would use the Alberta coal in preference to the anthracite coal at even prices. There is such a wide difference in the fuel value of the two, and such a wide difference in the trouble that the one would give to get the best results from it. Mr. Pratt is trying to demonstrate in Toronto that if the coal is burned in certain ways, that better combustion will result, and therefore a greater heating value from the coal out of comparison with the chemical analysis that he furnishes.

Q. From the dealer's standpoint you would consider that if the people were satisfied with it, it would be a better test than the scientific analysis and test in a scientific way.—A. Yes, if people were satisfied with it, certainly the dealers would want to give it to them.

By the Chairman:

Q. I am afraid they will have to be before long.—A. Well, we hope so, but really, the Alberta proposition is just a beautiful dream. It would be a delightful thing if we could bring Alberta coal into Ontario.

Q. You think it is a dream?—A. Oh, absolutely, there is no question about it.

Q. Well, dreams sometimes come true.—A. The transportation of coal 2,000 miles or more if you know anything at all about railway conditions, is a physical impossibility in the winter time. Even bringing coal from West Virginia is one. We bring the Pocohontas coal, and other high-grade coal, from West Virginia. In the winter time, our experience has been it takes a month to two months, or more, to bring it from West Virginia into Toronto, owing to the weather conditions, and all the rest of that. They would have to start it early in the fall, to get it to Toronto by the end of winter. The physical conditions would make it impossible under present conditions, unless they could find some other means of transportation. It would be an awfully nice thing if we could have it.

Q. Are you aware that this question which you call impossible is under observation by the different railways at the present time?—A. Oh, yes.

Q. They do not look on it as an impossible proposition?—A. I don't think they are tackling it seriously.

Q. You think not? You think it is a matter of playing with it?—A. Here is what is established. The cost of transporting coal is actually half a cent per ton per mile, in the United States and central parts of Canada. It certainly would not be less than that from Alberta to Toronto, and with a distance of 2,200 miles, it would bring the cost of transportation to over \$11 a ton, and they are asking about \$5 a ton at the mines for their coal, and that is why I say it is a dream.

By Mr Warner:

Q. Are you aware that they are trying to work out a special rate in a time of the year when the railway equipment is not busy, and that there have been statements put in, in our evidence here, that, even below a \$6 rate, would be profitable to the railroads?—A. I don't think the railroads have made that statement. It would seem to me the right people to get that statement from is the railway, they would know. It is an established fact that it costs half a cent a ton, a mile, to transport coal.

[Mr. W. H. Cox.]

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By Mr. Garland:

Q. In train lots?—A. Yes.

Q. On long haul?—A. In hauls of 300 or 400 miles. I have dealt to some extent with the anthracite. If you like, I will now go to—

By the Chairman:

Q. Before you leave that, there was a question, at the last time we had a meeting, regarding the time when hard American coal was introduced into this country. Have you any recollection?—A. No, not exactly. Somewhere about 50 years ago.

Q. Do you know anything of the trouble they had in getting that coal trade established in this country?—A. No.

Q. They had trouble in persuading them to use it in the United States for some years?—A. Absolutely.

Q. And perhaps the thing you see impossible in getting Alberta coal, seemed to the people of fifty years ago just as impossible in regard to American coal?—A. I hope it will develop that way.

Q. It may.—A. I hope they will find some way of overcoming the difficulty.

By Mr. Warner:

Q. Is there a feeling among the dealers that is not friendly to the handling of the Canadian coal, either East or West?—A. No, the reverse is the case. It would delight the dealers very much if we could have a Canadian coal that we could put on our markets in competition with the American coal. That is what they are hoping for, and they are hoping that there might be some coal up in the Sudbury district, and that the Government will investigate that, and determine whether there is coal there.

Q. They have a rate now in existence going from our mines to the West. If that same rate was put in for train lots to Toronto, it would deliver the coal there at \$8.—A. That would be very nice.

Q. Well, would it be possible to handle it with that amount of freight per ton?—A. It would not sell in competition with the anthracite, it might sell in competition with semi-bituminous.

Q. Would it, at \$6?—A. \$6 and the mine cost \$5 makes \$11, no, it would not sell in competition with anthracite on that basis.

By Mr. Garland:

Q. I think the mine cost there is put a little high. Is the witness aware that Alberta coal is selling on that basis, in competition with anthracite, and displacing anthracite in Winnipeg.

By the Chairman:

Q. And it put the American coal out of business?—A. I don't know enough about it, to answer that question, except that in a general conversation it was stated that the American anthracite was not available last year, and Alberta coal filled the bill.

Mr. GARLAND: And for some years previously? We have been working on the Winnipeg market and have totally displaced American, and on the price basis you have just mentioned.

By Mr. Warner:

Q. I think one statement of the witness, Mr. Chairman, should be corrected. I think he has put the \$5 price on coal at the mines too high. I think the \$5 is too high?—A. It is the price that has been quoted to us from Alberta.

[Mr. W. H. Cox.]

By Mr. Spence:

Q. I think one of the witnesses said that it was from \$5 to \$6.50?—A. Yes; \$5 was the quotation to us.

By Mr. Garland:

Q. Yes, but that is at the present time, with a low output and high overhead. With increased production the witnesses were under the impression that that price would come down.

The CHAIRMAN: When you get the cheaper cost of mining.

Mr. GARLAND: Yes.

By Mr. Warner:

Q. We can buy all the coal we wish, and the best coal we can get in our part of the country at an outside price of \$4 per ton at the mine. Many of the mines load coal there, they have side tracks and load the coal there; I am not positive as to what it would go out at in carload lots, as I have not had an opportunity to do that, but I know that we can buy all we wish at \$4 at the outside.

Mr. SPENCE: And do you haul it yourself?

Mr. WARNER: Yes, haul it ourselves. Just what the carload rate would be I do not know, but I would think it would be less than the waggon load rate.

The WITNESS: Yes, it stands to reason that the cost per ton would be less, but that is about the price we were quoted for selected coal such as they would send here.

The CHAIRMAN: Mr. O'Connor, have you any questions that you wish to ask, to bring out anything before this Committee?

Mr. O'CONNOR: I do not think so just now. I may wish to put some after the members of the Committee are through.

The CHAIRMAN: It may be too late then.

By Mr. O'Connor:

Q. Then I will go on now. Something the witness said a few minutes ago about the smokiness of bituminous coal and the difficulty of getting people to take it for that reason, struck me. He spoke about the gas content. Suppose the gas content of the coal were, as this Alberta gas content is, as I understand it, largely carbonhydrate, that is a carbon gas, instead of nitrogen gas, what would you say about the smoky quality of coal like that?—A. I suppose, as I said before, the combustion of that would be better.

Q. And the carbon would not smoke, would it?—A. No, there would be better combustion.

Q. It depends upon the ultimate analysis of the gas in the coal, whether it is a smoky coal or not, does it not?—A. I suppose so.

Q. So it is not all gassy coals that smoke?—A. Well, of course, I do not know enough about that, I have had no experience whatever. Volatile matter—

Q. Have you had an ultimate analysis of any coal there; I do not mean the approximate analysis, have you an analysis dividing it into sulphur, nitrogen, and hydrogen?—A. No, just the moisture, volatile, fixed carbon, ash and heat units.

Q. That is just the preliminary analysis, it would not give you the smokiness from that at all, as I understand it.

Q. Mr. GARLAND: The witness, then, I understand—

The CHAIRMAN: Just a moment, Mr. Garland; perhaps there are further questions.

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By Mr. O'Connor:

Q. Another thing I wanted to ask with respect to, I issued a report in 1917, which I think I shall put in here this morning, on the anthracite industry in Canada up to 1917. Are you familiar with it?—A. Yes.

Q. Is it a pretty fair recital of the conditions?—A. Yes, I think so.

Q. Up to then?—A. Yes.

Q. In what respect have they changed, since I presume your overheads have become greater?—A. No, I think the conditions are pretty similar.

Q. Would the statement in this report be applicable now?—A. I have not gone over them lately.

Q. Look up the Toronto section and see. I just want to get a statement as to how the conditions have changed.—A. I think during the war conditions were much the same as they have been.

Q. I think your costs would have run up since then, considerably. Certainly, your initial cost of the article would run up.—A. This \$2.30 freight is up about 100 per cent a ton; that is now \$3.28, as against \$2.30.

Q. Compare the conditions of the present day with those of 1917, then the Committee will have something to work on.—A. This f.o.b. mine cost is for bituminous coal.

Q. No, it is all intended to be anthracite. That is all anthracite.—A. You have costs, \$3.29, \$3.32. We have not bought any coal down there at that rate for a great many years.

Q. You bought it then at that price, that is what I am suggesting to you, that your memory was wrong, and that conditions have very materially changed.—A. Are you not mistaken as to this being anthracite?

Q. Yes, those are all anthracite prices.—A. I would not care to answer—

Q. My idea is that the conditions have totally changed since 1917, and I wanted to bring out—

The CHAIRMAN: In what respect?

Mr. O'CONNOR: I asked the witness to what extent conditions have changed since 1917, and he said, "Not materially". I think they have changed materially all along the line.

The WITNESS: Yes, if your figures are correct, but I cannot believe that we bought coal for \$3.32 at the mines in 1917.

By Mr. O'Connor:

Q. You can look right through that book, and see all the prices.—A. Of course, the average cost for last year would be about three times that anyway, and the freight rate would be up \$1 a ton to the border, and the freight rate then from the border to Toronto, taking Toronto as a central point, the freight rate which was about 60 cents a ton then is \$1.15 at the present time, so that is nearly double, so there would be practically no comparison then.

Q. In a rough way, your receiving costs and overhead would be higher now?—A. Yes.

Q. About how much higher?—A. I could not say off hand.

Q. I mean a rough percentage, we are not trying to get at profits or anything like that, I am trying to assist the Alberta men to discover what they have to compete against. You see what I am driving at, I want to see how your costs will compare, in competition with anthracite.—A. Without going into it fully, I would not really like to give it.

Q. Even a rough percentage?—A. No. These figures surprise me, though.

Q. They seem like a dream now?—A. They seem incredible, they certainly do.

By Mr. Spence:

Q. You would be able to give the Committee, when you get home, the price you paid at that time?—A. Yes, I can look up these prices, the prices we were paying.

By Mr. O'Connor:—

Q. These are derived from 250 coal dealers, the average price, and the Toronto price where it is given is the average price paid by the Toronto coal dealers.

Q. Of course that must be correct, then.

By the Chairman:

Q. The point you want to establish, Mr. O'Connor, is that the cost has increased 300 per cent?

By Mr. O'Connor:

Q. Yes, that freight has increased to an arbitrary amount of more than \$1 a ton.—A. Yes, to the border, and then double from the border to Toronto.

Q. That the cost to the merchant, which in 1916 was \$1.60, that is his outlay in receiving and overhead, and that sort of thing, has gone up, and at that time you say the average net profit was only 26 cents per ton in Toronto, in 1916?—A. Yes.

Q. You would have run down pretty fine; I suppose it would be hardly fair for me to ask if you would be satisfied with that now?—A. We would not be, we would not do it.

By Mr. Garland:

Q. Mr. Chairman, the witness, I take it, in answer to Mr. O'Connor here, stated that he was presupposing the smoky qualities of the Alberta coal because of the analysis he read.—A. Yes.

Q. You have no practical knowledge yourself?—A. No, sir.

Q. Never handled it?—A. No.

By Mr. O'Connor:

Q. You would see instantly that if you could conceive that gas to be all carbon gas.—A. Yes, if it would all be consumed it would do away with the smoky character of it.

Q. And if the person burning it so arranged as to give good combustion to the very oily gas, the smokiness would be very considerably reduced?—A. Yes, but these Alberta people must bear in mind that there are low volatile coals in the United States being used by wholesalers in Ontario, and they burn without any considerable smoke, and have no considerable dirt, and the Alberta coal would probably have to compete with these coals, which are being sold in Toronto to-day, delivered to the householder, for less than \$12 a ton.

Q. You mean cannel coal?—A. The smokeless coals of West Virginia and Pennsylvania, such as the Pocohontas coal, and the New River coal, and the Miller vein coals generally from Pennsylvania.

Q. Have you in your mind roughly the analysis of these coals?—A. Yes.

Q. What is the fixed carbon in them?—A. The fixed carbon of the Pocohontas coal is 15 per cent or 16 per cent. No, I am mistaken there, the fixed carbon is upwards of 60 per cent. The volatile matter is 15 per cent to 16 per cent.

Q. You are not speaking of a bituminous coal at all?—A. No, I am speaking of the Pocohontas bituminous coal.

Q. Yes, but in the grand classes it would be anthracite or bituminous, but we put it into the semi-bituminous class, because of its quotient of four which you get?—A. It is not so classed.

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Q. Scientifically it is classed as that.—A. Perhaps so, but it is regarded as a bituminous coal, and then there is Miller vein in Pennsylvania that is used very largely in Toronto, there is no other coal of that kind that is used there at all.

By Mr. Warner:

Q. You are judging all soft bituminous coals by that which you have handled from Virginia?—A. Yes, and Pennsylvania.

By Mr. O'Connor:

Q. I have another very important question. Supposing Canada could deliver to you a coal of 76 carbon, and 12 per cent to 15 per cent of volatile matter, that coal would not have any difficulty in displacing United States coal, with an ash content of three or less?—A. No, that certainly would be very desirable.

Q. Superior to anything you have received in late years from the United States?—A. Yes, I think so.

Q. And with tremendous heat units, necessarily on account of the low ash?—A. Yes.

Q. Now, the Alberta people have a coal of that kind to offer, and perhaps you will tell us what you can do with that?—A. There is a practically unlimited field, if they can bring it here at anything like a reasonable price.

By Mr. Warner:

Q. At what time of the year is most of the stock of coal laid in by the trade here in Ontario, the general trade, not the city trade where you are, but the general purchase of coal, at what time of the year?—A. It does not vary very much; we start right in in the month of April, and the purchases run right along through the year and vary very little month by month. That is the general practice.

Q. If a coal could be sent down from Alberta, during May, June, and July, would the people be likely, if the coal were satisfactory, would they be likely to stock up at that time of the year?—A. If they knew the coal, and were satisfied it was what they wanted, they would likely buy it in the spring, particularly if there was likely to be difficulty in getting it later on. That is the way they do it, but they do not take readily to a new coal, they feel it out very carefully.

By Mr. Garland:

Q. Mr. Chairman, the witness does not, therefore, want his statement to remain uncorrected, that simply because the Alberta coal has a high volatile content it is necessarily very very smoky.—A. No, in view of what you say, I correct that.

Q. Taking the question of the heating units, you presuppose there again, that simply because of the analysis showing a greater number of British Terminal Units in the anthracite, that therefore the Alberta coal is lower in heating quality?—A. On the face of it it appears so, but I can quite appreciate that we might get more complete combustion from the Alberta coal, and in that way overcome the disadvantage.

Q. And, therefore, that, in the hands of inexperienced and non-scientific stokers, such as the ordinary householder, one would possibly get just as good service and heat from the Alberta coal as from the anthracite?—A. I would be surprised if that would be the case, but still, I do not know.

Q. Would you be surprised if you knew that was the experience in Winnipeg?—A. It would surprise me, but of course, I know nothing about it.

[Mr. W. H. Cox.]

Q. It does not necessarily follow that because of high British Thermal Units, the heating quality would necessarily be higher than one with a lower B.T.U.?—A. If you can get more complete combustion with the one, of course that would help offset the other.

Q. That is the point.—A. That is just the point to be determined. I do not know anything about that.

Q. You referred in the earlier part of your statement to the independents and the line companies. A witness the other day swore that the independents closed their mines during periods of low demand and refused to supply the requirements of the dealers, holding their stock until the price went up. When the demand became great, they supplied the dealer at their own price, practically; do you think that is true?—A. It is absolutely untrue; any person who said that did not know what he was talking about.

Q. What has been your experience with the independents?—A. They operate their mines every day of the year, generally they sell their coal day by day as it is produced, they have no storage plant, the coal is not put into storage.

Q. You yourself gave evidence, I think, in your statement, that you were charged a higher price by the independents than by the line companies.—A. Yes, they sell in accordance with market conditions, a good many of them get all they can get for their coal.

Q. Would you not call that taking an advantage of the dealer?—A. They take advantage of the market, that is, a lot of them do.

Q. More, say, than the line companies?—A. Yes.

Mr. O'CONNOR: I think the witness is right, the witness the other day did not say they stored their coal, he said it looked that way, that is all.

Mr. GARLAND: It is very much the same thing.

The WITNESS: The explanation of that is this, that if a dealer goes down into the anthracite region looking for coal, and outbids somebody else, he could probably pick up some coal. Just as an illustration, one of our customers lived in a small place outside of Toronto, and we were supplying coal to him and charging him \$13.25 at the mines. He did not like paying that, and we sympathized with him, and he went down into the anthracite field and bought some coal down there and came back and told me what he had paid for it. He said he got about 20 cars altogether, and he paid from \$14 to \$16 at the mines for it, and he bought some coal from a company that we were buying from, and we were paying \$12.50 for the coal, and we would have sold it to him at \$13.25 as we had been doing, and he paid \$14. A man can go down into the anthracite region and bid up the price, and get some coal. That makes it appear that they are holding coal for higher prices, but they follow the market conditions. That does not apply generally at all, it is just some of them. If that man had stayed at home he would have saved money.

By the Acting Chairman:

Q. Mr. Cox, tell the committee what difficulty there would be in handling the coal from Alberta. We have had evidence here, and I think the mine operators of Alberta say it cannot be transported in big gondola cars, it must be transported in ordinary box-cars, and the only way of doing it is to take it out of the cars, and the public would take it immediately from the cars to their cellars; they say it is not wise to leave it out in the open, similar to the way you handle anthracite. What extra cost would there be in handling Alberta coal, as against the cost of handling anthracite?—A. I cannot say that offhand; that would come out in the course of the operations. I do not know what to say about that.

[Mr. W. H. Cox.]

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By Mr. Warner:

Q. Do you carry your anthracite in storage in the open, or do you have sheds?—A. The dealers generally have a plant for storing the coal; we are merely wholesalers and we do not handle any coal at retail.

By the Acting Chairman:

Q. What Mr. Warner wants to know is about the dealers.

By Mr. Warner:

Q. Supposing you have coal on hand for which you have not a market, do you keep that inside of some building or keep it right out in the open and pile it up?—A. There is very little left in the open, nearly all in storage buildings.

Q. That is, some storage plants, then, would more or less protect the bituminous coal and prevent the slacking, which sometimes occurs?—A. Yes. The storage plants now are largely equipped with slides; they are all coming into that type of plant with the shutes, and the coal runs out from the shutes. I do not know whether the bituminous coal could be handled that way or not.

By the Acting Chairman:

Q. The evidence we had the other day was to the effect that bituminous coal could not be handled in that way, it was too soft.—A. It seems to me what the Alberta coal would have to compete with would be the low volatile coals from West Virginia and Pennsylvania, that are now being used to quite an extent in the larger heating plants in the larger places. Toronto consumes several hundred thousand tons of Pennsylvania low volatile bituminous coal, and West Virginia bituminous coal in their heating plants; that is, hotels, public buildings, shops, and warehouses, and all buildings of that kind invariably use the Pennsylvania and West Virginia low volatile coals. It seems to me that is the coal the Alberta coal would come in competition with.

By Mr. McGrath:

Q. Why do they use these coals in preference to anthracite?—A. Because they are high in heating value, they are low in volatile, they make very little smoke, and they are economical.

Q. Is that not true of anthracite?—A. Yes.

Q. Is anthracite not smokeless?—A. But it is much higher in price.

Q. Then it is a question of price?—A. It is a question of price.

By Mr. O'Connor:

Q. I understand the semi-anthracite has a higher British Thermal Unit than anthracite?—A. Yes, that is true.

Q. 500 points?—A. Yes, 500 to 1,000 points.

By Mr. Warner:

Q. Our evidence here shows that some varieties of coal are more capable of taking the heat out of coal, of getting the fuel value out of it. That seems to be one of the things that the Alberta coal should overcome.—A. That is what we have already spoken of. Generally, with the low volatile coals the combustion is more complete.

The ACTING CHAIRMAN: Any other questions, gentlemen?

By Mr. O'Connor:

Q. I am now acting at Mr. Carroll's request to bring out anything I can that will assist this Alberta coal operation, and I want to get a little closer down to the costs, as to what the market is liable to experience. I am reading from this report, this 1916 Anthracite Coal Report, at the top of page 4. I will hand the book to the reporter, so he need not take it down. I want to ask whether this is a correct statement.

"About 90 per cent of the United States production of anthracite coal is controlled by a few large concerns, the principal among them being:—

- The Philadelphia and Reading Coal and Iron Co.
- The Delaware, Lackawanna and Western Coal and Sales Co.
- The Lehigh Valley Coal and Sales Co.
- The Susquehanna Coal Co.
- The Delaware and Hudson Coal Co.
- The Erie Coal and Sales Co."

Is that about correct?—A. I think that 90 per cent is too high; no question on that point.

Q. You think the independents have more?—A. I think they have about 25 per cent.

Q. A little more coal than that?—A. Yes, about 25 per cent.

Q. I want to read on page 8 of the Report as follows:

"The 1916 figures above are estimated, as previously stated, to November only, as, from that month on, and during the winter, the coal situation, in so far as Halifax was concerned, became abnormal. Rail freight congestion and embargoes in the United States, and inability of the mines to secure cars led to curtailment of production, and this, in conjunction with the difficulty in securing shipping at New York and Philadelphia, tended to "boost" prices to unheard of figures. Dealers were forced to go to the "Independents" at New York for supplies and these—"

Are they largely localized in New York?—A. The sales office is in Philadelphia, although they have one in New York and one in Cleveland. The Kingston Coal Company, a very large independent, has its head office in Kingston, Philadelphia. The sales offices are not centralized in New York.

Q. When you were dealing with them, did you deal with New York?—A. No, we dealt—

Q. You dealt direct?—A. Yes.

Q. You would say this is erroneous in that regard, that they are not largely located in New York?—A. No, they are not largely located in New York.

Q. They have offices in New York?—A. Some of them have offices in New York, the Kingston Coal office is in Kingston, Pennsylvania, they have no other office.

Q. "—always on the lookout to take advantage of such a market had stored up stocks, and having the whip hand, raised their figures to the limit, charging as high as \$10 and \$12 a ton, f.o.b. New York and Philadelphia."—A. Well, so far as the storage is concerned, they had no coal in storage.

Q. In 1916?—A. They none of them have storage plants, there is not an independent company that has any considerable storage plant.

Q. As to taking advantage of the market, you say that is not done?—A. Not to any extent. I won't say that they did not get more than the line companies, the M. A. Hanna Company did not look for any high prices for their product. One year the Kingston Coal Company did, but since then they have had a change of heart, and have been charging really fair prices.

Q. I am asking, not in regard to individuals, but independents generally, I understood you to state that fact that as a general proposition the independents got a greater price.—A. I distinguish between the larger independents, who were selling their coal at a fixed price of \$9.25 to \$10, and the others. The larger of the Independents did not get much over \$10. I stated that \$9.25 was supposed to be the independent price. That was the price that was

agreed upon. It did not go into full effect, so far as we were concerned in Ontario. We had to pay more than that, but the larger independents did not charge more than about \$10 for such of their coal as was available. It was the smaller independents that charged the extreme prices.

Q. That was still a higher price than the so-called trust?—A. Yes, than the line companies.

Q. And you would not be surprised if conditions such as you describe would prevail in the future? The independents would get what they could?—A. It looks to me that unless there is some interruption to the mining, if the labour continues to work, and no strike occurs, it seems that within four or five months' time, with the heavy production that is going on at the present time, and has been going on for months past, that they will overtake any shortage, and the independents will have to come down to the line companies to market their coal.

Q. The reason they are high is because it is a period of relative scarcity?—A. Oh, yes.

Q. And in periods of relative scarcity, the independent prices rule high?—A. Yes.

Q. They get what they can?—A. Yes.

Q. And that seems to be what they are for?—A. Well, as I say, the larger independents run their business on a higher plane.

Q. I don't ask you to stigmatize them yourself, and you need not answer, but they are practically business buccaneers?—A. There are some, yes, but they are very few. I could name three or four that have held up the public to the fullest extent.

Q. There are elements of grace among them?—A. Yes, generally they have been running their business pretty fairly. Their cost has been heavy; they went behind a great deal during the time of suspension. There was perhaps an excuse for getting higher prices. They were not extreme, a lot of them.

Q. I am not blaming them for what they get, provided they don't keep it off the market and come in in a period of scarcity.—A. There has been nothing like that. The M. A. Hanna Company are associated with the Pennsylvania Railroad Company. They carry their coal over the railroad to Lake Erie ports, and ship it up the lake, all through the summer. Their mines are running steadily all the time, and there is no interruption, and that is true of all the large independents. There may be some small plants that have no regular outlet for their coal, that have to close at times, but they do not cut any particular figure.

By Mr. Knox:

Q. There is one little point. I think the witness stated that the coal was produced at the mines by the long ton. Is it purchased by the long ton, at the mines?—A. Oh, yes, always.

Q. And carried by the railroad companies at the long ton?—A. Yes, on the gross ton of 2,240 pounds to the border, and it is converted there into the net ton by the Canadian roads, who calculate their freights on the net current basis.

Q. And it is sold to the consumer by the short ton? It is the general practice to sell by the 2,000 pounds?—A. Yes, they compute the cost, and sell accordingly.

Q. How would this compare with the Alberta prices?—A. They sell it, I think, on the 2,000 pound basis, that is what I understood.

Q. It is likely produced at the mines on the same basis?—A. Yes, bituminous coal is generally sold on the net ton basis.

By the Acting Chairman:

Q. Will you give the Committee your views in regard to the supply of anthracite coal in the Pennsylvania area at the present time. It has been said it is playing out, and that in a few years we will not be able to get any at all. What is your view of that?—A. Well, I have inquired for a good many years as to that. There is no doubt a good many mines are working out. Their best veins are exhausted, they are working veins to-day that they did not think it worth while to work years ago, but there is a good deal of virgin coal land in the anthracite field controlled by the Philadelphia and Reading Coal and Iron Company. I believe they have the largest tracts of undeveloped anthracite coal lands, but generally the coal is becoming exhausted in the old organizations.

By Mr. Warner:

Q. Do you think the amount is pretty well known?—A. They know pretty well what coal they have got, all of them, and they are able to estimate the coal in the undeveloped fields.

By Mr. O'Connor:

Q. You can find that in the books you have on the table.

By Mr. Lapierre:

Q. And it would be reasonable to infer that the price of anthracite is going to continue to increase in the future?—A. That depends on the wage scale in the anthracite field. At the present time, it is very high, it went up during the war tremendously.

Q. And you are looking to a gradual reduction until a fair basis is reached?—A. It does not look as if they were going to succeed in starting that reduction in the near future.

By Mr. Garland:

Q. Is not the trend rather in the other direction?—A. No, my impression is that the mine workers are aiming to hold the wage scale where it is. They have no hope. They are being exceedingly well paid, there is no question about that.

By Mr. Lapierre:

Q. But, Mr. Chairman, the witness stated that, inside of four or five months, the supply would possibly catch up with the demand. Would it not then follow that the price would drop?—A. The independent prices would naturally, as the supply increased, and as the demand from the dealers for the independent coal lessened. They would come down gradually. Their coal, at times, is sold at prices below the line companies, just according to market conditions.

By the Acting Chairman:

Q. Have you any views on the getting of the supply of hard coal in North Ontario around the Sudbury district? Have you heard anything about that?—A. I have heard quite a bit about it. I have listened to two addresses by Mr. Coyne, a geologist, who has brought the matter before the public, and I have read the reports of other geologists who have discredited his statements, and I have talked with Mr. Smith, of Sudbury, who is a diamond driller, who has drilled for coal there for nearly twenty years, without finding a vein of coal.

Q. Have you had samples tested?—A. Yes, we had samples, but there is no body of coal, no vein of coal discovered yet. What little coal there is, is practically on the surface, and it is mixed in with the mineral there, ore of one kind or another, it is not free coal at all.

Q. I would like to ask the witness if these outcroppings have been found, are they not an indication of a large body of coal in that section?—A. The geologists tell us not necessarily. There is a geologist from Washington that was brought over, I understand, by the Dominion Government, who made a report, and he said there is no possibility of anthracite coal being in that field, and other geologists have said the same thing.

By the Chairman:

Q. It is said there is a Pittsburg firm that is using a diamond drill up there to discover coal?—A. I believe there is some diamond drilling going on now.

By Mr. Lapierre:

Q. Yes, there is.—A. In fact, I was told they have been testing there quite recently, but have not succeeded in finding anything below the surface.

Q. I don't believe the reports of the last test have been made, as far as I have been able to find out?—A. I don't know, only what I have read. I am interested of course, I hope there is some coal there.

Q. Well, we have been living in hopes for twenty years.

By the Acting Chairman:

Q. That would certainly relieve the situation, if we discovered a good coal field there, would it not? Any other questions?

By Mr. O'Connor:

Q. Just this. Arising out of the question asked about the difference between the long tons and the short tons. In your Government reports the conversion is made, it is all on the basis of the 2,000 pounds, so that all the official figures go upon the 2,000-pound basis in Government reports?—A. The dealers' costs are all based on 2,000 pounds, everything is converted.

Q. You have to make the conversion when you report to the Statistical Department?—A. Yes.

By the Chairman:

Q. Is there anything else?—A. If it would be interesting, I would like to state my own ideas as to the outlook for the future, and as to what we must depend on very largely in Ontario, if there is a shortage of anthracite.

Q. That is what the Committee wants to know. Someone forgot to ask you.—A. That is what I have been thinking over for several years, because I have seen the possibility that anthracite will become short, with some of these mines working out, and perhaps because of labour conditions, and I have been wondering how we in Ontario could get a satisfactory supply of suitable fuel. There are two sources that seem to me to be the most promising, the first is, perhaps, by-product coke, a coke that is specially prepared for household use. The Semet Solvey people make coke as a by-product, and make very large quantities of it. Their coke is a soft, free-burning coke entirely suitable for household use. It is almost equal, perhaps quite equal, to anthracite coal, and burns just like anthracite coal. There is no objection to that coke whatever. It is almost identical with anthracite coal. There are a number of by-product plants that make excellent coke, and that coke is becoming more and more in favour with the household throughout Ontario, particularly in Toronto. It is low in price. We are selling that by-product coke to-day to the dealers in Toronto, at \$10 a ton. That coke, I say, is practically equal to anthracite coal in all respects. No smoke, no trouble. It is easily handled. It is easily controlled in the fire, and gives equal results. That seems to me to be the most desirable fuel that is in sight in case of a possible shortage of anthracite, and then, too,

it is lower in price. Then there is another fuel that is coming to the front, and is going to play a big part, I think, in the near future. That is the high-grade of briquettes. Briquettes, for the last ten years, have been pretty well in the experimental stage; briquettes that have been on the market have been made from anthracite coal screenings. For a long time the experiment went on and the screenings used were not first-class screenings. Some of them were very inferior, and the binder that was used to hold the briquette together was not satisfactory—it was not combustible. Generally the binder was about 12½ per cent or more, and not being combustible, it made the ash content very high. So that through that experimental stage briquettes did not take very well, but the American Briquetting Company of Philadelphia, have now produced, within the last year, an almost perfect briquette. They are making it from the highest grade anthracite coal screenings, the Lyken's Red Ash, which is the highest in fuel value, and they have 10,000,000 tons of screenings that they have been saving for a number of years for this briquetting purpose, until they should perfect their experiment. They have this 10,000,000 tons in reserve, and they are not briquetting it, and they have a binder of only 2½ per cent. The entire binder is combustible, so that it makes a high grade of very satisfactory fuel. It is all anthracite. There is no objection to it whatever. There is no odour or dirt, and it is better than anthracite, because there is no impurity in it. The screenings are washed from the coal, there is no slate, bone, or foreign matter, and the time is coming when briquettes will play a very large part. This Company have had this plant in operation for nearly two years. They have got two other units in process of construction at the present time, which will give three times the present output of that particular plant. They already have another plant in contemplation, in fact it may be underway at this time. They told me in Philadelphia that they would start erecting a plant in the Pocahontas field. They have tested it out and find that they can make it into briquettes just as well as the screenings from Pennsylvania. It is a very high grade. It is 15,000 B.T.U., and they propose putting up a plant there and putting these briquettes on the market. And they will make a most excellent fuel. If that works well, they propose going into the Miller vein in Pennsylvania, where there is a very high grade bituminous, smokeless coal, and erecting a plant there. Their idea is that briquettes are going to come very much to the front, and I think they are right in that. They are a most excellent fuel. Last winter I burned more briquettes of this particular coal than anything else, and we had no fuel that ever gave us greater satisfaction. So many people that we have supplied have told us that it is just the ideal fuel. So I think that coke and briquettes are going to come very much to the front, and help to regulate the anthracite situation in Ontario. Those coals have a great advantage over the bituminous coal with the household generally, they are cleaner and less trouble, and not so costly, and, in fact, they are everything the householder is looking for.

Q. Would our coal from Nova Scotia make a good coking coal? Somebody was speaking about establishing a big by-product coke plant in Montreal, and taking out the by-products. Would it not make a good coking coal?—A. Some of the Nova Scotia coal is high-grade and suitable in every way. It would hardly answer in regard to Ontario, as it is too far away, but it might meet their demands in other markets.

By Mr. Garland:

Q. All this coal you talk about for briquettes comes from the United States?—A. Yes.

Q. We would still have the problem of foreign supply on our hands?—A. Yes.

[Mr. W. H. Cox.]

By Mr. Lapierre:

Q. I would like to ask if briquettes and coke are allowed into Canada free of duty?—A. Yes.

By Mr. Knox:

Q. Would that same process of briquetting be profitable in the Bienfait plant of the Lignite field in Saskatchewan?—A. I could not answer that. You have to pulverize the coal to briquette it, in accordance with the method in the United States. That is a matter that could be determined.

By the Acting Chairman:

Q. Would Nova Scotia coal make good briquettes?—A. The high volatile coals don't make good briquettes generally. It is a low volatile coal. The householder wants to get away from the smoke and dirt.

By Mr. Lapierre:

Q. Would it not take several years before the supply would be available?—A. Well, of course there is a certain amount available for this market, and we are handling all of the briquettes that come this way. We have taken the sales agency in this market, and there is a really good demand for them, wherever we have introduced them. We have made a market for them immediately, and as the production increases, the consumption in this part of the country will increase. They will take up everything that is made. The price is comparatively low.

Q. But they are not available to meet the shortage that exists at the present time?—A. They are not sufficient, but they help.

By Mr. O'Connor:

Q. We are short thirteen million tons of coal. If we take the whole of that ten million tons of briquettes we would be short three millions, and be just as badly off as we are now.—A. I don't understand we are short thirteen million tons of anthracite.

Q. We want to produce thirteen million tons more ourselves, if we can. How can you help us in regard to that?—A. I cannot see, unless you can find it in Sudbury.

Q. A moment ago you spoke of the Nova Scotia freight rate being prohibitive?—A. So far as Ontario is concerned.

Q. But there is a water route. What do you think of it, so far as coke is concerned?—A. I should think it would make very good coke. I don't see any reason why it should not, but the water proposition does not appeal to Toronto, because the coal is not wanted on the water front. The plants for distributing coal are not on the water front.

By Mr. Garland:

Q. It would be a question of reorganization of the dealers' plants?—A. Yes, they have all practically left the water front because of the high rentals and the expense of handling coal from the waterfront. The city has grown entirely away from that.

By Mr. Warner:

Q. Would they not go back again, if it was advantageous, or is it impossible?—A. The homes of the city have grown miles away from the water front and the cost of delivery from the waterfront would be so great that it would not be a practical thing, it seems to me. That is what the dealers have found out, and they have gone away from the waterfront and closed up their yards, as the leases expired, and built plants out where the people live.

By the Acting Chairman:

Q. Built their plants out where the land is cheaper, and the overhead is less?—A. Yes, and where the deliveries are shorter.

By Mr. O'Connor:

Q. Do you take the stand that any coal going into Toronto must necessarily, henceforth, go in by rail?—A. Very largely. They do bring a certain amount of anthracite in by water, but that is because it is not available by rail, and is at times available by water. The Lackawanna Coal Company have their plant at Oswego, and it is sometimes possible to get coal from there by water, but not by rail.

Q. Going back to Mahomet and the mountain, supposing you could not get anthracite coal, and you could get coal by water, to coke, you would have to follow the coal?—A. Certainly.

Q. Supposing it was possible to bring it in by water, and not by rail, because you could not get it by rail, that difficulty would disappear, so far as the citizens of Toronto were concerned, as the coal dealers would have to follow the coal?—A. If it is not available, but there is no reason to think that bituminous coal will not be available for all time.

Q. But the Committee is endeavouring to discover what can be done?—A. There are so many fields in the United States of bituminous coal, and they are all looking for outlets for their coal. There is a great over-production there. The possibilities of production are simply tremendous.

Q. I agree with you that unless there is some, what we may call, national reason arising, which would cause the United States to fight us, or something else, and they would not give us coal, you would always get bituminous coal.—A. Yes.

Q. But one of the elements the Committee has to consider is just that sort of thing, and in such a case the dealers located back of the town would not stand in the way of a great national purpose in supplying Canada with coal.—A. Yes, then of course the Nova Scotia coal—

Q. Or any other coal?—A. —would be used, but the production there is comparatively light. I don't know whether they could increase that tremendously or not, so far as Nova Scotia is concerned.

Q. Well, you are not pronouncing on that. You say you don't know?—A. I just say, the production is not heavy, and we could not call on them for any great tonnage.

Q. Their production is half of Canada's production?—A. Somewhere about 5,000,000 tons.

Q. They have produced considerably more than that.

By the Chairman:

Q. Do you wish to make any further statement?—A. No, nothing else occurs to me at present.

C. A. MAGRATH was called and sworn.

WITNESS: I do not know what information you have received on the coal question, at your previous sittings. I was congratulating myself that I was not going to be called upon, but I got your subpoena yesterday, and I find that it is "an inquiry," as stated in this notice to me, "to ascertain if and how Canada could profitably be self-sustaining as to fuel supply." From what I have heard this morning, the discussion seems to be centering around the question of supplies from Alberta, and if that is what you wish me to discuss

[Mr. C. A. Magrath.]

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with you, I am prepared to go ahead and do so. If it is a question of supply, regardless of the source of supply, I am prepared to proceed on that line. So that if it is merely our own coals, my remarks can be cut down considerably.

By the Acting Chairman:

Q. I think it would be the wish of the Committee to hear your views generally on the coal supplies from everywhere.

WITNESS: Do you wish to get an outline of what has transpired last winter, and which has led practically to the demand, more or less general in Canada, that we should look for our coal supplies, in our own country? If so, perhaps—

By Mr. Warner:

Q. I think, Mr. Chairman, that is the supposition anyway, that the Committee are to inquire into the possibility of Canadian fuel from Canadian sources.—A. Well, if we are to have our supplies, or if we are to use our own coals, rather, we have, of course, as you know, but two main fields, one in the far East, and the other in the far West. The main difficulty in the mining of coal, in both the United States and Canada, is that there are too many mines, too many miners, and I sometimes think, too many dealers. The trouble, I feel, to a very considerable extent, rests with the consumers, who do not make sufficient effort to draw uniform supplies from the mines throughout the year—the same way to obtain a minimum cost of production. Scientifically speaking, every grade of coal demands a different type of furnace. Central Canada adjusted itself to probably what is the most satisfactory fuel, individually fired, namely, anthracite, and a furnace was designed for that coal, which is also suitable for other smokeless—or largely so—fuels.

I believe our Alberta domestic coals can be used without trouble in those furnaces because they do not throw off a heavy volume of smoke. Experiments are now going on in this neighbourhood in connection with the use of the Alberta product, locally known as “sub-bituminous.” I have burned it for some years when living in the West, and I know it to be very satisfactory indeed. I do not believe that it is equal to anthracite on a ton for ton basis. When I burned Alberta coal, I was paying about \$2.50 a ton for that coal in my bins, and therefore I may have not been, and probably was not, burning it in a scientific way, so that I may be unfairly influenced when I say that ton for ton, it will not yield the results that anthracite yields, but that is my opinion, based upon my experience, admitting however that I may not have been firing it as I should have.

By Mr. Warner:

Q. You have not burned that down here?—A. No, sir.

Let me speak for a moment as to the proportion of production of U.S. anthracite as between old line companies and independents. The old line companies are those of which Mr. O'Connor spoke a few moments ago, and they produce about 75 per cent of the tonnage of anthracite that is turned out in the United States. The independents mine 25 per cent. In September last, Governor Sproule, of Pennsylvania, fixed the price of anthracite coal not to exceed \$8.50 per gross ton at the mines; anthracite coal in the United States is always sold by the gross ton. The independents claimed that that figure was not sufficient for their purposes. Governor Sproule had a committee appointed, or rather revived a committee that had been in existence a few years previously, or when there was a coal shortage, known as the “Fair Practices Committee.” He allowed the “Independents” to go before the Fair Practices Committee which fixed the price of their product at figures ranging from \$9.25 up to about \$12.50 per gross ton. The \$9.25 applied to probably 80 per cent of the independent

[Mr. C. A. Magrath.]

product; the higher figures to the remaining 20 per cent. In years of normal production, the independent coal has been handled by brokers operating largely in New York and Buffalo, and other points, and in the years of normal production they have to fall in behind the old line companies, and practically take the same price, but when there is a shortage it seems that they demand a higher figure. As I have said, they got authority to charge higher figures, but our dealers discovered by experience last winter that some brokers demanded figures as high, I believe, as \$16 a ton at the mines. I imagine, however, that that applied to a very small tonnage. One of the difficulties in abnormal times, that is periods of coal shortage, is the disturbance that is caused in communities through the distribution of that independent coal. You will find a dealer who is handling the old line companies' coal at the minimum mining price, and another dealer across the road handling a certain tonnage of independent coal, asking from \$1 to \$3 a ton more, simply because he had to pay that additional amount at the mines. It is that independent coal coming into a community in abnormal times that causes so much trouble and so much discontent amongst the consumers.

By Mr. Warner:

Q. I might ask the witness, you have reference altogether to the United States supply there?—A. Yes, our anthracite all comes from the United States. The producers in that country have secured the trade of this country, or rather what may be termed Central Canada.

However, I do not want to express any opinion as to what I would consider the ratio of heating values between the two fuels,—United States anthracite and Alberta domestic coal. That matter I understand is now receiving careful investigation. The use of Alberta coal in eastern Canada will be a question largely of transportation, which is also being looked into at the present time. I assume it is known that United States anthracite is being delivered in the yards of dealers in the larger centres of Central Canada at figures ranging between \$12 and \$13 per ton. In those figures an allowance is made for the present rate of exchange. I am referring of course to the product of the old Line companies.

Very possibly, a slight increase over \$12 per net ton is what Alberta coal has to meet in Central Canada.

By the Acting Chairman:

Q. Do you think there is any hope, Mr. Magrath, of anthracite coal coming down in price in the near future?—A. At the mines? No, not at least until August. In August the agreement with the anthracite miners will be renewed so that I assume that the present price at the mines will continue. It has been a custom in years of normal production for the operators to drop the price of their coal 50 cents per ton on the first day of April, and then to increase it monthly 10 cents a ton when at the end of five months it is brought back to the normal price. That was done in order to get consumers to stock up in the summer. They are not doing it this year because apparently they do not have to do it. They may have other reasons, but the main one, it seems to me, is that there is such a demand for anthracite following last winter's shortage, that they do not have to lower the price in order to induce summer purchases. They however claim that they cannot afford to lower the price. When it comes to the making of an arrangement with the miners on the 1st of August next, it is understood that the anthracite miners now claim that they are receiving less money than the men working in the soft coal fields, and that possibly they may ask for an increase in wages. I am referring to the datal men, men working by the day, but about \$12 per ton on the railway tracks in our large communities is what

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the Alberta coal has to meet in order to find a market in Eastern Canada. Alberta producers have got to realize that anthracite can be landed in our larger centres to-day at slightly over \$12 a ton.

By Mr. Warner:

Q. I might ask the witness right there if the market in Canada would cease, this extra coal that would be put on the United States market on account of that, do you think that would be sufficient to reduce the price in the United States?—A. No. The anthracite producer appreciates the Canadian market, it is a market that he has developed. He has largely drawn our people away from hardwood. The time was when we were using hardwood in this country. The anthracite producer has however secured this market. Ten years ago, the imported tonnage of anthracite reached about 4,000,000 tons, and it has been running in that neighbourhood ever since. Ours is the best market the producer has, as there is the least fluctuation in it from year to year. The field that consumes anthracite in the United States extends to probably 100 miles south of Washington. In a mild winter the tonnage used in the southern end of that field is exceedingly light, but while we may have what we regard as a mild winter, we seem to burn pretty much the same amount of coal, so there is the least fluctuation in the northern market than in any other section which they supply, hence the producer appreciates this market, and he will, I believe, do his utmost to retain it.

Q. I do not think I made myself quite plain. I had in mind, provided we would furnish Canadian fuel instead of that fuel coming over here, that being absorbed, then, in the United States, what effect would that have on the market, would that bring the prices down and make competition harder for us, so we could not prevent it coming back over, on account of that extra amount being absorbed in the United States?—A. That extra amount to be absorbed, that is, Canada's total consumption of anthracite, is about 7 per cent of the total United States production. The anthracite producer distributes in the United States roughly 93 per cent of his product, and in this country 7 per cent, and that extra tonnage say 7 per cent if retained in his own country, I do not think, would affect the price situation. I think the price of anthracite will probably be affected more by an effort on the part of the consumers in the United States to get a cheaper type of fuel, because in the United States this past winter they were paying \$15 to \$18 a ton, and even higher than that, I have been told.

By Mr. Arthurs:

Q. What was the cause of the rise in price of coal at the pit mouth?—A. It is to the increased cost of labour and supplies.

Q. The price at the pit mouth did not vary very much?—A. When there is a shortage of a commodity, those who handle the commodity seem to think it is their duty to get the very most out of it. When there is a surplus supply, it seems to be in the minds of the public that they will make the producer let them have it at the very lowest price, even to the point when no profit is left.

Q. The matter of price in regard to anthracite coal last winter was not altogether in the hands of the producer?—A. No, sir.

Q. It was the middleman, the man in between, who absorbed a great part of the increase?—A. I was with the Galt Coal Company at Lethbridge, Alberta, many years ago, and we regarded it as our obligation to follow our product to the consumer. In those days, we used to fix the price at which the dealer handled our product. We had him put up in his yard, a poster or notice in which the public was notified as to the prices of the coal in the

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yard, as well as delivered. The producers to-day, at least the anthracite producers do not do that. I think it would be desirable that it should be done, provided we think there is an obligation to the consumer resting upon the producers. In fact it would seem to be in the interests of the dealers as well.

Q. And that would work to the benefit of the ultimate consumer?—A. I think it would, especially in view of the disturbance to the market by the independent coal. A dealer may have a considerable proportion of old line companies' coal, he may have a certain portion of the independent coal, and as the proportion varies, especially in times of shortage, the price varies—a situation develops which the consumer cannot understand, and in which occasionally advantage is taken of him. The maritime province coals are bituminous, and their use it seems to me, would require a soft coal furnace with a larger flue to carry off the heavy volume of smoke produced. There is no question in my mind that that would be one solution of the problem, namely substituting the soft coal furnace for the hard coal furnace. It is only necessary to go into Pittsburg for instance, to realize the extent to which soft coal is used. The same is true in British Columbia, where we have high grade bituminous coals, used for domestic purposes. In all probability the domestic heating of the world, at least that which is being accomplished with coal, is probably 90 per cent soft coal. However there is no doubt but that its use seems to have had to give way to anthracite within reasonable distances of the Pennsylvania anthracite mines. Should it be shown that the Alberta domestic coals cannot be carried such great distances into Central Ontario and compete with, for instance, anthracite from Pennsylvania—because we might as well realize that the anthracite producers will endeavour to hold their Canadian market—then it might be desirable to consider some form of treatment of soft coals through the production of coke or in some other way, in order to get rid of a heavy per cent of its smoke content. I am under the impression that in the United States, in view of the high price that anthracite has reached, that efforts will be put forth to more generally treat bituminous coals. There, I think, is where the solution lies. There are two ways to bring about such a result in Canada. One is for the country to do the experimenting—which personally I think is dangerous—the other is to offer a subsidy for every ton of soft coal that is treated for domestic purposes.

My view is to let somebody else do the experimenting. It might be provided that the municipality in which the coal is to be used should bear a proportion of that subsidy. I am not disposed to suggest that the subsidy should be made applicable only to Canadian fuel. I am speaking now in the event that Alberta fuel cannot get into the market of Central Canada. No one is more anxious than I am to see the Alberta coal extend its market. That feature is now being investigated, and I hope it will be done most thoroughly and settle the matter definitely. If Alberta coal cannot find a market in Central Canada, and if we are to use soft coals, I see no alternative but the treatment of our Maritime Province coals or their use in soft coal furnaces. Returning to the question of a subsidy for the treatment of such coals, it might at the first be better to leave those undertaking such work, as wide a field as possible from which to draw their supplies. The subsidy might not be continued beyond a reasonable period, unless domestic fuel was thereafter used, when the province producing the fuel might carry a portion of the subsidy.

What I have in mind is this, a subsidy on the use of Canadian coals at the present time might be no inducement to capital to proceed with the treatment of soft coals, especially in the Province of Ontario. To-day, or rather

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in the early part of last month, the price at the mines of Alberta bituminous coal—I am not speaking now of Alberta domestic coal—was somewhere in the neighbourhood of about \$5 a ton, 2,000 miles away, or at least 1,800 miles distant. The price at the mines in Nova Scotia, say 900 miles to the east, was about \$5 a ton. The price at the mines in the Pittsburg fields, 400 or 500 miles away, was in the neighbourhood of \$3 a ton; in fact, it was lower than that.

By the Acting Chairman:

Q. At the beginning of last month?—A. Yes, that is the reason I suggest that in the earlier years if the country should decide to subsidize the treatment of soft coal for domestic purposes, it would not be desirable to confine it, in my judgment, to Canadian supplies only. Later on, after it is well started and the industry is well under way, it might be desirable then to say, "Well, if this is to continue it must be for the use of Canadian fuel."

It seems to me there is justification for the course I have named because a former parliament declared that domestic fuel was not to be taxed, hence it was that anthracite was allowed to enter Canada free of duty. Every ton of soft coal that is used for domestic purposes releases a ton of anthracite; therefore while it may be quite proper to tax imported soft coal for industrial purposes, if used for domestic purposes, and taxed, it seems to me, it might be argued as not being in line with the declared policy of the country.

While I have been talking about a subsidy, the same thing can be accomplished by removing the duty on soft coal for domestic purposes, which after all would be in line with the action of parliament a few years ago when anthracite, a fuel for domestic purposes was decided to be free of duty, in order that the consumer would get the advantage. I find that the fuel distributor at Washington has recently issued a circular to the consumers of anthracite in the United States to get in their fuel supplies without delay. It would look on the face of it as though he is not quite satisfied with the present condition of the market. If his suggestion is sound in that country, it is equally sound in this, and I think that the people of this country, especially in Central Canada, should get in their supplies for the coming winter without delay.

That is all, Mr. Chairman, unless any gentleman wants to ask me any questions.

Mr. WARNER: Would it be all right to ask a question now?

The ACTING CHAIRMAN: Yes.

By Mr. Warner:

Q. I have been asked why there was nothing said about the Galt coal in the southern part of the province. I would like to ask you—you were acquainted with the coal—I would like to ask whether your opinion of that coal would be that it is just as good as other coals which have been brought down here and are now being demonstrated?—A. The Galt coal—I was with the Galt Company practically from the beginning—is the product of the pioneer coal enterprise in western Canada, and there was a time when it was the domestic coal used over that western territory, until it came in contact in Manitoba with American anthracite. Since I left Lethbridge the Drumheller field has been opened; the Edmonton coals were not on the market to any extent in my time. The Galt coal, I would say offhand, and the Drumheller coal are pretty much of the same class. I do not know why the Galt coal has not been mentioned in your former discussions.

Q. I think that just happened to be that way.—A. A block of the Galt coal was brought down here probably twenty-five years ago. There was a

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block of Galt coal about 3 feet square sent to a London exhibition away back in about, I think, 1882 or 1883.

By Mr. Garland:

Q. Looking for a foreign market?—A. More to show what Canada has. It seems that that is still necessary.

Q. The witness has placed before the Committee a very interesting report. You speak of subsidizing certain coking or briquetting plants is that the idea?—A. Yes, for the use—

Q. For experimentation?—A. Yes, in order to get a cheaper fuel and to be more independent in the matter of a fuel supply which seems to be very much in the public mind at present.

Q. Your subsidy would be extended to foreign competitors as well as those in your own country—A. I think probably it would be more likely to induce capital to take hold.

Q. Have you considered this proposal of whether it would not be perhaps a preferable alternative to our own, that having admitted that question of transport being vital, we would endeavour to get as low a rate as possible, and then cut it still lower if necessary and apply the loss in the form of a subsidy to our own railways, and keep all the business in Canada. We have the coal.—A. I do not know how far the people of Canada would subscribe to that doctrine, because in the other case the object is to get a cheaper fuel than we are getting to-day, and to be more independent in the matter of a coal supply.

By the Acting Chairman:

Q. You would only ask for a subsidy for experimental purposes; how far would you go?—A. I would only go as far as would induce the man with money to get into the business. We have had an experience in briquetting in Saskatchewan, and I think it would have been better, it would have been more profitable to the country, if private capital had been allowed to do it through some kind of subsidy.

By Mr. Garland:

Q. Mr. Chairman, it is not of course my opinion that it would be a good policy, but in consideration of the two, I simply wish to ask Mr. Magrath for his opinion. I would like to have his opinion on the relative merits of the two proposals, between absorbing the loss entailed in laying coal down in competition with anthracite from our own Canadian fields.

The CHAIRMAN: That would be hauling it under cost.

The WITNESS: Yes, I know. Do you not think that the public would say, "Why should we pay—?"

By Mr. Garland:

Q. Yes, I can assume almost before you say anything just what the public might say, but I am asking you for your own opinion.—A. I would only say that a policy of that kind should be considered in the event of the consumer not being able to get his source of supply elsewhere without cost to the country, because your plan is one which will cost the country something. The suggestion I made—

Q. Even if the amount expended in each case should be the same?—A. No. I am afraid you misunderstand me. In the other case, I was suggesting a subsidy which would probably be equivalent to the duty which is being collected on soft coal, so that the country does not lose anything.

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By the Acting Chairman:

Q. You mean, by taking the duty off you would be giving the subsidy?—A. Yes, the country does not lose anything.

By Mr. Shaw:

Q. Mr. Magrath, I would like to ask you a question; you have spoken about the experiments in briquetting. You will no doubt be familiar with the experiment of the Canadian Pacific Railway. What have you got to say as to that kind of experiment, and why would you suggest that private individuals can do that work more efficiently than a government enterprise?—A. The country has had one experiment, that is the briquetting experiment at Bienfait.

Q. Is that a failure?—A. I cannot say that, but I know there has been a very considerable amount of money spent there. When I am experimenting personally, I always like to know what my limit is, and if it is somebody else that is doing the experiment, they have to take the chance on the limit in order to succeed.

Q. What would you say with regard to the briquetting by the Canadian Pacific Railway, has it been successful or otherwise?—A. I do not think I can say. That plant has been closed down, has it not?

Q. I do not think that the briquetting plant is still running, although I cannot be altogether sure about that.—A. They have had Bankshead property, which is an anthracite coal. It is very friable, a very considerable proportion of that coal comes out in dust, and it has been necessary to briquette it, and the Canadian Pacific Railway is always after business, and it seems to me that if they could have made a success of that in competition with other coals, they would still be briquetting, but they stopped, and I assume that it is because it is not profitable.

Q. Either that, or the mine has run out or something of that kind.—A. Possibly so. I have not been following it, as a matter of fact.

THE ACTING CHAIRMAN: Do you wish to ask any questions, Mr. O'Connor?

MR. O'CONNOR: No, thanks.

THE ACTING CHAIRMAN: Well, then gentlemen, it is after one o'clock, is it your pleasure that we adjourn?

SOME HON. MEMBERS: Adjourn.

The Committee adjourned until Friday morning, April 20, at 11 a.m.

HOUSE OF COMMONS,

COMMITTEE ROOM 429,

FRIDAY, April 20, 1923.

The Select Standing Committee on Mines and Minerals met at 11 a.m., the Chairman, Mr. Carroll, presiding.

The CHAIRMAN: Mr. Campbell, will you resume your evidence.

W. E. CAMPBELL recalled.

The CHAIRMAN: Now, Col. Arthurs, have you some questions you would like to ask?

By Mr. Arthurs:

Q. I do not know that I have anything particular to ask this witness except one or two general questions. You have already told the Committee that your

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function on the Railway Commission is to give final judgment as to the rates proposed when a complaint comes in.—A. Speaking in a general way—

Q. I am speaking generally.—A. The Board does not fix or make rates, that being in the discretion of the carriers, the railways.

Q. You do not mean to tell this Committee that your Board does not have the approval of these rates, and the power of disapproval?—A. The Board has the power of disapproval.

Q. They must be approved before the rates are put in force?—A. Only what is known as the "Standard Freight Tariff," which is a maximum tariff and under which very little traffic is handled. The tariff naming rates lower than that standard tariff may be filed with the Commission by the companies without any specific approval; if they contain an increased rate it necessitates thirty days' notice to the public; the tariffs are filed at the station, giving thirty days' notice. If there is no complaint, that tariff automatically goes into effect and is legal until such time as there might be subsequent complaint, and a disallowance or suspension by the Board.

Q. Certain factors enter into the fixing of a rate. Outside of the distances, are these other factors of any considerable consequence? I will name some of them, amount of traffic; that is to say, the density of the traffic over that particular road. Would that, in your opinion, have any effect in the fixing of that rate? That is to say, could the railroad haul it cheaper?—A. Density of traffic does affect the tolls, and probably would lower them.

Q. Another thing that enters into it is the value of the article carried?—A. Yes.

Q. That is a very material point in the construction of a tariff; that is to say, the insurance the railway must have against accident or liability depends largely upon the value of the article.—A. Yes, sir, and the ability to move the traffic any particular distance at all unless there is a rate that will enable it to be moved.

Q. I am asking you with regard to the fixing of the ordinary maximum tariff.—A. The value of the commodity is one element in the making of the rate.

Q. That is, the liability for loss or damage or destruction of the property carried, that all enters into consideration?—A. Yes, sir.

Q. The next one is very similar, loss by damage. That is to say, an article that is friable or easily broken or destroyed in transit, naturally demands a higher rate than an article not of that nature, is that right?—A. Generally speaking.

Q. Another consideration would be the type of cars needed, would it not, perhaps in a lesser degree?—A. In a very small degree, I would say.

Q. Then there is another thing, I think you will agree with me, that is a factor in this matter. That is, the cost to the railway company of securing the traffic in the first place, the overhead necessary to secure traffic; does that enter into the consideration?—A. Rates are fixed so as to cover not only the cost of carrying the traffic, but the cost of overhead, fixed charges, and all that is included under that term.

Q. Do you know of any article, any considerable article, any article that is carried in any considerable quantity by the railways of Canada upon which there would be less liability to loss than coal, or to shorten matters, do you know of any article, any common commercial article which could be carried more cheaply than coal, for long distances?—A. You have two questions; one is, can it be carried more cheaply, and the other, if there would be greater loss in some other commodity than coal.

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Q. That is all involved.—A. As to the loss, I suppose coal would be in the same category with sand, gravel, lumber, and other rough commodities.

Q. There would be no reason why the rate on coal should be higher than any of these others that you mentioned, no material reason?—A. Speaking generally, I think you would find rates on sand and gravel considerably lower than coal, because of the lower value.

Q. Then, if you found that the railway companies, either or any of them, could carry wheat from the western border of Alberta, say from Calgary to Toronto, for some \$9 per ton, would you think that \$12.50 per ton for coal would be an approximately equal rate, or otherwise?—A. The rate on grain from Calgary, you say, or the Edmonton district to Toronto is not \$9 per ton.

Q. What is it?—A. It is 63½ cents per hundred pounds which is \$12.70 per ton.

Q. That is, on wheat?—A. Yes.

Q. That is the maximum rate?—A. Yes, that is also the minimum rate to-day; it is made up of the Crow's Nest Pass rate of 26 cents from Calgary to Fort William, and 37½ cents from Fort William to Toronto.

Q. In other words, that is exactly the same rate as on coal?—A. It is the same rate.

Q. Then we will change our question. Do you think there should be as high a rate on coal as on wheat?—A. I would not like to give an opinion on that.

Q. You have already given this opinion—

The CHAIRMAN: The witness the other day said, and I think there is some considerable truth in that statement, that he is attached to a court here, and does not like to give an opinion; he will give all the facts at his disposal, but he does not propose to take the place of the Board of Railway Commissioners, in giving an opinion.

The WITNESS: I do not want to appear unwilling or anything like that, but some of these questions might later come before the Board for adjudication, they have not been looked upon or considered by the Board yet, and to express an opinion would probably get me into trouble.

By Mr. Arthurs:

Q. We will put this question this way.

Mr. WARNER: This is all rail, Mr. Chairman.

The CHAIRMAN: Yes.

By Mr. Arthurs:

Q. You would not consider coal as liable to damage, nor that there should be any differential against coal on that account?—A. That the coal should not be higher than grain?

Q. Yes.—A. No, I would not think so.

Q. Rather the reverse?—A. If there is any difference, I should say slightly the reverse.

By Mr. Garland (Bow River):

Q. For what reason?—A. Value, perhaps, is one of the factors.

The CHAIRMAN: Do you want to ask any questions, Mr. Garland?

Mr. GARLAND: No, I think it has all been well cleared up.

By the Chairman:

Q. I think, Mr. Campbell, that you were asked the other day a few questions which you were to answer to-day.—A. I was asked the rate on coal from Minto to Ottawa; the rate is \$3.25 per net ton.

Q. And that is?—A. Two thousand pounds.

Q. How many miles is that?—A. Six hundred and one.

Q. Over the C.P.R.?—A. Yes, sir.

Q. How does that compare with the western freight rates on coal?—A. I do not know that I have that mileage here.

Q. Perhaps you will tell us, then, how it compares with the freight rates on coal from Nova Scotia, say, Cape Breton?—A. From Stellarton to Ottawa, 927 miles by the shortest mileage—not necessarily the mileage that the traffic would be carried over—but the shortest mileage that the map shows, the rate is \$5.10.

Q. What mileage is that?—A. Nine hundred and twenty-seven. From McCann to Ottawa, 781 miles, the rate is \$4.70. These rates were in effect during the winter, but I find the tariff cancelled on the 25th of January.

Q. You have no rates now?—A. There would be nothing but the tenth class, then. I would imagine that was looked upon as a seasonal tariff. At the time this rate was cancelled the railway naming these rates was not under the jurisdiction of this Board.

Q. The mileage from Drumheller to Toronto is what?—A. Two thousand and ninety-four miles is the shortest mileage.

Q. And the rate?—A. \$12.70.

Q. And the rate the C.P.R. gives from the Minto mine to Ottawa is what?—A. The distance is 601 miles.

Q. And the rate is what?—A. \$3.25.

Q. Do you consider that a special rate that the Minto people are getting?—A. It is a special commodity rate.

Q. And lower than the rates from the West, comparatively speaking; it is a matter of computation, of course?—A. The lowest rate I have here that I can compare it with is one for 758 miles in the West, from Lethbridge to Winnipeg.

Q. What is that rate?—A. That is \$4.70 per ton.

By Mr. Warner:

Q. I was just going to ask right here, what would be the difference between Lethbridge, Edmonton and Drumheller; would there be any difference between these three points?—A. To Winnipeg?

Q. Yes?—A. It is all the same, sir.

By Mr. Dickie:

Q. What is the rate to Fort William from Drumheller?—A. \$6.60.

By the Chairman:

Q. From where?—A. From Drumheller, Edmonton, and Bellevue.

By Mr. Chisholm:

Q. What is the mileage?—A. From Edmonton, 1,229 miles; from Bellevue, 1,261 miles; from Drumheller, 1,222 miles, short mileage. I do not know that they haul it that way, but I am just taking the shortest possible mileage.

By Mr. Warner:

Q. A few miles from one central point to another, compared with, say, like Drumheller being shorter, they make no difference between one which would be 30 to 50 miles further.—A. They group all the mines in one contiguous area and give them all the same rate, generally speaking.

The CHAIRMAN: Mr. Garland, did you show Mr. Campbell that schedule you had the other day?

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The WITNESS: He read it to me, I did not take a copy away with me, I think the reporter took it.

By the Chairman:

Q. Did you have an opportunity of going over that?—A. I looked at it.

Q. Would you mind if sometime we asked you or some other person connected with the Commission to go over that schedule of rates and give an opinion on it, or would that be?—A. I do not think we would care to, sir.

Q. There would be the same objection to that that you took before?—A. Yes, sir.

Q. Would you suggest to me the name of a man who would be a competent witness in that regard?—A. I do not know whether that statement covered the computation for moving it over the Canadian National or the Canadian Pacific Railway, and whichever railway it contemplated, I would think the most satisfactory way would be for this Committee to get someone from that railway and have him verify or criticize the figures on that statement. I could not attempt to do so.

Mr. WARNER: I might propose, Mr. Chairman, right there, that either you or the Secretary have that schedule submitted to the different railway companies when the time comes—perhaps it would be any time now—and have their freight traffic managers make suggestions as to what they think about it.

The CHAIRMAN: I may tell you my opinion, which, of course, is subject to the Committee, that we get a rate man from both the C.P.R. and the C.N.R., and I thought they should have this thing in their hands. I think this is the most important question that has been raised here. They should have a copy of this memorandum in their hands, if they came here to give evidence, and I think every member of this Committee should have a copy of it and go into the matter. That is the crux of the whole situation, and unless we get some information along this line I think we will not be doing very much good, outside of advertising the coal.

Mr. WARNER: I think from now on that is probably the most important matter we have, but what we have already got in regard to coal has also been important.

The CHAIRMAN: Yes, but that is the really valuable information that I think we should get, on the question of freight rates.

Mr. WARNER: Do you know whether they will be willing to come and criticize that schedule before the railway companies have made up their minds as to what they will do?

The CHAIRMAN: As a matter of fact, they have to come if we ask them.

Mr. CHISHOLM: Would they have any objection to coming?

The CHAIRMAN: I think not. I feel quite confident they would not have, but I have discussed this matter with a person who, I think, is quite competent to deal with such matters, and he says that the whole thing is quite feasible, and the facts set out are real facts.

Mr. WARNER: I have been reading just lately that in the United States they have raised the number of cars in their trains from the coal fields to the seaboard tremendously, to something like 100. That would perhaps double the capacity which their old trains had, and it might be a good idea to get information from that line. I forget the name of the road, but it is hauling coal from the fields to the seaboard.

The CHAIRMAN: It is an American road?

Mr. WARNER: I was going to ask Mr. Campbell whether he has heard anything of that.

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The WITNESS: I saw where, I think it was a Mr. Butler, had mentioned conditions on the Virginian Railway; perhaps that is what you have in mind.

Mr. WARNER: I think the field is in Virginia.

The WITNESS: It is known as the Virginian Railway.

Mr. WARNER: Under these conditions, it might revolutionize the whole traffic in coal, and prices in the delivering of it, or the transportation of it.

The WITNESS: It would all depend upon the conditions on that railway, I know nothing about it, except what I have read in the newspapers.

By Mr. Warner:

Q. Do you know anything about the grades they had to go over there, compared to the grades that we have from the west coming east?—A. I could not say. Of course, their haul is much shorter. They only have 527 miles of line, and it serves 107 mines.

Q. Would that distance make any difference in the amount of weight that an engine could draw; would the divisional points not be about the same distance apart, and so on?—A. I would think so. The length of their line would have no bearing on the—

Q. On the amount the engine could draw?—A. The tractive hauling capacity of an engine; that would all depend on the condition of the line, and the type of engine and car, and those things.

By Mr. Lapiere:

Q. Mr. Chairman is it not the policy of the railway in cases where coal is being hauled to run the train on slow times, and when you are making rates don't you take into consideration the full tonnage of a train.

The CHAIRMAN: You mean the full capacity?

The WITNESS: Well, if you are hauling freight on a main line I think the invariable rule is to send the engine from terminal to terminal with a full tonnage load.

Q. In figuring your rates on coal you would figure on a full tonnage basis?—A. I wouldn't say the rates are figured that way because the rates are fixed by the railroad and there are branch line hauls.

Q. Would you figure the cost of hauling coal as a mixed train instead of a solid train of coal?—A. Well, I do not know that the railways figure their rates that way.

Q. What is the basis for making a rate on coal?—A. The railways make these rates. You see this movement, that rate you are now discussing is I believe from the West to the East and is something that is new.

Q. Well if that is new you must have had some basis for the rate which you had before?—A. The rates for the coal were never made by the railway men. There have been some coal rates which have been the subject of a complaint to the Commission and readjusted or changed in some way but in that connection it was usually a charge of discrimination or something of that kind in relation to some other load. I do not know that the Commission ever made an exhaustive study of the case of carrying coal in the fixing of rates.

Q. You can see that question is under discussion now. If coal rates could be regulated by a large output which would supply the railroad complete trains, capacity trains with coal there might be a possibility of the rates being lowered?—A. The railroad people would have to consider that, I would say.

By Mr. Warner:

Q. I would like to ask the witness whether there is any variation in the freight rate at the present time or at different times of the year so when the

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railway stock and equipment is lying idle do they make any reduction in order to keep things moving as at the present time?—A. I am unaware of any seasonal or coal rate to-day in Canada or in the United States.

Q. They make no difference?—A. There was a small rate on coal in Western Canada two years ago from the 1st June to the 31st August; the railway men put a reduction of 10 per cent in order to encourage movement of coal in the summer time.

Q. Do you remember the amount of reduction?—A. It was 10 per cent on a \$5 rate which would be offhand about what the Drumheller rate would be, a reduction of 50 cents per ton.

Q. That would hardly be enough to induce very much more movement at that time?—A. I understood the coal dealers, not only the dealers but the miners were also going to make a reduction to the householder so as to leave a reduction of about a dollar as an incentive to put in coal in the summer time.

By Mr. Lapierre:

Q. Has the railway company made any modification on the rate of commodities within the last two or three years?—A. There were changes made in the rates as a result of an order of the Board the first of August last.

Q. That was the last change made on commodity rates?—A. The last general change made by the Board.

By Mr. Dickie:

Q. Mr. Chairman, if the railways as a result of negotiations now being carried on should decide to reduce the rate, will they have to submit these rates for the consideration of the Board before they become effective?—A. No, sir.

Q. In other words the railroads may fix whatever rates they wish without consulting the Board?—A. Yes.

Q. It is only in the event of a complaint the Railway Commission will take the matter up?—A. The Commission do not fix the minimum rate; they only prescribe the maximum, the standard mileage tariff. Any rates below that may be published by the carriers and become effective unless some outside interested party makes the complaint and then an order is made which supersedes.

By Mr. Kennedy (Edmonton):

Q. In that case it will be that the Railway Commissioners would be asked to fix a rate from Alberta to Ontario; what would be the basis upon which you would start to work out a fair and just rate?—A. They would get both parties before them and hear all their statements and then grapple with it.

Q. Would it be the cost of operation, would that be the outstanding feature and the cost of moving the coal?—A. I think you would have to fix the rates, having regard to all railway costs, entering into the movement so far as any tribunal is concerned; the Railway Act does not permit discrimination.

Q. It would be simply up to the various parties interested to submit evidence as to what they thought was a just rate and the Board would decide after hearing the evidence. I do not know what the policy is and I do not know that there is anything to prevent it. I do not know that it is ruled or adjudicated upon, a rate that is not already in effect. Usually a tariff is compiled and somebody complains about it.

By the Chairman:

Q. The Board does not initiate it?—A. They do not initiate rates.

By Mr. Warner:

Q. If Mr. Kennedy is finished I would like to ask a question—we are trying to get at this basis. Suppose one railroad company, where there were two or

more competing, one railroad company would put on a certain price—say one would put on a \$6.00 rate on coal between Alberta points. Suppose that somebody would come along and complain about the rates on the other roads that they were not willing to put down this rate, would that constitute a good ground for complaint?

The CHAIRMAN: I think Mr. Warner that anything is good ground for a complaint so long as you make it before the Railway Board.

Mr. WARNER: The reason I asked that we had some discussion as to whether rates are uniform or discriminative and so on and that is the reason I asked that.

The CHAIRMAN: As a matter of fact the Board of Railway Commissioners investigate any grievance, whether the grievance be well founded or not if it is brought before them in the ordinary manner. Have you anything to ask Mr. O'Connor?

Mr. O'CONNOR: No.

The CHAIRMAN: The witness will give the rate on coal from Montreal to Toronto; it is important from the Eastern point of view.

The WITNESS: I was asked the rate of coal from Montreal to Toronto; the present rates, the mileage being 334 miles are \$3.10 per net ton on anthracite and \$2.90 cents on bituminous.

By the Chairman:

Q. Have you the rate from Nova Scotia to Toronto?—A. There is a rate from Minto to Toronto, 823 miles, \$4.80 a ton.

The CHAIRMAN: Do you gentlemen get that; the rate from Montreal to Toronto is \$3.10 and the rate from the Maritime coal mines to Toronto is a little better than a dollar over that.

The WITNESS: \$1.70.

Mr. GARLAND: We can beat that in the West if you want comparison. The witness said the rate on anthracite was \$3.10.

The WITNESS: And on bituminous \$2.90.

By Mr. Garland:

Q. Why the difference?—A. In the readjustment last August the increase in coal rates that were made effective September 13, 1920, were taken off so far as bituminous coal is concerned. The anthracite and bituminous had been the same but in making the reductions last year the reduction was only made on bituminous coal.

By Mr. O'Connor:

Q. Was that extended to the United States bituminous coal?—A. Yes. That is rebilled at the International Boundary and is subject to those rates from the International Boundary.

Mr. O'CONNOR: Mr. Garland was asking why as an arbitrary matter that I would like to know why on principle.

The CHAIRMAN: It is a higher priced commodity.

The WITNESS: In Canada on principle there has not usually been a difference but the rates that were reduced last year were limited to what was known as the list of basic commodities and the bituminous coal was constructed as basic in that it enters into the manufacturing business of this country.

Mr. GARLAND: That is a very interesting point.

By Mr. O'Connor:

Q. There was discrimination against the consumer in favour of the manufacturer?—A. To the extent of 20 cents in this case.

Q. Then it is not the difference in the value of the commodity carried—and the anthracite is of a domestic character?—A. The rates were reduced on a list of basic commodities which were before the Special Parliamentary Committee and the Parliamentary Committee recommended a reduction on that list.

By Mr. Dickie:

Q. You say the rate from Montreal to Toronto is a little in excess of \$3.00 a ton, what is the rate from Minto to Montreal?—A. 501 miles is the distance and the rate is \$2.75. That rate from Montreal to Toronto is high in comparison with the one I have just given. That rate from Montreal to Toronto is not a special rate in the same sense as the one from Minto is. I do not suppose there is very much coal shipped from Montreal to Toronto.

By Mr. Warner:

Q. Could not the coal come from the coal fields to Montreal by water?—A. Yes.

Q. This that you have mentioned is all the way by rail?—A. Yes.

The CHAIRMAN: We get a very cheap rate from Sydney, a dollar a ton.

By Mr. Warner:

Q. What I was getting at is if they could get a proportionate rate from Montreal to Toronto, if they could bring it by water to Montreal, could not the rate be reduced considerably that way?—A. I do not think there has heretofore been any considerable movement from Montreal to Toronto by rail.

Q. You do not think there would be?—A. I do not think there has been any appreciable movement.

Q. What I was getting at would be to find out if it could not be reduced by bringing it as far as Montreal by water and be taken the rest of the way by rail and then get a proportionate rate?—A. That would be a fair question to submit to the railway company as to reducing that rate. I think no doubt if there was negotiation there would be a reduction.

Mr. O'CONNOR: You haven't any rate from Sydney to Montreal by rail.

The CHAIRMAN: This was higher and it is impossible to talk about it.

By Mr. O'Connor:

Q. It would be an ordinary commodity and would be a special rate?—A. It is in their special commodity tariff; the mileage Sydney Mines to Montreal is 936.

Q. The shortest distance?—A. Yes, and the rate is \$4.50 per ton.

By the Chairman:

Q. Have you got the Sydney rate?—A. Sydney is the same rate.

By Mr. Dickie:

Q. That is not as good a rate as you stated in the West from Drumheller to Fort William; it is twice the distance from Drumheller to Fort William?—A. From Drumheller to Fort William is 1,222 miles and the rate is \$6.10.

Mr. GARLAND: I wonder if it would be advisable to have the witness lay on the table the tables he is quoting from. There are many questions that may arise and that table may be of value to us.

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The WITNESS: I can typewrite the rates I have quoted to you and send it up to the Chairman.

Mr. O'CONNOR: What we want is all Canadian coal rates.

Mr. GARLAND: I think the Committee should have that evidence.

By Mr. O'Connor:

Q. All Canadian coal rates whether special or general?—A. That would be impracticable to put that in a statement; the most comprehensive way would be the Railway Tariff; the coal tariffs are not unintelligible. There is a coal tariff giving rates from Black Rock, Suspension Bridge to the Territory that moves through from the port of entry.

By Mr. O'Connor:

Q. You think we would have no difficulty in reading that?—A. The railway companies, if you would ask them for the Canadian coal tariff you could get them and there would not be a very great bundle of them.

By the Chairman:

Q. If you give us the schedule showing points in the Western Provinces to Winnipeg, to Toronto, to Montreal, and then the rates from the Maritime District, to I would say, Montreal, Toronto and Ottawa, I think that will fill the bill?—A. I think perhaps if you had one of the company's tariffs—

By Mr. Garland:

Q. It will hardly cover the point because we have just had a little piece of interesting information about the Montreal Toronto local rate?—A. That would be in the same tariff; there are specific rates from Montreal to given distances and in the back of the same tariff, the last page, there is a mileage scale that applies where there are not any other rates and gives distances and rates.

Mr. GARLAND: Perhaps the suggestion of the witness would be worth while.

The CHAIRMAN: You see the difficulty, Mr. Garland; you have the Western country and you say give us the rate from Edmonton to Saskatoon and other little stations between Saskatoon and so on and so on and you would never be able to arrive at it.

Mr. GARLAND: That would be in these tables?—A. The tariff contains an alphabetical index of distances and points. You can find any distances and points and these particular tariffs are fairly simple to anyone to read.

Mr. O'CONNOR: Have you yet subpoenaed your railway witnesses.

The CHAIRMAN: No.

Mr. O'CONNOR: Why not subpoena them to bring the papers and tariffs and you would have all the information from the tariffs.

The WITNESS: Their coal tariffs.

Mr. DICKIE: With regard to the transportation from Montreal to Toronto would it be possible for the coal barges to continue from Montreal to Toronto.

The CHAIRMAN: There is no doubt about that; they carried coal from Montreal to Toronto last year by barge. There would have to be a trans-shipment; steamers that come in from Sydney unload the coal at Montreal and there would have to be a new shipment. That is something we can get some evidence on the possibilities of.

Mr. O'CONNOR: The actual ships have gone to Toronto.

[Mr. W. E. Campbell.]

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The CHAIRMAN: Only some of them; there are some difficulties in the way; they are not large boats.

Mr. O'CONNOR: That is not the most economical way of carrying it.

The CHAIRMAN: We are going to get some evidence of that.

Mr. DICKIE: Why is it not more economical?

The CHAIRMAN: The loading facilities and all that sort of thing; the large boats with 8,000 tons are the cheapest carrier and Montreal is the port they have been able to ply to, and it would be necessary to start them off with smaller boats of 2,000 and 2,500 tons, as you have to go through the different canals and loading is going to be more expensive.

Mr. DICKIE: Only to a limited degree.

Mr. O'CONNOR: It makes a very great difference.

Mr. DICKIE: Would it be practical to make the land trip.

The CHAIRMAN: Yes.

Mr. O'CONNOR: I asked somebody, an experienced shipping man; I do not want his name to go on the record; he has steamship as well as railway experience. I asked him in Toronto last year when there was a question as to what these boats would carry over and he calculated they could carry coal into Toronto for \$2.50.

The CHAIRMAN: From Nova Scotia?

Mr. O'CONNOR: Yes.

Mr. DICKIE: What distance would that be?

Mr. O'CONNOR: Roughly you can take it as 1,300 miles.

Mr. DICKIE: That would be much cheaper?

Mr. O'CONNOR: Yes.

Mr. DICKIE: Would that be satisfactory evidence as to the quality of coals from Nova Scotia and Alberta?

Mr. O'CONNOR: We took as much evidence as is obtainable on the quality of coal.

The CHAIRMAN: Any other question to ask this witness; he has been here several days and is anxious to get back to his normal work. I do not think it will be necessary to make a motion regarding the suggestion of Mr. O'Connor, but I think it would be the proper thing to ask the officials of the C.P.R. and C.N.R. to bring their tariffs with them of Canadian tariffs. I do not think that it is necessary to make that motion. I think, perhaps those men are coming here Tuesday.

Mr. O'CONNOR: Can you get any canal transportation information?

The CHAIRMAN: I have no information as to who the proper parties would be. I think I can get it.

Mr. O'CONNOR: The Department of Railways and Canals would give that to you.

The CHAIRMAN: I think if we get the railway evidence on Tuesday I will find out from Mr. Graham or whoever has charge of the railways who the proper persons would be.

Mr. O'CONNOR: In Toronto there are the lake transportation companies which might consider the placing of suitable boats upon the canal system if trade was available from the east. You might have a man in on that line from a lake transportation company.

Mr. Ross: Canadian Steamships.

[Mr. H. Stutchbury.]

The CHAIRMAN: You come from that vicinity, Mr. Ross, have you any idea who we might speak to to come and give some information on that line.

Mr. Ross: I would have both of those companies.

The CHAIRMAN: You could not give us the names.

Mr. Ross: Matthews has a representative at Kingston, Captain Matthews is there.

The CHAIRMAN: Perhaps you will look up that for the secretary and give it to him before Tuesday and he can have them here Thursday.

The CHAIRMAN: Mr. Stutchbury is still here and has some information he would like to give. (To Mr. Stutchbury) You are sworn; you have not been discharged yet and are still under oath?

Mr. STUTCHBURY: Yes, there is a good deal of confusion as to the difference between the various soft coals and last week I had our engineer who is now in Toronto prepare a short non-technical statement as to the differences between the American soft coal and Alberta domestic coals. I would like to have the permission of the Committee to incorporate that in my own evidence.

The CHAIRMAN: I think that is satisfactory, if there is any information in it. Is that all?

Mr. STUTCHBURY: Unless there are any questions. The following is a statement as to the differences between the American soft coal and the Alberta domestic coals mentioned by Mr. Pratt.

Coal Truth.

What are the Alberta domestic coals?

It has been established by custom in this country to call anthracite hard coal, on account of the fact that it is hard in structure.

Then, also by custom, any coal which was not anthracite hard coal, was named soft coal.

Custom established the hard coal for domestic heating, and soft coal for steam and other purposes.

Hard coal contains very little combustible gas, or oily volatile, and is composed of almost entirely carbon and ash. The heat value varies with the quantity of ash which it contains. In burning hard coal in the common type of domestic heating equipment, practically all the heat which is obtained in the house is obtained by the heat rays radiated off the hot fuel.

In the hot fuel bed the carbon is changed by the intense heat from a solid to a gas. This gas as it leaves the fire, is transparent and contains half the heat value of the coal. The gas burns with a blue flame. But, as it requires that the gas be brought to a very high temperature to ignite, it is only when the furnace is operating at a very high rating that this gas will be burned. Consequently the waste or heat loss must of necessity be high. Scientific experiments show the loss to be between 55 and 75 per cent.

Also note, that hard coal must be made red hot before it will begin to change from a solid to a gas, so that heat will be obtained from it. This accounts for the fact that with a thin fire you must have a heavy draft in order to keep it alight. When you have a low draft you must have a thick fuel bed so that each piece will help to keep the next piece warm.

If in either of the above cases you reduce the draft low enough, the coal cools off and the fire goes out, resulting in good fuel wasted in the ash pit.

Steam soft coals have, in addition to their carbon content, a considerable proportion of oily matter, which is driven out of the fuel in the form of a gas before the coal becomes hot enough for the carbon to burn. If this oily matter

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is driven out slowly (as in the domestic equipment) it will burn with a short white flame having a smoky tip which, if allowed to come into contact with the heating surfaces will form soot and tar.

When the oily matter has been driven out, the same draft conditions as with hard coal are required. If the draft is reduced low enough, the coke will die out and unburned cinders will be the result in the ashes and waste of fuel.

Although these steam soft coals are higher in heat value than hard coal, it requires very high draft, a continual variation of the regulation of the dampers, and firing at very frequent intervals in order to obtain this increased heat value.

To all intents this is practically an impossible requirement for the householder, and proves that when considering the heat value of a coal that it is not the amount of heat units of B.T.U's which it contains that is of value to the user, but it is what he gets out of it.

Consider the B.T.U's in the coal as the "eggs," the "bugs" which you hatch in your equipment as the "chickens," your furnace as the "incubator," and that some eggs are more easily "hatched" than others.

Alberta Domestic Coals

Alberta is fortunate in having coal which contains "eggs" which are more easily "hatched" than those in other coals, particularly under the conditions which apply to domestic heating. They are not "hard coals" nor "hard to ignite." As they are different to "steam soft coal" in characteristics, and the word "soft" having no intelligent meaning, they have been classed as "domestic coals."

There is no country in the world that has such an abundance of similar coals. There are no raw coals in the world which have such desirable characteristics for domestic purposes as the Alberta Domestic Coals—not excepting hard coal.

In this country heat is a necessity; it requires a considerable proportion of a man's income to provide this necessity. Every person has his troubles and expense in obtaining his heating comfort. As yet, no consideration nor education is provided, nor usually thought of in connection with heating comfort or expense; resulting in an appalling waste of the world's fuel resources and the individual's money.

The Alberta Government, realizing this enormous waste and the fact that the average householder used no skill in firing (particularly as with hard coal the waste could not be seen in the invisible gases), and that the Alberta Domestic Coal was different in that colour of the gas or smoke could be seen it was necessary to educate the user when making the change over, particularly so if the same draft was used as with hard coal, waste and money loss would be the result.

The Alberta domestic coals differ to both hard coal and steam soft coal in that they are free burning, meaning that they ignite easily and continue to burn under very low draft. If too much draft is applied they are very "fast." Owing to this difference and in order to distinguish them from other coals in the province and elsewhere they have been classified as "domestic coals."

In districts where they have become the Standard fuel it is the general practice to place them in the fire (see coal truth on handling your furnace) in such a manner that the combustible gaseous matter is driven out slowly, so that they do their half of the heating. When these gases are burned out the red hot coke remains to do its half of the heating. This coke differs from the red coke of hard coal or steam soft coal in that it will not die out. It does not cake into a mass nor do the ashes contain good fuel.

As it requires very low draft it has also become the general practice to place a 25 cent shut-off damper in the smoke pipe between the check and the furnace.

If this is not in place it requires more skill in handling the fire during extremely cold weather.

As the coal is so free burning or "fast" the grates must not be shaken vigorously. Allow some ash to remain on the grate as a further check to prevent the fuel from burning too quickly.

On account of the fact that the coal does not coke nor pack an 8 to 12 hour supply may be put on at one firing and left for a long period without attention.

As the gases are ignited at such a low temperature, more heat is obtained from a given weight of coal than would be the case with a fuel which required a high temperature to ignite the gas, thus permitting a higher efficiency than with other coals. They also have the advantage that an intense fire may be obtained from a cold heater in a few minutes.

It has been established to the satisfaction of the household user in the west by demonstration in his own equipment, without any change to the equipment that the Alberta Domestic Coals are more economical and more suitable for the existing types of furnace installations than any other coals.

The CHAIRMAN: I have a statement sent to Hon. E. M. Macdonald and it gives some very valuable information, and I think instead of incorporating this statement in the evidence copies of the statement made by a Mr. Butler may be sent to the members of the Committee and to Mr. O'Connor and Mr. Stutchbury who have been attending the Committee. There is nothing else I know of this morning.

Mr. GARLAND: I want to congratulate you on conducting a very efficient committee.

The CHAIRMAN: You know I am from the East, one of the wise men. We will meet on Tuesday and I think we will have these men here on Tuesday.

Mr. GARLAND: It just occurred to me that Mr. Stutchbury said it would be a good time to have Mr. Butler here when the railway men attend. We might have to recall one of the other witnesses for further information.

The CHAIRMAN: I think it is important and we might undertake to sit both morning and afternoon on Tuesday.

Mr. GARLAND: If it is at all avoidable I would prefer not to sit while the House is sitting but if it is an exceptional circumstance all right.

The CHAIRMAN: This man Mr. Butler has been making statements regarding freight rates and he ought to be here to listen to the other witnesses.

Mr. Ross: It would be well to have this statement in our hands.

The Committee adjourned until 11 a.m. April 24, 1923.

COMMITTEE ROOM 429,

HOUSE OF COMMONS,

OTTAWA, TUESDAY, April 24, 1923.

The Select Standing Committee on Mines and Minerals met at 11 a.m., the Chairman, Mr. Carroll, presiding.

The CHAIRMAN: Gentlemen, I have had word from Mr. Lanigan of the C.P.R., that he will be unable to be with us to-day, as he has been taken ill and confined to his room. Regarding Mr. Martin, of the Canadian National Railways, I have a letter from his secretary, stating that he is out of the district at the present time, and it is uncertain when he will be back. It seems rather peculiar that both these gentlemen should be away at the same time.

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Then, we were to have had Mr. M. J. Butler, of Oakville, with us to-day. As I told the Committee the other day, he made some very striking remarks in the statement he sent here, and I thought he had better be called. The Clerk sent him a registered letter on the 20th, but so far I have not heard from him. Does anyone know when a train would arrive here from Oakville?

Mr. ARTHURS: Not until 7 o'clock this evening. He must come via Toronto.

The CHAIRMAN: We have done with this witness, as we have done with all the others. We did not subpoena him in any way, but simply sent him a registered letter, and he sent no reply. The letter was written on the 20th inst. It may be that he is away; anyway, he is not here to-day. It is too bad.

Mr. ARTHURS: I would move that this witness be subpoenaed, because the statements made by him are very important, if true, and if not true, we had better know it as soon as possible.

Mr. ARTHURS: This man, Mr. Butler, was for some years Deputy Minister of Railways, and if we allow this matter to pass over, he may publish these statements, in the press, very much to our detriment, perhaps. As a Committee, I think it is very desirable that Mr. Butler be heard here at all hazards.

The CHAIRMAN: That was my recommendation at first, because I think his evidence is all important.

Mr. ARTHURS: Mr. Butler can be here.

The CHAIRMAN: There is a new appointee of the Canadian Northern Railway, a good freight-rate man, Mr. Dalrymple. I think we should have him here on Thursday, and wait for the other people to be heard within some reasonable time. We want to have Mr. Martin here.

Mr. ARTHURS: Mr. Martin must have an assistant. He is not alone in that business. Railways do not run their business in that way.

The CHAIRMAN: I was going to suggest that we subpoena Mr. Dalrymple for Thursday, because I think those are along the lines that we should delve into this freight rate business.

Mr. KENNEDY: Would you subpoena Mr. Lanigan?

The CHAIRMAN: We did not subpoena anybody, but I think he will come. Those people know very well that we can get them.

Mr. ARTHURS: If Mr. Lanigan wired that he is ill, he must be ill.

The CHAIRMAN: In addition to writing, he wired Colonel Thompson to come and see me.

Mr. ARTHURS: I would suggest that later on, it may be advisable, if Mr. Butler's evidence amounts to anything, that we should have a mechanical man of one or other of the great railways, to confirm or deny the allegations made by Mr. Butler as to the capacity of trains or engines on a certain road. I think we have here in Ottawa one or more of the chief divisional mechanics. The matter depends upon actual practice.

The CHAIRMAN: Is there any other suggestion to make? If not, we will stand adjourned until Thursday morning, at 11 o'clock.

The Committee adjourned until Thursday at 11 a.m., April 26.

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HOUSE OF COMMONS,

COMMITTEE ROOM 436,

THURSDAY, April 26, 1923.

The Select Standing Committee on Mines and Minerals met at 11 o'clock, a.m., the Chairman, Mr. Carroll, presiding.

The CHAIRMAN: Gentlemen, we will first call Mr. Martin of the Canadian National Railways, of Montreal.

H. C. MARTIN, called and sworn.

By the Chairman:

Q. Your present position, Mr. Martin, is what?—A. General Freight Traffic Manager, Canadian National Railways.

Q. You might tell briefly what that involves?—A. It involves the general supervision of the solicitation and securing of traffic for the railways; that, summed up in all its bearings, is really what it means.

Q. In other words, then, have we the wrong man as regards freight rates?—A. If you will permit, Mr. Chairman, I will just make a brief statement to the effect that we came in reply to your invitation, so as to have you feel that we were willing and ready to do anything we can to assist in your enquiry, we are willing from our departmental standpoint to give you any information we can in regard to rates in a comparative way or otherwise, but on the question of cost we are not competent nor is that in our department, to deal with that question. That comes under the transportation department. Our chief of transportation, Mr. D. Crombie, and our director of operating statistics, Mr. Mallory, I believe, stand ready to appear before you and give you any assistance they can, although it was unfortunate that Mr. Crombie particularly was at the west end of the line, and could not get here, but he will be available about Saturday, or any day next week. I think possibly, that you would want him to come, and I feel that you would be doing your Committee more justice in getting matters of that kind from him than trying to get them from me, as I do not know.

Q. The reason I brought you here, I wish to advise the Committee of this fact, when the Committee first started I called up Mr. Carvell, Chairman of the Railway Commission, and he gave me your name as being a person who could throw some light on this subject. He may have misunderstood me.—A. He possibly did. However, before leaving yesterday to come up here, we were in touch with the other departments, and I can assure you that they will be ready to help out as far as they can in giving you the method and manner in which we compute costs, and as I say, from our departmental standpoint we could file with you any tariffs you want or any comparative rates you want, and we would be glad to do it.

Q. Are there any questions you wish to ask Mr. Martin on the question of traffic? He says he is unable to give us the rates?—A. That is the cost rates, the methods of computing rates.

By Mr. Arthurs:

Q. You have the tariff rates?—A. Yes.

Q. A witness here the other day from the Railway Commission gave us a rate on coal to Port Arthur from western points. In one case he gave it as \$6.60 a ton, and in another place as \$6.10. Which is correct?—A. If you will allow me, I have Mr. Alton here who has the tariff, and who will give you the actual figures. I have not them in my possession. The rate to Fort William from, you mean, the Drumheller district?—A. Yes.

Mr. ALTON: \$6.60 is the correct rate, just from memory.

[Mr. H. C. Martin.]

By Mr. Arthurs:

Q. We had two different figures?—A. The rate is \$4.70 to Winnipeg and I think it is \$6.60 to Fort William.

Q. We will presume that to be correct.

Mr. ALTON: \$6.60 is correct.

By Mr. Arthurs:

Q. What is the rate on grain, on wheat, from the same point?

Mr. ALTON: \$5.20.

By Mr. Arthurs:

Q. You would not know, Mr. Martin, whether these rates would appeal to you as being fair in comparison; that is to say, is there any justification in your mind for having a higher rate on coal than on wheat, outside of the Crow's Nest Pass Agreement?—A. I will tell you frankly, I do not consider myself at the moment competent to pass on that or give an expression, because as no doubt you gentlemen know, with the recent changes I have assumed my new position inside of the last 30 days or so, and having been altogether in the East heretofore I am not really very familiar with the Western situation, and I would like to be more familiar with the situation before expressing an opinion on it.

Q. You can give the Committee this information. What are the respective classes of these two commodities, how are they classified, coal would be tenth class rate, would it not, and what about wheat?—A. Coal, I think, would be tenth class, and wheat is what?

Mr. ALTON: Eighth.

By Mr. Arthurs:

Q. Ordinarily speaking, the rate on commodities in the eighth class would be higher than on commodities in the tenth class, would it not?—A. Yes, sir, I think that is generally true. I might volunteer this statement, that of course, the movement of coal is a comparatively new proposition even in the West, and possibly the comparison between this, that, and the other commodity has not found its proper level yet. You can appreciate that.

Q. Yes, I just wanted to get these facts before the Committee?—A. I am very glad to give you anything I can.

By Mr. O'Connor:

Q. Mr. Martin, perhaps you can tell me this. What principles, if there are any principles, determine what a freight cost should be? You may not possibly answer that, as a cost maker of your tariffs, but I am asking you from your experience of trying to get business for the railway. You, of course, would want to have the rate as low as possible in order to get business, in filling your function. From your experience in dealing with those who fix rates for railways, from your talks and your arguments with them and their arguments with you, what would seem to you to be the principles which dictate proper costs?—A. I do not know that I could give you that; what I would say, or what you may have in mind, is fixing proper costs. Of course, in the general question of costs, I presume that we have to take into consideration the measure of investment, the maintenance and the rebuilding and all these features, and I confess that is something I have not gone into, but the measure of rate making—

Q. Yes, I intended to follow that, but as far as the rate is concerned, that is bound to be based on cost. There would be no difference then, as far as you know, in getting at cost when dealing with railway freight making than there would be in getting at the cost of a merchant who had purchased certain dry goods and wanted to resell the dry goods, as far as the cost is concerned?—A.

[Mr. H. C. Martin.]

The only difference that I can see is that the man who is handling dry goods has before him nearly all the time the measure of his cost, and his selling price, while the railway situation presents so many intricacies in the question of cost or the determination of cost that it gets far beyond the ordinary commercial transaction.

Q. Your point there is that it is easier for a merchant to compute his costs than it is for a railway to compute its costs?—A. That is what I mean.

Q. But in principle, as far as you know, and you may not know, I am just asking if you do know if in principle there is any difference between the way a railway computes its costs and the way a merchant computes his cost.—A. I would not like to pass on that, because I really do not know.

Q. With respect to rate making and speaking again from your experience with it, because we know you do not make rates, do you know what principles if any principles operate whereby one commodity has imposed upon it a different rate from another commodity? Just now, you mentioned wheat and coal. For purposes of illustration merely, tell us why, if you know, wheat should be in the eighth class and at a higher rate normally than coal which is in the tenth class at a lower rate normally, saying nothing with regard to specific matters such as you mentioned a while ago as to why at the present time wheat is lower? A. These matters are all given consideration, and wheat, that is the bulk, the capacity for handling or the bulk tonnage, that is, cost of accumulation, and so on, various things enter into the way in which they determine whether one class of freight should go into one class, or into another.

Q. Does the difficulty of getting business on a particular commodity ever influence the railway?—A. No, I should say, generally speaking, that it does not enter into it, although naturally I should have said competition is a primary factor, distance, rate making sometimes enter into the question of changing this or that rate, but it does not enter largely into the underlying principle of classification.

Q. Take coal, for instance, and I am asking you now again just from your experience in dealing with those who make rates, suppose you could go to your Canadian National Railways and say to them, "Look here, I think I can quadruple the amount of coal carried by this railway, if you will take coal out of such a class and put it into such another class." Would that be likely to affect the rate maker, or would he say, "No, we can get that price, the coal has to be hauled, and the coal will have to stand all it will bear, and it will bear more than you ask."—A. I might answer that by just stating to you that I doubt whether there is a ton of coal either in the Dominion of Canada or in the United States that moves on a classification basis.

Q. They are all special rates?—A. Nearly everything in regard to coal is lower than the classification basis.

Q. You have advanced me considerably by that answer. It is a fact, then that the desirability of getting business, and getting it in competition with other railways, who will take it if you do not, does that affect rate making?—A. It is not always a matter of competition with another railway; the factors that enter into it are questions of market, questions of helping, where the railways can help out cities or communities, and assisting, if you please, in the production or development of any basic commodity, that is, grown or produced in a certain section of the country.

Q. Then you find a condition such as that obtaining in your relations with the rate makers; have you ever found that the cost of carriage controlled the rate, or have they ever suggested to you that it might be advisable to carry products below cost?—A. I do not know that in my experience I have ever had the proposition put up of carrying freight at what they term less than cost. We may measure off the cost of transportation per ton or in different ways that may permit the use of certain commodity rates that would look in and of itself some-

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what out of line with the ordinary method of rate-making, but at the same time the measure of cost is the underlying principle on which rates are primarily based, and they try to figure the cost with some profit, if you please, in making rates.

By Mr. Arthurs:

Q. Before you leave that point, you were with the Grand Trunk Railway System for a number of years?—A. Yes.

Q. In the east particularly. Have you any personal knowledge of a contract entered into some years ago for the transportation of logs at a very low rate to Sarnia from Temiskaming, extending for some years?—A. No, I have not.

Q. Have you any personal knowledge of a contract, a similar contract, entered into with the Standard Chemical Company?—A. No, I have not. I might say this, that while I have been connected with the Grand Trunk for a great number of years it is only within the last ten years, a little over ten years, that I have been in the Eastern District. I was on the western lines prior to that, so that these things would not come to my knowledge.

Q. You do not know whether these rates still exist or not?—A. I do not know, I would not say.

By Mr. O'Connor:

Q. Your idea is that the cost is arrived at in the same way as the basis of railway freight rates?—A. I think that is fundamental.

Q. And as a matter of practice the railways never carry below what they compute to be cost?—A. I should hate to think that we undertook to carry business at less than cost, because the prime object of the business is to at least produce one new dollar for an old one, if we can.

Q. What I have been at up to now is, indirectly, to get on the record here something that is already before the Senate Committee on coal. I want to read you a question that was asked by Hon. Mr. Casgrain of Sir Henry Thornton:—

“By Hon. Mr. Casgrain:

Q. Under most favourable circumstances, what would a ton of coal cost per mile?”

You have already given me the answer to that?—A. Yes.

Q. This is Sir Henry Thornton's answer:—

“A. I cannot answer that question off-hand. I could give you an answer to that a little later, with a little figuring, but of course a great deal depends on what you bring into the cost.

Q. A lot of senators are answering that for themselves?—A. Yes: that is one nice thing about transportation costs; I can give you—and prove—any transportation cost you want at any time for any purpose, and so can any one else. It all depends upon how you look at it. Take, for instance, such a traffic as we are discussing. Now, it would not be fair to charge against that traffic a lot of general office expenses and things of that kind, because those expenses will go on just the same whether this coal moves or whether it does not. It would not be fair to charge against this traffic all of the maintenance-of-way expenses, because whether this traffic moves or not the railroad will have to be kept up, and it will cost just about so much. That is the reason why, when you ask a railroad man, ‘What does it cost to move a ton of freight from A to B?’ He can give you, quite correctly, any kind of answer you want, or that he wants himself. It all depends on how you are going to look at it. In other words, you have got to lay down your theory, your speci-

fications for your answer, before you try to answer. I can give you an answer to that question later on, but I would not like to give it off the bat, because there are certain expenses that ought to be eliminated from consideration."

That seems, from your experience in dealing with the various companies that you have dealt with in Canada in rate-making, that seems to be pretty nearly the truth, does it not?—A. I should say that that correctly states the general viewpoint.

By the Chairman:

Q. I have never had anything at all to do with railways, and it strikes me as very fortunate.—A. Yes, and if you permit me to say just a word now, it seems only fair that an opportunity should be given to Sir Henry Thornton to make answer to that question. He is going into it, and as I have stated we will have men here that will give you these answers, and I should not think it is right, that I with my meagre knowledge of it, should discuss the idea that Sir Henry had in his mind, when I do not know the thoughts he had on the subject.

Q. I am not trying to commit either you or Sir Henry to anything more than this, that computations of freight cost and computations of freight rates made by one man as compared with those made by another man are practically valueless unless they are both made upon the same basis. That is what I understand?—A. And have the same ground-work. It is just like our lawyers. We can go to a lawyer and get almost any opinion if we pay for it. I do not mean that to be facetious, and I did not know you were a lawyer, either.

Q. I know exactly what the witness is intending to imply, that there are some lawyers of very much greater eminence than others, and that if you go to the proper lawyer you can get the proper opinion. That is what you mean?—A. I would not disagree with you on that.

Q. At any rate, I understand you to say, from your experience dealing with rate-makers, that if they want to give you a rate they can produce the figures which by good railway practice will justify that, and show it is not really below cost, because other things entering into it will make it advantageous to the company in the large, so advantageous that it will repay the company to make that low rate, which by another process than the one adopted may possibly or certainly be worked out to be a rate below cost?—A. I do not know that I would undertake to answer that, although in the simple abstract I think possibly that what Sir Henry stated in a general way is correct; there are varying conditions, circumstances, and items of cost that may vary here or there, and not in another case.

Q. The principles, then, are really quite different?—A. In order to determine what the measure of cost may be in regard to a certain class of traffic, you would have to take all the underlying facts and the costs and benefits, in order to determine what the relative cost of that was compared to something else.

Q. In another place in his examination in the Senate, Sir Henry Thornton, going a little bit further, illustrated the rates sometimes made by railway companies by referring to the bargain days that merchants had in their stores. In order to force the sale of other goods, in order to produce bigger business, they are sometimes sold, a particular line, below cost. It would pay them to sell that line below cost. That principle seems sound, as applicable to railway conditions as well as to commercial conditions, does it not?—A. To dispose of a stock that is stale, and which the merchant wants to get rid of?

Q. No, he wants to fill his store with customers.—A. I would say that that—while I do not want to claim any knowledge of what Sir Henry had in

mind there—but I should naturally infer that he had more in mind the question of bargain day passenger excursions, and so on, than in regard to freight rates.

Mr. GARLAND: I think you will get your answer very clearly in turning to page 58 of Sir Henry's evidence, on the top of the page.

Mr. O'CONNOR: Yes, perhaps we had better start at the bottom of page 58.

By Hon. Mr. Gordon:

"Q. Can you imagine any other commodity, Sir Henry, that would be so deserving as coal of being in a class by itself as to low rates, providing that the situation you spoke of a while ago maintained, not to-day, but twenty years hence, more or less, and the times comes when the fires in all our industrial plants in the two central provinces were extinguished? On the other hand, that trade might develop and you might be able to transport the coal profitably from the West, in sufficient quantity to build up that country and put it in a position such as it does not enjoy to-day, and enable it to retain its population. Can you imagine that under conditions of that kind there is any other commodity that might be put in the same class with coal? Do you not think there is a great, special reason why coal should be put into a class by itself and transported more cheaply than any other commodity?—A. I should rather answer your question in this way, Senator. I do not know that I should like to single out coal and say that that is always entitled to more consideration than, let us say, wheat or something else; because some of the circumstances that you have outlined with respect to coal might apply to wheat or some other commodity at some time. But I will answer your question by saying that certainly coal is the very breath of industry and that we are justified in doing almost anything to put ourselves in possession of a reasonably cheap fuel supply not only of coal, but also of substitutes for it, like electricity. In principle I agree with what you have meant to say in your question.

"Q. If a situation developed in which you are able to transport this coal, it would mean, with regard to wheat, that immense quantities of that very commodity would be used right out in the locality.—A. What you mean to say is that coal is our most important commodity from the industrial and perhaps the domestic point of view and that we are justified in leaving nothing undone to favour coal and increase its consumable radius.

"Q. Yes.—A. Certainly."

Q. You go into the rate makers and ask them to give you a fair rate to handle large quantities of coal. You will be quite satisfied in using items such as used by the witness in the Senate Committee?—A. I do not know that I get you yet.

Q. You are trying to get what business you can for your own?—A. Yes.

Q. In order to get it, you have to have favourable rates. Would it not be a perfectly sound argument for you to use in asking these men, if you were to argue by the provision of a coal rate which is seemingly below cost, you will enable me to build up a teeming population over a sparsely occupied territory, where towns will grow up, where merchants will come, and miners will congregate, where farmers will come in and engage in mixed farming, and while indirectly this may seem to be a loss to the railroad, as a matter of fact, in the large, as a result of what I am asking you to do you will be able to close so many transactions, and deal with so many people, that you will be able to take care of the seeming loss that you now take on coal?—A. In making railroad rates, I

might say that the reason why we do not take into consideration the questions bearing on the general result, as you put it there, is we do not deal in futures in making railroad rates. We look for the profit in itself almost all the time. I do not mean by that that we do not probably get down to a pretty low ratio of coal in order to help out general situations for the benefit of all concerned, railroads and others, but I think it is only fair that those questions should be left to the representative of Sir Henry to answer, who is preparing data, I understand, for the very purpose. I have not had the opportunity of studying them from your point of view, or with Sir Henry's statement in front of me.

Q. You are the business getter. You are the man interested?—A. But I have to look out for the rate situation.

Q. You are the man who is interested in getting as low rates as possible from your company, in order that you may perform your functions?—A. I am interested with the Company the same as any other branch of the service, in getting rates that will get a return for the company as a whole.

Q. Only the rate makers of the company attend to that? You are only attending to one line?—A. In part, yes and no. It is simply because the other man makes a study of the statistical features, and the underlying causes, and I do not.

By the Chairman:

Q. You must look at the Labour Department as one?—A. That is the point.

Q. I was going to ask one question of Mr. Alton. Have you the tariff of rates from Sydney to Montreal?

Mr. ALTON: From Sydney to Montreal, \$4.50 a short ton.

By the Chairman:

Q. And from Montreal to Toronto? Would you have a tariff from Sydney to Toronto?—A. No.

Q. Well, then, give us from Montreal to Toronto?—A. \$2.90 a short ton.

By the Witness:

Q. Is it \$2.97, or \$2.90 flat?

Mr. ALTON: \$2.90 per ton.

By the Chairman:

Q. Will you get a through tariff from Sydney to Toronto?—A. Yes, I do not know that it will make much difference. The rate from Montreal that you would get there would be for the local and waterborn coal.

Q. It would make about \$3.90 from Sydney to Toronto?—A. I do not know what it would be, but I will get any information I can for you, and if you will permit, I would like to say this: When Mr. Crombie and the others come up, we will have the man with the tariff to verify that.

Mr. M. J. BUTLER was called and sworn.

By the Chairman:

Q. At one time you were Deputy Minister of Railways?—A. I was, yes.

Q. For how many years?—A. For five years.

Q. And after that you were General Manager of the Dominion Iron and Steel Company?—A. I was there for three years.

Q. And I am not going to ask you your business now?—A. I am doing nothing now.

Q. You sent to Hon. E. M. Macdonald a statement regarding freight rates from the West, and a general removal of coal from the West?—A. If I might

explain, Mr. Chairman, as a citizen of the country, I am tremendously interested in seeing that something is done to keep such tremendous business in Canada, if it were possible, and having this in mind a couple of years ago, I made a study of what they were doing on other railways in the United States, and particularly the Virginian Railway, which is a coal road of about 650 miles long. I secured the weight of locomotives in use on that road, the kind of cars that are in the coal trade, and the fact that solid through trains of about 8,000 to 9,000 tons are transporting daily over that road at the lowest rate in the world. Now, their grades are very favourable. The road was built by, I think, the Standard Oil people for the express purpose of exporting West Virginian coal to the seaboard, and they are dealing with these huge trains at the low cost that I exemplified in my letter to Mr. Macdonald. I have taken the railway statistics to see what are the earnings on the Canadian Pacific per mile per train, and on the Canadian Nationals, and I reached the conclusion, as coal was about the tenth class, that if they received an average earning of \$5.00 per train mile, they would make money in the transaction. Indeed, I reached the conclusion many years ago that it was somewhat on principle that one of the Vanderbilts announced, some thirty-five or forty years ago, that if the road was made, traffic would be charged all it could stand, and while it sounded harsh, nevertheless, it was a fair measure because it takes into account the value of the goods in transit, and the loss that would accrue if they lost a carload of high-class freight. Now, it seems to me that if they could get an average earning of \$5 per train mile, and move solid through, heavy trains with proper equipment for that purpose, that we would keep the coal in Canada, and the railways would make money on it, and all the good things mentioned by Mr. O'Connor a few minutes ago would happen.

Q. Then, you made the statement that I have before me, on the 12th of April, after given this question some years' study?—A. Yes.

The CHAIRMAN: Have you interested yourself in this statement, Mr. Garland?

Mr. GARLAND: No, I just read it over.

WITNESS: We could not haul a 15,000-ton train over a four tenth grade. They did it on that Virginian road. That is the heaviest train that was ever hauled in the world. The trainload was 16,000 tons, and it had 10,000 tons of coal on it. It was reported in the Railway Gazette of May 27, 1921. There is also the profile of the line and full statistics that bear on the transportation of this coal.

By Mr. Spence:

Q. Before making this statement in your letter in connection with the Virginian road, did you ascertain that they have forty six-tenth grades?—A. Yes.

Q. I suppose that on eastbound traffic, we have no such grade?—A. No.

Q. Three-tenths is the highest grade we have?—A. Four-tenths coming East. That is the standard grade of the Transcontinental, and I understand Mackenzie and Mann came as nearly to it as was practicable, that they have in a few places three-tenths and five-tenths, but I understand where they have five-tenths that they count on the velocity of the train to help reduce it to four-tenths.

Q. In your experience, what is the average speed?—A. I understand that the Canadian Pacific have hauled five thousand tons trains over their lines at Port Arthur.

Q. Is their grade more favourable or less favourable?—A. Not quite so favourable, because they are depending on velocity to cut down the grade.

Q. Do you know which trains are drawing the largest loads to Port Arthur and Fort William?—A. I have not been over that, but I imagine the Canadian Nationals should.

Q. Well then the calculation you make is based on a trainload of how much?
 --A. Five thousand tons net of coal.

Q. You doubled that?—A. I doubled that for the mileage charge against the road, because you have to run your trains back. That is what they are doing on the Virginian.

Q. Your basis is 5,000 tons of coal, and you allow an equal sum for the return of those cars to the yard?—A. I allow \$10 a mile both ways.

Q. In your experience, could this possibly be done with ordinary box cars?
 --A. No, sir.

Q. What would you suppose would be the highest tonnage that could be hauled on any of our roads?—A. I did not take very much track of it. If they used box cars for friable coal, it would not be satisfactory. It just amounts to this. You might just as well say the average railway man cannot operate this road unless he used box cars. They have mixed grade like the Nationals.

Q. You do not catch the point.—A. I do, that is to say, that they have none of these heavy coal cars, and do not want to buy them. For the coal itself, it seems to me that you can get better information elsewhere. I do not think we have handled the friable and b.t.u. coal into this market.

By Mr. Davis:

Q. The witness is talking of vast quantities of coal that could be transported in open cars?—A. Yes, that is right, of the highest grade in the world.

By Mr. Spence:

Q. I want to go back to this estimate. Presuming that you have an idle time of three or four months and nothing engaged in hauling, and had available cars, in that case, would your statement here be varied in any degree as to the return of those cars? In other words, is it necessary to double the mileage rate?
 --A. I would rather you would discuss that with the traffic officer.

Q. You are an experienced man in this line?—A. I have no doubt that probably a proportion of their load would go back loaded. That would have a slight tendency to reduce that rate.

Q. Is not the ordinary practice to charge not more than two-thirds for the return of empties?—A. Not for this class of traffic. If you are going to mix the return cargoes with this heavy trainload that I am estimating on, you would come back to the ordinary standard railroad prices, that is, to mix up trains with carloads of coal and timber, and this and that sort of thing, to be dropped along the line. That is not my idea of an economical method of doing this business at all. I think you must run through, solid, heavy trains, and not delay on the road. Unless an accident happens to the train, that train should go solid from Alberta to its terminal point, and its load discharged as quickly as possible, and the whole train turned back. That is my idea of the economical way of moving this coal from the mines to the market.

By Mr. Warner:

Q. You are not counting on the return haul?—A. No. When you introduce that you mix up things once more. Within the last year or so, and particularly during the last few months, the principal of the solid through train has been worked out on various railways in the United States. There is a report in the "Railway Age" of the successful work on the Baltimore and Ohio.

Q. There are switching charges?—A. Yes, and they break up the train, and there is the yardage to pay, which is a large percent. of the cost.

By Mr. Spence:

Q. I understand that you worked this calculation on the strict carload basis?
 --A. Yes.

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Q. You give the distance from the mines to Edmonton as 176 miles, and you work on it from there?—A. Yes.

Q. That would mean that you had in your mind the anthracite coal of the West?—A. I had in mind the highest grade of coal.

Q. Your figures would be reduced by the difference in mileage between where it is situated and Drumheller?—A. Yes.

Q. Then your price would be that much lower?—A. Yes. It was intended as a characteristic illustration of what might be done.

Q. It is your opinion that trains could be operated, or coal could be drawn cheaper, by just returning the train and not trying to pick up any traffic at all?—A. Quite so. The moment you mix up the traffic, you have introduced another set of difficulties altogether.

Q. The reason I asked that is, that it has been the opinion of most people discussing this question, that without the return traffic it would be impossible, but with the return traffic it might be possible, to get a much lower rate?—A. I do not agree, of course. I think that is up to the railway officers to say what they could do, but certainly the rates that are in my statement are absolutely prohibitory on bringing Alberta coal down into Ontario.

Q. It looks more possible. That is the reason I proposed that point?—A. Be sure of this one thing, if they get the type of locomotive that will haul the heavy train, it will not do to have a mile-long train. That would be disastrous. They use 100 and 120-ton cars on the Virginian, and the train is short—about fifty cars make your load—fifty cars would give you 5,000 tons. That is the kind of trainload they can handle successfully at an average of about 15 miles an hour.

By the Chairman:

Q. Do you remember those big steel cars they use at Sydney?—A. They are rated at 50 tons, but very rarely went over 35.

By Mr. Warner:

Q. Your basis of calculation is on the kind of equipment we have here, but not in Virginia?—A. No, mine is general.

By Mr. Kennedy:

Q. You said that the average earnings per freight train mile on the Canadian National Railways for the year 1922 was \$4.29; for the Canadian Pacific \$5.41. As coal is in the low class, 10th class, I understand, it ought to be satisfactory to the Railway Company, if permitted to earn its average rate on all train load coal. Do you think that you can justify that statement?—A. I think that could be justified.

Q. The average freight train, I understand, is less than 1,000 tons?—A. I am not surprised to find that it is about 1,000 to 1,200 tons, because it is all mixed up.

Q. Did you take in the overhead?—A. Yes. The Canadian Pacific is making a pretty fair return on \$5.41, and if you take the earnings of the Canadian Pacific, assuming that they were applied, the low class freight would not earn proportionately to \$5 a mile, I do not think. It is the average of the whole of their earnings.

Q. In traffic of this kind, do you think they would be justified in putting in a rate that did not meet the average proportion of the overhead expense?—A. I do not think any rate should be put into effect that does not sustain the railway. I remember myself, when I was on the Intercolonial Railway, we handled coal at $\frac{3}{8}$ of a cent per ton, per mile, in 1906 and 1907, from Levis and Riviere de Loup and Campbellton. We used to move the coal from Sydney and North Sydney points to Levis.

By Mr. Spence :

Q. Is it not true that railway men prefer reducing their rates so that they can increase the traffic?—A. I have not studied that.

Q. That means a small increase in the charge to the overhead?—A. When you come to deal with the allocation of railway costs, it is a rather difficult thing. As you know, I have no axe to grind; I am not in any public or private position at this time.

Q. As a matter of fact, if you can increase your business by 50 per cent, you do not increase the overhead by anything, or at least very little?—A. Of course, the larger the business done, the smaller the overhead.

By Mr. Davis:

Q. Mr. Chairman, the witness will agree with me, I have no doubt that during the months of April, May, June and July, and possibly part of August, the traffic on our lines is very low, especially in the West?—A. Yes.

Q. During the continuance of that slack period, do you think that it is wholly justifiable to take that into consideration for the overhead?—A. Oh, your cost for overhead is working all the time, twenty-four hours a day, every day of the year.

Q. Then is it fair to take it into your computation?—A. For instance, it has been the practice, and the so-called scientific management of industry, to carry the burden of overhead as fixed percentage, or sometimes because of labour, but it has been pointed out in recent years that is not altogether just the sensible thing, and an illustration is that if a man had two plants, one of which could be kept at work every moment, and the other one had to lie idle, and the working one carried the burden of the idle one, the answer of all sensible men is that each one should carry only its own burden. I think that is the answer to your question.

Q. You say that if there are two plants, one of them idle, and the other working, that one that is working should not be asked to lower the price of the commodity?—A. I do not say that.

By Mr. Drummond:

Q. But you have to carry part of the idle plant just the same?—A. Yes.

By Mr. Davis:

Q. Don't you think the operator of the idle plant would be glad to carry on if you could supply him with business?—A. Yes, by running it at cost and sacrificing his overhead.

Q. Well then, don't you think it would be advisable for the railway to run at cost?—A. I do not think it would be advisable for it to run it at cost.

Q. But if it was necessary, you would agree that it would be?—A. Yes, I would run it down to the bone. You are dealing with large trainloads in dealing with wheat, and a rather more expensive class of cars, elevators, and all that sort of thing, but as to hauling of the wheat, I have had no personal experience. I have had personal experience in handling coal. I do not know that I would be in a fair position to express an intelligent opinion, but in the hauling of wheat in trainload lots in that way, and going back empty, I think it would work out satisfactorily.

Q. It would not be so expensive, and there would not be as large a risk?—A. There is more risk in wheat.

Q. I was thinking of coal. I just put the question the other way. The coal would not entail much risk, or call for as much expense in handling, on account of not being such an expensive equipment?—A. No. I remember one time a dollar a ton per mile was charged on the Denver and Rio Grande Railway.

[Mr. M. J. Butler.]

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They carried silver bullion, and they lost a car which tumbled over the bank and disappeared, and it was lost for about five years before it was discovered, and they had to pay at an enormous rate for the valuable stuff that they had lost.

Mr. BUTLER: A few days ago a witness gave us rates on the hauling of coal West. He gave us the rates going West?—A. I do not understand you.

Q. The rate is made out on a mileage basis of $37\frac{1}{2}$ cents. The rate being exactly the same, is there any justification for that?—A. I would not think so.

Q. It is close together?—A. Yes. Just to show you what happens under the conditions that are here enumerated, the car mileage of loaded freight cars is 53,126,394 miles, and the mileage of empty freight cars is 50,895,227 miles. There is the illustration of what happens with this rate. As far as Mr. Hix said to me in his letter, he said:

"I am just in receipt of your letter of the 16th inst., which has been noted. We have fourteen miles of .6 of 1 per cent grade against the loaded movement over Allegheny Mountain.

"The maximum grade other than this in the direction of the loaded traffic is .2 of 1 per cent. We have two sections of $1\frac{1}{2}$ per cent grade, one eight miles in length and one eleven miles in length, in the direction of the empty movement.

"The rate per ton per mile on coal is six miles, and the reason of the good earning power is because of the ability to handle the heaviest train haul of any railroad in the world."

By Mr. Kennedy:

Q. Have we any of the equipment used on that Virginia Railway, have we engines or cars?—A. I do not think so.

By Mr. Spence:

Q. Then in order to get the system you advocate, it would be necessary for the railways to supply themselves with a whole new equipment?—A. Yes, and I think they ought to do it.

By the Chairman:

Q. And they ought to do it?—A. Yes.

By Mr. Gendron:

Q. Will this equipment only handle coal?—A. Not necessarily, a portion of the cars could be used for timber and other things, and the engines would be available for hauling grain or for ores of other kinds.

By Mr. Forrester:

Q. Are the tracks in condition to handle that traffic?—A. I think so, they have 80 pound rails everywhere, and no doubt if the traffic developed—

By Mr. Lapierre:

Q. Mr. Chairman, does that apply to the C.N.R. east, by the cut-off?—A. I do not know, I presume they built it with the same grades, and with the same heavy rails and so on.

By Mr. Kennedy:

Q. Is the Virginia Railway making a profit?—A. Yes.

Q. A good profit?—A. Yes.

By Mr. Lapierre:

Q. But is not the Virginia Railway kept busy twelve months a year?—A. Yes.

[Mr. M. J. Butler.]

By Mr. Dechene:

Q. What would be the cost to the railways of getting that equipment?—A. I do not know the cost, as it is so long since I have had anything to do with it. Things I knew a few years ago are multiplied by three now.

By Mr. Chisholm:

Q. It is very large, anyway?—A. Yes, very large.

By Mr. O'Connor:

Q. Mr. Butler, would you mind explaining this principle, which seems after all to be the railway principle, of the fixing of rates, all the traffic can bear. You agree with me that that is the railway principle?—A. I think that is the principle, and I think it is sound, as well.

Q. I am disposed to agree with you. I want it expounded a bit so that we may be prepared for those who will follow you. I want to see just what you understand by it. I think this, that it takes into account the value of the commodity being hauled?—A. I should think so, and the length of the haul.

Q. It takes quantity of the commodity to be had, into account?—A. Yes.

Q. Volume of traffic. It takes the length of haul, takes the character of the plant, railway plant, required to haul it?—A. Yes.

Q. What else?—A. And the terminal conditions that surround it.

Q. That might come under the plant?—A. Yes, that affects it also. You can understand that carload lots of machinery which will be handled by the owner of the machinery from the car directly into his shop is one thing, and if it has to be handled from the cars into the freight sheds and out again, it is another.

Q. That is plant. Can you think of anything else?—A. I should think that would be substantially all.

Q. Would it ever take national necessity into account?—A. It might have to. As a railway operating officer, I suppose he would have his first duty to the railway, and what he thought was best for it.

Q. Does it go this far, to consider that it is the duty of the railway as a public and common carrier to supply the needs of the country, and as a matter of fact the commodity to be hauled will not bear beyond a certain amount an arbitrary rate, whether that rate which you can compute to be one below cost or not; do you follow me?—A. I would say the railways are doing that right along, to a greater or less extent.

Q. It seemed to me that must be so, because you have been giving average rates.—A. Yes.

Q. And these averages, to be averages, necessarily must be higher and lower than these?—A. Yes, unquestionably it must be so, and a statistician with all the costs and tonnage and all the data before him could easily compute what each class produced, and whether it bore the proportion of the whole it ought to or not.

Q. Then it must be, or it is probable that some goods are hauled by railways actually below the real cost?—A. I have not any doubt about it, that is so.

Q. And it may be and sometimes is—perhaps often—that it pays the railway to do it?—A. Yes, I think that is so.

Q. That is all I have to ask with regard to what the traffic would bear, that is included, that sort of thing is included in "All the traffic will bear"?—A. Yes.

Q. But there is some traffic that will not bear cost?—A. That is it.

Q. And that is what makes the principle of all the traffic will bear a fair one?—A. There is no doubt whatever, if you could get carload lots of silver bullion and gold bullion, you could get a very high rate, but you would need it.

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Q. Then to go right down to the cheapest commodity; if you were hauling peat and had to haul it, you would have to get an even lower rate than on coal?—A. Yes.

Q. That would all come under that general principle of what the traffic will bear?—A. I think so.

Q. Then I want to go to another question, that of canals. You were a Deputy Minister of Railways and Canals, and have a familiarity, I would think, with the eastern canal system?—A. Yes.

Q. You have familiarity with the canal rates?—A. There are none.

Q. In the past?—A. There were none.

Q. I should have said, canal carriage costs?—A. No, I do not know. I never had anything to do with that.

Q. I thought perhaps, in your capacity as manager of the coal company, it would come in in your relation with Montreal?—A. No, we shipped up a few experimental cargoes to Fort William and to Toronto, I think.

Q. I am sure the gentlemen here would be interested in that.—A. I suggested in my letter that you get John R. McIsaac of Sydney, who is the Transportation Manager of the British Empire Steel & Coal Company, Limited. He has these rates at his finger-tips.

Q. Have you any idea as to the possibility of getting Nova Scotia coal into Toronto through the canals?—A. They can bring it to Montreal fairly satisfactorily, but from there up the boats can only be about 2,000 or 2,500 tons, and it means discharging the cargo at Montreal and reloading, and as far as I know there are no proper coal-handling facilities at Toronto as yet, for quick discharge.

Q. The 2,000 or 2,500-ton boats, if properly constructed, would not require to be reloaded?—A. No, but that boat would not pay, to come up from Sydney.

Q. I was wondering whether it is profitable to ship that way?—A. I do not think so.

By Mr. Forrester:

Q. What are the sizes of boats running now from Sydney to Montreal?—A. From 10,000 tons to 8,000 tons.

By Mr. O'Connor:

Q. The 8,000-ton boat is best?—A. The 10,000-ton boat is very satisfactory.

Q. Can you give us an idea of why a 2,000 or 2,500-ton boat coming through the canals is not likely to be profitable?—A. You could not charter her at a price that could compete at all with the price of the bigger boats; that has been proven out years ago by the coal companies.

Q. Coal prices have changed considerably?—A. Yes, but still the coal is coming down. I have bought my coal for next winter at \$8.50 a ton, delivered. That is bituminous coal.

Q. At the time you made your tests a good many years ago, coal was pretty cheap then?—A. Yes, \$3 a ton at Montreal.

Q. There is quite a difference in price now, and boat rates are down?—A. Boat rates are up, and labour is up, and the cost of coal is up, and I do not know how it would compare to-day.

Q. You have not any idea now as to what it would cost per ton to bring one of these boats that could go through the canals from Montreal to Toronto?

—A. No, I have not.

[Mr. M. J. Butler.]

By Mr. Chisholm:

Q. You had in mind a boat, not barges?—A. No, he means a boat like what we ran up with the rails; we used to run them to Port Arthur with rails. I have forgotten what the rate was, but Mr. McIsaac will have all this.

Q. It was cheaper than rail?—A. Yes, cheaper. The whole difficulty with boat traffic consists first in the not having a proper discharging plant. The Dominion Coal Company have an adequate discharging plant at Montreal, and have not one elsewhere. They have plants at Quebec and Three Rivers also. It means a great difference, when a boat comes up with 8,000 or 10,000 tons of coal, and it is all discharged in six or seven hours. If a boat had to lay two or three days it would make a great difference.

By Mr. Kennedy:

Q. Going back again to the question of hauling freight at less than cost, could you tell us of any case where the railways have been hauling freight at less than cost?—A. It would be very difficult.

Q. Would you suggest that any railway could haul a commodity, where there was a large volume of traffic, at less than cost?—A. They all do it, under the conditions that were brought out by Mr. O'Connor. I think it probable that they are doing it every day, to a limited extent.

Q. To a limited extent?—A. Yes. The tonnage in the aggregate may be very considerable, but I have not enough personal knowledge of the thing, and have been away from it for a considerable number of years, so I would not like to pass an opinion.

Q. In hauling one commodity at less than cost, it can only be done, of course, on the understanding that some other commodity will pay much more?—A. Yes, certainly, what do you think that schedule of rates is arranged the way it is for?

By Mr. McBride:

Q. Would it not be possible in bringing coal up the canals, to load a number of barges and take them in tow?—A. They load them in Montreal, and that means re-handling through the Montreal harbour. You cannot tow them from Sydney; the hazard is too great.

By Mr. Chisholm:

Q. Would that same condition obtain with reference to the Great Lakes?—A. Yes, certainly. There is just as much danger on Lake Ontario or Lake Superior or Lake Huron as there is on the ocean or the Gulf.

By Mr. Warner:

Q. Did you ever discuss your statement here with any of the railroad authorities?—A. I did not.

By the Chairman:

Q. You know as much about it as the railroad?—A. No, I would not say that. I have just put this forward as something for the consideration of the Committee, to let the railroad men answer some of the issues I have raised.

The essence of the principle is solid through trains from terminal to terminal, not the breaking out of an occasional car; they cannot go on without charging a pretty high rate where they have an occasional car, like those odd cars that have been sent down to give demonstrations in Toronto. It must have cost a great deal of money to bring an odd car down like that.

[Mr. M. J. Butler.]

By the Chairman:

Q. Have you ever considered the possibility of a coke trade with plants at Montreal, supplied with coal from the Maritime Provinces?—A. It can be done, and the only question would be the market for the surplus gas. The coke market is already made, the by-products market, I take it, is already made, but the surplus gas which amounts to about 5,000 cubic feet per ton, I do not know what they do with it after a certain point has been reached; it would have to go to the atmosphere, I am afraid.

By Mr. O'Connor:

Q. Would there be any opportunity of using it for steam power?—A. Yes.

Q. Why not sell it to those now burning coal?—A. Yes, it could be done and it could be used in central heating plants, which ought to be the rule.

Q. You would do your central heating with gas?—A. Yes, you can do it. It is a pretty large investment, you know. Something of that kind has been done in Sydney, and I think the 500 ovens cost something like \$1,000,000, and they treat the by-products.

By the Chairman:

Q. They lose their gas?—A. No, they use it all there.

By Mr. Warner:

Q. I would like to ask a question there. Would it be your opinion that they could burn that kind of gas with the same kind of gas equipment that they have for burning gas here?—A. Yes.

Q. They could run it right into these same furnaces?—A. Yes; they would have to be careful, but it can be done without considerable cost; they use it now for firing in a great many departments of the Dominion Steel.

Q. I was wondering if it would take different equipment?—A. No, I do not think so.

By Mr. Garland:

Q. Mr. Chairman, the development of a coke industry as a replacement of coal supplied from the United States, would, I think, depend upon the ability to get rid of the by-products?—A. Yes. The cost of making coke is substantially covered by the by-products, including the waste.

Q. To what proportion, then, would you substitute gas for the coal used now in central heating plants?—A. There are no central heating plants in Canada.

Q. If there were, you would then replace coal?—A. Yes, it would be a feasible plan. It has been in use in New York since 1882.

Q. A ton of coal will give you perhaps 75 per cent coke and 25 per cent gas and by-products?—A. No, one-third is pretty good practice.

Q. How much coal will that one-third of gas replace? How much coal used for heating purposes will that one-third ton of coal turned into gas replace?—A. I do not know, it gives you about 10,000 cubic feet of gas altogether. It is a matter of calculation, with 550 B.T.U's.

Q. Would it replace half a ton of coal?—A. No, it would replace a third of a ton.

Q. As far as heating is concerned, the situation would be much as it is?—A. Pretty much, you would gain what would take the place of gasoline.

Q. You would get the sulphite of ammonia and benzol?—A. Yes, and benzol is much more efficient than gasoline in a car. It is in the market now in Sydney, and it is sold at Hamilton as Steelite.

By Mr. Warner:

Q. Did I understand the witness to say that the amount of value of the by-products of the coke would produce about the same amount of heat as the same amount of coal would?—A. Very nearly, there would be a little loss, of course. There is always a loss when you convert any chemical substance into another.

By Mr. Chisholm:

Q. Mr. Butler, talking about the by-products, is there any difficulty in getting the market for the other by-products, because that is very essential?—A. I should think not, there is a great dearth of creosote at the present time, and also the pitch, and of course we would hope, if there was a considerable quantity of that available, that the dye industry and all that pertains to it would spring up here. As you know, the Dominion Tar & Chemical Company only take out creosote and a few of the things, and sell the rest to the American Chemical Companies. It is a pity we have not the whole business here; the supply is unlimited, in fact.

By Mr. Lapierre:

Q. How are the by-products sold?—A. They are sold after they have taken out the creosote, and the pitch, then it is disposed of to the refining companies who make dyes and perfumes and all sorts of things out of it.

Q. What is the basic product used in the manufacture of these things?—A. They all come from coal tar.

By Mr. Warner:

Q. Following up the question I asked, is it your opinion that if the coal is properly burned, it would give a little more value than it would if used as coke, with all the by-products?—A. Yes, but you can understand that if it were burned properly—it is pretty hard to burn soft coal properly to heat individual houses, the efficiency of the domestic furnace is low, whereas the efficiency of one or two boilers with stoker firing and powdered coal and every economy, that can be done in a central heating plant, and cannot be done in individual houses here, there, and everywhere, for household use.

Q. Is there not as much difference between burning hard coal properly as soft coal?—A. Nearly; I know from my own case this winter. I changed my house last fall and put in soft coal furnaces, and never had such a comfortable winter in my life. I did not burn Nova Scotia coal, but coal from Pennsylvania.

By Mr. O'Connor:

Q. I would like to ask a question of the witness. The question was put to me, about the percentage of Nova Scotia coal which could be turned into coke, and I said I thought it was two-thirds of the Nova Scotia coal. Have you anything on that?—A. Yes, I fancy a good deal of the coal should not be used; take the No. 6, for instance, it could not be used at all.

By Mr. Chisholm:

Q. What do you call a high sulphur coal, what percentage of sulphur?—A. Anything over $1\frac{1}{2}$ or 2 per cent. That is for metallurgical reasons.

By Mr. O'Connor:

Q. They can reduce the sulphur by washing it?—A. A little, but not very much.

By the Chairman:

Q. I would ask you to look at that statement on page 112 of volume No. 4 of the reports of this Committee, given on the 17th of April by Mr. Garland, and

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tell us what you think of it.—A. I do not think that is the proper way to arrive at costs. I think it calls for perhaps more technical knowledge than is here, and a more careful consideration of all the items.

By the Chairman:

Q. I may say that that statement is a statement given as to the probable cost of bringing coal from Alberta to Toronto, but it does not take into account overhead charges. It is a statement based on the present equipment of our railroads.—A. Well, it is based on I do not know what exactly.

By Mr. Davies:

Q. I would like to examine the witness on this statement, if he has no objection.—A. I would not care to be examined on it, for the simple reason that I have not the data to check it up.

By the Chairman:

Q. Supposing you take that statement with you and go into the matter.—A. I would rather not. It means a lot of work.

Q. In view of the examination of Mr. Butler, I think it would be fair to have this memorandum which he sent in, printed in the report that comes out from day to day.

Mr. WARNER: I think it would.

The CHAIRMAN: Is that agreeable to the Committee?

(Report follows).

Hon. E. M. MACDONALD, Esq., K.C., M.P., Etc., Etc., Etc.

House of Commons,

Ottawa.

DEAR Mr. MACDONALD,—I am glad to meet your request to submit for the information of your Fuel Committee, my views as to what seems to be needful to insure to the people of the Central portion of Canada an adequate supply of coal from Canadian mines transported on Canadian railways and in Canadian ships:—

With regard to the transportation of Nova Scotia coal, I submit, your Committee would be wise to call Mr. John R. McIsaac, the manager of Transportation for the British Empire Steel and Coal Company as he had for many years the handling of Charter parties, on behalf of his several coal companies—and knows just what rates are commercially practicable for St. Lawrence River points.

With regard to Western coal as an available supply for Ontario, the following mileage table will show what the handicap is:

| | Canadian National Railways. | All Rail Miles |
|--------------|-----------------------------|----------------|
| Coal spur to | Edmonton.. | 176 |
| " | Saskatoon.. | 502 |
| " | Winnipeg.. | 975 |
| " | Port Arthur.. | 1,413 |
| " | Cochrane.. | 1,751 |
| " | North Bay.. | 2,004 |
| " | Toronto.. | 2,284 |

[Mr. M. J. Butler.]

It is altogether likely, given proper facilities, at Port Arthur, for quick unloading of trains, and quick loading of steamers, with suitable quick discharging plants, at Port Colborne, Midland, Owen Sound, Port McNicol, etc., that it will prove more expeditious and less costly to transport 10,000 ton cargoes by water from Port Arthur to one or more of the above named ports, Midland or Port Arthur will best serve the Middle and Easterly portion of Ontario.

Windsor is also a centre that reaches a rich and wide consuming area. Sarnia, if provided with suitable plant for discharging would also be a good centre. It must be borne in mind, that as the cost of adequate equipment for discharging plants is large so the multiplying of ports with adequate facilities must be limited, and only those should be equipped, as have already good railway facilities docks and yard room.

Assuming a distribution plant at Midland, the distance to Toronto is only 120 miles—Peterboro 116 miles, Belleville 179 miles, etc.

I recognize that the more the coal is handled the greater the breakage, but as we proceed it will be possible to judge whether the saving by rail and water, is sufficient to make up for any loss incidental to the re-handling from the car to the ship, from the ship to the car, and as the final discharge will be the same from the car, it only involves the two extra handlings.

To begin with let us eliminate the "know it can't be done" type. Let us also eliminate the traffic affairs who are making rates, predicated before using, small coal cars, box cars, old weak locomotives, with small train loads—or mixed train loads, with a few cars of coal to fill up the tonnage.

It is I think clear, that, the problem, is one, that demands that the equipment, from beginning to end shall be adequate to handle the tonnage at the lowest cost, but not at a price that the railway will suffer.

The appealing figures of our coal and coke imports show that it is well worth while to take steps to stop this drain on our earnings. In the four years 1919, 20, 21, 22, we imported 75,381,359 tons of coal at a cost of \$320,232,459.00. In addition, we imported 2,237,853 tons of coke at a cost of \$18,558,468.00. Incidentally, had the tonnage of coke been made in Canada, the by-products would have been worth not less than the cost of about 700,000 tons of coal. The average cost per ton of the coke was \$8.29; the average cost per ton of coal, all grades and sizes, \$4.25.

The average earnings per freight train mile in the Canadian National Railways for the year 1922 was \$4.29; for the Canadian Pacific \$5.41. As coal is in the low class, 10th class I understand, it ought to be satisfactory to the Railway Company, if permitted to earn its average rate on all train load coal.

Before giving any coal figures, as to what may reasonably be expected from our railways, it is necessary to show what is being done elsewhere. The Virginian Railway has very favourable grades in favour of the load, but not to any extent superior to the National Railways, C.N.R. and G.T. Pac. Freight cars for coal trade, flat bottom Gondola cars, capacity 218,000 pounds—983 in use—also smaller tonnage cars, Locomotive, largest size 10 of 2-10-10-2 type traction effort 147,200 pounds,—also 20 of 2-8-8-2, traction effort 101,500 pounds. Also smaller engines. The record was broken on Wednesday, May 5, 1921. On that day a train of 16,000 gross tons, of coal 10,000 tons was hauled. The regular train loads are however 8,000 to 9,000 tons. The Norfolk and Western Railway is using 100 ton cars in solid trains and transporting coal very cheaply. To quote from a letter from Mr. Chas. E. Hix, Vice President of the Virginian Railway dated Sept. 19, 1921:

"We have fourteen miles of .6 of 1 per cent grade against the loaded movement over Alleghany mountain. The maximum grade other than

this in the direction of loaded traffic is .2 of 1 per cent. We have two sections of $1\frac{1}{2}$ grade, one eight miles in length and one eleven miles in length, in the direction of empty movement.

The rate per ton mile on coal is six mills, and the reason of the good earning power is because of the ability to handle the heaviest train haul of any railroad in the world.

Yours truly,

C. H. HIX,
Vice President."

The maximum adverse grade on the National Railways, old Canadian Northern, G.T. Pacific—certain sections of the Grand Trunk, is $4\frac{4}{10}$ of 1 per cent—going west the maximum adverse grade is $\frac{6}{10}$ of 1 per cent.

Train loads, to be on a basis of 15 miles per hour—trainmen and enginemen can thus make 5,000 miles per month, which gives, on the whole, the most efficient operation for freight service.

I assume an average earning of \$5 per train mile, loaded one way only, thus making a charge or earning for the railway of \$10 per train mile against its load of coal.

I assume that the equipment will be equal to that in use on its Virginian railway—hence, 5,000 tons of coal per trip. The weight of the train will be approximately 8,000 tons—the coal per train on this basis will be:—

| | | |
|--------------------------------------|------------------|--------|
| To Winnipeg, 975 miles. | \$ 9,750 per ton | \$1.95 |
| To Port Arthur, 1,413 miles. | 14,130 per ton | 2.83 |
| To Cochrane, 1,751 miles. | 17,510 per ton | 3.50 |
| To North Bay, 2,004 miles. | 20,040 per ton | 4.00 |
| To Toronto, 2,284 miles. | 22,840 per ton | 4.57 |

Provided adequate, quick unloading of cars into ships is provided at Port Arthur, and with similar equipment of Lake Ports, as before enumerated, the average cost per ton should not exceed by water route an addition to Port Arthur, rate of \$1.65 per ton, thus making freightage cost rail and water rate to such ports of \$4.48. These water rates, once the business is under way as a reliable steady source, will be materially reduced.

I understand the price of coal under the limited work now being done in Alberta is at the mine head about \$3 per gross ton. No doubt under a large demand the cost and selling price would drop to \$2 per gross ton.

American bituminous coal is now selling in car lots retail at \$8.50 per short ton, coke of excellent quality at \$10.50, anthracite \$16.50 to \$19 and only in one-half tons or less deliveries.

If I am right in my calculations, and I can see no error in them, Alberta coal of the best quality can be sold at retail in Toronto, allowing \$1.50 to cover profit and delivery locally, at \$9 per ton. Two dollars per ton at the mines will reduce the selling price in Toronto to \$8, which can compete with Pennsylvania's coal as the markets now are.

I have the honour to be,

Yours faithfully,

(Sgd.) M. J. BUTLER.

Oakville, Ont.,
April 12, 1923.

The Committee adjourned until Friday, April 27, at 11 a.m.

13-14 GEORGE V, A. 1923

HOUSE OF COMMONS,

COMMITTEE ROOM 436,

FRIDAY, April 27, 1923.

The Select Standing Committee on Mines and Minerals met at 11 a.m., the Chairman, Mr. Carroll, presiding.

The CHAIRMAN: Well, gentlemen, I see there is a quorum. We will call Mr. Dickson.

E. M. DICKSON, called and sworn.

By the Chairman:

Q. I understand, Mr. Dickson, that you were brought here to show us something regarding the undeveloped coal areas in Cape Breton; that is, outside the areas owned by the Dominion Coal Company. Would you tell us briefly what those areas are?—A. There is the Chimney Corner, Ste. Rose—

Q. You mention Ste. Rose and Chimney Corner; they are in the same county?—A. Yes.

Q. Any others undeveloped?—A. Then there is in Richmond County, the Whiteside.

Q. I did not mean entirely the undeveloped areas, but any not being developed?—A. There are the Mabou and Port Hood areas.

Q. At Inverness?—A. Yes.

Q. And then in Richmond?—A. There is the Whiteside area.

Q. And in Cape Breton County?—A. There is the Broughton area, owned by the Cape Breton Coal Iron and Railway Company, there is the Hiawatha area, better known on the map as the Montgomery area. That is in South Cape Breton County. Then north Cape Breton, the Kelly Cove area, which is being developed a little.

The CHAIRMAN: Dr. Chisholm, you had better question the witness.

By Mr. Chisholm:

Q. You mentioned the undeveloped or unoperated areas in Inverness County. Can you give me just in a rough way, some idea of the quantity of coal there? I know it is a large question.—A. There is estimated fourteen miles along the shore, extending possibly more than ten miles back, with considerable water areas to-day which are practically unknown.

Q. Yes, that is true. Can you give me some idea of the number of overlying seams there?—A. There are eight.

Q. That is, already located?—A. Already located, yes.

Mr. CHISHOLM: Mr. Chairman, it is not necessary to go into the details of the quantity of coal there.

The CHAIRMAN: I do not think Mr. Dickson is in a position to do that.

By Mr. Chisholm:

Q. But I want to ask the witness particularly if he can give me some idea of the reasons why these areas were not developed?—A. Transportation is the whole problem.

Q. There is a railway there already?—A. Not extended to Chimney Corner nor St. Rose.

Q. It extends as far as?—A. Inverness.

[Captain E. M. Dickson.]

Q. That road is now in the receivers' hands.—A. Yes; it is a Mackenzie and Mann line.

Q. On that road, there are two coal mines not operated?—A. The Mabou and the Port Hood.

Q. Why were operations not carried on in these two mines?—A. The freight rates were prohibitive.

Q. The freight rates were prohibitive?—A. And the lack of water transportation.

Q. The fact of the matter is that this road is owned by a competitive company, owning a coal mine?—A. Yes.

Q. We have had this before, so it is not necessary to repeat it, but what would you suggest by way of developing the areas further north, that is St. Rose and Chimney Corner?—A. I would suggest that the road be extended to Eastern Harbour.

Q. What have you in view then, supposing the road were extended to there?—A. Ship it to the St. Lawrence; it is the nearest accessible coal port to the St. Lawrence, and the Montreal markets are always open.

Q. That is true. By consulting the map it will be seen that Eastern Harbour is the nearest point to the mouth of the St. Lawrence of any port.—A. Yes, any coal port.

Q. What is your opinion of that harbour?

By the Chairman:

Q. Just before that, what handicaps would be overcome, Mr. Dickson, by shipping from Chimney Corner or rather Eastern Harbour, than by Sydney or Louisburg?—A. There is practically no obstruction to navigation.

Q. Is there any other road?—A. You have fogs, and greater distances.

Q. And you do not have to go around that point of land?—A. No, Cape North.

By Mr. Chisholm:

Q. Yes, that is what I wanted. Talking about Eastern Harbour, it is not very well known because the fishing is the main thing there. What is your opinion of that harbour?—A. It is a good harbour if there were some harbour improvements. It has now about fourteen feet of water, I understand, and is easy dredging and it would be easy to give any reasonable depth of water, say 25 feet or more.

By Mr. McBride:

Q. Is it open to the sea?—A. Yes, but it is protected. It is an inland harbour.

By Mr. Chisholm:

Q. It is a splendid port, and the only thing about it is the deepening of the channel.—A. Yes.

Q. There was no necessity for deepening the channel for anything before, because fishing boats and fishing schooners are not large, and 14 feet of water is sufficient for any of them.—A. Yes.

Q. That is, you say the deepening of Eastern Harbour and the extension of the Inverness Road would open up a very large area?—A. Almost unlimited.

Q. And would open up a port which would be the nearest to the St. Lawrence of any coal-shipping port?—A. Yes, in Nova Scotia.

Q. The gentlemen from the west, I might say to them, that that whole bay there is filled with ice for about four months of the year, but the St. Lawrence is also frozen up.

Mr. KENNEDY: Would you mind getting up to the map and showing us on it?

Mr. CHISHOLM: I would be very glad to.

(Mr. Chisholm explains on map.)

I may say this; it will appear to you very strange that this vast area was never developed before. The reason was that Mackenzie and Mann went in there, built a road, and bought a coal mine and began to operate the coal mine, and became then a competitive company as far as coal was concerned. During that period, the markets were not very good, you would have to seize upon every opportunity to sell your coal. There were two coal mines opened up further on up the line, the Mabou and Port Hood mines. To give you the sort of policy that followed, they charged 10 cents a ton for carrying coal from Port Hood to Port Hastings, which is 30 miles nearer the shipping port, which they charged against their own company for carrying it from Inverness. Not only that, but if you did not own your own cars, you had to wait for cars to carry your coal away; you gentlemen from the west will appreciate what that meant. The company controlled the cars, and they would bring them to Port Hood whenever it would suit them. That is, they would defeat the ambitions of the Port Hood people, they would get the car filled and leave it on the siding, and take it away after they had taken charge of the markets themselves. The result was that Port Hood closed down, it was impossible to do anything else. The Mabou Mines were opened up, and a line constructed from the Inverness Road to the coal mines, but they had to contend with the same conditions, and they had to close down also on account of this Mackenzie and Mann line not giving them a fair deal. I may say that that line was operated under local charter and did not come under the Railway Commission. Therefore, this Government had no control over freight rates, or anything else connected with the line. I just give you this to explain how it is that these areas were never opened up.

Mr. ARTHURS: Has the local Government no control over the rates there?

Mr. CHISHOLM: I am not going to discuss that, because I do not know enough about it. There is a Public Utilities organization there, and I would think they had some control, but I am not going to discuss it.

Mr. LAPIERRE: Under what charter was this railway built?

Mr. CHISHOLM: A local charter. Now, I want to emphasize that, that this is one of the virgin coal regions in the Maritime Provinces, and as far as the quantity of coal is concerned it is practically unlimited. They have there, already located, eight seams as the witness said, with a depth averaging from 13 feet to 4 feet of first class coal, of superior domestic coal, but transportation is the question. It is the whole thing.

Mr. McBRIDE: How far are these coal beds from the coast?

Mr. CHISHOLM: They crop out perhaps a mile and a half, or half a mile. The croppings—you understand, the croppings already located may be any little distance from the coast sufficient to carry on operations. It is an easy coal deposit to operate, there is no doubt about that.

Mr. WARNER: Would they use that coal for locomotives?

Mr. CHISHOLM: They use it for every purpose. Talking about it as domestic coal, which is really what we have in mind, it is recognized as the best domestic coal of that province. As proof of that, they got \$1 a ton more in the markets of Halifax for that coal sold for domestic purposes than any of the other coal mines. It is a splendid domestic coal, better than anything in Eastern Canada.

Mr. WARNER: It would be a coking coal?

Mr. CHISHOLM: I would not answer that; I question very much whether it would be, because I think it would contain a little too much sulphur.

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Mr. O'CONNOR: It would not be a good metallurgical coal, a steel-making coal?

Mr. CHISHOLM: No, I would hardly think so.

The CHAIRMAN: Now, you have your solution as to the northern areas. What about the areas undeveloped now?

By Mr. Chisholm:

Q. You mean the Mabou and the Port Hood areas. What is the present need now?—A. The extension of that railway and the taking over of it by the Government.

Mr. DICKIE: What would be the length of this extension?

Mr. CHISHOLM: It is about 59 miles.

The WITNESS: No, about 24 miles, the new extension, about 59 miles of the old road.

By the Chairman:

Q. Now, coming around to the south Cape Breton areas, the Richmond areas, I think you have intimated also that the cause of these areas not being developed is transportation?—A. Yes, sir.

Q. What would be your scheme regarding transportation, to have these mines developed; have you any?—A. The Whiteside areas and the Broughton areas?

Q. These two and the Hiawatha areas?—A. Yes, the Montgomery areas as they are called on the chart.

Q. Yes.—A. I have the map here, Mr. Chairman.

By Mr. Martell:

Q. These Broughton and Hiawatha areas are in the same direction, and could be covered by one line of railway?—A. By the extension of the present St. Peter's Railroad.

Q. What do you mean?—A. That is the railroad that runs from Point Tupper to St. Peter's.

Q. By whom is it owned?—A. By the Government.

By the Chairman:

Q. They took it over two years ago as a branch line?—A. Yes, they had already been surveying there through Louisburg and Sydney.

Q. That is, when this road was first proposed, it was proposed to carry it from Point Tupper on the Strait of Canso, where it would connect with the Intercolonial to St. Peters, to Louisburg, to Glace Bay, up to Sydney.—A. Yes.

Q. Or some other line?—A. Yes.

Q. That whole line was surveyed?—A. Yes.

Q. And the Company only took the road to St. Peters?—A. Yes.

Q. Where there was no industry except the fishing industry?—A. No.

Q. It ends in a sort of blind alley?—A. Yes.

Q. Your idea would be that this road could be extended from St. Peters to Louisburg?—A. Yes.

Q. And thence to Sydney?—A. Yes, to Glace Bay, to Sydney.

Q. I do not see that it should go to Glace Bay.—A. I will show you. The coal company, the Dominion Coal Company, runs a line from Sydney to Glace Bay to Louisburg. It is well known that their line is more than overtaxed, and it is for the same reason that Dr. Chisholm has already given us,—they will transport their own coal first, and the other companies have to wait. Those other people own a few cars now, whereas if they were given transportation through to Louisburg, that coal could be shipped from Louisburg through to

the St. Lawrence all the year round, as well as during the season of navigation.

Q. I understand it to Glace Bay. Why not get some more direct route to Sydney?—A. That is a matter of surveying.

Q. With that road extended from its present blind alley to Louisburg, would the shipping board tap those areas you have mentioned?—A. Yes, them all, and there are areas that are practically unknown to-day that would be also tapped. Some prospecting has been done.

Q. As a matter of fact, then, as far as the areas are concerned, Louisburg would be the proper terminus for this road if extended?—A. Yes.

Q. Because Louisburg is a winter port?—A. Yes.

Q. Open the year around?—A. Yes.

By Mr. Martell:

Q. For the Broughton and Hiawatha mines, Louisburg would be very much handier than at Sydney?—A. Yes, sir, the Hiawatha is practically closed down: They were producing about 100 tons per day when they had to close down.

By the Chairman:

Q. Is there any other feasible way of transportation to the Hiawatha line outside of this railway?—A. Yes, by making some harbour improvements.

Q. Have you any estimate of the cost of harbour improvements at Hiawatha, or False Bay, which would give facilities for shipping this coal?—A. It runs from \$60,000 to \$75,000.

Q. A total expenditure of about \$60,000.—A. Yes.

Q. Now, I see that that takes into account only a channel 100 feet wide and 10 feet deep.—A. Yes. This, (indicating on the chart) is 20 feet. The estimated cost of dredging at the False Bay, however, showing the channel 100 feet wide in one place in another, would be in the vicinity of \$85,000.

By Mr. Dickie:

Q. The bar outside, is it a rock or a sand bar?—A. No, small stone.

By Mr. Stutchbury:

Q. What is the approximate cost of mining?—A. I am not in a position to give you the exact cost of mining, but it was claimed by people operating that they could place coal on board the ship alongside the pier at 10 cents per ton less than the Dominion Coal Company could place it at the pit's mouth.

By Mr. Dickie:

Q. What was the cost at the Dominion Coal Company?—A. It varies at different mines.

Q. Was it \$2 or \$6?—A. Oh, no, it has not gone \$6. I think it is averaging somewhere about \$4.

Q. What would be the approximate cost for transporting this coal from this harbour you speak of to Montreal?—A. Well, that would practically depend on the supply and demand.

The CHAIRMAN: They are carrying to-day for \$1 from Sydney to Montreal.

By Mr. Kennedy:

Q. In dredging that part just stated, how many cubic yards would have to be removed?—A. In the neighbourhood of 25,000 cubic yards.

Q. What would be the nature of the material you would have to remove?—A. Gravel, sand and mud.

Q. Would that cover the cost of removing it into deep water or would it be dumped just outside?—A. It would be taken to a dumping ground outside, and finally disposed of.

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Q. That would work out at \$3 a yard?—A. The crib work is added into this estimate.

Q. What did you account for the dredging boom?—A. Thirty cents. That is rather small, I think.

Q. I would think that pretty low. Has the Government any apparatus to do dredging in that vicinity?—A. Yes, the Government has a number of dredges, and there are privately-owned dredges.

Q. Are there any dump scows, also?—A. Yes, many of them.

By Mr. Dickie:

Q. Does that coal contain much sulphur, or could it be stored in large quantities?—A. It is a good general purpose coal.

Q. There would be no danger of combustion?—A. Not within a reasonable time.

By the Chairman:

Q. They have stored coal there this winter.—A. Yes, it has been there for two years.

By Mr. Arthurs:

Q. In the early months of the spring I do not think it would be open. There would be heavy ice at Mira Bay?—A. For a day or two—not more than three or four days.

Q. I think the Captain will admit that there are times when ships cannot get through the ice.

The CHAIRMAN: Last year the Dominion Coal Company got a contract for 750,000 tons, and used this winter port at Louisburg into Boston and other ports.

Mr. ARTHURS: I mean, as regards Glace Bay.

By the Chairman:

Q. Montreal has got our sole market?—A. This winter was probably the coldest, and the most ice formed of any winter for a number of years. I might say that Mira Bay did freeze over, but right up to Hiawatha there was an open lane rightout to Mainadeau.

By Mr. Martell:

Q. I have seen a boat coming from Newfoundland that could not get into North Sydney, and she would not be able to get into Mira Bay. She would go around the south side of Scatterie Island, and go to Port Mabou?—A. Yes, that is so.

Q. That was in February or March, some time?—A. Yes.

By Mr. Stutchbury:

Q. Are there mines that are not working at all to capacity?—A. They are not working at all.

Q. You have a number of mines there in the Dominion Coal Company?—A. I think so.

Q. Where is the principal market?—A. Montreal. They shipped a lot of coal this year to Boston, and through to the other ports of Nova Scotia.

Q. Do you expect that the opening up of this road would open up a new demand? Is there any new demand?—A. They would have the same opportunity as any other company.

By Mr. Chisholm:

Q. Is there any prospect of developing United States traffic?—A. I would say so.

By Mr. Arthurs:

Q. For practically two or three years probably all the coal and coke was sold to the New Everett Company?—A. Yes.

Q. On an average, you sent them thirty to forty thousand tons?—A. Yes.

The CHAIRMAN: This year, though, the contracts aggregated 750,000 tons.

By Mr. Chisholm:

Q. Mr. Chairman, I would like to ask the witness whether the mines are mostly submarine or land areas?—A. Those areas?

Q. Yes.—A. They are both.

Q. What percentage would be submarine?—A. I cannot tell you.

Q. Who owns this road now that was owned by Mackenzie & Mann?—A. It went into the hands of the receiver.

Q. It is still the estate of Mackenzie & Mann?—A. No, it is held by the bondholders.

By Mr. Warner:

Q. Who are the bondholders?

Mr. ARTHURS: I believe it is the Toronto General Trust Company.

By the Chairman:

Q. There is a movement on foot to have the Government take over these areas, not all these areas, but those in Inverness County. That was the reason why Mr. Dickson was called here to show the solution, or to show how these areas might be developed. That is, the solution of development in the Cape Breton coal area.

Mr. ARTHURS: In other words, your difficulties in the East are exactly the same as the difficulties in the West?

The CHAIRMAN: Exactly.

Mr. ARTHURS: That is a national issue, and it has to be tackled in a national way.

By Mr. Kennedy:

Q. What distance is it from these coal mines that you refer to, to Montreal?—A. From the St. Rose mines I would say, by water, 500 miles.

Q. Would they get \$1 a ton for running 500 miles?—A. Yes.

Q. What class of vessels do they use?—A. Steamships.

Q. How long does it take for say a 6,000 ton cargo to be unloaded?—A. To unload her in Montreal, 8 to 10 hours.

By Mr. Martell:

Q. How many tons?—A. Eight to ten thousand tons.

Q. Then she could be loaded in Louisburg in how many hours?—A. Ten hours. I think in some cases, better than that. I think the average is about ten hours.

By Mr. Kennedy:

Q. What would it cost?—A. About a dollar a ton is what they are getting from Sydney to Montreal now, that is, by water.

Q. They do not make much profit, if you ask me anything.

The CHAIRMAN: They are doing it for less.

Mr. ARTHUR: The old rate on the Great Lakes, from Cleveland to Port Arthur was about 35c. They had return cargo.

WITNESS: I think the old rate for carrying coal on the St. Lawrence was 40 cents.

By Mr. Arthurs:

Q. You have some steamboat experience?—A. Yes.

Q. Have you any experience of vessels drawing 14 feet of water, of approximately 4,000 tons burden, carrying 4,000 tons?—A. There are not a great many of them.

Q. What is the average draft of any of these vessels?—A. For a six to eight thousand ton vessel, she would draw 26 to 27 feet loaded.

Q. Have you got a class of vessels that go through the canals?—A. Yes.

Q. They require to have a 14-foot draft?—A. There would be no trouble.

Q. Are they also adapted to handling of coal expeditiously?—A. Yes.

By Mr. Stutchbury:

Q. Does the witness say that the 8,000 ton boats are capable of taking coal up the canal?—A. No, not at present, we will have to wait for the Welland Canal.

The CHAIRMAN: The witness was talking about 4,000 ton boats.

By Mr. Martell:

Q. As an experienced seaman, do you say that a boat that would be suitable for carrying four or five thousand tons of coal through the canals, and drawing say from 12 to 14 feet, would be a practical vessel to use on the Atlantic Ocean?—A. Of course she would.

Q. Would she have sufficient seaworthy quality to enable her to be safely operated?—A. She would not be such a good ship as a ship drawing more water.

Q. Would she roll?—A. She would roll.

Q. You take a boat drawing 14 feet, carrying 4,000 tons, in a heavy, choppy sea, in the Atlantic Ocean.—A. She would pound—she would slap her bottom.

By Mr. Stutchbury:

Q. Does the witness think that Canadian Government Merchant Marine ships of from 3,000 to 5,000 tons would be suitable for this traffic?—A. I do not think so. They are not adapted for this purpose.

Q. What are they adapted for?—A. I think they are mostly for general freight purposes.

The CHAIRMAN: And to put a debt on the country.

By Mr. Martell:

Q. As a matter of fact a boat to be a successful coal carrier, needs large hatches.—A. Yes, and a single deck.

Q. In addition to that, she has to be properly equipped for handling cargo?—A. Yes.

By Mr. Arthurs:

Q. As a matter of fact boats similar to the Canadian Government Merchant Marine would be practically useless?—A. They would be too expensive.

By Mr. Stutchbury:

Q. Does the witness know of any companies that are at the present time prepared to develop the area he is speaking of?—A. I am informed that the Hiawatha areas could be undertaken at once, if proper harbour improvements were arranged.

Q. What capital would be required?—A. A couple of hundred thousand dollars to properly develop.

[Captain E. M. Dickson.]

By Mr. Warner:

Q. Are the mines in good shape? Are they in shape so they could be used, or would there have to be new mines opened?—A. No, in the Broughton areas there is one slope. The other areas are up against the areas of the Dominion Coal Company. There is one slope under water, and Hiawatha is the same way.

By Mr. Martell:

Q. Does the Dominion Coal Company endeavour to prevent these people owning these mines from going through their area?—A. No.

Q. There was an act passed through the Nova Scotia Legislature that would permit them to go through?—A. A certain distance.

By Mr. Stutchbury:

Q. Can sufficient capital be got to start and successfully operate this area?—A. It can be had.

By the Chairman:

Q. That is the Hiawatha?—A. Yes.

The CHAIRMAN: I might make a statement about that. There is an English concern now ready with capital to develop those areas, which I think produces the best coal in Nova Scotia, if the Government of this country will take over that road from Port Hawkesbury to Inverness, and give them the ordinary rates that the other company operating the road had. Mr. A. J. Tong is in this country now prepared to do that.

By Mr. Garland:

Q. Are there any 4,000-ton vessels available?—A. No.

Q. Would this proposed waterway that we have been discussing here in this House—would that open up the territory surrounding the Great Lakes?—A. Do you mean, canals?

Q. Yes.—A. Yes.

Q. Would the witness state whether boats of 4,000 tons could be properly used in the coal business to go through the Great Lakes?—A. You mean of 4,000 tons capacity?

Q. Yes.—A. I think they could.

By Mr. Martell:

Q. Is it not a fact that the difference between operating an 8,000-ton coal carrier and a 4,000-ton coal carrier, is infinitesimal?—A. Yes, the comparison is a small one.

Q. So you can practically transport 8,000 tons of coal as cheaply as you can 4,000 tons? You have the same crew and all that sort of thing?—A. Yes.

By Mr. Dickie:

Q. Government Ownership has received a black eye?—A. I think this road could be made self-sustaining though,—that part of it.

Q. Would it be an investment for private interests?—A. It would be pretty hard to induce private capital into Canada to-day. I would submit that if that railway was extended, and there was sufficient coal to make it self-sustaining, with a reasonable freight rate charged on the coal, that it would be able to pay the operating expenses of the road. Now, it is a blind alley.

By Mr. Warner:

Q. Going back a little way on what the witness was telling us about the coal trade of the United States at one time, I want to ask him whether the get-

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ting of reciprocity, or the lack of getting it, had any effect on that coal trade that was once carried on between Boston and those ports down there, and this coal field?—A. It was generally said that it was the lack of reciprocity.

By Mr. Dickie:

Q. We have no duty now.—A. Fifty-two cents a ton.

Q. That is no handicap.—A. Fifty-two cents is a charge on shipping.

Q. We put a duty of twenty-five cents a ton on Vancouver Island, so the coal miners simply put on fifty cents more.—A. There is a duty in the New England States for coal. The transportation is by water, and with lesser duty it is possible to get those markets.

By Mr. Warner:

Q. Could that transportation be carried on over the year around from these coal fields you were speaking of, in Hiawatha, into United States ports?—A. Not from the St. Rose or from the Chimney Corner areas, not from the north part of the island, but for Broughton Mine there is estimated to be 750,000,000 tons of coal in those areas, and the Hiawatha is estimated at 11,000,000.

By Mr. Martell:

Q. Supposing you extend this road some 12 miles, and also by utilization of this present road that you have there in the winter time, this coal could be shipped from some other place?—A. From Port Hastings, but not from Cheticamp.

Q. But it is on the railway line?—A. Yes.

Q. The Dominion Coal Company has a certain amount of coal to ship each day?—A. Yes.

By Mr. Kennedy:

Q. How much would it cost to bring coal from Nova Scotia up the Great Lakes?—A. I am hardly in a position to answer that question.

Q. You cannot answer that?—A. No.

By Mr. Warner:

Q. You say your coal there at the pit mouth is worth about \$4 at the present time?—A. Yes, some pits. In some pits, the cost is considerably more than others but it would be very difficult to give the actual cost.

Q. That would be a fair estimate of the value of the coal?—A. I would not like to put it that way, because these things were all given—

Q. Would you expect, by a larger output, to reduce the cost of coal at the pit?—A. Yes.

By the Chairman:

Q. Is there any other statement you wish to make?—A. I have not anything else.

The CHAIRMAN: Any other question, gentlemen?

By Mr. Dickie:

Q. Just one question, Mr. Chairman. What would be the estimated cost of this extension of the railway to the Hiawatha area?—A. I think it is generally estimated about \$40,000 per mile.

Q. How many miles?—A. About 75 miles.

By the Chairman:

Q. From St. Peter's?—A. Yes.

Q. To Louisburg?—A. No, 60 to Louisburg.

Q. The Broughton areas would be about 75 miles.

By Mr. Kennedy:

Q. That is, you still require 75 miles construction?—A. Yes, in order to tap all these coal areas.

Q. That is still required?—A. Yes.

Mr. MARTELL: But you do not want to confuse the Inverness area with this; it would only require about 20 miles through there.

Mr. WARNER: The Government are being asked to put in that road, along with the Government System.

The CHAIRMAN: They own that part of the road that is constructed now, and I think it would be good business for the Government to extend it and get this traffic.

The WITNESS: I think, gentlemen, that the road would then become self-sustaining.

By Mr. Garland:

Q. Mr. Chairman, can the witness tell us what that coal could be retailed for in Montreal?—A. I am afraid that is out of my line.

By Mr. Arthurs:

Q. Just before we leave this question, are you in a position to give an estimate of the probable cost, the transportation cost of coal in say 4,000-ton boats to Toronto?—A. Not at the present time.

Q. It would be very much lower than rail, in your opinion?—A. Oh my, yes.

Q. Let me put the question this way. If you transport the coal to Montreal for \$1 a ton, with 8,000-ton boats, would \$1.50 be a fair charge for 4,000-ton boats?—A. In 1916 we were bringing coal from Ashtabula to Montreal for \$1.50, and it would be a considerably greater distance than to Toronto.

Q. You have had experience on the Lakes?—A. Yes.

Q. That is the point I want to bring out. We have certain lines on the Great Lakes that are coal carriers only?—A. Yes.

Q. From Ashtabula, say to Byng Inlet, for the C.P.R.; they have a line there?—A. Yes.

Q. 4,000 and 6,000-ton boats. Would these boats be fit to carry coal from Cape Breton to Toronto?—A. No, they are not sea-going ships at all.

Q. A similar boat could be made?—A. Yes, it could be constructed. These ships are constructed to Great Lakes specifications, which call for, I think, 24-inch timbers, and the sea-going ships require 16-inch space, and all other equipment in proportion, so you can readily see they would not be suitable, although in the war they had a number of the Lake boats down on the coast.

By Mr. Lapierre:

Q. They could not be operated in the coal trade on the Great Lakes, profitably?—A. Which?

Q. 4,000 to 6,000-ton coal boats. They could not be operated from Sydney to the head of the Lakes profitably?—A. Why not?

Q. 4,000 to 6,000 tons; you say they could not?—A. I think so. That is much cheaper than by rail.

The CHAIRMAN: Any other questions, gentlemen?

By Mr. O'Connor:

Q. Mr. Chairman, I would like the witness to give me the years during which the Dominion Coal Company had that trade with the Everett works, the

[Captain E. M. Dickson.]

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beginning and end of the period.—A. That would be, I think, about 1900 to about 1910.

Mr. MARTELL: It began about 1896 or 1897, when these Palmer ships took the slack coal from Louisburg to Everett, Massachusetts. They were transporting it to the Everett Coke and Gas Company under contract with the Dominion Coal Company.

By Mr. O'Connor:

Q. Had the tariff anything to do with the discontinuance of that trade?—A. At that time, was there not a reduction on slack, unwashed slack coal, was there not some change in the tariff?

Mr. STUTCHBURY: The tariff on slack coal now is 14 cents.

The CHAIRMAN: Going into the United States?

Mr. STUTCHBURY: No, it is free going into the United States; it is only within the last few months there has been any tariff going into the United States.

By Mr. O'Connor:

Q. Something said a while ago would indicate that you thought the tariff had something to do with that. The tariff was not concerned in that, it was an industrial change that came in in the United States, that cut that off.—A. Yes, I think so. The Dominion Coal Company use all their slack coal for the Dominion Iron and Steel Company.

By Mr. Martell:

Q. Is it not a fact that coal was transported at that time for 40 cents a ton?—A. Yes.

By Mr. McBride:

Q. What was the distance?—A. About 600 miles.

By Mr. O'Connor:

Q. And sold at \$1, delivered at the pit mouth.—A. \$1.97, I think the price was, delivered at Everett.

The CHAIRMAN: Of course, that is a very inferior grade of coal.

If there is nothing else, gentlemen, we will adjourn until next Tuesday morning at 11 a.m.

The Committee adjourned until Tuesday, May 1, 1923, at 11 o'clock a.m.

HOUSE OF COMMONS,

COMMITTEE ROOM 429,

TUESDAY, May 1, 1923.

The Select Standing Committee on Mines and Minerals met at 11 a.m., the Chairman, Mr. Carroll, presiding.

The CHAIRMAN: Gentlemen, you will come to order, please. To-day we were supposed to have three witnesses, all on the freight rate business, Mr. Lanigan of the C.P.R., and two gentlemen from the C.N.R., whose names we were not given the other day. Last night, Sir Henry Thornton called me up, and as was suggested here the other day, he said they were going into details on the matter of special rates on coal from the Alberta Mines to Central Canada, and he said that when that statement was prepared they would come here and give it to the Committee. I took that ground before, and I think it is only fair. If they come here, they will not be in a position to tell what they are able to do,

[Captain E. M. Dickson.]

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until they finish that statement. I told him that I thought the Committee would take that as a very serious excuse. Then, referring to Mr. Lanigan, there is a letter here dated April 30, in regard to that. I will just read the letter:

"John T. Dun, Esq.,
Clerk of the Committee,
House of Commons,
Ottawa, Ont.

DEAR SIR,—Referring to your favour of the 27th, addressed to Mr. Lanigan. Please refer to my letter of the 23rd.

I regret to advise that Mr. Lanigan is not expected to return to his duties before next week. Immediately on his return the whole correspondence and attachments will be submitted to him. We have every hope that he will then be in a position to go to Ottawa.

Yours truly (Sgd.) A. WALKER,
Chief Clerk to General Freight Traffic Manager.

The Committee adjourned until Thursday, 3rd May, at 11 a.m.

HOUSE OF COMMONS,

COMMITTEE ROOM 436,

THURSDAY, May 3, 1923.

The Select Standing Committee on Mines and Minerals met at 11 a.m., the Chairman, Mr. Carroll, presiding.

The CHAIRMAN: Gentlemen, we will please come to order. Mr. Arsenault, you suggested a few days ago that you had a couple of witnesses you wanted to bring before the Committee. I understand that one of them is here, but that you would like to have the two of them at the one time, is that correct?

Mr. ARSENAULT: That is correct, Mr. Chairman. The inventor of the process is not here to-day, and this gentleman here is not quite informed enough to give the evidence in the case, so I would like if possible to have the two gentlemen before you at the next meeting of the Committee, on Tuesday next.

The CHAIRMAN: We will let the witness go until next Tuesday, then, and you will try to get in touch with this other gentleman from Montreal. Now, we have one other witness this morning, Mr. Graham.

Mr. CHURCH: Before we proceed with this witness, I would like to move the following resolution, that the following witnesses be summoned to give evidence on transportation:—

Sir Henry Thornton, President, Canadian National Railways, on rates for coal.

Hon. F. B. Carvell, Chairman of the Board of Railway Commissioners.

Daniel Chisholm, Coal Commissioner for the city of Toronto.

Arthur Hewitt, General Manager, Consumers Gas Company, Toronto.

With all due respect to Sir Henry Thornton, this is the fifth month of the year, and if anything is to be done by the railways, some announcement ought to be made right away, as many people in Ontario want to get in their coal, and contracts have to be made. Under our constitution, we have two Houses of Parliament; with all due respect to the head of this road, as I see it, there seems to be three houses: the Senate, House of Commons, and House of Thornton. I would like to give the head of this system a chance, but at the same time there has been nothing done.

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With regard to the Board of Railway Commissioners, the Board has power to fix rates and all lines are subject to its jurisdiction. Why not make a 25 per cent reduction in the rate, and then I think something could be done. Another thing I would like to refer to is the fact that the Government is going to sell the ships of the Merchant Marine, and I think they should be used to bring up coal from the Maritime Provinces. According to Mr. McMaster's Committee, these ships were in a combine on the Atlantic, and it seems to me too bad that this House cannot deal with that. Many of these ships can be easily converted to carry coal from the Maritime Provinces to the head of the lakes.

The CHAIRMAN: We had some evidence of that on Friday. Let me explain, as you were not here the last day. Sir Henry Thornton has asked the Committee not to bring the freight rate men from his department here until at least next Thursday, when they expect to have a detailed statement as to what they are prepared to do. I think that is only proper, too.

Mr. CHURCH: They are waiting for the C.P.R.

The CHAIRMAN: No, they are investigating the possibilities of a reduction in coal rates from the West to Toronto.

Mr. CHURCH: I understand the railway commission has tariff experts as well as Sir Henry Thornton's Board. Why have they not gone over these matters before?

The CHAIRMAN: The Committee decided that we would not call them until they decided to make the statement.

Mr. CHURCH: In the meantime, the days are slipping past, and nothing has been done.

The CHAIRMAN: With regard to the advisability of making a report to the House, I leave that to the Committee.

Mr. CHURCH: I say that the heads of these different branches have too much power over the head of Parliament. They go ahead and sell ships which were built at great cost, and which could be used to bring coal from the Maritime Provinces, and in the fall to bring down grain from the head of the lakes. It is a tragedy to see a thing like that going on, and everyone seems to be powerless. I say that is not responsible government at all.

Now, what about these witnesses. I should think Mr. Carvell and Mr. Chisholm could give very important evidence here.

The CHAIRMAN: Do you make that motion, that Daniel Chisholm and Arthur Hewitt be called before the Committee?

Mr. CHURCH: Yes.

The CHAIRMAN: I think that is carried. Now, about Mr. F. B. Carvell—

Mr. ARTHURS: Just before we proceed, if it is the expressed wish of this Committee that we defer any action of this kind until we hear from the railways as to probable rates, I would suggest that we leave the matter in abeyance until that time. Personally, I have no idea that the rate the railways will offer to us will be acceptable to this Committee, and we will want to find out the basis on which they estimated these rates, and I do not think we would gain any good object by going ahead with a lot of witnesses along that line until we have this concrete proposal before us, if we intend making that the basis for our investigation.

The CHAIRMAN: I see what you mean. What evidence would you expect to get from Mr. Chisholm?

Mr. CHURCH: He has had charge of the distribution of coal, and I think he could give some evidence on the possibility of the use of these ships to carry

coal. We have not any evidence on that before this Committee. The Toronto Globe charges that there is an arrangement between the railways to prevent coal coming in by boat. I think that is an important matter, and should be investigated, and I do not think this is the proper time to sell these ships, which could carry coal from the Maritime Provinces, and in the summer bring down the grain, which would act as a check on the other steamship companies and bring down rates. This is surely a transportation question. Sir Henry Thornton, in my opinion, should announce these rates; it did not take him all this time to increase the rates, and it should not take more than a short time to announce a 25 per cent reduction. A little less talking and a little more action is what we want from Sir Henry Thornton.

The CHAIRMAN: They tell me that they expect to be ready by next Thursday, a week from to-day, and as Colonel Arthurs says, there is not very much use in going further on the freight rates question until we ascertain what these people are prepared to do, and then we can get evidence here and find the cost.

Mr. ARTHURS: We have had some very good data here, Mr. Butler's evidence gave us the exact earnings per mile. They should not charge any greater rate than the average rate.

Mr. WARNER: I think this criticism is hardly advisable or desirable before we know what they are prepared to do.

The CHAIRMAN: Very well, we will call Mr. Graham. What do you say about calling these two men, Mr. Chisholm and Mr. Hewitt.

Mr. ARTHURS: These men might give evidence along a different line.

The CHAIRMAN: Very well, the motion is carried, and they will be called for next Friday.

Mr. SPENCE: Mr. Chisholm might be a good man with regard to the handling, the cost of handling, from his wide experience.

JAMES GRAHAM, called and sworn.

By the Chairman:

Q. Mr. Graham, you live in Ottawa?—A. Yes.

Q. What is your business?—A. I have been confining myself to this, the solution of the heat problem, during the past eighteen years, off and on. I have been experimenting on peat.

Q. Are you an engineer?—A. I am an amateur engineer, but I have been in the agency business before I was interested in this subject.

Q. And have you been interested in any particular peat area?—A. No. I confined myself to experimenting with models up to about ten years ago, when I considered that I had the problem solved, but after some minor details had been brought out, I made more experiments recently; I have carried out some experiments within two weeks in the City here, verifying the former figures I had with regard to dehydration.

Q. Just explain that term?—A. The dehydrating is, of course, one of the big problems in connection with peat, considering that the peat contains 90 per cent water as it exists in nature, and there are two means by which that water can be reduced, one is natural drying, which is the system the Government has been experimenting with for many years, in sun and air drying, and the other is expelling the water by artificial means. My system is to get rid of 83 per cent of the water by mechanical means before it comes into the thermal dryer. The dryer, the thermal dryer utilizes the waste of the plant in removing the remainder, and brings it to a condition where it is ready for briquetting. After the briquetting comes the carbonizing. That merely means roasting in an air-tight retort at a comparatively low temperature, a temperature below 500. That reduces the volume and weight by about 50 per cent.

By Mr. O'Connor:

Q. What does it drive off?—A. It drives off the hydro-carbon gas which is utilized in operating the plant. In the first place, the heat from the power plant and the retort is utilized in the subsequent thermal dryer, so that the plant is self-contained, and it uses, of course, in addition to this, a certain amount of solid fuel, but when 83 per cent of the water has been expelled mechanically, without the use of heat, it is quite feasible then to get rid of the balance by using an artificial dryer. Without that, it is quite impossible to make any progress in artificial drying of peat, because you have to get rid of the greater part of the water by mechanical means, and that has been the great question, just how far the water can be reduced by mechanical means. The Government, for instance, has circulated bulletins on the subject during the past fourteen years they have been experimenting, statements emanating from the Mines Department, stating emphatically that the water cannot be reduced by mechanical means below 75 per cent. I claim that it can be reduced to 60 per cent, that is 100 per cent difference in the amount of water you have to evaporate. I have done better than that within two weeks. I have gone to 40 per cent; that is extreme, but with a moderate pressure, and the amount of fuel required, it can be reduced to 60 per cent, and you realize 60 per cent means $1\frac{1}{2}$ pounds of water to 1 pound of heating material, and the 75 per cent which the Mines Department gave would mean 3 parts; of course, that makes 100 per cent difference.

By the Chairman:

Q. Has the Mines Department any knowledge of your process?—A. Except indirectly, they have never examined it in detail, they have been wedded to the sun drying system; all their literature expresses the statement that it is impossible to make any progress artificially dehydrating peat, and that the only method is that which the Government has been pursuing for 14 years, of sun drying.

Q. That is, you say the Department of Mines has refused, has neglected or refused, or at any rate has not attempted any other method than the one you know of?—A. The only one they have tried for fourteen years, on which they have spent \$400,000. I may say that recently the Department of Research has made a small appropriation to determine to what extent the water can be removed from peat by mechanical means. Then, the other important question of whether carbonized briquettes, as made by my process, will be a feasible proposition. I submit that it will prove two things, the quality of the fuel, the process of making these carbonized briquettes, and the system of dehydrating, how far it can be carried on by mechanical means.

By Mr. Forrester:

Q. Is peat not used to a large extent in Europe?—A. There is no such industry even in Europe, where they have been using peat for 100 years. The peat consumption of Europe is about limited to the peasantry, it is a farmer fuel.

By Mr. Arthurs:

Q. In Germany they use thousands of tons?—A. Exactly the same as in Ireland, the same way.

Q. For industrial purposes?—A. Yes; I will modify that to this extent, that where they have a brick or glassworks adjacent to a bog, they utilize it to that extent, the crude peat is used under those circumstances, but we are not looking for peat for that purpose, we are looking for peat to supply the people.

Q. They do in Sweden, and there is lots used in Sweden.—A. It is used in the same way, to a limited extent, by the villagers, where they have a bog adjoining. Stockholm does not use peat, but English coal; the proof of that is

that during recent years, the post-war period, they paid \$30 a ton for English soft coal, and Sweden is one of the great peat countries in the world, and it is from Sweden that this process comes that the Government has spent so much money upon.

By the Chairman:

Q. I got those briquettes from some person in Montreal. I think it is the man who is coming here next Tuesday, to appear before the Committee.—A. Here is my comment on this, without any analysis. That is a hand-made specimen, made under a special little die, where you put on a pressure regardless of the cost of applying it, and that is raw peat, which, if you put it in a glass of water, will dissolve in two minutes. It is not carbonized. The important thing is that it has to be carbonized if it is to take the place of coal.

Q. Do you know anything about that process?—A. That has been tried in this country and various parts of the United States, for sixty years off and on, but in making this they have heretofore been dependent, and limited themselves, to sun drying to get it in this condition. The important difference between my system and the system that has been in vogue, both for sun dried briquettes, and this sun drying, which is a different process, is that mine eliminates entirely the sun drying.

Q. Before you go into any more detail, have you any idea of the available peat of Canada?—A. Yes, in a general way. I am only interested in the deposits adjacent to the railways, and within a short distance of large cities. For instance, to give you an example. With my system put into operation, there will be enough for ten million tons of fuel like this. This is a rough sample of my fuel, which is a different thing. That is a carbonized briquette, only it is a defective sample. It will make fuel superior to any coal you ever saw, and deliver it in this city, according to the estimates of independent engineers, at a cost of \$6.50 a ton, after paying 10 per cent dividend.

Q. Do you know the comparative heat value of peat such as you have there, and coal? I am talking about your own.—A. I am going to make a comparison. The sun-dried peat is 6,300. This sample that you got from Montreal, that is 12,000 b. t. u's when it is carbonized perfectly. As I proposed to do it, it will have 12,000 b. t. u's. Anthracite coal as delivered now is 12,500, and theoretically as high as 13,000 b. t. u's, when we deduct the slate and scale. It averages about 12,500 b. t. u's.

By Mr. Warner:

Q. What limit of time would that burn, compared with hard coal?—A. When it is ignited, it would never go out. You shut the draft, and it will give out the same heat practically and last 93 per cent of the time that anthracite will.

Q. To what extent do you heat it?—A. In carbonizing, up to about 450 degrees Fahrenheit.

The CHAIRMAN: Colonel Arthurs, will you kindly take the Chair?

(Colonel Arthurs took the Chair.)

By Mr. Spence:

Q. What especially has the Government been doing? Are they pressing the same as yours?—A. No.

Q. They have not been pressing it at all?—A. No, they do nothing but spread it out on the ground, like a mush, and it takes quite a long time to dry. Mine is finished in twenty-four hours.

[Mr. J. Graham.]

By Mr. Forrester:

Q. Is not peat cut out like cakes?—A. They spread it out and cut it like Johnny cake.

Q. I thought when it was taken out of a bog it was a sort of fibre, and you could pile it up like cordwood.—A. It takes a lot of handling before you do that.

Q. That is the way they did it in Ireland.

Mr. McBRIDE: Sure, that is the way they did it in Ireland.

By Mr. Forrester:

Q. Coal is coal all over the earth, and peat is peat.—A. Irish peat is different from Canadian peat that is, the lower stratum is what you call a kind of cheesy peat. They reduce it to a pulp here, and then spread it over the surface of the bog, and give it three months to partially dry, and it is partially dried. The Irish peat takes about six months to dry.

By Mr. Spence:

Q. Oh no, you can dry it in two or three weeks, easily. You cut it out of the face of the hill.—A. Well, then it will break up. It has not got "cohesion." You have to slow-dry under that system to get the results of cohesion, and moreover, in Ireland, they tramp it out—they put cattle to tramp over it. When it dries it contracts, and that is the system that the Government uses here, excepting that they do it with machinery, but in any case, when they get through their fuel is something like 70 to 75 cubic feet per ton. Anthracite coal is 36 cubic feet per ton, and this fuel of mine will be 42 cubic feet per ton. That is the comparison per ton.

By Mr. Warner:

Q. How would the expense of carbonizing this peat and pressing it, compare with briquetting the coal dust?—A. That depends on local conditions as regards the cost of coal dust. They have tried lignite out in the West, and they could not compete with anthracite coal. In parts of the United States they are able to manufacture briquettes and deliver them in the cities at the same price as anthracite coal. It differs at different places. One of the problems in all briquetting, and this is rather important, is that all systems of briquetting any kind of fuel heretofore have depended upon artificial binder. There is no binder in this fuel of mine at all. The binding comes from the process, and there is no binder required.

Q. The process gives it the binding?—A. Yes. Where they have been experimenting with lignite in Saskatchewan, it is not only a question of getting it to mix and stand up in the fire, after it is ignited, but the cost of this binder material—they are using for instance, wheat flour mixed with other things—all of that means expense. In my system we dispense with that entirely.

By Mr. Arthurs:

Q. Can you make any comparison as to the cost of briquetting as successfully employed now in the United States, or in other plants briquetting anthracite dust, and your process of briquetting, in two ways, first as to the cost per ton, and second, as to the cost of the machinery?—A. There have been hundreds of briquetting plants. I know of one that I investigated several months ago, when I was in New York, in New Jersey, where they were briquetting coal dust, and it failed. It was a plant called "Burnrite," where they went out of business a year ago, when the price of fuel was high. There are a few successful plants operating. In Fort William they tried it. I do not know what their costs were, but that plant went out of business. You have to figure that their material

costs something, and their binder costs a considerable amount. In this system of mine there is no foreign material whatever, and the peat itself is a waste product, as it lies on top of the ground and you take the raw material, which means a fraction of one dollar per ton, because an acre will produce a thousand tons. Take the Government peat bog at \$6 an acre, and the raw material, eliminating the binder, means that the raw material costs nothing. It is simply a question of the operation of excavating it, as it exists on the surface of the bog, and putting it through the machinery. As regards the cost, I can discuss of course my cost. I have been interested in briquetting coal dust, but according to independent reports that have been made on this system of mine, as prepared by a Toronto firm of investigating engineers recently, or within a year or so, they estimate that this fuel of mine on board of cars at plant will cost less than \$2.36 a ton. That includes 20 per cent for overhead and operating expense, and all other incidental expense, and 50 cents an hour for the operating staff, considering that most of it is unskilled labour.

By Mr. Warner:

Q. Where did you get the material that you made this briquette from?—

A. From the Government bog, the Alfred bog, where the Government plant is.

By Mr. Forrester:

Q. Where is that?—A. Forty-five miles east of here, between here and Montreal.

Q. Is it in Ontario?—A. Yes, on the Canadian Pacific.

By Mr. Arthurs:

Q. What would be the cost of organizing a plant such as you have specified in your own case?—A. It runs into money, and that is one of the handicaps. All my calculations and those of other engineers, are based on a comparatively large output. These figures I should say apply to a plant with a capacity of 120,000 tons per annum. That means a large output and a large amount of machinery, and the entire equipment is estimated to cost \$800,000, but of course it can be started at the initial stage at a quarter of that basis. That means from 8 to 32 units of each kind of machinery employed.

By Mr. Dickie:

Q. Could you mine that with a steam shovel?—A. No, my system is a hydraulic excavator, because that is 90 per cent water. You would not want to use a steam shovel for lifting water out of a bog.

By Mr. Forrester:

Q. Is it liquid?—A. It is thick liquid.

Q. You could not lift it out with a spade?—A. Yes, but it is an expensive way. Mine is a suction elevator.

Q. But you could not lift your peat out with a spade at Alfred?—A. You could, when it is drained. I might say in connection with my system there is no drainage. I take the undrained bog preferably, because it can be excavated much cheaper than you could with a drained bog.

By Mr. McBride:

Q. Did you mention the heat units?—A. The heat units average from 12,500 for anthracite, I mean, that is taken as delivered. A sample of course will go higher than that, 13,000 or sometimes over, but as delivered, including the stone and slate, it will carry a calorific test of 12,500 to 12,700.

Q. With your peat in a pressed form, that is the figure for it?—A. Yes, that is, carbonized peat. I may say the raw peat is 9,000, but the raw peat, as the

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Government delivers it, is 30 per cent moisture, so that that reduces its calorific value, so that it will be 6,000 or 6,300.

By Mr. McBride:

Q. Have you finished out the cost per ton of the finished product?—A. I am quoting to you the figures of independent engineers on this large output \$2.36 at the plant, aboard the cars, including all overhead expenses, which is represented at 20 per cent per annum on the total capital invested, including buildings, excavators, and all other machines.

By Mr. Spence:

Q. You would establish the machinery right at the edge of the bog?—
A. Yes, the excavation pumps on an undrained bog, right at the plant.

By Mr. Dickie:

Q. Taking into consideration the constituents of this sample—the constituent parts, and the pressure, and the carbonization, you could almost term this an artificial anthracite?—A. Yes. I may say in connection with that, that it is smokeless, comparatively speaking. It will give much more heat than the Alberta coal you have examined here. Alberta coal is from 11,000 to 12,000 b.t.u's, as compared to 12,000 for this.

Q. For ignition, is it as easy to light a fire with this as with anthracite?—
A. That could be used as a kindling itself, that is, with a small amount of paper and a small amount of wood, in connection with anthracite burning.

By Mr. Knox:

Q. I do not see how you can get that peat out with suction?—A. It is 90 per cent water. It is a mush. I may say, in my excavator I reduce it to a rough pulp in the bulk.

Q. What machine do you use to do that?—A. Well, as I say, I have a special design for an excavator. I would vary the suction, the pump action, according to the amount of roots content; where the bog does not contain roots, then I would dispense with the suction action in taking it out, and it is taken out with a group, a series of carrying pans, conveying pans, virtually like shallow buckets, with a cutting edge, and hooks to take out any obstruction that they encounter, and then that is delivered to the first machine which is the pulping machine. That separates itself the roots to a certain extent. The next machine separates any roots that have escaped the first stage, which passes it through perforations where nothing larger than an inch can escape. It is then mashed into a macerated pulp, which responds very readily to treatment, and then it is fed to the dump scow. The excavating scow is afloat, and then it is floated up to the plant which is on the edge of the bog, and it goes through then the first simple treatment, which is very inexpensive and efficient, and gets rid of more than one half of the original water content. It is a very simple method.

By Mr. Dickie:

Q. What is the approximate thickness of the bog?—A. It varies in different bogs. Where the Government has been experimenting the peat is from 5 to 15 feet in depth.

By Mr. McBride:

Q. How far is the Moose Creek bog from Alfred?—A. It is close to there. It is very nearly part of it.

Q. One is in Prescott County and the other in Stormont County?—A. Yes.

[Mr. J. Graham.]

By Mr. Ross:

Q. What is the total area of your peat bog in Stormont and Prescott?—A. The one below, the Stormont one, about forty miles from here, that is about 4,500 square acres I should say, which would yield of this fuel of mine about 3,000,000 tons of the finished carbonized peat. The other would make about 3,500 tons, the one at Alfred.

Q. Have you any figures with regard to the area of the Fort William peat bog?—A. I do not know those adjacent to Fort William, but West of Fort William there is one of the finest bogs in Canada, in point of quality and extent, and that is about midway between Winnipeg and Fort William.

Q. On the Canadian Pacific?—A. Yes, that is about a mile and a half from the Canadian Pacific. It is one of the bogs that I have in view that should be developed to supply Port Arthur, Fort William and Winnipeg. I judge from the lay of the land it would produce several million tons.

Q. Is any plant in operation?—A. Not of my system. I have never gone beyond my system. I am asking the Government to put up enough money to develop this thing, and develop it stage by stage.

By Mr. Knox:

Q. How many months of the year can you operate your plant?—A. My plant can be operated efficiently for sixty-four hundred hours, that is, ten months, shutting down for the two central winter months, January and February.

Q. And would you keep your scows moving?—A. Our scows would only be in operation for eight months, but they would take out a surplus to do for the other two months and just bank it adjacent to the bog, and the same staff is transferred to the bank when the excavator is shut down.

By Mr. Garland:

Q. Is there any objection to the smell?—A. One of the objections is that it is disagreeable.

By Mr. Forrester:

Q. Is it not a nice smell?—A. Some people like it, if they are from Ireland.

By Mr. Spence:

Q. I would like to have a sniff of it right now.—A. You can have a smell, under my process, if you want it.

By Mr. Ross:

Q. Has there been any of this carbonized peat put on the market in commercial quantities?—A. No, it has only been made in samples so far.

By Mr. Spence:

Q. Have you any knowledge of Holland Landing?—A. Holland Landing has the largest bog in the central part of Ontario, but unfortunately is second-grade peat. The Government would not produce a fuel from that Holland Landing peat that would be worth five cents a ton delivered in Toronto. It would not stick together. It would not adhere at all. It is very lacking in cohesive qualities, but I can take and make a second-class fuel, and it has an area of 14,000 acres, the largest bog in the country, and will produce millions of tons of a very serviceable fuel with this process.

Q. Are you aware that at the present time there is an organization that has a binder suitable for making this peat?—A. There is no binder in that sample. You can briquette any peat with a certain amount of moisture.

Q. It is not black enough?—A. The carbonization makes it black.

[Mr. J. Graham.]

By Mr. Forrester:

Q. Does the soil have any effect on the Holland Landing peat?—A. Yes, in the flooded seasons there is a certain amount of silica deposited. I may say that one of the defects of the Holland bog is that it is about 10 to 15 per cent ash.

Q. It runs along the bank of the Newmarket canal.

By Mr. Warner:

Q. You say you apply about 400 and some odd degrees of heat?—A. Yes, in the carbonization, that is, for about twenty hours.

By Mr. Forrester:

Q. Have not the Swedes made great headway in peat?—A. The Swedish Government has a standing offer for any person who will solve the peat problem. I might say, in passing, that Stockholm does not burn peat. Why not? They have not got anything that would make a suitable fuel at prices that would compete with English coal. The greatest peat country in the world, in the point of area, is Ireland, with peat of the first quality. Dublin and Berrast burn no peat.

By Mr. Spence:

Q. It is because coal is cheap.—A. I am very ambitious to go over to Ireland and solve the peat problem to the extent that Ireland can get the full benefit of the peat that it has.

Q. By establishing a process similar to your own?—A. Yes.

By Mr. Dickie:

Q. Is that process covered by a patent?—A. Yes. I have been waiting for ten years to get some recognition from the Government, to get at the end of the rainbow at Alfred, and stop the futile experiments that have been carried on there for fourteen years. The Government figures would show that their process was absolutely impossible, but since then they have persisted in spending \$350,000 additional.

By Mr. Arthur:

Q. You are at issue with Dr. Haanel?—A. He is my most bitter enemy, and I reciprocate the sentiment.

By Mr. Spence:

Q. If we can substantiate the evidence that has been given as to the cost of this fuel that can be produced at \$2.36, the Government should take some action.—A. There have been ten ministers of mines since the Government began experimenting, and not one of them understood the question. The present Minister began to get some line on the matter, and they shut down on him when he asked for \$100,000, and told him they had spent enough money on that to produce results. That is the substance of what I understand.

By Mr. O'Connor:

Q. There was an industrial engineer, Mr. Simpson, who went into the process. Is that your process?—A. That refers to my process, only he did not state it correctly. He did not go far enough. He omitted considerable, and stated something that was not quite correct.

Q. You are speaking of the dehydrate process. It is your process he was speaking of?—A. Yes.

Q. You, I suppose, must have gone very deeply into the matter of the cost of production of your product.—A. I have had engineers all over America figure

[Mr. J. Graham.]

on this for the past ten years. These figures are not my figures. My figures are somewhat more favourable, but the figures were made by independent engineers who made an estimate for men who propose to take an interest and develop this process.

Q. You, of course, have gone deeply into the cost of production of peat at the Alfred Bog?—A. Yes.

Q. And you know the cost of production of peat?—A. Yes. Now, you have touched on another important matter.

Q. Now, just let me go on. You have, in considering the costs of production under the Government system and the costs under your own system, you have considered it, I suppose, on the same basis of 100,000 tons per annum?—A. An output of 100,000 tons is absolutely impossible with the system. That is the reason why they never got more than 3,000 tons.

Q. Your answer is that you have not considered the cost of production of the two systems upon the same basis, and I want to see if you have considered the cost of production of one as compared with the other on the base basis, my point being this, that unless you have done so, we cannot make an intelligent comparison. Have you considered, and can you give us the probable cost of production of 100,000 tons per annum from any single peat bog on the system that the Government has been using?—A. I will tell you, I cannot do better than quote Professor McKeown, who gave considerable attention to the peat question and investigated it—in fact, got six months leave of absence to investigate it. Here is one statement he made in discussing it. He said that one of the cardinal points of the whole system is that a large production does not mean reduced costs of production, in the same sense it would in another kind of factory, you do not put in larger machines or enlarge the plant, you do not accomplish it in that way, but you simply duplicate everything you have, therefore the situation is this. It means 3,000 tons maximum capacity in 1,000 hours, that is to say, for the season. The number of hands required averages 35. If you wish to get 6,000 tons, you duplicate everything, including the plant and the investment and the number of hands, so there is no economy whatever.

Q. That was not what I was driving at, I was trying to get at some common basis of comparison. Your desire is to produce 125,000 tons?—A. As a maximum; that would be a large plant, where the volume would be large enough to justify a plant of that capacity.

Q. And you are able to produce that at a certain cost?—A. Yes.

Q. Now, perhaps you cannot give it to me in this way, but percentage it, how much cheaper on a percentage basis can you produce your peat than the Government can?—A. Do you mean for a small output?

Q. You see, you do not follow me on that.—A. I do not follow you. In fact, I do not understand your question.

Q. I say no comparison of any one thing with another is of any value whatever unless both are upon the same basis.—A. Yes.

Q. Now, take it either on a small or large basis, and compare the one with the other, but make it on same basis in each case.—A. Take the result of their present achievement, which is the final result of 14 years of almost continuous experimental work. They are able to produce 3,000 tons, as they claim, but I claim 2,500 tons net output.

Q. And you say that will not improve on a large production.—A. It will not reduce the cost.

Q. Then take it that way, get it on production of 100,000 tons, and make it the same as on the basis of 3,000 tons, and compare that with your output.—A. Here is what it amounts to. If you had 100,000 tons you would multiply this by 33, or whatever it is. Their capital, their present plant represents a capital

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investment of \$90,000. The output is 2,500 tons, as I claim, or 3,000 tons as they claim, and the cost is as follows. They allow 22 per cent for overhead, which includes 7 per cent for interest. I allow 20 per cent for everything, depreciation and machinery and so on, exclusive of interest. Take their figure of 22 per cent, that means approximately \$20,000. I do not know exactly what their wages are, but I believe they are about 30 cents an hour for 35 hands for 100 days. That is practically another \$10,000. There you have \$30,000 for a maximum production of 3,000 tons, which means \$10 aboard the cars at the plant.

Q. It will be \$10 a ton?—A. If you multiply all the figures I have given you by 33—.

Q. It will still be \$10 a ton?—A. Yes.

Q. Yours, you say, would be \$2.60, compared with the \$10?—A. Yes, with this difference. Theirs is a 6,300 B.T.U. and mine is 12,000.

Q. Yours is \$2.60?—A. \$2.36.

Q. As against \$10?—A. Yes.

Q. That is your contention?—A. At least \$10.

Q. And then the B.T.U. of the Alfred, Ontario, peat bog is what?—A. 6,300.

Q. In Bulletin No. 23, at page 11, according to Government production, the B.T.U. is 9,520 and 9,460?—A. That is absolutely dry peat. That does not carry, as it does as a commercial product, 30 per cent moisture.

Q. The product they burn is the only one we are interested in?—A. Yes, but that carries 30 per cent moisture. After it is in your house for several months it will get down to 20 per cent.

Q. I am only striving for comparisons. That Government peat bog produced fuel of 9,520 B.T.U. Yours, when handed out to the public, would produce what B.T.U.?—A. You are making a mistake, theirs does not carry 9,500 B.T.U., it is 6,300, because the Alfred peat—these are also Government figures—when analyzed averages a little less than 6,900 absolutely dry. The very best bog in the country is one in Quebec, and they go to 9,500 B.T.U., absolutely dry.

By Mr. Ross:

Q. Mr. Graham, these figures are from the analysis made at McGill University.—A. But that means dry peat. If you are taking peat with 30 per cent moisture, you have to reduce that figure by 30 per cent, and then further deduct for the amount of fuel, that is the heat units, the amount of fuel you have to use to drive off that 30 per cent.

By Mr. O'Connor:

Q. We are getting a little confused I think; that is really after the peat dries?—A. But do you not understand that there is no such thing as absolutely dry peat.

Q. I am not saying that, I am speaking of the commercial product which is sold as the result of Government operations, and after all there is no use of either you or I disputing this, that it is 9,520 B.T.U., on an actual basis?—A. I do not know who handed this out, but it is absolutely false, as commercial or dry peat. If you, in making an analysis, eliminate the moisture first, then that might be all right.

Q. Let me see if I get your point. Your point is that these figures are capable of being produced under best conditions from the Alfred peat bog, but are not the figures of what is actually produced and commercially sold.—A. That is it exactly, it does not apply to the commercial product.

Q. Your point is that the commercial product as sold, if analyzed, would produce this if all the moisture in that commercial product were driven off?—A. Yes.

Q. But as sold it still retains 30 per cent moisture?—A. Yes.

Q. Well, you are not able, I suppose to tell me, in what per cent—perhaps you are—in what per cent of B.T.U. your product excels the completed Government product?—A. The comparison is 6,300 to 12,000. I may say that in connection with this the moisture in mine is reduced to about 4 per cent, so it is comparable to certain kinds of coal.

Q. Have you ever had an analysis made of your complete product?—A. Yes, and not only that, but the Government analysis.

Q. Have you that analysis?—A. I have not it with me, but I have had an analysis.

Q. You can give it to me roughly; what is the volatile content?—A. You cannot get any better authority on the kind of fuel I am talking about than you will get by looking up the report made for the Canadian Government by Mr. Arick Nystrom, a Swedish Engineer. It really refers to European peat, but he gives the analysis and deals with some substance similar to mine called, "Peat half coal" and he gives all the analysis, and that is very reliable and correct.

Q. But your own product, you have not an absolute analysis of that?—A. Yes.

Q. Surely you carry that in your mind?—A. Certainly.

Q. What is the volatile content?—A. The volatile content is about 25 to 30. The fixed carbon would be close to 75 per cent; allowing for ash and so on, it would be about 20 per cent volatile. From 65—it depends on how far the carbonizing has been carried on—from 65 to 70 per cent fixed carbon, and the balance, less ash, is volatile.

Q. Then you must drive off considerable of the volatile content?—A. I reduce it by one-half.

Q. It would be considerably more than one-half?—A. The maximum would be 46 per cent; I retain that as the residue part. I drive off 54 per cent.

Q. Do you use the gas driven off, for further carbonization?—A. Yes, in running the plant, and the waste heat from that I utilize in my drying system.

Q. And you feel quite sure in your mind as to the cost of production on that very excellent fuel?—A. It is very excellent fuel. You can figure it for yourself. There is only one kind of evidence that I have that is not absolutely reliable and complete, and that is whether this plant can be put up, can be equipped as proposed at a cost of \$800,000; it might be \$850,000 or \$900,000 or even a million, but it would be very close to that. Those are figures of other engineers and are supposed to be conservative, but taking that cost at \$1,000,000, 25 per cent more than these figures, that would add to the cost of the fuel to the consumer about 50 cents a ton; it would mean an added cost of 50 cents.

Q. On your figures, I make out that your fuel in heating value, as related to the cost, would be ten times as great as Government peat. How do you explain that? Do you want me to explain my figures? Let me show you. Your cost is \$2.50, we will say?—A. Yes, it is fully that, ten times.

Q. It is four times as cheap, then?—A. Yes.

Q. Your B.T.U. is twice as good—I should have said your fuel was eight times as good as Government peat?—A. Yes.

Q. It will be eight times the value to the consumer than the ordinary Government peat?—A. You had better figure that in a different way, because you are forgetting the cost of freight and delivery; of course, the comparison would be nearly the same.

Q. Not on the plant?—A. The way I put it.

Q. You are both working at the Alfred plant; I take these figures there, to be fair to both?—A. Yes.

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Q. We are speaking of operating the Alfred plant. Your fuel, as produced, would be eight times as valuable as the Government fuel?—A. Fully that.

Q. The only difference being this, that there would be additional capital expenditure for putting in the plant, the dehydrating plant, on the property?—

A. That is, in the total. The total cost of the plant? That is only a part of it.

Q. You would have some additional capital expense to that?—A. The capital expense would be very much less in proportion to the output.

Q. Do not mix things by proportioning the output. Take your Alfred peat.—A. Yes.

Q. With the Government producing 100,000 tons per annum and you doing the same. With the addition of some capital, be it one million, two million or three million—I do not know how much and I do not think you know?—A. Yes.

Q. That with some additional capital you could produce a fuel approximately eight times as valuable as that which the Government is producing at that specific bog, and you say that for ten years you have been after the Government and the Minister, asking them to apply your system. It seems an extraordinary thing that they have not paid attention to your request. To what do you ascribe the neglect?—A. That is a very important question, that would almost justify an investigation by a Royal Commission. They have investigated things not any more important. One of the things Mr. Simpson asked for was this, that a Committee of the House be appointed to investigate the whole peat question afresh, people with open minds, with no axes to grind.

Q. Why do you not go down to the Government Fuel Testing Plant and have a really scientific analysis made, and then after that, go to the Government and say, "Here, here is my proof"?—A. The Government officials, I judge, the most of them, and everyone down at the Mines Department, probably even the Minister, know enough about it to know that this fuel has the value, they are not questioning that, it has the value I assign to it. Their objection is that it would be prohibitive in cost; they do not attempt to explain, they simply make the statement that it is impossible in the matter of cost. Now, I will give you a statement that was given to me in a discussion, an interview that I had with an engineer, a man supposed to be of high standing here, who was on a committee dealing with matters such as this. He made this statement to me a few weeks ago—and if there are any engineers conversant with this subject present, they will realize what an extraordinary statement it was; he admitted that I could reduce the water to the extent that I claim, also that I could carbonize and briquette peat as I propose to, but that inasmuch as, according to the laws of thermo dynamics, it will take the same amount of cast off fuel required, the same quantity of fuel, whether I press the water out or evaporate it by artificial heat, and since it is well known, as I admit myself, that if you attempted to expel the water by artificial heat, it would take more fuel than the plant would produce, the thing was a hopeless delusion. The error, however, is this, that instead of expelling the water as I do mechanically, or whether you do it by thermo means, the difference is 40 to 1 instead of being equal. He said that it would be 40 in both cases, I say in the one case it would take one ton, and in the other 40 tons. I think there ought to be a Royal Commission, almost, to investigate that, at the outset.

Q. Explain this for me; I am trying to understand this thing. You will start with your peat, it will have a volatile content of 64.4 in the Alfred peat bog and a fixed carbon of 30.2. By the time you are done with it, you are going to run that volatile content up to 70 or over?—A. From 65 to 70.

Q. Say to 65, your minimum.—A. Yes.

[Mr. J. Graham.]

Q. That is to say, you are going to use 44 per cent of the volatile matter.—
A. By weight.

Q. Of the combustible matter, you are going to use 44 per cent in order to run up your carbon content from 30 to 65. In order to double your carbon content and to do that, you are going to use up 44 per cent of the 64.4 per cent of the combustible gases?—A. No. What gases are you speaking about, heat units?

Q. No, of the actual gas content which is part of the combustible content. We who use bituminous in the East, where it is very much higher in gas than in carbon, know that the heating we are getting is from the gas content. You, in your peat system, on the analysis of peat, are going to burn these gases in the beginning in order to produce your article?—A. Yes.

Q. It looks as though it ought to be an expensive product?—A. You are wrong on one or two important things. In the first place, the comparison between peat, commercially dried peat and coal which has already been partially carbonized by nature ages ago—you start off with a comparatively rich gas, high in caloric content, whereas in my case the first thing that is driven off from this peat is nothing but water.

Q. The water content is a different thing.—A. When I put this into a retort, 20 per cent is water.

Q. But there is not 20 per cent. of the volatile matter that is water?—A. No, but the two are mixed.

Q. What I am speaking of is, after the water is off.—A. I know it. You will find that the percentage is not as much as you say. Your figures are all right, only you forget that a part of that percentage is water, also.

Q. I am speaking of dried peat now, with every particle of water driven off, and I am accepting your own statement.—A. I know your figures, but understand, you have to take it as it is treated in actual operation, there is no peat which becomes absolutely dry, there is not such a thing.

Q. We have, in order to get any comparison, to take them on the same basis.—A. Yes.

Q. We are talking now of the actual condition of the product, under the very best conditions, and under proper retorting and all that sort of thing, and we are not talking just now of the commercial product, we are talking of what are the actual facts. There is 64.4 per cent of gas. You are going to lose in it about 20 per cent; that is, you are going to lose 44 per cent.—A. Of the volatile?

Q. Yes?—A. Yes.

Q. In order to run up your fixed carbon from 30 to 65?—A. Yes.

Q. So as to hand that out to the people to burn. You have extracted from it, in order to produce that high carbon, you have extracted what is pretty nearly as good, the volatile matter, in order to produce it.—A. It is not so high in value as the remaining fixed carbon; I mean in caloric value.

Q. No, but it is still high.—A. You cannot compare it with coal.

Q. No, but there is any amount of carbon in the volatile matter; that is why you can run your 30 up to 65?—A. Yes, but the important thing, what I presume you are after is this; we had better convert the whole question of the volume into heat units, because I have that at my finger tips. In the operation of this plant, including the solid fuel which I would use, I would use approximately 30 per cent to 35 per cent or 36 per cent of the heat units, according to these estimates I have given you, 35 per cent or 36 per cent of the heat units. Therefore, a little more than one-third has been extracted in the operations, and two-thirds are conserved, available in the form of fixed carbon of high value.

Q. You have been able to percentage it pretty well, and you had it in the back of your head all the time. You use about one-third?—A. Yes, and leave the two-thirds.

Q. In making saleable the other two-thirds?—A. Yes.

Q. That gives us something to work on in comparison with coal?—A. Yes.

By Mr. Forrester:

Q. What do you do with the water content, what happens to the water content?—A. It makes a beautiful gas, something better than what is called producers gas, which you can use for driving an engine or under the boiler.

Q. You collect that?—A. Yes, every part of that is used, nothing is wasted at all. It is all utilized in the processes, there is no wasted heat at all. I may say, in such a plant as I have described in my system, I would be using through the thermal dryers, over 900,000 feet of air, a minute entering the building from whatever direction you want. That absorbs all radiated heat such as might go at a loss. That absorbs all this heat and passes through the dryer, and does useful work.

By Mr. O'Connor:

Q. I want to to make a suggestion. Would Mr. Graham consent to put his materials before the Committee, so that they may be analyzed at the Government Fuel Testing Station?—A. I might say that as regards the testing I have done here within the last few weeks, in this carbonizing, the retort they supplied me with was low in heat. It had a maximum of 350, which was not high enough.

Q. It will be done under the Committee's supervision, and under the very best scientific methods.—A. The retort was not quite warm enough, but what I can do is this. I will take this same sample, and I will get this done, and then I will pass the samples over to you and you can get your analyst to go into it.

By Mr. Arthur:

Q. I read the evidence of Professor Haanel; I am speaking from memory; I may be wrong. Dr. Haanel said that in the last year of operation, the year before last I think it was, they produced peat, and it was first-class in shape and form, and that they produced it a cost of \$3.50 a ton.—A. That is one of the things the Royal Commission should get after right at once. I will anticipate what he was going to tell you. When you get him in the box, and he is liable to be prosecuted for perjury, you say: "Do you understand that you did last year produce at that cost of figures, including overhead?" And he will answer, "Oh, no, gentlemen, you misunderstood me." I will bet a hundred dollars that he says that. He will say, "You made a little mistake. We are talking about what we are going to do some other year, in the distant future, when we are running night and day." With him there is always going to be some marvellous performance the following year. That is one of the things that ought to be investigated. I might say that Mr. Simpson is not a friend of mine, but he has lost faith in the method, and told them so, and consequently incurred their displeasure.

By Mr. Ross:

Q. In how large quantities have you experimented on?—A. Only on a few pounds at a time. I have never carried out any at all on dimensions of a commercial plant.

Q. These results obtained so far have been with quantities of 1 or 2 pounds?—A. Yes. I would say that was made by a hand operator, taking a die and putting on tremendous pressure.

By Mr. Arthurs:

Q. They could make this down at the Mint?—A. Yes, no person could make a fuel like that commercially. That is made with an open die and mine

was made with a closed die. It is not commercial, because you simply put it on a base and press it down, and remove the base, and fire it out.

By Mr. Garland:

Q. What capital would you require to produce 100,000 tons?—A. The contemplated plant for 120,000 tons, that would cost in round figures according to the opinion of independent engineers, \$800,000.

By Mr. Arthurs:

Q. Which would be approximately \$4 a ton?—A. About \$7 a ton.

Q. That would be \$1.40 a ton for the operation of the plant?—A. That is the investment. For instance, instead of charging you interest, I figure how it is going to be sold, a dollar a ton profit, which would be equal to a dividend of about 15 per cent on the actual invested capital.

By Mr. O'Connor:

Q. I will produce 500,000 tons per annum of coal for that capital expenditure.—A. Down in Nova Scotia.

Q. It seems a high capital cost?—A. We know that. Look at what anthracite coal costs at the pit mouth in Pennsylvania.

Q. The extraordinary thing, I am afraid, is interesting the Government. You estimate that you can turn out your product for a little under \$2.50 a ton. The coal companies cannot begin to do that?—A. They have done so in the past, for about one dollar a ton in past years, and in recent years they are producing it, and even selling it, for \$2.50, but, as I say, it is not to be compared. You cannot compare it with some other industry. The main thing is to find out what these items of cost consist of, and whether they are astray, or how far they can be verified. That is what I have been waiting for for quite a while. I might say under this system that the Government has been carrying on, the men who have been behind the coal question have been looking at that system and nothing else.

Q. It is going to cost about 60 cents a ton to pay interest on that capital.

Mr. ARTHURS: Interest and depreciation would be \$1.40.

By Mr. O'Connor:

Q. Merely to pay interest on capital cost, 60 cents a ton?—A. At what rate of interest?

Q. Twenty per cent?—A. All overhead. That does not include interest. I figured interest in the form of a dividend. My proposal is that this fuel should be delivered to the consumer yielding a profit of one dollar a ton, which would be equivalent to 15 per cent on \$800,000. That would be a very satisfactory interest consideration.

By Mr. Dickie:

Q. How long would it take to put that plant in operation?—A. It depends on where the machines were built, probably in Montreal, not a full-sized plant, because it does not have to be launched on this \$800,000 basis to begin with. What I am recommending is that the Government ought to take some steps to find out what the ultimate cost would be for a successful commercial operation output, which I would prefer would be one-half, not less than one-half of the figures that I have quoted, but it could be started on a basis of one-quarter.

Q. But supposing that it is a pretty cold winter, and we had not got any coal. We have to get something. How long would it take to put this into operation?—A. I might say that the plant that I was going to suggest, if it was a plant with a 30-thousand ton output, it could be erected and be put in operation within three weeks after the operations were undertaken.

[Mr. J. Graham.]

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By Mr. Forrester:

Q. Have you the machine designed?—A. I have my designs. They are not what you call construction drawings, because I have never quite decided—at the time I made the last drawings I had not decided on the dimensions which these machines should be constructed for the best economical results of operation.

By Mr. Garland:

Q. You were mentioning the most economical unit of production, 30,000 tons?—A. One unit such as you have at Alfred, producing a maximum of 300,000 tons.

Q. What would be the most economic unit? What would be the size for your system?—A. I was going to say 120,000 tons annually. I might say in regard to that, if it is half that output, the cost is 75 cents more.

Q. You propose that the output of this plant would replace the anthracite used for domestic purposes?—A. I will make a perfect substitute for the anthracite in the cities.

Q. Do you know about how much anthracite is used for domestic purposes in Ontario?—A. Yes.

Q. About 3,000,000 tons?—A. When they can get it.

Q. You would require about a 30,000-ton plant then?—A. I have not any visionary ideas as to displacing coal, because we have not got the peat reserves.

Q. You could use them up in a year.—A. No, but I am advocating that the Government should lay themselves out to take say a dozen of the largest bogs in Ontario and Quebec. They would not all justify an equipment on a basis of 120,000 tons, but they would all be from sixty thousand to one hundred and twenty thousand, and turn out an aggregate of one million tons.

Q. Surely the witness can recognize this fact, that we could almost exhaust in supplying the requirements of the provinces of Ontario and Quebec the entire bogs of the provinces in one year?—A. In three years.

Q. There would be a total capital of over \$24,000,000.—A. No person except an idiot would think of putting in a plant that was only going to have reserves of material for three years. I contemplate that all the bogs could be equipped, and you can exhaust the supply in twenty years. The bog at Alfred would last for over thirty years at the rate of output that I figure on. In my estimate I am allowing for depreciation and amortization on a twenty-year basis. That is very clear, and it ought to be a very satisfactory answer to that question. I am allowing for the scrapping of the plant in my estimate, but as a matter of fact that would not happen. What would happen would be that that plant would be taken out and moved to another bog in another part of the country, further north perhaps, and resume operations. In my estimates, and all other estimates, they contemplate scrapping the plant at the end of twenty years.

By Mr. O'Connor:

Q. Even the total utilization of all the bogs would not go very far?—A. I am talking of a maximum of two million tons a year. I have not any visionary ideas. I have stated this, that I have got available in the provinces of Ontario and Quebec the equivalent, or a sufficient quantity of raw material to make 50,000,000 tons at the maximum of this fuel, well situated with regard to the distributing market, which, as you would realize, would supply the country for only about a year and a half, or say two years. Now, that is not the way to develop the peat business. Regard it as a supplementary fuel, with a maximum of probably a million, or between that and two million tons a year. I would not touch any bog that was not a thousand acres in extent. My proposition is to utilize only the large bogs, and not figure on doing anything, for the time being, on the small bogs.

The Committee adjourned to Tuesday, May 8th, at 11 a.m.

[Mr. J. Graham.]

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HOUSE OF COMMONS,

COMMITTEE ROOM No. 429,

TUESDAY, May 8, 1923.

The Select Standing Committee on Mines and Minerals met at 11 a.m. The Chairman Mr. Carroll, presiding.

The CHAIRMAN: Gentlemen, before we put a witness on the stand this morning, I suppose you are all aware of the reply of Sir Henry Thornton to the proposals made to him by the coal operators. Wires were sent both to Senator McLennan and myself, and you have seen them in the press, so I do not know whether it is necessary to make this wire a matter of record or not. What do you think gentlemen?

Mr. SPENCE: It is pretty well known all over the country.

The CHAIRMAN: We are making a report to the House and officially I think it should be recorded. The wire is as follows:

MONTREAL, 5 May, 1923.

"W. F. CARROLL, M.P.,

"House of Commons, Ottawa.

"After careful deliberation Canadian National Railways are able to quote rate of nine dollars per ton on the average for Alberta coal moving in train load lots from the coalfields of that province to Ontario. It is understood that in naming this rate it will be applicable only during the months of May, June and July, as prior to May adverse weather conditions materially affected the cost of movement and after first of August our equipment is needed for transportation of grain. Similar consideration will also of course be given to the rates on coal from the Maritime Provinces. It is also to be understood that coal operators at shipping points and distributors in Ontario will co-operate with the railway company to achieve the common object, as I am sure will be their desire.

H. W. Thornton."

Now, the question comes up as to our future course in regard to the freight rates, especially the freight rates in the West. The Clerk has communicated with the two experts of the C.N.R., and they asked not to give their evidence until Sir Henry Thornton made his report to the western operators or their representatives, and to the Committees. Now, I think we should have these men here, for various reasons, and I think we should make an effort to have them here next Tuesday.

Mr. GARLAND: Could we not get them on Friday?

The CHAIRMAN: That is rather a bad day for committee work. We would have to sit in the afternoon, and Friday night, you know, there are very few in the House, and they do not want the committees to sit. I think we should make it Tuesday, if that is satisfactory to the Committee, and I also think we should have the expert from the C.P.R., Mr. Lanigan; we should have them here together.

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Mr. GARLAND: May I suggest that you make your subpoena to Mr. Lanigan rather strong, otherwise he will not come. If he is ill, and cannot come, have him send someone qualified to give the evidence. We want to get these men now, before the thing gets too stale.

The CHAIRMAN: Now, Mr. Garland has handed me a telegram this morning from Calgary, from the Red Deer Coal Operators Association, which in effect states that this rate of \$9 is absolutely prohibitive as far as getting coal into Toronto by rail is concerned, so we will have to try and impress upon them in some way,—either them or the Government—the necessity of a further reduction in rates, or something of that kind. The telegram is as follows:—

“E. J. GARLAND,

“House of Commons, Ottawa, Ont.

“Following is a copy message wired Premier Greenfield, Winnipeg, tonight. Operators here feel keenest disappointment over development which was unexpected and practically destroys hope entertained of securing a market in Ontario. Message follows copy of telegram from Sir Henry Thornton to you has been received and considered by representatives of domestic mines to-day at meeting at which Mr. Brownlee present. Evidence given by operators at Ottawa made it absolutely clear that to secure and maintain business in Ontario would necessitate a rate of approximately six dollars. The proposed rate of nine dollars which is a little better than a relative extension of the present commodity rate from Drumheller to Winnipeg added to the mine price of five dollars which on present production cost cannot be modified would give a laid down price of fourteen dollars F.O.B. cars Ontario points to which would have to be added delivery charges to consumers. Prevailing prices on anthracite in Ontario when Committee there were fifteen fifty delivered to consumers Toronto and sixteen fifty Ottawa. One fifty for introduction and delivery of western coal against an established anthracite market with high class handling facilities is totally inadequate especially in view of summer reductions to anthracite buyers which will no doubt be materially enlarged if serious competition develops from the western product a probability already anticipated by those closely in touch with the eastern situation including Sir Henry Thornton. The result is that with a reasonable margin to the eastern distributor the price to the consumer would exceed that of anthracite and consequently little expectation could be entertained of securing a market. If a rate of six dollars were established to permit an actual test over at least one season western operators would make every effort to establish their product but any figure over that offers little hope of considering Ontario as a market for western coal.

RED DEER COAL OPERATORS ASSOCIATION,

“per S. L. McMULLEN, *Secretary.*”

I wonder if Mr. Finn would be a good man to have on the Committee next Tuesday.

Mr. O'CONNOR: I do not know of any better man on freight rates.

The CHAIRMAN: He told me he would come, and I think we should have somebody here who knows something about rates.

Now, is there anything else before we call the witness? If not, we will call Mr. Chisholm.

DANIEL CHISHOLM, called and sworn:

By the Chairman:

Q. Your name is—?—A. Daniel Chisholm.

Q. You live in Toronto?—A. In Toronto.

Q. What is your position?—A. Property Commissioner.

Q. What does that involve?—A. Care of all public buildings—firehalls, police stations, markets, and a general utility office; I also have the supervision over a smoke by-law.

Q. Have you any jurisdiction over the public utilities of Toronto, or is that done by a commission?—A. No, sir, I have charge of the maintenance of all those public buildings I spoke of, about fifty or sixty.

By Mr. Church:

Q. You have been in charge of the purchase of a large supply of coal for the City of Toronto?—A. Yes sir.

Q. And many outside places connected with it?—A. Chiefly the farms which are attached to the city, the prison farms.

Q. And you have been a coal commissioner for the City of Toronto? Who appointed you?—A. For about three years. I was appointed on two occasions by the City of Toronto, and on the last occasion by recommendation of the City Council to the Ontario Government, acting under Mr. Ellis.

Mr. CHURCH: Mr. Chairman, I suggest that the witness might have a line of information to give to the Committee. He has been not only Property Commissioner, but actively engaged in the purchase of large supplies of coal, and he can deal with the transportation problem in many phases, as well as the question of coal, which was formerly carried largely by water, now coming in by rail, and he has acted for the city in the purchase of a large supply of Welsh coal which he brought to Toronto at \$15.50 a ton delivered. He has had something to do with Nova Scotia coal and he can further speak about the important factor of delivery in a large city, how it adds to the cost.

By the Chairman:

Q. Mr. Chisholm, if you will give us a statement along the lines suggested by Mr. Church—perhaps you have a written statement?—A. No, sir, I have just taken notes of a few things connected with the distribution of coal. Through my department last year we delivered approximately 8,300 tons of Welsh coal, which was brought in by boat to Montreal, loaded on to canal-size steamers and brought up to Toronto.

Q. Loaded on to steamers at Montreal?—A. Yes. Our experience with that was—

Q. What facilities did these boats have for unloading this coal at Toronto?—A. We worked the unloading through the machinery of the Harbour Board.

Q. What did that consist of?—A. Clamshell dredges, and piled on one pile in one dock, which necessitated the delivery from one place altogether. I might also say that the coal had a large amount of screenings, as is common to Welsh coal. I arranged later with the coal dealers in Toronto to distribute it to our people who had no coal, and they delivered about 4,500 tons, making a total of about 12,500 tons which we delivered last winter through my department.

By Mr. O'Connor:

Q. Tell me whether that was bituminous coal or anthracite?—A. The Welsh coal—we had one cargo of hard coal and the other was semi-anthracite. The rest of the coal, the 4,500 tons was very largely anthracite, American anthracite coal. Towards February or March, we were placed in the position

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that we had to give a mixture of bituminous and anthracite coal. Apparently there was not enough to go around, and the majority of the firms wanted half and half some of them took one-quarter to three-quarters, one-quarter soft and three-quarters hard. Is that all you want to know?

Q. What did that coal retail for in Toronto?—A. \$15.50. May I make a suggestion?—That is, the coal that I ordered cost \$15.50.

By Mr. Church:

Q. Was there any difficulty with the Welsh coal? Is it good for any kind of service?—A. We only had trouble up to the time that we did not screen it.

Q. It is a matter of education, somewhat?—A. Yes. Up to the time we filled orders without screening it, there were some complaints.

Q. Taking it generally, did it give good satisfaction?—A. Yes.

Q. What about the heat units? Did it compare favourably with Pennsylvania coal—A. Over 14,000.

By the Chairman:

Q. What are the heat units in Pennsylvania anthracite?—A. From 13,000 up. The Welsh coal was over 14,000.

By Mr. Church:

Q. Was there much difficulty in getting rid of it?—A. No, sir.

Q. You could not supply the demand with the small supply that you had?—A. That was all the coal we brought in—two large carloads.

Q. Was there any difficulty in getting supplies of Welsh coal? Could you have bought much more?—A. I may say that the price increased very materially.

By the Chairman:

Q. You say that you retailed that Welsh coal for \$15.50.—A. Yes.

Q. And what did you retail the American anthracite for—the same price?—A. May I explain? We took orders at the office all day long, and these orders were for half tons and nothing more than one ton. Any of that coal that was sent out did not cost over \$15.50.

Q. \$15.50 in the cellar?—A. Yes, although coal was retailed by outside dealers at a great deal higher price.

Q. Did you retail the American anthracite and the Welsh coal at the same rate?—A. Yes, sir.

By Mr. O'Connor:

Q. And the mixture as well?—A. Yes, the mixture as well.

By the Chairman:

Q. Did you sell that coal at a profit?

By Mr. Church:

Q. It was sold at actual cost.—A. You will recognize this. I have already stated that these people came into my office, and we took the orders, and had that coal delivered through coal merchants c.o.d. We did not handle the money on these 4,500 tons.

By the Chairman:

Q. Do you know whether there was a profit made by somebody?—A. Yes.

By Mr. Church:

Q. The coal came directly from Wales into the harbour of Toronto?—A. No, it was trans-shipped at Montreal into canal-size boats.

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Q. What part of the price of \$15.50 was paid for the local deliveries from the terminal to the house?—\$1?—A. No, sir, about \$1.65 for the 4,500 tons. We handled the Welsh coal, which did not cost us any cartage. We handled this through the Scavenging Department.

By Mr. Garland:

Q. You stated that the unloading was done with the facilities belonging to the department. Were they charged the same as an ordinary private dealer would have to pay?—A. As far as I can recollect, no, I think it was done at cost.

By the Chairman:

Q. Well, then, could you tell us what the freight rate is on that coal, first, from Wales to Montreal?—A. I cannot.

Q. Can you tell us what freight rates were charged from Montreal to Toronto?—A. Offhand, I could not.

Q. Is there any way that you could get that information?—A. I could mail it to you.

Q. If you please. We will make it part of the record.—A. We bought the coal c.i.f. Montreal.

By Mr. Church:

Q. At the time you bought this coal in Wales, there was a big demand for it owing to emergency?—A. Yes.

Q. And the rate was at the maximum about that time?—A. Not so much as it was later on.

Q. But did you have difficulty in getting ships to bring it over?—A. No, they sold the coal c.i.f. We had nothing to do with ships at all.

By the Chairman:

Q. What did you pay for that coal in Montreal?—A. I will send that information to you also.

By Mr. O'Connor:

Q. The itemized costs?—A. Yes.

By the Chairman:

Q. You will do that?—A. Yes.

Q. You are leaving that subsidy with us?—A. Yes.

By Mr. Church:

Q. Would you have to pay the same freight to purchase a large supply in Wales to-day as you did last January?—A. Yes, and a little higher rate from Montreal up.

Q. Are you going to pay the same prices for Welsh coal as you would for Alberta coal?—A. I have not the slightest idea.

Q. How long will these high rates continue?—A. That will largely depend on the tonnage of the boats.

Q. Are you buying any over there at the present time?—A. No.

Q. Do you propose to buy any?—A. Not unless the Board of Control instructs me to do so.

By Mr. Logan:

Q. You say there were some complaints about this coal before it was screened?—A. Yes, owing to the screenings being in.

Q. Owing to foreign matter being in the coal?—A. Screenings, chiefly breakage.

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Q. You said that it analyzed about 14,000 b.t.u.'s?—A. Over 14,000.

Q. Did you have the analysis made yourself?—A. Yes.

Q. By whom?—A. I do not know whether that was through the School of Practical Science.

Q. Was that an analysis of screenings or run of mine?—A. That was an analysis of coal when screened.

By Mr. Church:

Q. You bought that coal at various places in Wales?—A. No.

Q. Do you have to pay \$15 now?—A. I do not know.

Q. Do you buy it any cheaper to-day?—A. I do not know.

Q. What about soft coal?—A. It has been offered at \$14.50 in Toronto.

Q. You buy it by going into the open market?—A. Yes, by going into the open market.

Q. Did you ever deal directly with the mines themselves, or through the transportation company, or the agents?—A. We have never dealt directly with the mines.

Q. You buy through an agent?—A. Yes.

By Mr. Logan:

Q. What can you buy Welsh coal for now?—A. We have had several quotations but did not think it worth while to go into them seriously, as the prices were too high.

Q. What is the price they ask now?—A. For what?

Q. For Welsh coal?—A. I have had one quotation. I think it was \$14.50.

Q. At what place?—A. At the dock, Toronto.

By Mr. Church:

Q. Are you aware that the Baldwin Company have a large plant in Toronto, and they get their supply from Swansea, Wales?—A. I was not aware.

Q. Would it be possible for the city to charter a boat, and have them bring coal from Swansea?—A. It might be possible if we were going into the Welsh coal business, that is, going into canal-size boats, and handling them direct, and saving a lot of handling at Montreal, and a lot of breakage.

Q. Would it affect the price if you had these boats?—A. I do not think so.

By Mr. O'Connor:

Q. I think this is a subject matter that requires to be followed a little further before the witness departs. I would like you to give me the layout of the coal supply system. Where are the coal supplies particularly situated in Toronto—not on the harbour front, I understand? They are on the rail, are they not?—A. Mr. Chairman, there are a few yet left on the harbour.

Q. How many are there on the harbour, and what are their capacities?—A. The Standard Fuel Company have a large dock; the Rogers Company have a dock at the foot of Princess street. That is two of them.

Q. Supposing that a great emergency arises, which can only be supplied by water. Have you facilities on the water front that could be quickly organized so as to supply the city?—A. Not altogether. We have a large storage on the waterfront.

Q. You were going to tell us the number of coal suppliers on the railway line now?—A. They have branches on every siding. I would say to the north side of the city it would be a haul of five or six miles.

By Mr. Church:

Q. What effect did the purchase of Welsh coal have on the rates generally? Did it act as a regulator of existing rates?—A. I cannot say that it did.

[Mr. D. Chisholm.]

Q. It did not have some effect on equalizing the rates?—A. No. The Board of Control set the price at \$15.50.

Q. It had some effect?—A. I cannot say.

By Mr. Spence:

Q. Did the city make any money selling coal at \$15.50, and what was the percentage of slack in that coal?—A. They did not make any money selling Welsh coal.

Q. And they delivered it for nothing?—A. Yes.

Q. What proportion of slack did you have in this coal?—A. Let me add also, to Mr. Spence. During the stringency of the coal market this coal was delivered and any loss sustained was sustained by the city. I think they were justified in carrying out what they had done. They had coal to supply if anybody ran out.

Q. What percentage of slack was in the Welsh coal? And did you have any slack left over that was not used up?—A. Yes, there is quite a lot of slack that I am using now in public buildings. I am using it with soft coal.

By Hon. Mr. Logan:

Q. What was the percentage?—A. Possibly 25 per cent.

By the Chairman:

Q. You are using that slack to advantage now in heating your public buildings?—A. Yes, I am mixing it with soft coal.

By Mr. Church:

Q. Formerly coal for Toronto came in by boat, in the early past. Can you say now the proportion that comes in by rail or by water?—A. I could not say.

Q. It comes more by rail?—A. Yes.

Q. Practically all by rail.—A. I would say a very large percentage by rail.

Q. It is a rather small percentage of the gross that would come by water?

A. Yes. That is accounted for largely by the conditions in the city now, that is, the city has grown north. Deliveries come in there very, very largely. To draw coal from the docks say to East Toronto, or North Toronto, or West Toronto, would entail heavy expenditure in the way of cartage. The cars are now placed on sidings, and the deliveries made by the dealers from their nearest yards.

Q. The bulk of the coal for Toronto comes in by the Niagara district.—A. By rail from Buffalo.

Q. There is very little comes by water now?—A. Very little.

Q. What is the cause of that?—A. Conditions in the city.

Q. The growth of the city North?—A. Yes.

Q. Have they boats available on the lake front?—A. I have never heard of them being scarce. I had no difficulty in getting boats in Montreal last fall when we had this Welsh coal.

Q. Have you heard of any mines selling coal at fixed rates?—A. Not as far as I know.

By Mr. O'Connor:

Q. Some of the questions that I intended putting have been asked since. I wanted to deal with cartage and canals. How far away from the harbour, as a general rule, are those depots which are on railway lines?—A. Oh, anywhere from three to five miles.

Q. And the average haul from a land depot to a consumer would be what?—A. Would I answer you in this way, not what I am paying myself?

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Q. I mean the length of the haul, first?—A. Possibly from two to five miles.

Q. On the land haul?—A. Yes.

Q. What would it be on the water haul, on an average?—A. Possibly five miles.

Q. You would have the maximum hauls from the water, then, rather than from the land?—A. Yes.

Q. Which would be more expensive?—A. Yes.

Q. Now, Toronto is a flat city. It is not a hilly city. What are your cartage costs there? Have you a cartage scale—a local scale?—A. Perhaps I could answer you better by stating what we are paying ourselves. I am supplying now possibly fifty-five buldings, and we have purchased a large amount of anthracite coal for next winter. The cartage is costing \$1.50, that is, if bagged. If the coal is taken loose into fire halls, public police stations and public buildings, the charge is \$1.25 a ton.

Q. That is the average cost?—A. That is the exact cost.

Q. That is the contract cost, short and long haul?—A. Yes.

Q. Well, there must be some sort of a civic cartage schedule, is there not?—A. There is a schedule regulated by the police.

Q. You could send that to the Chairman of the Committee?—A. Yes, but it has no bearing on the coal question. I think a man is limited to so much an hour, but the way the Department of Public Properties delivers their coal, if I want coal to be delivered at fire halls and police stations at West Toronto, we have that coal shunted on the nearest siding to the place of delivery. The same thing would apply in North Toronto and East Toronto.

Q. Coming down to the canal side of the question, what sort of boats did you carry that Welsh coal in?—A. Large barges, steam barges. The "Maple Leaf" I think was one of the boats. I have a list of the boats which I can send to the Chairman.

Q. They are practically barge built steamers?—A. Yes.

Q. What was the tonnage?—A. Up to 2,000 tons.

Q. They are a flat-bottomed barged shaped boat?—A. I would imagine to go into Toronto harbour, where there is only 14 feet of water, they would not be very deep draft.

Q. In the Welsh coal, did you experience much breakage on account of the extra handling?—A. Yes.

Q. There was considerable slack in the extra handling?—A. Yes.

Q. The costs of that you are going to itemize and send to the Chairman?—A. Yes.

Q. You are going to give the cost in Montreal?—A. The cost of barging, the cost of transportation from Montreal to our dock, and the cost of unloading at the dock, which I think was done on the basis of cost.

Q. In every case you will give tonnage?—A. Yes.

Q. And you will also make it so that we will be able to compare a small load with a large one?—A. Yes.

By the Chairman:

Q. Do you mean to say that those barges carry 2,000 tons of coal?—A. Yes.

By Mr. Stutchbury:

Q. You think that Welsh coal could be delivered on the Toronto market in competition with anthracite?—A. I would rather send that information to the Chairman.

Q. How about last year, you had the prices last year?—A. I could not answer that. Coal was retailed in Toronto as high as \$20, that is, on an order

of the Provincial Fuel Controllers. We made an order of \$15.50 as the maximum for coal, but in that order was a clause that if a dealer could show that he had paid more than a certain price at the mine, then he was allowed to charge an advanced rate. Apparently there was no penalty, and no penalty could be made except by the council of the municipality passing a resolution asking that a penalty be put into effect.

By the Chairman:

Q. What was the average price that you were disposing of your Welsh coal for, compared with the average price charged by dealers?—A. As far as I can recollect, \$15.50.

By Mr. Church:

Q. Could a \$9 a ton rate from Alberta for a train lot compete with prevailing rates from Pennsylvania on the market?—A. No. I may say that I took that up on the 29th of August, 1922. On August 29th I took that up with several coal companies in the West. One was the Humberson Coal Company, and the freight at that time was \$12.60, and the price of the coal about \$4.

By the Chairman:

Q. What mine was that?—A. The Humberson. I found it was no use trying to bring that coal in at that time, with a freight of \$12.60, and the analysis does not show it to be a suitable coal. The b. t. u.'s were very low and the carbon fairly high.

By Mr. Logan:

Q. What was the b. t. u.?

By the Chairman:

Q. That is a very inferior kind of coal.—A. The location sample was from 5001 to 5005. The average of 5 analyses showed moisture of 22.164; ash 7.516; b. t. u.'s after air dried was 11,338, or before that 8815.

By Mr. O'Connor:

Q. The air-dried was the fair one to take?—A. Yes, 11,338. I also took up the matter with the Dobell Coal Company of Tofield, Alberta. Their reply to my letter was, "We thank you for your inquiry of the 23rd, and quote \$2.75 per ton f.o.b. mines at Tofield," and they add, "We ship coal to Winnipeg, but never as far as your city. Our coal is lignite, and not anthracite."

Mr. STUTCHBURY: They quarry that coal. It runs about 20 per cent moisture. It is something like the Saskatchewan coal.

By the Chairman:

Q. Just one question in connection with that. What would you say the freight rate should be from the semi-anthracite or the anthracite regions of Alberta to Toronto, with coal selling at between \$4 and \$5 a ton at the mines, to enable the Alberta coal to compete with American anthracite coal?—A. I cannot give you that, for this reason. I think you would have to compare the relative values as to heat in the two coals.

Q. We had some argument on that hard coal we had here. I supposed it was equal.—A. Approximately \$8 a ton, if you buy coal for \$4 a ton.

Q. Buying it for \$5 a ton, you would need a \$7 rate?—A. Yes. You would have to compete, and you have to have a rate of approximately \$7 if we were to compete with anthracite coal.

[Mr. D. Chisholm.]

By Mr. Stutchbury:

Q. Presuming that this coal was of equal value to the coal that the public of Toronto have been used to buying, in your opinion would they buy if it cost exactly the same as the coal that they have been used to buying?—A. From my experience, I do not think so. Our people are very loath to depart from old practices. We found that out last winter.

Q. It would require a lower price, perhaps one or two dollars lower than the price now being asked for American anthracite?—A. I do not think we would have to go one or two dollars. If it was a little less, they would give it a trial, and if it were of equal value, they would continue buying.

Q. Would the same answer apply to Welsh coal?—A. It did, until the people came into the office.

Q. After the Welsh coal had been screened, all the opposition disappeared. It was accepted as equal to anthracite?—A. The opposition very largely disappeared once we screened it, and people got in the habit of using it.

Q. Then I must judge by your remarks, that by the introduction of Welsh coal it would be as acceptable as American anthracite?—A. Very acceptable.

Q. As acceptable as anthracite?—A. In a great many quarters, yes.

By the Chairman:

Q. I would think it would be more acceptable, because people are waiting to put in their supplies, and they are not sure whether they are going to get anthracite or not.

By Mr. Lapierre:

Q. What is the price quoted on American anthracite to-day?—A. Delivered?

Q. Yes, to the cellars?—A. \$15.50.

Q. Can you tell the Committee at what you can deliver Welsh coal, if bought say for this year's delivery in Toronto?—A. No, we have not any quotations in recently.

Q. How long ago was this?—A. Possibly five or six weeks ago.

Q. Have you any information as to the fact that the price of Welsh coal has been going up within the last few weeks?—A. No, I have not any information along that line.

Q. Is it not general knowledge to-day that, owing to conditions in the Ruhr, there has been a large demand for Welsh coal in European countries?—A. Yes.

Q. Would not that have a tendency to raise the price of Welsh coal to us in Canada?—A. I do not think it would.

Q. In that case, you would hardly be in a position to get prices for Welsh coal for this coming year?—A. Yes, I think I could get a quotation, that is, in Montreal. When agents come into the office we ask for prices f.o.b. Toronto. I find it very difficult to get them. They prefer to quote Montreal.

Q. Have you started to make provision for the coming season for the city of Toronto?—A. I have purchased largely the coal for the buildings under my jurisdiction.

Q. That will meet the requirements for the coming season?—A. Insofar as our public buildings are concerned.

Q. Will you tell the Committee what grade of coal you bought for the coming season?—A. I bought No. 1 anthracite coal, of prepared sizes.

Q. Was that bought from straight line companies or independent producers?—A. Straight line companies.

Q. At what price?—A. I may say, Mr. Chairman, that I do not want to say that I prefer not to answer the question, but it was a private deal.

[Mr. D. Chisholm.]

By the Chairman:

Q. That is you got a cut?—A. Yes, and a very large one.

By Mr. Lapierre:

Q. One question more. Are other people getting the same cut that you received?—A. Not in ton lots or 10-ton lots. I bought possibly 60 or 70 car-loads.

Q. Is it possible for any purchaser of quantities equal to those you purchased, to get the reduction you did?—A. I do not know that.

Q. But they are getting reductions when they buy large quantities?—A. Possibly. I might say that I bought my own fuel and I paid \$15.50 for it.

Q. Well is it not generally understood that the coal rate by the large line companies is fixed and that there is no differential given to anybody?—A. I have heard that, but I do not know whether to credit it or not. My experience is the reverse. For instance, this year I made out specifications calling for certain quantities of hard coal, and large quantities of bituminous coal, and the tenders were submitted to me about possibly two weeks ago, to make an analysis of, and a recommendation, and I recommended that the tenders be not accepted, and that I would be allowed to buy the coal in the open market.

By Mr. Logan:

Q. That is anthracite?—A. Yes.

Q. What do you pay for bituminous?—A. Bituminous at the present time is very "druggy." You can buy bituminous coal now for approximately \$6.30, \$6.40, or \$6.50, run of mines.

By Mr. O'Connor:

Q. What is the price at the mine?—A. I do not know. I always buy coal f.o.b. Toronto.

Q. You can buy bituminous coal for what price? \$6.50?—A. That is, delivered on cars in Toronto.

By Mr. Garland:

Q. To go back to the question of competition in coal, you are familiar with anthracite coal?—A. Yes.

Q. If it were possible to lay down Alberta anthracite coal equal in heating qualities, and for domestic purposes, with the American anthracite, would the American anthracite people cut their prices?—A. I could not answer that. I am not in their secrets.

Q. In your opinion, do you think it is probable they would?—A. If what?

Q. I am simply asking you, if they were met by the competition of Alberta coal, and they found it necessary or advisable to do so, would it in time be probable that they would cut their rate?—A. Possibly.

Q. Don't you think it is probable?—A. I cannot answer that, Mr. Chairman.

By Mr. Logan:

Q. You have had some experience with the Nova Scotia coal?—A. Only from a smoke standpoint.

Q. You never purchased it?—A. No. We had a great deal of trouble. Nova Scotia coal was brought into Toronto a couple of years ago for Government buildings. I do not know the grade of it. I have never seen it, but it certainly did not, at all events, comply with the smoke regulations of the city, that is, allowing continuous smoke any longer than six minutes.

Q. Have you different smoke regulations in the City of Montreal?—A. I do not know what their regulations are there, sir.

By Mr. Stutchbury:

Q. Do you know that is largely a matter of education on the part of the fireman?—A. To some extent.

By Mr. O'Connor:

Q. That smoke is a gas that the fireman should have burnt?—A. Yes, to some extent the fireman has to do with that.

By Mr. Stutchbury:

Q. It is almost to the entire extent. They get used to handling certain classes of coal in a certain way, and they are unwilling to revert.

Mr. O'CONNOR: They always waste the gas in anthracite.

The CHAIRMAN: I was going to tell you, so that you can tell the people in Toronto that this building here is heated with New Brunswick soft coal, and it has been for two years, and they have never had such satisfaction with anthracite as with this coal which we thought was of an inferior quality.

Mr. GARLAND: Perhaps the Chairman can tell the Committee the price they are paying for it?

The CHAIRMAN: No, but they have a special rate over the Canadian Pacific, and it competed with the American bituminous coal successfully, that is, the tender was lower than the American tenders.

Q. Would the witness think that \$12 a ton in Ottawa was an excessive cost for New Brunswick coal?—A. Yes.

By Mr. Stutchbury:

Q. Do you know the smoke by-law of the City of Winnipeg?—A. No, sir.

Q. I understand it is the most drastic smoke by-law on the continent, and perhaps 80 per cent of the coal used there is Alberta steam coal which is very similar to the Nova Scotia coal. Do you not think a little education by the city of the engineers and firemen might assist Canadian coal in Toronto; that is, assist the Nova Scotia and New Brunswick coal?—A. Latterly I have not been going after these people who have committed breaches of the smoke by-law, owing to the scarcity of anthracite coal, for one thing.

Q. That is not the point I am trying to get at. Do you not think that in the interest of the Canadian coal it would be desirable that your branch or the city engineer's branch or some other branch of the City of Toronto might study the best methods of burning Canadian bituminous coal in industrial plants, to eliminate what is at the present time something of a nuisance, which is, after all, just poor combustion, due to poor firing?—A. We have been conducting an educational campaign for a great many years in connection with burning coal. One boiler or one fire might possibly come within the smoke by-law; another will not. One general method that we have been trying to instil into the proprietors of these places is to get their fireman when he is using soft coal to push his light fire backwards, feeding his green coal immediately inside the door of the fire-box, thereby causing the smoke to pass over the fire and to be consumed before it reaches the stack. That is one process we have been trying.

By Mr. Church:

Q. Mr. Chisholm, you have been making a number of tests of this Alberta coal in the city of Toronto at the Bay Street fire hall?—A. Yes.

Q. What has been the result of the test as to the quality of the coal?—
A. I have watched some of the tests and as far as the fuel is concerned—

[Mr. D. Chisholm.]

Q. If it can be brought down by proper transportation, would the coal be suitable for use in Toronto?—A. In some cases.

Q. What about a \$9 freight rate, would that be practicable, in order to compete with the other coal?—A. No, a rate of \$9 would not enable us to bring coal from Alberta to compete with any coal.

By Mr. Logan:

Q. Do you know what the freight rate on coal is from Nova Scotia to Toronto?—A. No, sir.

Mr. O'CONNOR: We had that the other day; it is about \$3.50.

The CHAIRMAN: It is \$4.70 to Montreal and approximately \$1.50 from Montreal to Toronto. That is by water, from Montreal to Toronto.

The WITNESS: The rate from Montreal, as quoted to me last fall, was \$3 a ton, all rail.

Mr. LOGAN: That would be \$6.70 altogether, then.

By the Chairman:

Q. Yes. Of course, when you talk about that, you know that the rate from Sydney to Montreal by boat is only about \$1. Now, was there any other subject you wished to deal with?—A. No, I do not think so.

By Mr. Logan:

Q. May I ask one question. This rate of \$9 per ton that has been inaugurated by Sir Henry Thornton is for the months of May, June and July. Does it matter much what the rate is in May, June and July?—A. Only it would force us to stock coal; we could not deliver all the coal for winter in May, June and July.

Q. Would the coal not deteriorate, that kind of coal? Would that kind of coal not deteriorate if put in cellars in June and July?—A. I have no direct knowledge of that, but I have heard of it.

Mr. STUTCHBURY: May I answer that?

The CHAIRMAN: Yes.

Mr. STUTCHBURY: I have had Alberta coal in my cellar for six years. My coal for next winter was put in before I left for Ottawa, before Easter. That is Drumheller coal. Even this coal Mr. Chisholm is speaking of is all right where it is delivered short haul. As long as it is under cover it is all right.

The CHAIRMAN: Is there anything else, Mr. Logan, on that?

Mr. LOGAN: Nothing more.

By Mr. O'Connor:

Q. Do you say you have had no coking experience in Toronto?—A. Quite a large quantity of Solvay Coke, prepared coke was sold during the winter by the Standard Fuel Company. I think they are the sole agents for that coke. I understand it gave very good satisfaction to those accustomed to using it. That coke is still coming into Toronto, and we had a number of cars of oven coke which seemed to be all sizes and did not give the same satisfaction as the Solvay Coke.

By Mr. Lapierre:

Q. How does the price of coke compare?—A. The price of coke was between \$18 and \$18.50.

By Mr. Spence:

Q. We heard some information from Mr. Cox, in connection with some coal company in Toronto, and he said he was selling some prepared coke around \$10.—A. I have no knowledge of that.

APPENDIX No. 6

Q. You did not get coke in your Department at all?—A. No.

Q. To your knowledge, there was no coke sold in Toronto as cheap as \$10 a ton?—A. No.

By Mr. O'Connor:

Q. You know there are two classes of coke, gashouse coke and domestic coke?—A. Yes.

Q. You are speaking of domestic coke?—A. Yes, in prepared sizes.

By Mr. Lapierre:

Q. At \$10 a ton, how would that compare with anthracite at \$15.50, or the price being paid in Toronto to-day?—A. At \$10?

Q. Yes?—A. I would say the preference would be for coke, as far as I am personally concerned. I do not know what the public would think of it.

By Mr. O'Connor:

Q. Have you ever burned coke?—A. To a small extent, merely in my house.

Q. You are aware that a great many people have an idea that it is hard to ignite?—A. Yes, sir.

Q. What is your experience?—A. The small amount I burned myself I burned it with hard coal, and once the fire was started it kept on fairly well.

Q. As to easy ignition, what do you know about that, as to whether it lights easy?—A. I am afraid I have not had enough experience to base an opinion on.

Q. You do not, I suppose, follow the system of drying the plaster in your houses in Toronto by coke, in the way it is done in the east?—A. I have seen it done a great many years ago.

Q. You have seen a brazier of coke burning in the middle of a room without any draught?—A. Yes.

Q. And it burns right to nothing?—A. I do not know that I have had the experience of seeing it burn out, but I have had the experience of seeing it blowing.

Q. Without any draught?—A. Without any draught.

Q. You have been in the room with it?—A. Yes, sir.

Q. And while you would be aware of it, there is hardly any fume or anything else?—A. There is a certain amount from it.

Q. But no smoke at all?—A. No smoke at all.

The CHAIRMAN: Well, gentlemen, are there any other questions which you wish to ask Mr. Chisholm now? I think he has given us some valuable information this morning.

Mr. SPENCE: I think he has covered the ground very well; I do not know of anything else.

The CHAIRMAN: Very well, gentlemen, it is understood that we will not meet again until next Tuesday, and we will then have these freight rate experts from Montreal.

The Committee adjourned until Tuesday, May 15th, at 11 a.m.

13-14 GEORGE V, A. 1923

HOUSE OF COMMONS,

COMMITTEE ROOM 429,

TUESDAY, May 15, 1923.

The Select Standing Committee on Mines and Minerals met at 11 a.m., the Chairman, Mr. Carroll, presiding.

D. CROMBIE, called and sworn.

By the Chairman:

Q. Your full name, Mr. Crombie?—A. David Crombie.

Q. What is your occupation?—A. Chief of Transportation of the Canadian National Railways.

Q. How long have you been in the employ of any railway?—A. Forty years.

Q. How long have you been in the employ of the Canadian National, or in your present position?—A. In this or somewhat similar positions for nine years. Part of the time I was General Superintendent, and part of the time Superintendent of Transportation.

Q. You are one of the gentlemen who deals with transportation rates?—A. My duty, Mr. Carroll, in the first place is the distribution of the rolling stock, to see that there shall be a supply where it is required for the movement of traffic, then the use of the rolling stock after it is there, to move the traffic at the least cost. I have nothing to do with rates.

Q. You have nothing to do with the rates?—A. No. I am in the Operating Department, not the Traffic Department.

Q. Who is the expert who advises the Canadian National Railways in the matter of rates?—A. The head of the Traffic Department is Mr. Dalrymple, and the head of the Freight Traffic section is Mr. Martin.

Q. Mr. Martin says he does not know anything about rates—perhaps it is costs?—A. Yes.

Q. He suggested that you were the man who could give us all that information. I will ask you one or two more questions, and the Committee will then go ahead. You know something about the decision Sir Henry Thornton came to in regard to the movement of Western coal into Ontario?—A. The \$9 rate?

Q. Yes.—A. Yes, sir.

Q. I presume you were one of those who advised Sir Henry in regard to that rate?—A. Well, perhaps that does not quite express it. Sir Henry was governed by the production of the cost figures, which were prepared by the chief statistician, Mr. Mallory, who is also present.

The CHAIRMAN: Now, gentlemen, I would like to make one remark. If you will just confine yourselves to one person at a time and ask the questions one at a time, that will be the better way. We have lots of time. These gentlemen are at your disposal.

By Mr. Garland:

Q. I would like to ask upon what basis the \$9 rate was arrived at?—A. On the basis of the cost figures, which were assembled by the chief statistician from the results of past experience.

Q. Past experience in what?—A. Past experience in freight traffic.

Q. Can you give the Committee in detail the costs entering into that \$9 rate?—A. I can give them to you from a statement prepared by the chief statistician, but as he is here himself you might prefer getting them direct from him, that is Mr. Mallory.

[Mr. D. Crombie.]

APPENDIX No. 6

Mr. GARLAND: It might be well to swear Mr. Mallory, and secure this evidence as we go along, because it will all fit in together. There is no use breaking the thing up.

WITNESS: Perhaps, Mr. Chairman, I might make it clear as to the segregation of these items, that I am more concerned in the attempt to handle the business cheaply. Mr. Mallory assembles the results of our efforts, and puts them together in this form.

E. P. MALLORY, called and sworn:

By the Chairman:

Q. Mr. Mallory, you might say in a word or two what your business in connection with the Canadian National Railways is?—A. My position is Director of the Bureau of Statistics at headquarters. We compile statistics there dealing with the operations of the railroad, particularly with transportation and the costs that are related thereto.

By Mr. Garland:

Q. Perhaps you can answer the question I put to the last witness, as to the details of the costs entering into this rate?—A. Yes, sir, I can file a statement showing how the \$9 rate is arrived at. I have a statement here showing the details of how this \$9 rate is arrived at, and I will be glad to file a copy with the Committee.

Q. I think it would be advisable that that statement be read, as well as entered as part of the record?—A. Shall I read it?

By the Chairman:

Q. Yes, you might read it, Mr. Mallory?—A. I have here a statement showing the estimated cost of transportation of coal in trainload lots from Alberta to Toronto during May, June and July. The cost is divided into sixteen sections.

1. Repairs to track and structures occasioned by use. That is to say, use as distinguished from maintenance due to wear and tear, due to the action of the elements, natural decay, and so on. I place that at 36.2 cents, that is per train mile.

Equipment repairs come next.

| | |
|---|-------|
| 2. Road locomotives.. | 34.4 |
| 3. Yard locomotives.. | 2.7 |
| 4. Freight cars.. | 83.4 |
| 5. Proportion of shop and machinery expense.. | 20.1 |
| | <hr/> |
| Total equipment repairs.. | 140.6 |
| 6. Traffic expenses.. | Nil. |

We have made no charge in this case.

By Mr. Finn:

Q. What do you mean by that?—A. That is the administration of the Traffic Department, the tariff bureau and our general freight officers, and so on, the total expense of the Traffic Department. It is a sort of overhead.

[Messrs. D. Crombie and E. P. Mallory.]

By the Chairman:

Q. Which is always there, whether you move coal or not?—A. Yes. There is no charge for that item.

By Mr. Finn:

Q. That overhead exists, whether you are trafficking or not?—A. Yes. It will increase to some extent with the fluctuation of traffic, but in this case it was Sir Henry's idea that no charge would be made on Traffic Account for general overhead.

By the Chairman:

Q. Which was a very proper thing. Go ahead.—A. In the Transportation section:

7. Superintendence, Dispatching, Station forces, etc., no charge.

Q. That is always an overhead?—A. It fluctuates according to the traffic. In this case we figured on a volume of 100 cars a day, or two trains a day, and that we could handle those trains without increasing our station forces.

8. Enginemen's wages 18.6

9. Trainmen's wages 20.3

10. Fuel for road locomotives 52.5

11. Other locomotive and train supplies 14.0

12. Engine house expenses and road locomotives 10.4

13. Yard service 31.2

By Mr. Garland:

Q. What do you mean by engine house expenses?—A. The cost of housing engines, boiler washing and preparing engines for road service.

14. Clearing wrecks, injuries, claims 3.1

15. Loss and damage, freight 6.0

Total transportation cost 166.1

16. General and miscellaneous Nil.

That is general overhead; there is no charge for that. We have allowed 10 per cent for contingencies, 34.3, making the total cost per train mile 377.2. The movement would involve 4,252 train miles at \$3.77.2, or a total cost of \$16,038 for one round trip, that is one full train east with the empty train going back, a trainload of 1,800 tons, 50 cars at 36 tons per car.

By Mr. Finn:

Q. Is there any possibility of the empties you speak of getting freight back?—A. No, sir.

By Mr. Spence:

Q. Not at that time of the year?—A. That is moving empty cars west, as it is, without this traffic.

By Mr. Finn:

Q. That is limited to the months of which you speak?—A. Our estimates are based upon the movement taking place within those months. Our cost per ton calculated from \$3.77.2 is \$8.91, and we have called that \$9.

In addition to these details, I can file a statement if the Committee so desires showing the total of the calculation involved in arriving at these figures.

Mr. GARLAND: I think it would be advisable if the witness should do that. With regard to the evidence given by the witness, Mr. Chairman, that the trainload they have estimated this rate on is 1,800 tons, is that not a small train?

WITNESS Well, it is and it is not. It is considerably above our average.

[Messrs. D. Crombie and E. P. Mallory.]

By Mr. Garland:

Q. That might be. I would expect it would be, where you are moving small amounts of commodities from place to place over long hauls in trainloads; do you not think that from 2,000 to 2,500 tons would be much more likely?—A. We have computed this trainload on the capacity of our locomotives as they are to-day. We do not figure on increasing the weight of the power we have in Western Canada at the present time.

Q. What is the traction power of your average locomotive?—A. I could not tell you the average offhand, but the type of freight locomotive we use in Western Canada ranges from fifty thousand to fifty-three thousand tons of tractive effort.

Q. That depends upon what size of trains?—A. It depends upon the subdivision; it depends upon the grades.

By Mr. Kennedy:

Q. How does that compare with the average grain train?—A. There isn't any difference, really, whether a train is loaded with grain or coal. It does not make any difference in the matter of engine capacity.

Q. I understood you to say that the coal train you had estimated on here, the tonnage, was about equivalent to your average freight train?—A. I said it was greater than our average, between 500 and 600 tons greater.

Q. What is the average size of a grain train: I would think in a case of this kind it would be possible to load the engines to capacity for the long haul.—A. That is exactly what we figured on. We have figured on using the engines to their utmost capacity.

Q. One thousand eight hundred tons would be what?—A. The average.

By Mr. Garland:

Q. The average over the whole distance?—A. Yes.

Q. Is it not possible that you could haul a greater load than that over most of the divisions, that that 1,800 ton trainload would refer to a division that has a particularly steep grade?—A. We are getting into Mr. Crombie's territory now.

Mr. CROMBIE: Some of these questions you are asking come under my purview, and some under the purview of Mr. Mallory. These figures were based—I am speaking now because I am concerned with the production of the cost—the cost figures are assembled, and Mr. Mallory makes his calculations. This trainload you are speaking of is based on the full maximum capacity of those engines, 50 and 53 per cent, or 50,000 and 53,000 tractive effort on the main lines, and the largest engines that we can use on the branch lines bringing the coal out to the main line. So this is the maximum load, the full load we would handle, whether of grain or any other commodity. It is the full maximum effort.

By Mr. Garland:

Q. Over the whole distance?—A. It is the average of the maximum of the distance, according to whether the tonnage breaks on any particular subdivision.

Q. You can haul a much greater trainload than this over certain divisions?—A. Yes.

Q. With the same locomotives?—A. Yes, and on other divisions we cannot.

Q. How many divisions are there upon which you can haul 2,500 tons to the trainload; how many divisions are there that you could not haul those 2,500 ton trainloads, and where are those divisions?—A. I do not know whether you perhaps quite appreciate what this figure means. It is 1,800 tons of coal in

900 tons of cars, with the van, and they produce a figure of 2,720 gross tons. On many of the subdivisions—perhaps not many—I would have to go through the timetable to get their loadings individually, but some run as high as 3,000 and some as high as 3,500 tons. On other subdivisions the maximum capacity would not be as low as that. About 2,700 is the average of the sum total of the different subdivisions.

By Mr. Garland:

Q. How many divisions are there? Perhaps I can put it in another way. For how many miles of the 2,000 odd hundred miles between Alberta points and Ontario points would you require to have increased locomotive pulling power to haul a larger train than the figures that the agent has given us?—A. There are a good many sub-divisions involved. Now, sir, I will give you that. For instance, from the Cadoman and Mountain Park Spur, where we purchased our locomotive coal, up to the junction point where the branches come together at Coal Spur, it is 800 gross tons, from our coal spur out to the main line, it is 1,750 tons. From the main line junction point into Edmonton 2,300 tons. From Edmonton to Tofield, coming down the low grade line, the Grand Trunk Pacific, 2,000 tons; Tofield to Wainwright, 2,000 tons; Wainwright to Biggar, 2,300 tons; Biggar to Nutana, that is Saskatoon Yard, 3,700 tons. Nutana to Watrous, 3,250 tons; Watrous to Touchwood, (Touchwood is not a terminal, it is the top of the hill, and we figure there on doubling the grade in order to go down the hill with the biggest possible tonnage) 2,800 tons; Touchwood to Mellville, 3,400 tons; Mellville to Rivers 3,100 tons; Rivers to Transcona (Winnipeg) 4,500 tons. That is a very low grade. Transcona to Redditt 3,300 tons; Redditt to Sioux Lookout, 3,300 tons; Sioux Lookout to Armstrong 3,300 tons; Armstrong to Nakena 3,000 tons. That is the point where we are constructing the cut-off that connects the Ontario line with the Transcontinental line, and we are doing this because it gets us into Ontario with the shortest mileage and the greatest tonnage. It is not constructed, but will be by the end of the year. Nakena to Hornepayne, 3,000 tons. We are now over on the Ontario district. Hornepayne to Foleyet 3,000 tons, and Foleyet to Capreol 3,000 tons; Capreol to Parry Sound 2,750 tons, and Parry Sound into Toronto, 1,900 tons.

Q. Net tons?—A. Gross tons.

Q. That is train weight and revenue tonnage included?—A. Yes, gross weight of train including cars and contents.

Q. That simply means that there are only about three divisions over which you could not haul a greater tonnage?—A. Eight in all, sir.

Q. What was the reason why you did not estimate this rather on a heavier loaded car, which would give you greater net weight? You estimated the cars loaded at 36 tons.—A. Yes, that is the average of coal load of last year.

Q. Have you not got equipment that would enable you to load heavier, net?—A. Yes, we have fifty-ton coal cars, but those coal cars are not permitted in that coal carrying trade. They are not acceptable to the shipper. They require a box car and not a coal car.

Q. In other words, you would have to use box cars?—A. Yes, although we very much prefer to use coal cars.

Q. The largest box car is 36 tons?—A. No, that is the average of all cars. I might say within 100 or 200 miles of the mines the open top cars are used, but for long distances closed cars are used.

By the Chairman:

Q. And the reason?—A. The shipper demands it.

[Messrs. D. Crombie and E. P. Mallory.]

APPENDIX No. 6

By Mr. Garland:

Q. You referred to the short haul, 100 miles or over?—A. It is either 100 or 200 miles. I am not certain of the radius, but it is not beyond that.

Q. That would be steam coal for the local yards?—A. No, I am speaking now of the Drumheller—the lignite. Our own fuel coal, we handle in open-top cars. That is bituminous coal.

Q. You can make up many trains of course with very much larger net tonnage than these?—A. On the sub-divisions, yes.

Q. You have box cars capable of carrying much more than 36 tons?—A. Yes, 40 tons.

Q. Have you sufficient of those to put on this traffic?—A. I think we have if we took the pains to assemble them specially.

Q. Supposing you made up your equipment out of 40-ton cars, you could still materially reduce your rate?—A. I made a calculation on that—figures that I had been given to show the actual performance, figures based on last year's performance, when we were working as we thought to pretty fair efficiency, and we were confining ourselves to things we could possibly do. There was some slight reduction made if we took pains to assemble nothing but the 40-ton cars, provided the shippers would load those cars to their utmost axle carrying capacity which we consider is 46 tons, although they are called 40-ton cars. The net result, based on Mr. Mallory's compilations here, would bring that cost down to \$8.34 instead of the \$8.91.

Q. Now, Mr. Chairman, the witness has just stated that these rates were arrived at mainly on the basis of last year's business?—A. Yes, sir.

Q. Well, we are hoping for a very largely increased traffic if we could get a sufficiently low rate.—A. I am speaking, sir, of the average weight in the car from the coal mines, and that is governed by the capacity of the car.

Q. You were simply referring to the capacity of the car?—A. Yes.

Q. I understood you to say that the rates were based on last year's business?—A. No, I was speaking of the weight of the car—the weight of the contents.

Q. In making up these rates has due consideration been taken of possible increase in traffic?—A. I do not quite follow your question.

By the Chairman:

Q. I think what Mr. Garland means is this. You have no traffic generally speaking—you have no movement of coal from the West to Ontario now.—A. No.

Q. Supposing you get a big movement, do you think that you could revise your figures?—A. No, you see these are the actual out-of-pocket expenses, and they are governed by a full train-load with a full car, the full car, however, being based on last year's average of the loadings, that is, subject to that change which you have just now suggested, that we might segregate the heavier car and load it heavier. These are the actual costs to us of moving that traffic.

Q. On a train-load basis?—A. On a full train-load basis, and not on a rate basis. These are cost figures, not rate figures. Sir Henry has prepared these figures on a rate basis, but they are actually out-of-pocket expenses. You could not make rates on this basis except for some special purpose of this nature. This is not carrying the general expenses of carrying on at all. These are out-of-pocket expenses arising from the movement of this train loaded fully, and subject only to that modification as between the 36 tons in the car, and the 46 tons in the car. If I may be permitted to say so, it is a very hard matter to develop the exact cost of the out-of-pocket expenses.

By Mr. Garland:

Q. May I ask you, what is the difference in the cost of moving a train in the winter, as compared with the cost of moving it in the summer time? Take the cost from November to January, and from the end of May to July. Can you give me any idea of the difference in cost of moving?—A. No.

Q. Would you say the cost would be 35 per cent less, or even 50 per cent less, in the summertime?—A. I would not like to make a guess. It would be a mere guess.

Q. You might refer to the evidence given by Sir Henry Thornton before the special committee of the Senate. He believed that there was a very material difference in the cost of moving traffic in the winter time and in the summer time, and he even went so far as to say that "I can move coal much cheaper in the month of May in the West than I can in the month of February, because on account of the cold weather, the snow, our train load is cut in half, and it costs I should think easily twice as much to move a ton of freight in Western Canada in winter, as it does in spring or summer." You would think that was substantially correct. That is Sir Henry's evidence before the Senate Committee.—A. This is my first hearing of what he has said, and I presume he would be carrying in his mind some local condition at the time. I do not suppose he was referring to a general rate or condition throughout the winter.

Q. He simply took two stated months, May and February, as months directly opposite to each other in costs, and he states, very concisely indeed, —I do not think anyone can mistake his meaning—"I should think it would easily cost twice as much to move a ton of freight in winter as it does in the spring and summer," and remember we are talking entirely of Alberta and the West. Would you be willing to state that that evidence was quite correct, or within the bounds of reason?—A. I would want to know what was in his mind. The maintenance of the equipment and roadways,—there are many items of that kind not given, and if you wanted to get the net result of these, I could not give a guess on it. It would only be misleading.

Q. Well, in the next question he was asked:

"By Hon. Mr. Casgrain:

Q. Under most favourable circumstances, what would a ton of coal cost per mile?—A. I cannot answer that question off-hand. I could give you an answer to that a little later, with a little figuring, but of course a great deal depends on what you bring into the cost.

Q. A lot of senators are answering that for themselves?—A. Yes; that is one nice thing about transportation costs; I can give you—and prove—any transportation cost you want at any time for any purpose, and so can anyone else. It all depends upon how you look at it. Take, for instance, such a traffic as we are discussing. Now, it would not be fair to charge against that traffic a lot of general office expenses and things of that kind, because those expenses will go on just the same whether this coal moves or whether it does not. It would not be fair to charge against this traffic all of the maintenance-of-way expenses, because whether this traffic moves or not the railroad will have to be kept up, and it will cost just about so much. That is the reason why, when you ask a railroad man, "What does it cost to move a ton of freight from A. to B?" he can give you, quite correctly, any kind of an answer you want, or that he wants himself. It all depends on how you are going to look at it. In other words, you have got to lay down your theory, your specifications for your answer, before you try to answer. I can give

you an answer to that question later on, but I would not like to give it off the bat, because there are certain expenses that ought to be eliminated from consideration.

By Hon. Mr. Laird:

Q. Is that same method of railway cost of transportation extended into all other classes of freight as well?—A. Oh, it is the most difficult question—to be really quite honest, and not try to fool anyone—it is the most difficult question in the world to answer. For example, take a train; you can haul 18 cars of freight from A. to B. just as cheaply as you can haul 15 cars; I defy anyone to find in the expenses the additional cost of adding two cars to the average train, almost anywhere. The same thing is true of a passenger train; it does not cost one penny more to haul a passenger train full of people than it does to haul it empty. With your freight, the only point where it tells is when you get to the engine load; if your engine will haul only 20 cars and you put on 21 cars or 25 cars, it means that you have one train of 20 cars, right up to the capacity of the engine, and then you have got to run another train of five cars, which is only a fourth of the capacity of the next engine. So when you begin to discuss the question of what it costs to move traffic, you can be led into all sorts of highways and byways, and get all mixed up. It is really more of a commonsense business proposition than anything else.”

I have read from page 54 of Sir Henry's evidence.

Q. That would be true?—A. Depending upon the assembling of the figures. In this assembly here we are assembling actual out of pocket expenses, and explicitly state what they are. Other things might be included.

Q. He says also, “Now, it would not be fair to charge against that traffic a lot of general office expenses and things of that kind, because those expenses will go on just the same whether this coal moves or whether it does not.” May I ask you if all the expenses to which he refers in the compiling of these figures are included.

The Witness (Mallory): 78 per cent of our total average cost of maintaining track and structures has been thrown out, and 100 per cent of our traffic expenses have been thrown.

By the Chairman:

Q. That is, you are not charging up anything for traffic expenses in this \$9. rate?—A. No, 100 per cent of our general and miscellaneous expenses, that is, the total headquarters executive staff and accounting department, and legal department, and so on. I have not got the percentage figure, but our total items of superintendence, train dispatching, station forces, telegraph operators, and so on, they have all been thrown out.

By Mr. Garland:

Q. Perhaps, Mr. Chairman, this witness (Mr. Mallory) could answer the question I asked Mr. Crombie (the other witness) a moment ago with regard to the difficulty of hauling goods in winter as compared with summer. Will you give us an idea?—A. No, sir, I could not, because the traffic fluctuates, as well as the climatic conditions. For instance, in October we handled much more cheaply than we do in May, June and July.

Q. On account of the increased traffic?—A. We are able to load our trains to capacity whereas in the summer months we have to maintain a skeleton service.

Q. You are talking on the trainload basis?—A. Yes.

Q. The actual cost of moving a train a ton mile, disregarding altogether the quantity of the traffic, there would be a very marked increase in summer as compared with the winter?—A. Well, I would not like to say offhand. I think we have some figures on that.

Q. I think I might say that it is important we should get these statements, because the rate quoted is purely a summer rate based on summer conditions and on increased traffic, and there are many officials who say they think it might be considerably lower.

The WITNESS (Mr. Crombie): We feel we are partners with you in trying to get this tonnage moved. We are very eager for it.

By Mr. McBride:

Q. So long as you do not have to do it below cost.—A. Absolutely, and I might say that some of these cost factors which we have left out here would be increased, but it is so extremely difficult to arrive at the ratio of the increases that we threw them out altogether. For instance, if we are running more trains we are doing more train dispatching, and have more telegraph offices installed in proportion to the number of trains to be handled, and there is the clerical staff. It is difficult to arrive at a unit of cost. That is, it does not represent the only cost at the peak, but all that we could segregate.

Q. Would it not be to the disadvantage of the Service as a whole to assemble all your larger cars to carry coal? I know out West we often call for large cars, but sometimes we call for smaller cars, and it seems to me that if the greater portion of your large cars were taken up with coal, it would be a disadvantage to the other services.—A. That is very true, but on the other hand we figure that the coal should move in large volume. For that reason I was willing to give Mr. Garland the benefit of the lowest possible rate if we went to the expense of segregating these cars.

By Mr. Logan:

Q. Is there any reason why you should be at more expense in September and October than in June and July?—A. There is a difference due to the greater volume of business. We look for the tonnage of traffic as our salvation.

Q. You give a rate of \$9 in May, June and July?—A. Yes.

Q. Well now, is there any reason why you should not give the same rate in September, October and November?—A. Sir Henry did not refer to any other months than May, June and July because of the fact that in the other months these engines and these cars are required for the general traffic.

Q. That is due to your lack of rolling stock? There is no other reason?—A. Perhaps, Mr. Logan, that carries a wrong thought to you, because, in order to have enough cars on hand for our peakload months, we are carrying idle cars at cost for the other nine months of the year. Now, the more you concentrate the peak, the greater the total costs must be. We were trying to fill in the valley, and when there was not a busy season for cars and engines, utilize them at that time, because the peak load was carrying the general cost of the business.

Q. Is there any reason why you should not handle 100-ton cars on the transcontinental railway?—A. That would perhaps be better answered by the engineers who figured on bridge stresses, but I am advised by the engineering Department that it would require practically the rebuilding of the line. It could not be done. Our tracks and bridges were not constructed for such heavy axle loading.

Q. Now, I am looking at the evidence of Mr. M. J. Butler, who was for many years Deputy Minister of Railways, and who was a very able engineer. He referred to the Virginian Railway. He stated that the Virginian Railway

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had very favourable grades, but not to any extent superior to the National railways, the C.N.R. and the G.T.R., and then he refers to the type of coal cars, and then he quotes a letter from the Vice-President of the Virginian Railroad, in which it is stated, "We have fourteen miles of .6 of 1 per cent grade against the loaded movement over the Allegheny Mountains," and he goes on to say, "The maximum grade other than this in the direction of the loaded traffic is .2 of 1 per cent. We have two sections of $1\frac{1}{2}$ per cent grade, one eight miles in length and one 11 miles in length, in the direction of the empty movement." Now, Mr. Butler goes on the maximum adverse grade. Will you explain to me the difference between this statement of Mr. Butler's, where he mentions \$4.37, and your statement of \$9, during three months in which coal is not moving to any extent?—A. Listening to you here, do you say that Mr. Butler defines only one opposing grade on the entire movement of the coal to the seaboard? We have an undulating railway from Alberta to Ontario. It is not from the mountains to the sea in the sense that the Virginia railway is. The Virginia railway has some 400 miles of a haul, and with one opposing grade. Now, what they can haul is practically confined to the kind of bridges they have and to the kind of cars they have.

Q. You have not got two sections eight miles in length with $1\frac{1}{2}$ per cent grade?—A. That is for empties.

Q. What we would like to know is this. If we are going to establish in this country a national coal policy to make this country independent of the United States supply, it will have to be carried in large amounts with the heaviest engines and the largest cars that can be used, and I presume that the coal would be transferred at say Winnipeg, and then would be brought across this continent in one solid train, and on that basis we want to find out what is the lowest cost that it can be carried for, apart from the material equipment. You are supposed to have the best of equipment, and if you have not got it you ought to get it.—A. Mr. Logan, we consider that we have the best equipment suited to our general needs. You see, this coal, as I explained before, from Drumheller to Ontario, cannot move in that Virginian car at all. They would not accept an open top car for the movement. You see, there is an extremely heavy percentage of moisture in that Drumheller lignite coal.

Q. I am not talking about lignite coal—bituminous coal.

By Mr. Garland:

Q. May I clear up the slight confusion that exists? The Alberta coal that has been sent on for domestic purposes in Toronto is neither bituminous nor lignite. It is a sub-bituminous coal that has, certainly, a certain percentage of moisture, but the quality of the coal that it is proposed to send to Ontario if we get the proper rate would be a very low average in percentage of moisture, and might be capable of being moved in open cars at proper seasons of the year.

The CHAIRMAN: What do you call a proper season?

Mr. GARLAND: A season in which there would be no long hangups on the road, with the coal exposed to the wet weather.

WITNESS: My statement is based on experience. They absolutely refuse to accept anything but box cars out there.

By Mr. Logan:

Q. My contention is this, it is no use for us to talk about bringing lignite coal in. I know it very well, I have had it analyzed and had it exposed to the weather, but the only coal they can bring in from the West to the Province of Ontario is from the foothills on the other side of Edmonton, which is

bituminous, or semi-bituminous, and we want to base our position on that, and the only proposition is to carry it in the largest gondola cars. To bring coal from Alberta in box cars to my mind is never going to be a feasible proposition.

The CHAIRMAN: The general trend of the evidence that was given here puts the lignite coal out of business entirely, so I do not think we should consider that at all. The figures that Mr. Crombie gave are not from the Drumheller Mine.

WITNESS: These cost figures are based on the average of different mines.

By Mr. Logan:

Q. West of Edmonton?—A. Yes.

By Mr. Garland:

Q. We have domestic coal at "Three Hills," Mountain Park, Saunders Creek. All the coal would be quite suitable I may say, Mr. Logan, speaking about the rate on that Virginian coal, quoting from the Railway Age of May 27th, 1921, concerning a test that was made on the Virginian Railroad in the handling of an exceedingly large train, they quote this figure as the rate at which the coal moves, a rate of \$2.80 on New River coal to Tidewater, and the average haul is 410 miles, which you see is a rate of 7 mills per ton per mile.

By Mr. Logan:

Q. They are making a profit, of course, on that?

Mr. CROMBIE: Yes, a very nice profit.

Mr. CHURCH: Mr. Chairman, could I ask the witnesses some questions? In other words, these rates quoted are final, are they, from the figures you have before you, as far as the figures given by Mr. Crombie go?

Mr. CROMBIE: Yes.

Mr. CHURCH: Have they been considered by your board, the Board of Directors?

Mr. CROMBIE: I could not say.

Mr. CHURCH: Have you made any experiments in bringing down to Central Canada, train lots?

Mr. CROMBIE: We have experimented with full trains of grain.

Mr. CHURCH: How many practical demonstrations have you made in bringing train lots down to Central Canada?

Mr. CROMBIE: It does not make any difference whether you are hauling coal or any other weight, we are hauling fully loaded trains in the summer time and in the fall, and these cost figures are based on that.

Mr. CHURCH: Are you under the control of the Railway Commission?

Mr. CROMBIE: I believe so.

Mr. CHURCH: Is that their tariff?

Mr. CROMBIE: No, this tariff has not been accepted yet, consequently it has not been published.

Mr. CHURCH: Have you ever consulted the Railway Commission?

Mr. CROMBIE: That will be a rate matter.

Mr. CHURCH: Has the Railway Commission prescribed any rules for carrying coal from Alberta to Ontario?

Mr. CROMBIE: No.

Mr. CHURCH: Has the matter been before them?

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Mr. CROMBIE: Not that I know of.

Mr. CHURCH: Not in the present emergency. In other words, from what I see, you would rather quote a rate of \$9 on coal, and get no business than carry coal at \$6 and get the cream of the business.

Mr. CROMBIE: I would say that we would be losing so much money that we would not be warranted in attempting it at all.

Mr. CHURCH: If we were to take your tariffs—

Mr. CROMBIE: Not tariffs, cost figures.

Mr. CHURCH: If we take that as correct, central Canada, which paid a large proportion of the capital to build that road west, might as well have not spent a cent on building that road. Central Canada has paid a large proportion of the capital cost of building the Grand Trunk and Grand Trunk Pacific into the western provinces, and Central Canada might just as well not have contributed anything as far as getting the natural resources of those provinces into Central Canada is concerned, if you are going to quote prohibitive rates.

The CHAIRMAN: You are making evidence, I am afraid, Mr. Church.

Mr. CHURCH: If we cannot get the proper witnesses, what is the use of having these deputies here. I understand last Thursday that we had subpoenaed the head of the railway here. Now, is the head of the railway in a position to say to the Committee of the House of Commons, the Supreme Court of all Canada, "I cannot come here, I have other engagements"?

The CHAIRMAN: Do you mean Sir Henry Thornton?

Mr. CHURCH: Yes.

The CHAIRMAN: We did not subpoena him.

Mr. CHURCH: Then, if you have not, the Committee is just going around in a circle.

The CHAIRMAN: It is in the hands of the Committee. If you think we are going in a circle, I hope we will get to the centre some time. Might I say that these were the gentlemen that Mr. Martin suggested that we should call here to give expert testimony on the very questions on which they are giving testimony to-day. Sir Henry Thornton has not been subpoenaed here; I would like to make that plain.

Mr. SPENCE: I do not think Sir Henry Thornton is in a position to give the evidence himself, anyway.

Mr. CHURCH: The American Inter-State Commerce Commission had the same trouble in the emergency, with the railways over there. They quoted prohibitive rates, and the Inter-State Commerce Commission quoted rates which the railways had to come down to, and the people got some relief. Here is the national system losing money on their hotel system, and on their Merchant Marine, and now they cannot serve the people of Canada in an emergency by bringing coal in from Western Canada. The policy I argued was to create a bonus if necessary—

The CHAIRMAN: That is another question, an entirely different question. We will reach that sometime, but I would like to have the Committee confine itself now to asking these gentlemen questions within their purview.

Mr. CHURCH: I am satisfied to have them give a fair demonstration of the rates. They would rather carry no coal at \$9 than carry it at \$6 and get the cream of the business. You might as well carry it by airship as by that method. What would they do if we were cut off from the United States?

The CHAIRMAN: Have you any questions to ask?

Mr. CHURCH: No, I have not; I am not going to waste my time in asking any questions. We are just going around in a circle.

Mr. GARLAND: The witness promised me some figures a moment ago.

Mr. MALLORY: I have not figures for the complete year, but in January, 1922, our average cost per ton mile was 11 mills. In February it was 10·7; in March it was 8·6; in April it was 11·5. I may say these fluctuations are not due to differences in cost, really, as cost factors. The fluctuating traffic has a great deal to do with it. When our trains are running fairly full, naturally the cost per ton mile is down. If we have a bad month like in April 1922, when there was very little tonnage moving, and in view of the necessity for maintaining the train service, the cost per mile naturally went high.

Mr. GARLAND: May?

Mr. MALLORY: I have not May or June or July. I think I can get them for you, but I have not them with me.

Mr. GARLAND: Then I would ask that the witness send up a statement.

Mr. MALLORY: For the twelve months of 1922?

Mr. GARLAND: You said you had the figures for January, 11 mills, February, 10·7, March 8·6, and April 11·5, and that the figures fluctuate because of the amount of traffic, more traffic and less traffic?

Mr. MALLORY: Yes, generally speaking.

Mr. GARLAND: If the witness could let us have them for the rest of the year, and if possible you might give us the traffic.

Mr. MALLORY: Yes, I can give you the traffic involved.

Mr. GARLAND: Then we can see the whole thing quite plainly.

Mr. MALLORY: Yes.

Mr. GARLAND: Then you would of course expect that the traffic given to your line by opening up the lines either east or west would lower the cost per ton mile?

Mr. MALLORY: In this particular case we had simply taken the average out of pocket expenses that would be necessary to move this traffic, and this traffic is not bearing its full share of the general traffic. That is, the traffic expenses and all the general overhead are all eliminated, therefore there could not be any possible reduction.

Mr. GARLAND: In making this rate, did you take into consideration the possibility of increased tonnage westbound?

Mr. MALLORY: No.

Mr. GARLAND: Nor the increased tonnage locally in Ontario, or in the central provinces, due to the fostering of industries and the increased population.

Mr. MALLORY: No, sir, we only figured it into Toronto in train lots.

Mr. GARLAND: Sir Henry Thornton, speaking before the Special Committee of the Senate, on page 58 of the evidence said:

"We might be justified in making a very, very low price on coal in order to foster industry in the central regions, and then we would make enough out of the products of the industries, out of the increase in population, out of the general prosperity of the community, to compensate us for handling the coal at a low price."

Mr. MALLORY: Yes, but that is rather far beyond the scope.

Mr. SPENCE: That is anticipated.

Mr. MALLORY: Yes.

Mr. LOGAN: Mr. Chairman, personally I do not care anything about what in the past earnings have been, or what can be done with the present equipment, but I would like to get someone before this Committee who would be able to say, providing we have the proper bridges and we have proper equipment of locomotives of the largest type, and all cars carrying, say, 100 tons—providing we have all that equipment, what is the actual cost of conveying steam producing coal from the mines west of Edmonton into Ontario. I do not know who that man is, but I would like to have him here.

Mr. MALLORY: It is just a question of capital investment in order to produce sufficient 100 ton cars to maintain traffic of 100 cars a day. You would have to spend 70 million dollars on cars alone. They cost \$7,000 a piece, and it would take 10,000 of them.

Mr. LOGAN: We lost that in the American exchange in three years.

The CHAIRMAN: You are following out the ideas of Mr. Butler.

Mr. LOGAN: Yes.

The CHAIRMAN: That with certain equipment it is possible to carry coal from Drumheller to Toronto—

Mr. LOGAN: From west of Edmonton, the sub-bituminous regions.

Mr. SPENCE: That would mean also rebuilding your railway and the building of new bridges?

Mr. MALLORY: I would say it would probably cost 200 million dollars.

Mr. LOGAN: I object to this witness giving that answer, he does not know about the cost. I do not think he should make that statement, because he is wildly guessing, he is not an expert. I do not want to make a speech, but we built a railroad across this country, costing a tremendous amount of money, for the reason that we wanted a railway with a low maximum grade, a very small grade, and we were supposed to have built the best road on this continent, and now we are told that the bridges will only carry small engines, and so forth.

By the Chairman:

Q. Have you read the evidence of Mr. Butler as to the difference between the bridges and so forth on the Transcontinental and on the C.P.R.?

—A. I read the newspaper report which came out, but I have not got it in my mind now.

Q. You have not the direct evidence which was given?—A. No, sir.

Q. Are you in a position to say that the evidence of Mr. Butler in respect of the comparison of grades on those roads is right or wrong?

Mr. MALLORY: I have read the evidence, and I would say that the grade is not a factor in this at all, it is not a material factor. It is a matter of equipment and the condition of the road.

Q. Did you take any particular stock of the evidence as regards the possibilities with the equipment as the road is at present built? Do you understand my question?—A. Not quite.

Q. Have you taken any consideration of Mr. Butler's evidence as regards the possibility of the road as at present built, with proper equipment, as they have on the Virginia Road?—A. I do not quite understand, Mr. Chairman, what you mean by proper equipment. We consider that our present equipment is proper under our conditions. The Virginia Road I understand carries train-loads of 5,000 tons.

Mr. SPENCE: I think he made that statement.

The CHAIRMAN: Of course they have large cars; they have equipment which the Canadian National Railways have not.

[Messrs. D. Crombie and E. P. Mallory.]

Mr. CROMBIE: And which we could not carry.

By the Chairman:

Q. You say that you could not carry those trainloads as your road is at present built and constructed?

Mr. CROMBIE: And no other railway can, on the continent.

Mr. MALLORY: That equipment does not move that load. It is built for the purpose.

Mr. CROMBIE: They carry freight to the seaboard over a road 310 miles long. No other American railroad could do it. The Virginia Railroad is unique, it is like a special tool.

By the Chairman:

Q. I see the Louisburg Railway has been carrying 4,000 tons.

Mr. CROMBIE: That is gross tons. We handle 4,500 tons from Rivers to Winnipeg. That is on the main line of the Grand Trunk Pacific.

By Mr. Church:

Q. What commodities do they carry in Alberta under preferential rates over coal? I saw a list of articles in the "Star" last Thursday night, about twenty commodities. Coal is carried at preferential rates from Alberta to the Coast. What are those commodities?

Mr. CROMBIE: I am not familiar with the articles. I am not in that Department.

Q. You are carrying grain to the head of the lakes at preferential rates; what else, do you know any other articles they are carrying?—A. I am not familiar with those rates.

Q. Are you not aware that you are carrying some articles from Alberta and Saskatchewan at a less rate than you are quoting to-day for coal, in other words you are giving them a preferential rate over coal; are you prepared to give us those commodities? I will go down and get you the list of the articles you are carrying.—A. I am not in the Traffic Department, and am not familiar with the rates.

By Mr. Logan:

Q. What was the maximum tonnage on those 3,600 tons?—A. The largest on any subdivision, you mean?

By the Chairman:

Q. It was 4,500?—A. 4,500.

By Mr. Logan:

Q. Mr. Butler said that on the Virginia Road they carried on a particular day 16,000, a train of 16,000 gross tons of coal, 10,000 tons in all. The regular trainloads are from 8,000 to 9,000 tons. As I understand it, the only thing we have now is that during three months in the summer, we have a rate here before us of \$9 a ton, but that rate is founded on small cars, box cars hauled across this continent instead of with equipment such as is on the Virginia Road to-day.

The CHAIRMAN: The witness says it is impossible to carry those trainloads over the road as it is constructed.

Mr. LOGAN: Has either of these witnesses this information in his possession now?

Mr. CROMBIE: We are not engineers.

Mr. LOGAN: You do not know the strength of the bridges?

Mr. CROMBIE: Yes, we do.

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By Mr. Spence:

Q. By your engineers?—A. By our engineers. You had better have the engineers here, Mr. Logan, upon that point.

By Mr. Logan:

Q. What is the information given to you by the engineers; what will the bridges stand?—A. This 65,000 tractive effort locomotive is our capacity at this time. These engines are in use on the Intercolonial now, out of Campbellton. You are probably familiar with them. You probably see some of them down there.

Q. What do you say their weight is, approximately?—A. The weight on the drivers is 260,000.

Q. Pounds?—A. Yes, sir, pounds.

By Mr. Church:

Q. Is the principle you apply, the actual operating costs for every article?—A. No.

Q. What have you ever had in coal?—A. We have simply brought this here as the cost figure.

By the Chairman:

Q. I would like to put another question to you. Take the rate on wood I suppose it is, which is Item No. 125 of the C.P.R. tariff C.R.C. W-2657—I will ask you gentlemen if you have ever seen that rate. Look over it. I have a certified copy of it here from the Railway Commission. It looks to me as if it could be carried from west of Winnipeg for \$6 per ton. I will give you the two items. This is the tariff, I suppose?—A. Mr. Lanigan, of the C.P.R., will tell you that, Mr. Chairman.

Q. I would like to get some evidence from you. This is a tariff I understand which is filed with the Board of Railway Commissioners, showing the possibility of carrying wood, west of Edmonton let us say, to Toronto or Ottawa, at a rate of \$6.00 per ton. Perhaps either or both you and Mr. Mallory will look into this tariff. There may be some explanation of why the Canadian National is charging \$9 per ton to get Western coal into Ontario while the C.P.R. will carry wood here at \$6.00 per ton.

Mr. McBRIDE: Would the C.P.R. carry coal at that rate?

The CHAIRMAN: I am not talking about that. Perhaps if they could carry wood they could carry coal.

Mr. SPENCE: Perhaps they cannot get any wood to carry. What is the use of talking about that?

Mr. McBRIDE: It may be that the C.P.R. is hauling that wood from the Coast.

Mr. CROMBIE: What was the question?

By the Chairman:

Q. Have you looked into the difference between your rate, or could you give us some understanding as to why there is that vast difference, Mr. Crombie?

—A. I could not.

Q. You cannot?—A. No, sir. That is below the cost of handling.

Q. You think it is below the cost of handling?—A. Absolutely.

Q. May I ask you another question? Is there any reason why the C.P.R., which I understand is quite a business organization, should file this tariff with the Board of Railway Commissioners? Are they trying to fool the people of this country into believing that certain things are possible which are not

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possible?—A. I could not say, but it works out on a basis of three mills per ton miles, which is absolutely impossible.

Q. I may be quite mistaken about it, but this has been placed in my hands, and I thought it proper to bring it to the attention of both you gentlemen.

By Mr. Garland:

Q. Is this \$3.51 a ton the cost of hauling a ton of coal 4,262 miles; are you allowing just as much for hauling the train back?—A. That is a gross ton basis, not a train basis.

Q. But that includes revenue-bearing traffic both ways?—A. One way, eastbound loaded and westbound empty.

By Mr. Kennedy:

Q. Do you think it is fair to assume that if this is all going east you will get no business west?—A. That is what I say. At the present time we only have loading westbound for roughly one-half of our present empty movement westbound. Adding more westbound empty movement does not help us out any.

Q. Would you naturally assume that there would be some development of business moving westward?—A. We will have to look for a one hundred per cent growth before we will equalize our present eastbound loading.

Q. You think nothing should be credited in this statement to the westbound movement?—A. We have not asked this tonnage to carry the ordinary costs at all, consequently we could not add on top of that the elimination of the westbound empty movement, nor could we be credited with any westbound loaded movement, because it is not intended to carry under those figures its share. We have tried to develop the possibilities of getting all this tonnage you speak of.

Q. Any tonnage that any freight movement westward or that was developed westward out of the movement eastward would still help you to carry this freight at cost?—A. If we handled this tonnage east it would reduce our westward or westbound movement possibly, and if you are proposing to eliminate the American coal, we would not gain anything there.

Q. Why did Sir Henry particularize in his statement the summer months?—A. Why did Sir Henry say May, June and July?

Q. Yes.—A. I really could not say except in a general way.

By Mr. Spence:

Q. I think that was a suggestion from the Committee. They talked about moving it in May, June and July.

The CHAIRMAN: This Committee never suggested that to anybody. My idea is that that it is just as easy and convenient to move coal from the West to the East in April as it is in May.

The WITNESS (Mr. Mallory): I do not see that there would be any objection at all to applying this to April as well.

The WITNESS (Mr. Crombie): Of course it is still better to do in May, June and July than in April.

By Mr. Spence:

Q. Is the figure of \$8.91 the actual cost of bringing coal from the West to the East?—A. Yes, but there is the actual out-of-pocket expenses over and above the cost to move this coal.

[Messrs. D. Crombie and E. P. Mallory.]

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By the Chairman:

Q. May I bring to your attention the Mountain Park Spur. Does that materially add to your cost?—A. It is a very short mileage, and it does not add a great deal.

Q. Have you any suggestion to make as to how that could be overcome?—A. I really think that you had better eliminate that from your mind, because we are considering the Drumheller or Brazeau property.

Q. So that has no material bearing on the question of your cost?—A. No.

By Mr. Logan:

Q. We were speaking about bridge stresses a few minutes ago.—A. That had reference to an engine with 260,000 pounds on the drivers. That does not include the rest of the engine. That is the weight on the drivers. It is the spread of the bearing load. You see, your engine of course has its load distributed over a wider area than the car. You are getting into technical bridge stresses which I am not competent to answer.

Q. With proper equipment how much could the trainload be increased on the Canadian National?—A. We consider that we have proper equipment. The average capacity of our cars is quite up to the average of the other railways.

Q. Is it possible to get equipment that would enable railways to handle a larger train, or does the strength of the bridges at the present time prevent you from using a larger train than that being moved now?—A. Not a larger train, but a larger axle load. Here again, when you come to consideration of axle loads and bridge stresses I would prefer not to answer that. I am not an engineer.

Q. Who is the officer in the Canadian National who could give us the figures of the capacity of the bridges to-day?—A. Mr. C. B. Brown, our chief engineer, can do that.

Q. He is chief engineer?—A. Yes.

Q. I think the statement was made here to-day that the bridges are not as strong as they should be. That is rather serious?—A. They are quite up to the standard of the Trunk Line railroads. But I wish to say that the Virginian is a special road constructed for specific purposes only. We could not afford to use 110-ton cars on general traffic, nor the engines.

By Mr. Spence:

Q. Besides that, it is a short haul.—A. Yes.

By Mr. Lapierre:

Q. It is not the 110-ton car that is generally used?—A. No.

Q. It is handled for a special purpose and is not used for general purposes?—A. No.

By Mr. Logan:

Q. The 50-ton car is a very ordinary car for carrying coal?—A. It is the standard that most coal roads are getting to, and a few are going beyond that, but very few. A 50-ton coal car is considered an up to date coal carrying car.

By Mr. Lapierre:

Q. The 40-ton car is the average exchange car.—A. There are lots of 50-ton cars. When I speak of 30, 40 and 50-ton cars, the 50-ton car is the standard to-day.

By Mr. Logan:

Q. You would not say that the bridges are not sufficiently strong to carry 50-ton cars?—A. No, we are handling them.

By Mr. Garland:

Q. Would the witness say that these engines you have to-day could handle 50 of those 50-ton cars in a trainload?—A. On one sub-division.

Q. Right through on an average of a .4 grade?—A. Will you please repeat the question?

Q. Can you haul with your present locomotives 50 50-ton cars up an average grade of .4?—A. No, sir. Those are the rates I have given in detail. That would be 2,750 gross tons.

Q. About 2,500 net?—A. Yes.

Q. Are you at the present time hauling any commodities below cost?—A. I cannot answer that.

Q. From whom could we get that information?—A. That would be difficult to get at. You see, there, cost again is such an involved problem.

Q. I mean, loss on the movement of the traffic?—A. I would not think there were any commodities moved on that basis.

Q. How about gravel?—A. There is no use my answering that, because I do not know.

Q. From whom could we get this information? It would take some time to work it out?—A. Yes.

The WITNESS: (Mr. Mallory). You mean a comparison of the rates on certain commodities and other commodities?

By Mr. Garland:

Q. I understand that the lower the cost of the commodity, that you can establish a very low rate?—A. Yes, sir, but there would be a difference if there was a smashup in a first-class train of silk.

Q. Are you not moving many commodities at cost, or below cost, because of their low value?—A. You are coming into the realm of rates there, and I am not competent to speak about rates.

Q. Can you say that gravel or any other commodities are being moved at cost or below cost?—A. No.

Q. We would have to get a rate man?—A. Yes.

Mr. McBRIDE: When the House has to move a certain amount of money to handle the railway, it would show that they are carrying it below cost.

The CHAIRMAN: Ask them that question.

By Mr. McBride:

Q. The railways go behind because certain things have been hauled below cost.

Mr. SPENCE: It might be a lack of business.

The CHAIRMAN: There are two witnesses here, and if you asked them the question, perhaps either one will volunteer an answer.

By Mr. Gendron:

Q. I would like the witness to state the rate for coal as compared with the rate for grain.—A. The average rate from Saskatoon to Fort William is about 12½ per cent higher than the ton mile rate for coal that we are quoting here.

By Mr. Garland:

Q. Can you give us the Alberta rate on grain, and then the Alberta rate on coal?—A. I have taken Saskatoon as being representative of the average grain haul.

[Messrs. D. Crombie and E. P. Mallory.]

APPENDIX No. 6

By the Chairman:

Q. Is it the same rate on grain from say Edmonton to the head of the Lakes as it is from Saskatoon to the head of the Lakes?—A. No, we take the average rate on grain from all tributary points to the lake head.

Q. We want to get at, if possible, a parallel between the cost of moving grain from an Alberta point and the cost of moving coal from an Alberta point.

By the Chairman:

Q. Will you give us your rate on grain from the Edmonton district to the head of the Lakes?—A. We can get you the grain rates. I have not got them here. The average grain haul is taken from Saskatoon to lake head. The difference is 12 per cent in favour of the coal.

Q. Your grain rate from Edmonton would be proportionately cheaper than from Saskatoon?—A. I do not know that it would make any difference in the rate per ton mile.

By the Chairman:

Q. Could you send the Committee the rate on grain from the Edmonton district to the head of the Lakes?—A. Yes, sir.

Q. Do you know whether Mr. Shaw's comment was correct—26 cents per 100 pounds?—A. I figure it was about correct.

Q. We want to get it officially.—A. It is 22 cents from Saskatoon. He is not very far out, if he is out at all.

Q. Have you seen a statement that appears in the proceedings of this Committee, page 112 of the reports of this Standing Committee—a statement placed before this Committee by Mr. Garland?—A. Yes, sir.

Q. This statement purports to show what somebody thinks is a fair rate on coal from the Edmonton district to Ontario. Have you analyzed that statement?—A. I have to some extent.

Q. What do you say about it?—A. I would say this, that if we can get traffic at that rate, we would not only wipe out our deficits, but we could make a very substantial contribution towards wiping out the National Debt.

Q. In plainer language, what do you mean?—A. I mean he has not stated the case.

Q. In what direction? Just take the statement and point out to the Committee in what direction. I do not know anything about it, but I am looking for information.—A. This estimate works out—I have restricted it to getting at his train mile rate which works out at \$2.47-3/10, as compared with our actual cost estimate of \$3.77-2/10.

Q. Your evidence is to this effect that you would not be earning any dividends for the Canadian National by carrying coal from that region to the East at \$9 a ton?—A. No, sir, it does not even give us money to pay our taxes.

By Mr. Logan:

Q. What is the present rate?—A. The tariff rate from Drumheller is \$12.70.

By the Chairman:

Q. You had the advantage of seeing this statement. Have you analyzed it?—A. Well, to begin with, his maintenance of way and structures worked out at 11½ cents a train mile, as against our actual cost for 1922, at \$1.85. Maintenance of equipment, 15.8 cents per train mile as against our actual cost of 26.7. Our locomotives cost us \$2.17 per train mile. He allows nothing. For freight car maintenance he allows 18.1 cent per train mile. It cost 50.4 cents. For shop expenses and maintenance of machinery in connection with our equipment repairs, he allows nothing. It costs us 23 cents a train mile.

For traffic expense he allows nothing; it actually costs us 9.8 cents. For superintendence, dispatching of trains, station forces, and so on, he allows 26.5

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as against our actual 47.3. For enginemens' wages he allows 13.3 cents as against our actual expense of 18.6. For trainmen's wages he allows 13.3 a gain as against 20.3. Fuel for locomotives, he allows 48.4, we only ask 46.3; he has overstated it. Other locomotives and train supplies, he allows 15.1, while our actual cost is 12.2. For engine house expenses he allows 2.9, while our figure is 10.4. There is an item of 37.1 for yard service; he allows nothing. For clearing wrecks 3.1, he allows nothing. He allows nothing for loss and damage, while we allow 4.2. General miscellaneous expenses, which cost us 12.5 cents. The figure he allows for supervision is 82.4 as against our figure. I cannot understand why he uses that. It is nearly seven times what we figure.

By the Chairman:

Q. What is the figure for contingencies?—A. The figure for contingencies is 82.4 as against our general expense of 12.5. This makes a total of 247.3 for him as against our actual cost of 432.4.

By Mr. Garland:

Q. I should like to ask a question here. Your language has been exceedingly technical. I quite admit that I am not a rate man myself. I cannot estimate the cost on a scientific basis. But take the statement as it stands, and which we think is wrong, you count the wages for the engineers on 16 divisions between coal points and Toronto, 16 divisions, 16 engineers, and the rate is 12, or whatever the present rate is?—A. The schedule rate for engineers for these 50 and 53 per cent locomotives is \$7.20 per one hundred miles.

By the Chairman:

Q. Is that a day's work?—A. That is for 100 miles, or eight and a half hours' service.

By Mr. Garland:

Q. What is the length of your divisions?—A. Our average would be about 137½ miles on this movement.

Q. Really \$7.20 per hundred miles?—A. It would work out at about \$8.73 per hundred.

By the Chairman:

Q. What would it work out at for the 16 divisions—I think that is Mr. Garland's question.

By Mr. Garland:

Q. For each division of the 16. Am I correct in this; you stated that it would work out at \$7.20 per hundred miles at the present wages for engineers?—A. \$7.20 per hundred miles in the schedule rate.

Q. The average length of a division is 137 miles?—A. About 137 miles.

Q. That would work out at over \$9, on my basis.—A. If he went on without any delays or any lying over, or anything extra he might get for inspecting the engine before going out on service or when in at night to the terminus. The bare schedule rate is the least of it. When I speak of our average rate, I mean the sum total of our expense in the year, divided by the mileage. You have to take into consideration the delays, mileage paid to engineers doubling back with light engines, and a thousand and one services which enter into our general service, but which would not enter into one theoretical train running over a subdivision. I am giving you just the result of our experience.

[Messrs. D. Crombie and E. P. Mallory.]

APPENDIX No. 6

By the Chairman:

Q. Is that a little higher rate than it would actually cost you to take a trainload of coal from Edmonton to Ontario, 16 engineers at \$12 per day? I suppose that is the question Mr. Garland wants to ask?

Mr. GARLAND: Yes.

WITNESS: I take Mr. Garland's figure of 16 engineers at \$12, \$192, 16 firemen \$128, total \$320. Add 15 per cent for delays, \$48, and add 60 per cent of that for the so-called return movement, gives us a total of \$589 for engineers' wages. Dividing that by the mileage, it gives us an average for the enginemmen of 13.3.

By Mr. Logan:

Q. What is the average speed per day, how many miles?—A. I beg your pardon?

Q. What is your average speed, what average do you put in per day for mileage?—A. We have based this upon our actual experience throughout 1922. I can give you the average train speed during the twelve months.

Q. Would it be 15 miles?—A. Not that much. It would be less than that.

Q. Less than 15 miles an hour?—A. Yes.

Q. Your day is divided into three shifts, as far as the trainmen are concerned?—A. No, sir. The train crews are ordered out, and run through to destination; they are paid according to the mileage, except when their mileage runs into a certain amount, then they are paid on a time basis.

Q. You cannot give us the exact mileage you figure on per hour?—A. These average enginemmen's wages that we have used in our estimate are the average for 1922. We did not arrive at it through any average train speed.

Q. A train starts from Alberta for Toronto, and you make an estimate of how much the cost of that is going to be, therefore you must have some mileage basis upon which to fix your estimate. What do you fix that at, 15 miles or 10 miles an hour?—A. We base that on our average experience over last year for the train traffic movements in Western Canada. I can give you the average train speed in Western Canada by divisions or districts throughout the year 1922.

The CHAIRMAN: It is one o'clock, gentlemen. Perhaps we had better adjourn.

By Mr. Kennedy:

Q. Would a through train work out this way the same as the average train where a stop was made at every station?—A. It would average a little better than a way freight.

Q. How much better?—A. I could not say offhand. A way freight will make quite a lot of stops one day and not so many the next. Taking the average percentage, the relationship of our total way freight as compared with our total freight traffic movement, the percentage would be very small, and it would not be a factor in this matter.

By the Chairman:

Q. How do you find items 3 and 4, 16 conductors and 8 of a crew at \$6 as compared with your experience?—A. Just the same as with the enginemmen, that is our average.

By Mr. Garland:

Q. May I ask this question right here. Your experience is based on the traffic for the year?—A. Yes.

Q. On every kind of load and every kind of train, local trains, way freights, passengers, everything?—A. No passenger traffic.

Q. You are dealing with the entire freight traffic?—A. Yes.

Q. You are not considering a special rate at a special time. Concede that these figures were prepared for that purpose, your figures are not fair, are they?—A. I think they are. Our average cost for those particular months are actually higher than we have quoted, but the average is lower than the average in the months of May, June and July.

Q. You are using the average for comparison with this special rate on this special traffic?—A. Once the traffic starts, it is on the general movement of traffic, and is lost there.

Q. Under the old commodity basis it would be, but we are trying to get at prices, with the help of the railways, to move a certain commodity at a given time at a special rate, and as far as I can see no consideration has been given to that aspect of it at all.

By the Chairman:

Q. Look at No. 5, and add 15 per cent for delays. Would that even up the thing fairly?—A. No, sir. I took that into consideration.

Q. You did?—A. Yes, sir.

By Mr. Garland:

Q. You put it at 15 per cent?—A. No, that is in the four cents per train milé.

By the Chairman:

Q. You took into consideration the 15 per cent for delays which you gave the Committee?—A. Yes.

Q. And the return movement which appears at the end of the statement?—A. Yes.

The CHAIRMAN: Gentlemen, it is one o'clock. We had better adjourn.

By Mr. Garland:

Q. One question before we adjourn. I understand that only recently you had a special coal rate from Coalspur, west of Edmonton, through the Mountains to Prince Rupert of \$3.40 a ton; that is the case, is it not?—A. I could not say as to rates.

Q. You do not know anything about that?—A. No.

Q. Who would be the best rate man to get, because we will have to get somebody on rates?—A. May I make a suggestion? If you will give me a list of the rates you require, I will see our Traffic Department and see that you get them, or if you wish any general tariff to get at any special rate, we will file copies of those tariffs, or if you so wish we can have a traffic rate man here.

By the Chairman:

Q. Is that Mr. Martin?—A. I do not know who the man would be. Mr. Dalrymple, who is in charge of the Traffic Department, would send a competent man, who would be prepared to answer any questions as to rates.

Mr. GARLAND: I will move that a traffic expert from the Canadian National Railways be asked to appear before this Committee.

The CHAIRMAN: That is not definite enough. We have a wire dated the 15th that arrangement were being made to have Mr. Martin appear before the Committee. Mr. Martin came, and was ready to answer anything. He suggested that we should bring these two gentlemen here.

Mr. MALLORY: I think Mr. Martin had in view the actual transportation costs.

The CHAIRMAN: Mr. Martin was assisted by a young chap. I think we had better come back at say half past three.

By Mr. Logan:

Q. What was the former rate to Toronto on coal; you did not have that just now; perhaps you can look it up.—A. We have a rate from Coalspur, Alberta, to Cochrane, Ontario, of 51½ cents per hundred pounds.

Q. How much from Cochrane to Toronto?—A. There is a Mountain rate to Toronto of 66 cents per hundred pounds.

By the Chairman:

Q. Have you brought your coal tariffs with you?—A. Yes, sir.

By Mr. Garland:

Q. Have you the rate from Coalspur to Prince Rupert?

Mr. McBRIDE: I move we adjourn, Mr. Chairman.

WITNESS: That rate would not be on the eastbound movement, Mr. Garland.

The CHAIRMAN: These witnesses I suppose are busy men, and would like to get through to-day if possible. I would suggest that we meet again at half-past three. That will give us a chance to go to the House and hear what is going on there.

The Committee adjourned until 3.30 p.m.

The Select Standing Committee on Mines and Minerals resumed at 3.30 p.m., Mr. Carroll, the Chairman, presiding.

The CHAIRMAN: While we are waiting for some of the members of the Committee, I might say that I had an engineer from the Labour Department this morning who suggested that we should investigate further the evidence of Mr. Graham which was given here on the subject of peat. He maintains that the Department of Mines has always refused to investigate his theory as to making peat, and I understand that the Hon. Mr. Murdock, who is Minister of Labour, would like to suggest that we call here Dr. Camsell to give reasons pro and con as to why this idea of Mr. Graham's had been turned down for so many years.

Mr. STUTCHBURY: And we might have Mr. Haanel, who has also given a great deal of thought to the matter. I think he should be called.

Mr. McBRIDE: I move that these two gentlemen be summoned to be heard before this Committee on Friday of this week.

The CHAIRMAN: Well, Mr. Garland, I suppose you are the expert in this business. The witness has some figures to give.

The WITNESS (Mr. Mallory): The rate on grain, Edmonton to lake head, is 26 cents a hundred.

By Mr. Garland:

Q. That is the grain rate. Can you give us what the coal rate will work out at?—A. From what point?

Q. From the same point to the same point.—A. There is no Edmonton coal rate quoted here. Evansburg, Alberta, to Toronto, 65 cents a hundred, that is the tariff rate.

Q. There is a difference between the coal rate and the grain rate?—A. You mean on the mileage basis, at a rate per ton mile?

Q. You just told us that 26 cents is the grain rate.—A. Edmonton to Fort William. This is Evansburg to Toronto.

Q. Can you not give us from Evansburg to Fort William, the coal rate basis?—A. I could not give it to you on a rate basis, I am not a rate man.

The CHAIRMAN: Could you not follow up the statement from what you gave the witness some time ago, Mr. Garland?

Mr. GARLAND: Yes.

The CHAIRMAN: We have disposed of six of them. It is No. 112 on the sheet. I want to ask the witness some questions myself.

By the Chairman:

Q. You remember the statement we were speaking about before lunch?—A. Yes, sir.

Q. We will go to \$3 and add ten per train on 16 divisions. 160. Have you considered that?—A. Yes, sir.

Q. What do you say about it being a fair basis, a fair standard perhaps?—A. \$160 for wages, then he adds 100 per cent supervision. I do not understand that. It does not cost us that much to supervise our labour.

Q. That is, this estimate is low?—A. We then add 60 per cent to that for the return movement, making a total of \$512 under the head of Maintenance of Way. Taking that \$512 and reconstructing it on a train mile basis, you will find that it works out at 11.5 cents per train mile. Our actual cost in 1922 was \$1.05-8, 9 times more.

Q. You might in general terms give a comparison between your statement and the statement which was filed here as No. 112.—A. What I have given you is your actual 1922 cost. I think we should compare it with our estimate that we are putting in now, the \$9 rate, in which we have knocked off 78 per cent of our maintenance charges. After we knock off 78 per cent of our maintenance charges we still have left 36.2 per train mile as against 11.5 cents.

Q. What I would like to get is a comparison between your estimate and the estimate of the gentleman who placed this schedule before us. Can you work that out for us?—A. Yes; that is just what I have been giving you.

Q. But it has been given in terms most of us do not understand. Is it upon a percentage basis? It is right or wrong by one per cent, two per cent, or three per cent?—A. I can give you that total train mile cost on the basis of the estimate submitted by Mr. Garland. It is \$2.47-3, while our estimate is \$3.77-2; our estimate is 52 per cent higher.

Q. Higher?—A. Yes, sir.

Q. Have you taken into consideration the second 100 per cent for supervision as it appears in 8 and 9?—A. Yes, sir, I have taken in everything.

Q. In all your calculations you have taken it in?—A. I have taken it in on his total of \$10,977.

Q. What is there in this statement here, or what is there in your general statement regarding rates on coal from the West that does not appear in this statement here, that is, statement 112?—A. In the estimate submitted by Mr. Garland?

Q. Yes.—A. The items left out entirely are the proportion of shop expense for maintenance of machinery, etc., for which in our estimate we have allowed 20.1 cents per train mile.

Q. Anything else?—A. I think I should mention that there is an item of 26.5 cents in the estimate submitted by Mr. Garland for which we have allowed nothing, that is station forces. Telegraph operators, dispatching, and so on.

Q. What you call two nils in your estimate?—A. Yes, an item of 31.2 per train mile in our estimate for yard service, for which there is no estimate there. Loss and Damage, clearing wrecks and so on, 9.1 cents per train mile.

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By Mr. Garland:

Q. That is an estimate, of course?—A. Based upon our actual experience. That is not your estimate.

By the Chairman:

Q. How much?—A. 9.1 cents.

Q. Anything else?—A. Maintenance of yard locomotives 2.7 cents per train mile in our estimate, not in Mr. Garland's estimate.

Q. Anything else?—A. That is all, I think.

Q. As against that there is something you said that appears in his report that you people do not take cognizance of; what is that?—A. Dispatching of trains, superintendence and so forth. He allows 26.5 cents per train mile.

Q. You have not taken that into consideration at all?—A. That is correct.

By Mr. Garland:

Q. I understood you to say that the figure you submitted this morning, compared with the statement which is filed, included 50 per cent for the return of the empty haul?—A. We took the combined movement east and west.

Q. You have no particular percentage for the return of the empty haul?—A. We cannot work it on that basis.

Q. Do you think you are reasonable in estimating the amount you have for repairs to track, 36.2 per train mile it works out at; it works out at \$1,539.22 per train?—A. It is 22 per cent of our actual cost. I think we might call that the irreducible minimum. I think it really should be higher.

Q. Repairs to track. You speak about that in your estimates. Do you consider that necessary for your new business?—A. Absolutely.

Q. The whole business, or just for each train in the business?—A. It is just the additional cost produced by the additional traffic.

Q. You have estimated a cost per train mile of 36.2—A. Yes, sir.

Q. That is on the basis of one train?—A. That is on the basis of a train mile cost, one train.

By Mr. Kennedy:

Q. How do you get these figures; is that the way it works out, in proportion to the traffic that now exists on this railway?—A. First of all we have to divide our expenses as nearly as we can, between passenger and freight service. It is not a thing that can be done exactly, because we run the same trains on the same rails, both services over the same set of rails, the same set of station forces handles them, the same maintenance costs are divided between the two services in a way that you cannot exactly apportion them. But under the rules laid down by the Interstate Commerce Commission we can closely approximate it by following those rules. In this case we have done that by dividing our total maintenance expenses between Passenger and Freight for the year 1922.

Q. That is, taking into consideration last year's traffic?—A. We have divided the entire expenses between freight and passenger, under the I.C.C. formula, which of course takes into consideration the volume of traffic both in passenger service and in freight service. We get a percentage of 72 cents for freight and 28 cents for passenger.

Q. Is the total cost of that maintenance due to traffic or a certain percentage of it? A large percentage would be there necessarily, if there was no traffic?—A. Yes.

Q. Would this additional traffic mean a proportionate increase in the upkeep, that is the same as a proportionate increase in the traffic?—A. It has

been ascertained by a study in the United States, by a joint Committee representing upon the one part the United States Government, and upon the other part the owners of the railroads turned back after the Federal control. There was a question to be settled as to the compensation the owners were to get for the use of the property. A joint Committee representing both sides found that the cost of track maintenance and structures, such as the action of time, was about $66 \frac{2}{3}$ per cent of the total and $33 \frac{1}{3}$ per cent was due to wear and tear.

Q. This is based upon deterioration due to use, this figure?—A. We have eliminated that, and we have gone farther; we have decided that in our case we have no data in Canada from which we can make up a formula. I have this note here on this very point:

“Owing however to the difference in average climatic and tonnage conditions in this country as compared with the average conditions which obtain in the United States and in the absence of known data for this phase of repair costs as applicable to Canadian railways, we cannot justify full application of the ‘Yager’ formula, and for the purpose of this estimate we have assumed a two-thirds basis as a “minimum of the added expense of moving this traffic during the months of May, June and July i.e. 36.2 cents per (51 car) train mile.”

That works out at 22 per cent of our total estimate of cost. We have thrown off 78 per cent.

By the Chairman:

Q. May I ask a question here? When you submitted to the Directors of the Canadian National Railways the questions of freight rates, did you mention the particular months of the year those freight rates should obtain in?

Mr. STUTCHBURY: From April, I submit.

By Mr. Garland:

Q. Why do you make such a heavy allowance for road locomotives? That works out at the rate of \$1,462.69 on the basis of the statement we have?—A. That is 34.4 cents per train mile.

Q. It would work out in dollars and cents, it would work out at so much per hundred thousand miles, provided you had a new locomotive every hundred thousand miles?—A. That maintenance cost is very reasonable. I consider that it compares very favourably with the United States railroads.

Q. Would there be any additional costs with this traffic, or with the general traffic?—A. That is purely a wear and tear cost per mile. The United States roads in 1922 had a cost of $42 \frac{1}{2}$ as against 34.4 here.

Q. Will you give the Committee the average cost at the present time, the average charge for locomotive repairs?—A. I think it is about that. I do not think there is really any difference, or very slight. The latest figure we have is for the month of January, about one and one-tenth cents less in January of 1922.

Q. That is, 33.4 instead of 34.4; is that right?—A. I will have to reconstruct this figure. We graduate that according to the locomotives employed in this coal traffic. The difference of one and one-tenth cents is on the average of all locomotive traffic.

Q. There is a charge for yard movement of 2.7; would that be the increase in the yard movement due to the coal traffic?—A. Yes.

Q. You estimate it upon that basis?—A. Yes.

Q. Do you not think that the locomotives would be there in any event, and that the crew would be on the job in any event; do you think this traffic

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in coal would necessitate any large increase in the number of locomotives or men in a yard?—A. If you had 100 cars in each direction, with the amount of work going on in the average railway yard, you would inevitably increase the work. The switching mileage must increase. This rate is constructed upon an average mileage basis.

Q. You were estimating it at 100 or 200 cars per day?—A. 100 each way.

Q. In each yard?—A. If you ship 100 cars of coal a day, it would mean that.

Q. With regard to the expense items, you have Proportion of Shop and Machinery Expense. Do you not think that that could be eliminated? The machinery would have to be there anyway. Are you merely counting upon that?—A. This is simply on a user basis. We have not charged the full amount for it.

By Mr. Garland:

Q. It may be simply a clerical error, but you will find upon totalling up the items under Transportation that instead of 166.1 it might be 156.1; that would make a material difference.—A. There is a clerical error there, in the item for fuel, 62.5 instead of 52.5, but the total is correct.

Q. Is that fuel for road locomotives?—A. Yes.

Q. It should be 62 instead of 52?—A. Yes.

Q. That runs up your fuel costs very high indeed?—A. No. I say that is very reasonable, Mr. Garland. In the United States the average fuel cost is 55.7, right down there where they grow the coal.

By the Chairman:

Q. How does the cost of coal compare in that country with Canada, I mean steam coal?—A. Most of the railroad tonnage is produced right in the coal-bearing areas. I think the difference in price is very material. I have the average prices here for both United States and our own country during 1922. I can give that to you.

Q. I thought wages was the big thing, but come to find out it is fuel.—A. The average price of fuel consumed in railroad service in class one roads in the United States in 1922 was \$3.94 a ton. On the Canadian National System it was \$5.96 a ton.

Q. Where do you get those figures?—A. If we had our fuel man here, he could tell you.

Q. Who is he?—A. Mr. R. C. Vaughan, Director of Stores and Purchases. He has charge of the Purchasing Department, in which he purchases the fuel.

Mr. CROMBIE: I can tell you in a broad way the general source of supply and distribution, if that is what you want.

The CHAIRMAN: That is what we want.

Mr. CROMBIE: Maritime coal is used up as far as Ottawa, then American coal comes in from the Niagara frontier and is used generally in Ontario. American coal again is used as far west as Winnipeg, depending now upon the flow of the traffic. If the traffic is light eastbound, Alberta coal comes to Winnipeg. In the grain rush, when the grain movement is heavy eastbound, American coal will go as far as about Melville and Regina, perhaps not to Regina, but just over the Saskatchewan border.

The CHAIRMAN: Are we through? I understand Mr. Logan has some questions he intended to ask regarding Maritime freight rates from the main land west.

Mr. LOGAN: Yes, Mr. Chairman. I was just reading the evidence of Sir Henry Thornton given before the Senate Special Committee on the Fuel Supply of Canada, in which he said:

"That is the reason why, when you ask a railroad man, 'What does it cost to move a ton of freight from A to B?' he can give you, quite correctly, any kind of an answer you want, or that he wants himself."

You said that you were using the American coal just now?

Mr. CROMBIE: Yes, Mr. Logan.

Mr. LOGAN: You are using American coal east of Montreal, to some extent?

Mr. CROMBIE: I received this information in a general way from the Fuel Department, as to the areas over which the fuel was distributed, and they advised me that the American coal divided at Levis and went west as far as Ottawa. American coal comes from the west down as far as Brockville.

By Mr. Logan:

Q. You do not know as a matter of fact that that American coal is being delivered to-day at St. Lambert for instance?—A. No, I do not.

Q. What is the freight on coal at the present time from Sydney to Montreal?—A. You are getting into rates again. I do not know whether I have anything on that or not.

The CHAIRMAN: We have evidence upon that point, Mr. Logan.

By Mr. Logan:

Q. You do not know the rate from Spring Hill to Montreal, Mr. Crombie?—A. No, sir. I am not familiar with the rates.

The CHAIRMAN: Here is the evidence of Mr. Alton, who accompanied Mr. Martin here. From Sydney to Montreal the rate is \$4.50 per short ton, and from Montreal to Toronto \$2.90 per short ton.

Mr. LOGAN: He does not give it from Spring Hill?

The CHAIRMAN: Somebody was asked the question, and I think it was about \$1 less from Spring Hill and the Sydneys, although I am not giving that officially.

By Mr. Logan:

Q. You do not know anything about the quantity of coal either, do you, Mr. Crombie?—A. No, sir.

By the Chairman:

Q. You have read Sir Henry Thornton's wire to this Committee and to the Senate Committee?—A. Yes.

Q. In which he said that the same consideration would be granted to the Maritime Provinces and the Eastern Provinces as would be given to the West, that is, a \$9 coal rate?—A. Yes.

Q. Suppose our rate from Sydney to Montreal being \$4.50, and we got the increased rates as pronounced by Sir Henry Thornton, what would the rate then be from Sydney to Montreal?—A. Well, I could not give you that, Mr. Chairman, without going through the figures.

Q. You have a present rate of \$12.70 from the West?—A. Yes, from Drumheller.

Q. That is reduced to \$9?—A. Yes.

Q. We have a rate from the Sydneys to Montreal of \$4.50. Compare that, will you?—A. You see this is built up on these 3300, 3500 and 4500 trains. We would have to go right through the operating statistics from Sydney or Spring Hill to the main land, and work them up again.

Q. You have arrived at no definite conclusion as to the rates from the Maritime Provinces?—A. No, sir.

Q. So that that reduction from the Maritime Provinces is rather indefinite?—A. It is rather indefinite.

Mr. MALLORY: I do not recall that he mentioned a \$9 rate to the Maritime Provinces, Mr. Chairman.

The CHAIRMAN: I will have it in a moment.

By Mr. Logan:

Q. What is the distance from Springfield to Montreal?—A. I will give it to you in a moment. It is 718 miles from Spring Hill to Montreal.

By the Chairman:

Q. In your calculations you have left the Maritime Provinces out of consideration altogether?—A. Yes, sir.

By Mr. Logan:

Q. How far is it from Montreal to Toronto?—A. 334 miles.

The CHAIRMAN: May we expect that some time you gentlemen will give us a rate and give us similar consideration to what you have given the West, and work it out?

Mr. CROMBIE: I am afraid I am not competent to answer that. I will have to have Sir Henry Thornton's consideration upon that point. We were asked to develop this Alberta figure, and that has kept us busy.

Q. You are unable to give any comparison between the present rate from the Maritime Provinces, which is \$4.50, and the rate which might be developed under your \$9 rate from the West?—A. Yes. It would be a matter of intensive study.

Q. You will give us a reason?—A. Because the trainload is distinctly different all the way through.

Mr. KENNEDY: I understand the figures that have been taken as a basis for this calculation are taken from the average cost to haul a freight train a certain mileage?

Mr. MALLORY: Yes.

By Mr. Kennedy:

Q. Does that average cost include the 50 per cent of empty cars going westward?—A. It includes everything, the entire movement in both directions.

Q. When you are making an allowance in this case for moving empty cars west, you are really allowing double for empties, in that case?—A. You mean double the mileage?

Q. Is that necessary?—A. If we haul two trains of coal eastbound, we must haul the same trains back empty westbound. We must get the same mileage because we must get the cars back and the crews and the engine.

Q. Would it not be possible to double your trains going westward empty, say put three trains in two? Supposing you haul a train of fifty loaded cars, you send the same engine west with the same cars, but if you double up, you make a considerable saving?—A. It is not material. Our cars must go back and whether you put the engine on the one train, or you put on 100 cars, it is work of the same nature. The train must go back with the same crew.

Q. Is the average yard service for freight trains used as a basis?—A. No, sir.

Q. There is a reasonable allowance made for trains moving a long distance.—A. Yes.

Q. How much allowance is made?—A. We take it at four moves, once in and once out eastbound, and once in and once out westbound, without any additional switching.

The WITNESS (Mr. Crombie): And we take the cost of the actual yards which they would pass through. They are the cheapest operating yards we have, those main line terminals, where we have not much switching cost per car, and those are the yards which we have taken into consideration.

Q. I understand that it works out at about at \$2.36 per day.

By the Chairman:

Q. Which item is that?

MR. KENNEDY: No. 4.—A. We have allowed 83.4 cents per train mile for cars, and in that train mile there are 51 cars. It is a little over a cent a car mile.

Q. What is included in this 10 per cent for contingency?—A. They are very intangible items that we cannot put any cost figure on at all. We all know they are conditions that we have got to meet, and we thought it was only fair to provide for them. For instance, car maintenance and crews and coal traffic was a little heavier than the average. It will be because there is more wear and tear.

By Mr. Logan:

Q. Does that apply to coal cars?—A. We are speaking now of box cars, and as a result of handling these extra trains we have extra calls for operators, for overtime, Sunday work, and there is an extra amount of work involved in billing out this extra tonnage. There is additional audit office help to take care of the accounting, and so on. We have not allowed anything in the details for those items, but inevitably we must bear some additional expense. We have used what we thought was a fair percentage to provide for this, and any other contingency that may arise, and which we feel sure would arise in the handling of volume traffic of that kind.

By Mr. Garland:

Q. Has there been any collaboration with the Canadian Pacific Railway in arriving at this estimate? Have you consulted them in any way with regard to this?—A. We have exchanged our ideas, but we have not what you would call collaborated with them in any way. We have worked our estimate out on an entirely different basis.

Q. But after consultation with the Canadian Pacific?—A. We did not consult them beforehand at all. We arrived at our estimates, and then talked it over with them, and agreed to disagree.

Q. You did disagree, did you?—A. Oh, yes.

By Mr. Logan:

Q. What do you consider the most economical car to handle coal in, I mean, in size?—A. I am not a car nor a traffic man, but I would say naturally the open-top car is against the box car.

The WITNESS (Mr. Crombie): I think it is generally recognized that the hopper bottom steel coal car is the cheapest coal car.

Q. You agree with Sir Henry when he says that he does not know of any better car than the 50-ton capacity car?—A. Yes.

Q. That is almost the standard car in the whole trade?—A. Yes. There might be perhaps this explanation added to that, to prevent any misapprehension. We would very much prefer, as railroad men, of course, to see the coal come in from the United States ports of entry in a box car. It is highly desirable that we should get it in box cars, because we are always short of box cars, and they would be available for the outbound route. The open-top car is of no use to us for that purpose.

Q. That would not apply to the transportation of coal from Alberta to Ontario?—A. No.

By Mr. Kennedy:

Q. In connection with the coal rate and the grain rate, I believe the coal rate quoted here is on a mileage basis, about 12½ per cent below the grain rate.

The WITNESS (Mr. Mallory): I know the grain rate per ton mile is 12 per cent higher than the coal rate.

Q. Well, then, would you suggest that the grain is not paying for overhead, and so on—superintendence?—A. I might say that we are just barely straightening out our operating expense on freight traffic as a whole, taking the whole freight traffic of all commodities combined, we are just getting barely our operating expenses out of it.

The WITNESS (Mr. Crombie): I think for the benefit of the members, because I know they are very much interested, and I consider this a rather important meeting that we are having here—I thought perhaps as Canadians interested in these national roads, that it is only fair to point out to you that our rate per ton mile is a very low rate, for the last year, 1922, our rate was .998, or 9 mills—practically 10 mills per ton per mile.

By Mr. McBride:

Q. One cent?—A. Almost up to the cent, but not quite. The American railroad, without having to pay duty on so much of the coal as we do, and without having to pay so much of a toll to other railroads as we do, and do not haul under such severe climatic conditions which require us to use more coal to produce this tractive power,—they have 20 per cent higher per ton mile than we have. They enjoyed 1.9 cents last year. I would like to say this, because I feel that from some of the questions that were directed to us this morning, that perhaps there is a feeling in your minds that we are not operating as efficiently as you would like to see us doing. We are operating at 20 per cent less than in the United States, notwithstanding that we have these things to contend with in the way of actual out-of-pocket expense in the movement, and with a much less density of traffic, to carry on maintenance. And I would like to add this, Mr. Garland, I think there was an impression in your mind that perhaps we were making too wide a distinction between trainmen and enginemen as compared with the average experience of 1922. I would like to have you receive these figures. As to enginemen's wages in the United States (and you understand we are working under standard rates of pay per rate mile), it is in the economy of the operation of the trains that we get this result. The United States rates were 25.5 cents per mile for their enginemen as compared with our 18.6 cents. Now, the road rate per mile is 12.6 cents, as pointed out in the figures. I might have had a wrong impression, but I rather fancy that you thought we could have got through on a narrower margin. The United States average was 25.5 cents. On the trainmen's wages the rate per rate mile would be 14.6 cents. Our cost was 20.3 cents, which includes trimmings and switches, and other things, compared with the United States rates of 29.4 cents. Now, you were speaking also this morning—Mr. Logan was—about the average speed of the trains. Our average speed was 12.6 miles per hour. I did not have the figure at the time you asked the question, but it is 13.6, including all freight train services.

By Mr. Logan:

Q. If you ran a through train entirely made up of coal from Alberta right across the continent to Toronto, you would make better time.—A. That is questionable, for this reason. We feel it is including the slow freight, which we will say is perhaps a tri-weekly way freight, or perhaps say daily way freight. I think it does include that. I think it also includes all these light trains. Our

trainload is lighter than the average trainload, and we do clip along a bit by virtue of the light load, so, if you loaded the train down full you would not improve that showing. In taking the average figure of 1922 of 18.6 per mile for enginemen's wages—that happens to be exactly the cost to us during the months of May, June and July of last year, so that you are getting at the question of the winter slowing down the speed and that sort of thing. With the trainmen the cost was 20.3 cents for the year, and it was 20.5 cents for May, June and July.

By Mr. Kennedy:

Q. This work had gone on the basis of average cost of freight trains all over the Canadian National System?—A. No, sir, Western lines.

Q. That is the Prairie lines?—A. Yes.

Q. I want to relieve the witness of a little misapprehension. We are very proud of the Canadian National, and I think every Canadian is. It was not a question of thinking you had less efficiency than any other lines, but I do expect that you are going to increase that efficiency so as to be able to give us a lower rate.—A. We are going to try hard to do that. There is one other thing I would like to point out to you, talking of the Western road in the United States, that is, lines out of Chicago westward which operate under nearly parallel conditions such as we have west of the Lakes here. But they do have more favourable weather conditions. I would like to give you a comparison of their average rate. Freight carloads per train mile for the year 1922 were 1,349 tons. Our Western cars trainload rate was 1,289 tons, notwithstanding a smaller density of traffic than they have to contend with. We came within 60 tons of equalling their trainload.

By Mr. Garland:

Q. What do you mean by more favourable weather conditions?—A. I am referring to the Santa Fe and Rock Island roads. They do not have the same conditions that we have up Edmonton way.

Q. It is more like our summer weather?—A. There is one thing I would like to say for Mr. Logan. You see, it was difficult; we could not anticipate all of your questions, and it is difficult from the mass of figures we have to produce the answer promptly enough. I would like to say in connection with the Virginian road, which was spoken of in Mr. Butler's evidence, that refers to an extremely heavy load, 16,000 gross tons. Their average load per train last year was not 16,000 gross tons, of 8,000, but 3,244, notwithstanding their favourable conditions, and their average load per car, notwithstanding that they had 100-ton cars and 120-ton cars—their average load per car was 57.1 tons. The average tractive spread of the United States engines is 36.7, with their density of traffic. Our average tractive spread is 36.2. We have good power and we maintain it cheaper than they do.

By Mr. McBride:

Q. You say the average freight train goes about 13 miles per hour?—A. That, Mr. McBride, includes the time from the time the train is ordered until the crew is released. It includes the terminal detention, and also includes the switching all along the line.

Q. If that was increased to 20 miles, would the increase cause an increase in the cost of operation?—A. I might say, for your information, Mr. McBride, that we spend a great deal of time analyzing what is the economic speed, and it varies with the density of traffic and subdivisions, and it varies with the length of the grades on the subdivision. We make a real study of that to see what is the greatest number of ton miles per engine hour we can produce, which generally is the cheapest figure we can produce.

[Messrs. D. Crombie and E. P. Mallory.]

By Mr. Kennedy:

Q. The operating ratio in the Canadian National last year was an adverse ratio. This, however, is based on what it cost to move freight without taking in the overhead.—A. We have eliminated overhead and a great part of the maintenance.

Q. The Canadian Pacific, taking into consideration figures and train cost, ought to be able to give a better rate than yours.—A. I doubt it. I would like to compare with them on that basis.

Q. The Canadian National have not been able to earn their operating expenses?—A. You know why. It is not a case of inefficient operation. You have not got the spread of the load, and you have not the traffic to carry the overhead and the maintenance. It is the actual movement of the traffic. We are willing to compare on the basis of economy on the actual movement of the traffic.

By Mr. Logan:

Q. Admitting the efficiency of the rolling stock and everything else, how much would it cost to transport 50 cars of coal, carrying 50 tons each, a distance of 2,000 miles at an average speed of 15 miles an hour?—A. That is purely a hypothetical question.

Q. Sir Henry Thornton said that after all it gets down to a business man's standpoint. This is to my mind the question. If we had a trainload of coal at Edmonton and wanted to send it to Toronto, it seems to me a pretty important question to consider, outside of being a railroad man, that we should have given to us all the figures which would produce a proper answer to the question. Have you given us your figures based upon present operations, cars carrying say 36 tons and travelling at a speed of 13 miles, I am asking a question as to what might be a possible or a probable train?—A. I could not undertake to answer that question.

Q. Because after all, Mr. Butler says assuming the equipment is good, then he says to carry 5,000 tons of coal the weight of the train would be about 8,000 tons, and the coal per train upon that basis to Toronto a distance of 2,284 miles, if it costs anything like the figure mentioned, we are never going to carry coal from Alberta working along from one station to another, we will have to do it in solid coal trains with cars of 50 tons capacity, and with proper locomotive power.

By Mr. Garland:

Q. Have we box car equipment on the Canadian National capable of carrying 47½ tons per car?—A. 46 tons. I gave you that figure this morning.

Q. Is that the limit?—A. Yes, I think it is.

The CHAIRMAN: Are there any other questions? Mr. Stutchbury, are you interested in this question? The Committee will allow you to ask any questions you wish to ask.

Mr. STUTCHBURY: I think this is beyond my depth, Mr. Chairman. All I am anxious about is, to get the coal down here, if there is any way of doing so.

By Mr. Garland:

Q. One more question. Have you anything to offer to us that will enable us to get Canadian coal into Canadian central Provinces?—A. I have nothing to add to what I have said.

Mr. MALLORY: How about the price at the mine? I made a little calculation, not as a railroad man, but as a sufferer during the shortage, if I might be allowed to give you my views as a citizen.

The CHAIRMAN: I suppose you are coming to the point contained in the latter part of Sir Henry Thornton's wire:

"It is also to be understood that coal operators at shipping points and distributors in Ontario will co-operate with the Railway Company to achieve the common object, as I am sure will be their desire."

A. I read in the record at page 106 a figure of \$3.25 per ton. Allowing the dealer \$1.00 a ton for putting the coal through his plant, his handling charges, depreciation, and allowing him \$1.00 a ton for delivery, and allowing him 50 cents profit, that makes a total of \$5.75. Competing with American anthracite on the basis of ton for ton, and assuming that it is of the same value although I have read that it is of higher value, \$15.50, leaves \$9.75 a ton available for the Canadian National to haul it down.

By the Chairman:

Q. Carrying out that idea, you think that under your present rate, Western anthracite will compete favourably in the Ontario markets with American coal of a similar value?—A. I say that assuming the Alberta coal ton for ton is equivalent to the American anthracite, he can afford to pay a freight rate of \$9.75 on the basis of a mine price of \$3.25. That is my own private opinion upon that question.

The CHAIRMAN: That has upset all your calculations.

Mr. STUTCHBURY: Take the City of Toronto. It is necessary to sack every ton of coal that is delivered, I understand, either in Toronto or Montreal, and the cost of delivering the dealers tell me is higher than anywhere else outside of Vancouver. In Vancouver they have the same system. It would be more expensive, that is, \$3.25 coal, there would not be enough of it available. You have to take an average of at least \$4. \$3.25 coal is a small size coal, and the mines do not produce enough of it to take care of the demand.

Mr. MALLORY: \$4.00 is the price.

Mr. STUTCHBURY: You would have to work on the basis of \$4.00?

Mr. MALLORY: That would leave \$9.00 for our freight.

Mr. STUTCHBURY: Then there would be this disadvantage that we would be working under, as we were in Winnipeg. People do not know our Alberta coal yet. We have to put it in at a price under that of the coal on the market, in order to have them use it until they get used to using it. There was a very definite statement made by Mr. Cushing, who represented the American operators at the Institute of Mining and Metallurgy in Montreal, in which he said that if Alberta dropped its price \$1.00 the American operators would drop their price \$2.00. We have no doubts about what the American operators are going to do if we get into the market. It is true that Ontario will get cheaper coal, but we will get it in the neck.

Mr. McBRIDE: Why not recommend to the Government that they raise the tariff?

The CHAIRMAN: I am not a Progressive.

Mr. LOGAN: Put a duty on anthracite coal.

Mr. McBRIDE: Let us put a tariff on for one year.

The CHAIRMAN: Any recommendations we make to the Government will be made after this, after we hear all the evidence. Are there any other questions, gentlemen? Mr. Lapierre, do you wish to ask any questions?

Mr. LAPIERRE: No, sir. My question was answered.

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The CHAIRMAN: Anybody is at full liberty to ask all the questions he wishes to ask. Have you any further statement to make in regard to this inquiry, Mr. Mallory?

Mr. MALLORY: No, sir.

The CHAIRMAN: We discharge both you gentlemen, and we thank you very much for your trouble in attending here to-day.

The Committee adjourned until Wednesday, May 16th, 1923, at 11 a.m.

HOUSE OF COMMONS,

COMMITTEE ROOM 429,

WEDNESDAY, May 16, 1923.

The Select Standing Committee on Mines and Minerals met at 11 a.m., the Chairman, Mr. Carroll, presiding.

Mr. LANIGAN called and sworn.

By the Chairman:

Q. What is your business, Mr. Lanigan?—A. General Freight Traffic Manager of the Canadian Pacific Railway.

Q. How long have you been in that capacity with the Canadian Pacific?—A. Well, since last November as general traffic manager, since September, 1918, as freight traffic manager.

Q. How many years' experience have you had in the railroad business altogether?—A. Forty-two years.

Q. Now, I will ask Mr. Garland to put one or two questions to you.

By Mr. Garland:

Q. Mr. Chairman, has Mr. Lanigan taken into consideration this question of coal rates?—A. The Canadian Pacific Railway was never asked to make a rate, and no inquiry was directed to its traffic department or any other person that I know of, Mr. Garland.

Q. I will put the question to you in the way you would like to have it put. Have you voluntarily considered a rate?—A. We are, as you know, both coal miners and a transportation company, and as coal miners, we suffer exactly the same difficulties in mining coal that every other coal miner in Alberta does. We suffer from the same conditions, and the same lack of market; consequently, our president some time ago said to me that he would like to know if there was any solution for this coal problem, and I made him a report, and that is how the matter comes to have been considered by the Canadian Pacific.

Q. Well, you have not then seriously considered it?—A. I have very seriously considered it from both standpoints—from the standpoint of the coal mining producer, and the standpoint of the transportation company.

Q. What conclusion did you arrive at?—A. We have published no rates, if you remarked, from Alberta to Eastern Canada. I came to the conclusion that it was no use printing a paper tariff for traffic that would not materialize.

Q. For a traffic that would not materialize. Had you anticipated that?—A. I might put that in another way, Mr. Garland. I did not feel that it was any good to publish a rate from Lethbridge of \$12.40 to Toronto, which would have been the rate from Lethbridge on the same basis as was made from Drumheller. There is no use printing rates under which traffic does not materialize. You have all your expense and trouble, and that sort of thing, for no return.

[Mr. W. B. Lanigan.]

Q. You mention the \$12.40 rate. You did not consider reducing the rate?—
A. Yes, I considered reducing the rate, but what I said to you was that I did not see any reason for publishing a rate of \$12.40, knowing full well that no traffic would materialize under that rate.

Q. That is all right; that is quite true, but have you considered the \$12.40 rate as of any value to the coal miners in Alberta or to the consumer in the central provinces, and then, if you did not, did you make any attempt to see if you could reduce the rate?—A. Oh, yes.

Q. What conclusion did you come to?—A. I came to the conclusion that it would cost us \$9.90 to carry a car of coal, loaded with 46 tons, from Lethbridge to Toronto, a distance of 1,990 miles. Now, in considering Lethbridge, I took Lethbridge as a shipping point, simply because that was the point where we mined our own coal, and that was the point where the president was anxious to know something about.

Q. You would be willing to set a rate of \$9.90 on coal from Lethbridge to central Canada?—A. No, I would not. I feel that \$9.90 would be our actual cost. Now, doing business, swapping one dollar for another dollar, never appealed to me as a business man.

Q. Well now, you say it does not appeal to you as a business man. Upon what basis have you made that rate. Can you give us the figures?—A. Yes, I think I can, but of course, necessarily, Mr. Chairman, all these figures are estimates based on past experience. I do not think a railroad any more than any other business man can say at the beginning of the year, not knowing what business he is going to do, or under what conditions he is going to do it—that he can do something at a certain cost or a certain profit, or that he is going to make a profit at all on his business, or he might make a very unexpected profit.

Q. I take it, Mr. Chairman, that the witness does not believe in Henry Ford's maxim, "Cut into the cost, and then cut under the cost."—A. I read a great many theories, Mr. Garland, about different things. I am getting to be an old man, and I have had a great deal of practical experience in railroads. Now, Mr. Ford is probably a very successful automobile manufacturer, but I do not know that I would take his advice on the best way of keeping smallpox out of the country, for instance, or any other thing that he has had limited or some other experience in.

Q. He has some knowledge of railroading?—A. He has some knowledge of railroading under a very peculiar condition, which perhaps you are not aware of; but, however, they are not the conditions that apply in Canada, and I do not know that Mr. Ford is any authority.

The CHAIRMAN: Did Mr. Ford mean by that that railroads would undertake to do business without some recompense?

Mr. GARLAND: No, he was simply following the maxim that he puts into effect in his own factory.

The CHAIRMAN: He said, "Cut below cost."

Mr. GARLAND: Yes.

The CHAIRMAN: I am not very much of a business man, but you cannot do business on a losing scale.

By Mr. Warner:

Q. I would like to ask the witness on what basis have you estimated your rate? Would it be as a regular coal train, hauling coal at periods of the year, if not all the year, or would it be on the basis of the odd cars coming down with mixed trains?—A. The basis upon which every person bases his figures—I cannot give you exactly a direct reply—is on a fifty-car train, each car loaded to a maximum of 46 tons, which of course would mean 19½ and 46 as a

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gross ton. There is no possibility of any such train travelling, because your engines, your cars, your roadbed, and your under structures, have all been built to fit the traffic as it exists. They have not been built to carry exceptionally heavy engines with exceptionally heavy frames. They have been built in accordance with the yearly requirements, and the yearly experience of the traffic travelling over the roads; consequently, a 40-ton car will weigh $19\frac{1}{2}$ tons, and with 46 tons in that car, that would give you $65\frac{1}{2}$ tons per car. Well, 50 times that is 3,250 gross tons. Your 210 per cent engine would only carry out of Lethbridge 2,730 tons, so that you would have then more gross tons than your engine would carry; consequently you would have about 175 more tons. You start from Lethbridge to Dunmore with 175 more tons than your 210 per cent engine would carry, and from Dunmore to Swift Current with 566 tons in excess of the engine capacity; that is, the 50-car train; and from Swift Current to Broadview with 409 tons above the engine capacity, and from Broadview to Brandon the engine would require 529 more tons than she carried into Broadview, and from Brandon into Winnipeg you would want another 175 tons to fill up your engine capacity. By that time, between dropping off for your engine capacity over each subdivision, and filling in to get your engine capacity (because you do not want to run your engine light) you have dropped off coal and you have filled in with lumber or grain or any other eastbound commodity that you have got, and your train, instead of being a solid train of coal, becomes about the average train that your eastbound traffic justifies you in carrying. That is not only a factor on our line, but it is also the factor on the other lines. You have for instance at Rennie, which is a point east of Winnipeg,—we cannot carry to Rennie anything like the tonnage that we can carry from Rennie east, so that we carry certain trains into Rennie, and we leave them there, and then we start from Rennie as an increasing point, that is, we increase the tonnage with the tonnage that has been left off there by previous trains, so that every train that you run eastbound has got its maximum tonnage if the engine assigned to that division will carry it. Now, there has been very much increase in engine power, and of course a corresponding expenditure for your understructures and bridges to carry those engines. For instance, we have got a Santa Fé type of engine that is 325 per cent capacity and weighs—I am speaking now from recollection—about 300,000 pounds.

By the Chairman:

Q. What do you mean by 325 per cent capacity?—A. An engine on our line, and it is the pretty general practice, although I think the Canadian National have another practice which comes to the same thing—your engines are rated on the 100 per cent capacity, that is, a 100 per cent engine. A 100 per cent engine is one that is capable of developing a draw-bar pull of 20,000 pounds on a level track.

By Mr. Warner:

Q. The point you make, then, against the coal train, would be, part of it at least, that all divisions are not equipped to carry the same amount of load?—A. No, the prevailing grade and the gradients on that division are the controlling factor, that is, as far as the engine load is concerned.

Q. Well, do you figure any possibility of a cheaper rate in a time of year that the roads are not so busy, and that the miners are not so busy—say May, June and July?—A. Well, that is a very difficult thing to estimate. Naturally your maintenance expenditure must be done at that season of the year that the climatic conditions permit it to be done, and that of course means that your maintenance expenses are greater in the summer months than they are in the winter months, while on the other hand your clearing expenses, that is, the clearance of snow and keeping your track in order, are very much higher in

[Mr. W. B. Lanigan.]

winter. One to some extent offsets the other, and then of course there are winters where we have operated very, very successfully. There are other winters, of course, where the engine tonnage has been very materially reduced because of the climatic conditions.

Q. You have not then decided on the minimum rate from Alberta into Toronto? You have not decided on the minimum rate?—A. No, I have not decided, except in this way, that I certainly would not publish any rate from Lethbridge to Toronto that will accomplish nothing.

By Mr. Arthurs:

Q. You said that you based your estimate on past experience. You had no past experience in operating solid coal trains from the west to the east?—A. No, and no other line in America has had any experience that would be a guide. Of course this involves a 2000-mile haul.

Q. We know that. I just wanted to get the information.—A. Naturally I have no past experience to guide me in hauling solid trains of coal, and as I explained before, they would not be solid trains of coal.

Q. How many solid trains do you haul east or west on your line, that are loaded to the capacity of the engines?—A. All the eastbound trains and all the westbound trains. We start no engine out of any of our terminal points without the loaded capacity of the engine, except in these cases where you sometimes find that your power is at one end of the line, due to something throwing the balance of traffic out of gear, in which case you have to return your engines and cars back again, but all our trains and engines are loaded to capacity where it is possible. Of course, there are occasions on branch lines where of course you cannot get your engine capacity.

Q. On your main lines there are very often occasions on which you run freight through with very much less than the capacity of your engines?—A. Yes, there have been occasions on our double track between Winnipeg and Fort William where the wheat train would reach there before the mail with the inspections would reach there.

Q. I am not an expert on this matter but I am quite satisfied that I have seen a great proportion, both over your road and the other road, running under the capacity of the engine.—A. Excuse me. I cannot agree with that statement, that you have seen trains on branch lines running with less than what you considered the loaded capacity of the engine, but of course you must remember that a great many engines that are seen on branch line the main line, no, but there are climatic conditions where you would reduce the load of your engine perhaps 10 per cent. There are conditions that exist in summertime where the train despatcher will send out an engine with 10 per cent, 15 per cent, or 20 per cent less than its rate of capacity. There are certain classes of freight where despatch is immediately necessary.

There are conditions of that kind in any business, and those conditions you have to face.

By the Chairman:

Q. You cannot really lay down a particular rule in any business at all, in that respect?—A. Certainly.

By Mr. Arthurs:

Q. You spoke of certain divisions where you have greater tonnage than in other divisions?—A. Yes.

Q. If you had a full trainload of wheat starting out from any point in the West, you do not break that train to any great extent, that is, you do not have very much shunting of such a solid train of any commodities?—A. That question came up in the late inquiry before the Railway Commission. If you start

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a solid train of a certain capacity at Calgary, after you got it to Winnipeg it would not be a solid train of wheat, or anything like a solid train of wheat, by the time it left Winnipeg, it could not possibly be.

Q. For what reason?—A. It must be, or is usually a solid train of wheat by the time it reaches Port Arthur, but not wholly the same wheat. A lot of cars have been thrown off to suit the engine capacity, while others have been put on, maybe of wheat, or whatever might be available to fill up to the engine capacity.

Q. You do not mean to tell the Committee that if wheat was available you would not fill it with wheat?—A. We certainly would. What we object to is adding to the terminal expenses at Winnipeg by going to work and shunting out wheat especially when other traffic could be shunted out very much cheaper, and which has to be moved upon some train. That traffic is there, and arrived there prior to the wheat. If they started to shunt those trains, to make solid trains of wheat, I would protest against it very much, because one of the greatest expenses we have to meet to-day is our terminal expense. Inevitably our large terminals are situated in large cities, such as Winnipeg, Toronto or Montreal, and as the business expands it is necessary to buy more land and extend those terminals. That is most expensive in every case, because capital expenditure is necessary. So that our capital expenditures in Montreal, Winnipeg and Vancouver are very high. Then an engine that is performing this service is not performing anything like what it should perform; it has a driver, it has a fireman, two yard men and a yard master, while these engines are often running around a terminal with only one or two cars, for the purpose of placing cars or something else. So that our terminal expenses are very high. No efficiently managed railway would go to work with eastbound trackage and permit a whole lot of terminal expenses to be piled up, which would be altogether out of ratio with its road expense, for the purpose of pulling out a solid train of wheat or anything else, because it is all eastbound traffic and we have to carry it anyway. Why should we go to a lot of expense for shunting to carry a solid load of wheat or anything else from Winnipeg to Port Arthur.

Q. A train is shunted on a special siding, during the wheat season at least?

—A. Our yards are naturally laid out to give the minimum of shunting.

Q. It necessarily follows that if a train of wheat is cut in two, one part is shunted into a siding which is set aside for that purpose?—A. A yard master in making up his trains will not take the most convenient car, he will take the traffic in the order in which it is presented to him.

By Mr. Lapierre:

Q. In the event of this coal business from Alberta being developed, would it not be possible to have loads of coal at the points where the tonnage of your trains is changed, and then have entire trains of coal coming east?—A. What difference does it make whether it is a solid train of coal leaving a certain point or not, as long as it is a solid train?

Q. We have been led to believe that where solid trains of one commodity were hauled, the rate could be lowered?

The CHAIRMAN: Without breakage?

Mr. LAPIERRE: Without breakage, loaded with the same commodity, if that commodity was available. The train expense would be less, and any change would be made with very much less expense, and they would have a standard train, where the traffic could be standardized; that is what I mean.

WITNESS: Excuse me while I answer this gentleman. This has to be a seasonal traffic. It was supposed, at least that is what I inferred from the previous evidence, that this traffic was to move when there was the maximum amount of idle cars, that after a certain date, on account of the other activities

of the railways, this traffic would not move. You cannot go to work and increase terminal expenses for the sake of making up a solid train of coal. You have to throw off what is on that train and take on other traffic. Coal is not always available at a point where we can get at it. We have to take the traffic that is available.

By Mr. Lapierre:

Q. But where you have a continued coal traffic, there should be a system possible whereby you would have the cars and the coal come together.—A. If we were in the position of the Virginia Railway, carrying nothing but coal, serving 700 coal mines and had a continuous traffic towards one destination, with no interruption, what you say would be absolutely right.

Q. And that you say is impossible for you to do; that is the answer?—A. I need not say so. It must be obvious to every person.

By Mr. Garland:

Q. We were getting to the point where you said the cost of moving coal from Alberta points to Toronto for instance, would be \$9.90, but that you would not care to quote that rate, that you would in addition to that like to have some profit?—A. Certainly.

Q. I asked you for the figures upon which you base that rate.—A. For the reasons I have already outlined, I did not take my costs on a basis of carrying in solid trains, because we are carrying nothing else from the West to the East, that is the trend of loaded car traffic—from the West to the East—and I based my figures on this, that for every hundred miles we carry a loaded car we carry an empty car 45 miles. That is the general ratio all over the system.

Q. Would that apply to traffic coming east?—A. That applies to all traffic. You cannot go to work and segregate any one class of traffic and say that you are going to use your empties or a certain percentage of them, or that one class of traffic will create a certain figure of so much in its movement as compared with another, you have to take the average over the whole system. Our average is that wherever we carry 100 miles under load, it involves the movement of an empty car 45 miles. That is the exact ratio, and that is about the ratio on the Canadian National Railways. The movement of any loaded car must involve the movement of an empty car.

By Mr. Kennedy:

Q. Do you inexorably apply the formula you speak of, of 45 to 100 east and west, or do you make your calculations upon the westbound traffic; how do you apply that?—A. We apply that because there is no possibility of knowing what empty movement is involved in connection with the traffic except that one general ratio, that it always involves 45 miles, and that has been pretty steady year after year. Eastbound traffic will naturally involve a greater empty movement westbound than westbound traffic. Westbound traffic does not involve any empty movement except the general movement around the terminals.

Q. This is what I intended to ask: If we were asking you for a rate west instead of a rate east, would you be answering us in the same way, giving us this 45-mile illustration?—A. No. There is no mechanical way of making freight rates. If you were asking me for a rate from Toronto to Calgary on coal, I would figure that we were carrying a very large percentage of empty cars back to the west anyway, and I would certainly say, "Well, we can afford to carry that traffic at a cost which merely involves the added tonnage, the average tare tonnage, or rather weight tonnage, contents tonnage to the cost of moving the empty.

[Mr. W. B. Lanigan.]

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Q. I think it is only fair to say to you that a great many of the questions put here yesterday by various members of the Committee were based upon evidence given by Mr. Butler a while ago; have you read that evidence?—A. Yes. Do you want me to answer Mr. Butler's theory? If so, I am willing to do it.

Q. That is the quickest way out.—A. All right.

By Mr. Garland:

Q. If we could get the figures from Mr. Lanigan first, I think it would be better.—A. Any way in which you would like to proceed.

Mr. WARNER: I would like to ask a question at this point, Mr. Chairman.

The CHAIRMAN: We had better get the figures upon which the witness bases his estimate, first.

WITNESS: I will take a loaded car mile of freight as the unit, for the reasons I have already given, that all eastbound trains are solid trains; there are no eastbound empty trains, with the exception of the movement of power and crews where the westbound traffic has been in excess of the eastbound traffic, which very seldom occurs, because the eastbound traffic is the largest traffic. I have taken the loaded car mile as the unit. I might say before that that our expenses are disposed of in five main accounts. These five main accounts are laid down by the Board of Railway Commissioners and the Dominion Statistical Department as the manner in which the railways shall keep their accounts. You can turn up in the Dominion Statistical Department the returns made by the railways on that basis. In 1922 our Maintenance of Way and Structures—I might say that the main accounts are: Maintenance of Way, Maintenance of Equipment, Traffic, Transportation and Miscellaneous, together with Transportation for Investment, which involves the carrying of supplies that are added to capital account—our Maintenance of Way represented 18.7 per cent of our total expenses, that is, 18.7 per cent of all the expenses of the railways went towards the maintenance of way, bridges and under-structures. The Maintenance of Equipment, which of course includes all equipment, was 21.8 per cent of our expenses. Traffic represented 4.9 per cent of our expenses, while Transportation represented 50.5 per cent.

By Mr. Garland:

Q. Just there, what is that figure again?—A. 50.5.

Q. What is the difference between Traffic and Transportation—to get it clear?—A. Traffic is for instance my salary; that would be in our traffic expenses.

By the Chairman:

Q. In other words, overhead?—A. It is a kind of overhead. It is a general supervision and superintendence of traffic.

Q. What about Transportation?—A. That includes the wages of the men engaged in that business.

By Mr. Kennedy:

Q. The actual carrying?—A. No. Station employees come in there. We pay \$10,000,000 a year to our station employees.

By Mr. Garland:

Q. These two items are wages?—A. These two items are wages, not materials. That is, Transportation is traffic, there is no material in that except general expenses, stationery, and all that sort of thing. Miscellaneous represented 1.7 per cent, and Transportation for Investment, that is, transportation on capital account, 2.4 per cent.

[Mr. W. B. Lanigan.]

Now as to the disposition of these expenses. Labour, which includes all labour, took 55.14 per cent, material took 24.49 per cent, fuel and locomotive supplies took 16.3 per cent, taxes took 3.65 per cent, and claims took .69 per cent. That was the disposition of our expenses. If you will turn to our annual report, or the reports to the Government, you will get the number of loaded car miles, and that gives you your common divisor. On the other hand, there has always been a difficulty, which was outlined by Mr. Crombie yesterday, about the division of expenses as between passenger and freight, and various formulas has been laid down. The Interstate Commerce Commission has laid down one formula, and I have laid down two or three myself. There is not any very great difference between one formula and another as far as the general results are concerned. I am speaking roughly now when I say that about 40 per cent of our expenses are actually assignable between the two activities, passenger and freight, and 60 per cent has to be divided under some arbitrary rule. After looking over the various formulas submitted by the different American railways, the Interstate Commerce Commission finally laid down a formula which I think is about as correct as humanly it can be, although they could have made a very much shorter cut and taken a very much easier method and arrived at practically the same result, which would be to take 60 per cent of the unassignable expenses and charge two-thirds to freight and one-third to passenger, and they would have arrived at pretty nearly the same result as by the complicated formula of the Interstate Commerce Commission.

Having subdivided these expenses, I got our expense of carrying a loaded car one mile. The reason I take a loaded car as the proper unit—I have always contended that it is the proper unit—is that it is the unit under which we carry our traffic. A great many people take to the ton mile rate. But a ton mile rate will produce various results. If you are carrying ten tons in one car and 15 in another, you are getting two entirely different results, entirely different earnings. The car is the vehicle you carry the freight in, and I think that is the proper unit. In making that division I find that our average car carried 27 tons. As you increase your contents, you do not proportionately increase your expense because, supposing your car had 20 tons, the addition of another 20 tons inside that car would not double the expense. The great expense is the friction of the wheels on the rails, and your pro rata expense is greater for carrying the car than for carrying the contents. But it does cost 26/100 for every extra ton you put in above your average of 27 tons. Our cost of carrying that loaded car one mile last year was 18.6 cents per loaded car mile. That included the empty mileage at the rate of 45 empty miles to 100 loaded miles. Adding that 26/100 of a cent per ton for the extra nine tons you get a loaded car expense of 23 cents per loaded car mile. Our operating ratio last year was 80.55, that is, we spent 80.55 cents to earn \$1.00. Under the segregation of expense as between passenger and freight, our operating ratio on freight would be 73.9, practically 74 per cent. Our average revenue was 24.43 per loaded car mile. Divide the expense first by your Maintenance of Way, which is naturally higher and has to be debited to freight, higher than passenger because you are carrying more freight trains than passenger trains, your freight train mileage is very much higher than your passenger train mileage. On a subdivision of those expenses, I find that 20.4 per cent of a hundred in the cost of the carrying of a loaded car one mile, the percentage for maintenance of way or maintenance of equipment was 21.7. Maintenance of way and all expenses was 18.7, and in freight it is 20.4. Traffic was 2.2, transportation 49.2, and general expenses 6.5. That would represent 100 per cent. Dividing that into the loaded car mile, maintenance of way is 4.7 cents per loaded car miles, which is divided up in this way: Labour is 51.79 per cent of your maintenance

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of way and structural expenses; material, that is tools and other material necessary is 48.21 per cent or 1.27 cents per loaded car mile. So that you have an expense in 1990 miles of \$93.53 per loaded car mile. Maintenance of equipment, repairs to locomotives, roundhouse and shop expenses run per loaded car mile 1.4, while your car repairs equal per loaded car mile 3.6 cents, or a total for maintenance of equipment of 5 cents per loaded car mile. Your traffic expenses are .5 cents, that is, five-tenths of one cent. Coal is 3.5, while water—I have taken this calculation out and I find that it runs every year that much—the water expense is exactly year after year 4.5 of your fuel expense. So that that only runs to two-tenths of a cent. Wages for train men run 2.4 per loaded car mile, which of course includes the empty movement. Despatching, station employees and billing run to 3.3, while claims, auditing accounts, collections, taxes and sundries run to 1.5, making the cost of carrying a car from Lethbridge to Toronto of 23 cents per loaded car mile or \$457.70 which, divided by 46, about which I will have something to say, equals \$9.95 per ton cost, all cost. If you will multiply that cost by 50 you will arrive at a 50 car train. Two-thirds of the box car equipment of the Canadian Pacific Railway consist of 40-ton cars. In the interchange of traffic with the United States we are only permitted, under the rules of the Master Car Builders, the capacity of a car being based upon its axle diameter, to overload that car 10 per cent, or 44 tons in all. Under our specifications, however, having put a special bracing upon that car, we permit a loading of 46 tons to a car, and this calculation has been based upon using 46 tons to a car. But we are not going to get any such result, because the cars would be supplied to the coal trade in the same manner as they are supplied to the grain trade, that is there would be a certain percentage of 30-ton cars amongst them. If we are to shunt our 40-ton cars, we are going to increase our terminal expenses in the first place by sorting out that one type of car, and in the second place by placing them so that the cars would have to be supplied in about the ratio that they came in, that is, about one-third would be 30-ton cars and two-thirds would be 40-ton cars.

Something has been said about idle cars in the West. Perhaps the Committee are not seized of the exact circumstances in connection with those idle cars. You have to remember that the trend of traffic, that is of loaded traffic, is eastbound. The trend of empty cars therefore is naturally westbound, and the traffic that goes west is a concentrated traffic, in other words it is a more valuable traffic and a higher rated traffic. It does not have the same volume the eastbound traffic has. It is what is purchased in the way of merchandise and supplies generally for the west, and of course it does not produce car for car. All winter long, after the close of navigation, cars are drifting east all the time, and that movement does not stop; it does not even stop then. It stops to a large extent after navigation is open and wheat starts to go over the great lakes; consequently when navigation opens we find that our eastern lines have got a great many empty cars, while our western lines have not sustained their ratio of cars, and therefore traffic has dropped off.

These cars have all been tripped up to the West, and from the West to the East, and following that they have to be made ready for the movement of the wheat, and that must be done, because no car can travel 4,000 miles without being involved in considerable repairs. In the first place, we know that that car may be used in the transportation of grain. The chances are that she will be used for that purpose, and the car has got to be made absolutely water-tight.

[Mr. W. B. Lanigan.]

By Mr. Warner:

Q. I would like to ask a question right there, if you will permit me. Is it economical to use the wheat cars that have to be so tight—is it economical to use them in the drawing of coal?—A. Yes, sir.

Q. It is?—A. Oh, no, you are quite right. If we had a class of coal that would stand the open transportation, in open cars, the high-capacity dump car would be the most economical car in which to handle coal. There is no question about that, but you have got a certain percentage of coal to move, and that percentage varies very little from one year to the other. I can give you the exact percentage of coal in relation to other traffic that is carried over our line. When this movement takes place it may be carried a longer distance, but the percentage of the amount of coal that is shipped along our line has remained just where it was, with the exception that sometimes instead of using one ton, you would take a ton and a quarter. But I was saying that we have our cars then in the east. Those cars have got to be put in shape for a crop movement, we will say, the first of September, and in that interval they have to be collected all the way from St. John, New Brunswick, for a great many of them have gone down with grain for export, and all the way through the east where lumber has been distributed, we will say from British Columbia, or whatever commodities have been carried. Those empty cars are available on our eastern lines, and have first to be put into shape before they can be sent west, and the consequence is that a very large percentage will undergo repairs, and they are all subject to inspection and put into condition to carry any kind of merchandise, and are tested to see whether they are leak-proof both as to roof and construction, and they go through our shops—in the first place through our Angus shops, and the reason for that is that with the machinery and organization we have there, and the volume of business that we can do there, we can repair those cars and put them in shape in the Angus shops cheaper than we can anywhere else.

Q. Mr. Chairman, I think that what we are most interested in is to find out from the witness if it is possible for them to haul coal from Alberta at a rate that will compete with United States coal. I think we should confine our witness as much as possible to this phase of the transportation, and he says it is not economical to draw coal in cars that have to be tight and kept in good repair for other work.

The ACTING CHAIRMAN: I do not think he said that.

By Mr. Garland:

Q. I would like to pursue this for just a few moments.—A. Perhaps I have been a little long-winded, but if you will allow me, I will conclude in a minute. There was something said that every car would be available in the west for this traffic. If you look over a statement that I filed with the Board of Railway Commissioners, you will find that in May the minimum number of empty cars is in the west, because they are returned as they fill up westbound trains.

By Mr. Garland:

Q. The impression has been that you have this equipment idle during this period of the year; that is the point—not where the cars are.—A. No, but they are not idle, as I will show you. It is absolutely necessary, as far as our traffic is concerned, to accumulate on the western lines, by the 15th of August, either by returning empties or loads that have been made empty in the west, in order to move the crop. We have to have twenty to twenty-two thousand empty cars by the 15th day of August, and those cars have to be distributed over a territory that is 840 miles long and 351 miles broad. That is the territory in which you have to distribute those cars so as to be available for the first rush of the grain crop. All of those cars will make a 4,000-mile trip.

[Mr. W. B. Lanigan.]

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We have to look at that point of the case. How many of those cars will make the 4,000-mile trip involved without having another cleaning out, another test, and other repairs made, and be back so as not to handicap the movement of that crop?

Q. I have cleaned out a large number of cars myself in my own graining, and been glad to get them.—A. Possibly, but there has been no car shortage that I know of on either the Canadian Pacific or the Canadian National for some years back. There might be a temporary shortage, of course. The point I am making is this, that I am very doubtful, if you started any large number of those cars eastbound with coal, that you would have them back in time and repaired so that we could move the crop. I am very doubtful of that, and do not imagine that I am at all unsympathetic, because we are coal producers ourselves, as well as a transportation company, and we are just as anxious to sell our coal and increase our output in Lethbridge as any man would be in Drumheller. You were speaking about carrying this coal in open cars. There is no question that Alberta coal is suitable domestic coal. I lived in the west for twenty years and I found it satisfactory. Although I burned a little more, and stoked a little more than I might with the anthracite, it cost me a good deal less. I am not speaking of the bituminous coal in the mountains, but the domestic coal on the plains, and the latter is to me a satisfactory domestic fuel. I will say this, that it contains various moisture content. At Lethbridge it is 8.4 per cent, and as high in some of those mines as 28 per cent. I do not think, where the high moisture content comes, that any body would contemplate shipping that coal any long distance, and I do find that it has an "air dry" from 3 to 7 per cent. I found that out at my own expense.

Q. May I submit, Mr. Chairman, that the witness is here to give evidence.

—A. That is why I say this coal cannot be shipped in open cars. This gentleman (Mr. Warner) asked me the question.

By Mr. Warner:

Q. You said that it was economical to carry it that way?—A. I said this coal could not be carried in open cars.

By Mr. Garland:

Q. All these figures, I think you stated, were based on past experience?—

A. Yes, on the 1922 experience.

Q. Did you in your calculation—of course, I hardly think you did—take into consideration the possible increase in volume?—A. This is not all on the question of coal traffic.

Q. Are the figures based at all on the possible increase in tonnage?—A. No, because that is something, Mr. Garland, that you and I cannot foresee.

Q. The rate quoted to-day as cost is \$9.90. The rate quoted yesterday by the Canadian National was \$9, which might provide a slight profit. Could you give the Committee an idea as to how they arrived at that rate?—A. Oh, yes, I think they took out their overhead expense entirely, 78 per cent of their maintenance expense, and they threw out some other things, and arrived at an out-of-pocket expense of \$8.91.

Q. You could do the same, could you?—A. We could, yes. We could do anything. We could carry it for nothing.

Q. You heard Sir Henry Thornton's opinion?—A. Yes, but after all, I do not know that anybody has questioned very successfully any of the cost figures that I have laid down before the Board of Railway Commissioners, and I was subjected to a much more severe cross-examination than I could possibly be here.

[Mr. W. B. Lanigan.]

Q. Is there any difference between the cost of hauling your commodities in the wintertime as compared with the summertime?—A. Well, there is a difference in some years, and some years there is not.

Q. Would it be cheaper to haul in the summer?—A. Naturally, in the summertime.

Q. Could you give us any idea of the percentage of difference?—A. I could not. You must remember this. You cannot get away from it. For instance, we have lost this year, from flood expenses alone, which would have to be put in somewhere in your process of book-keeping, very much more money and we have had very much more damage, than all the snow expense and damage of last year—ten times as much.

Q. There would be exceptional circumstances?—A. Yes. Those things occur from year to year, and the only proper figure that is available is a year's experience on your traffic.

Q. That is not to be gained in the winter traffic?—A. Of course, but it does not cost you any more or any less to haul coal than it does to haul wheat.

Q. Has the Canadian Pacific ever hauled commodities below the present cost of the haul?—A. Oh, yes.

Q. Can you give us a few examples?—A. We hauled settlers' effects at about one-third of the car mile cost.

By Mr. O'Connor:

Q. Give the reason.—A. And we carry for instance the cordwood and slab wood for less than cost, and I do not know, but if we carried building material a long distance, we would carry that at less than cost.

By Mr. Garland:

Q. Why, Mr. Chairman, can the witness deliver those things at less than cost?—A. The Canadian Pacific started out not only as a transportation company, but as a large land owning company—probably the largest in the world.

By Mr. O'Connor:

Q. A nation builder?—A. Well, you can hand out euphonic phrases if you like, but it does not alter the facts at all. The Canadian Pacific Railway has not shown any lack of patriotism. We have tried to do business on good sound business principles, and that is the only way I know how to do business.

By Mr. Garland:

Q. But this reason for the carriage of those goods below cost—A. I would prefer to tell the reason myself. I dare say you can tell it better, but you will not tell it exactly as I know it. In order to make that land an asset to the Company, we had to show to the prospective settler on those lands that he could settle on those lands on a basis that would be profitable to himself, and you have got to consider what kind of a country we had. In the first place, the potentialities of a settler are such that you could well afford to make some allowance, because he only goes one way, and we hope that he will not go any other way. You have made a loss in carrying their effects and building materials, cordwood, and so on, but you have made an investment in the potentiality of that settler turning up that soil and furnishing traffic to your rails, and the loss that you took was made right at the start.

Q. You get him later on?—A. Yes, we are doing business with him afterwards, and that is why we put him there. As far as our load is concerned, we are doing business for the same customers year in and year out. It is not like the passenger business, where a passenger gets on the train and gets off, and you never see him again.

[Mr. W. B. Lanigan.]

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By Mr. Warner:

Q. Just right there I want to ask the witness if the railroad company ever went far enough in their calculations on this line, to calculate how much relief it would be to Canada to keep the amount of money in Canada, to build up Canada and prevent it from being sent over to the United States now.—A. It is a very desirable thing, but I do not think we can do it. You are importing 1,646,000 tons of American coal.

By Mr. O'Connor:

Q. Thirteen millions?—A. I am speaking of anthracite. I do not think you can stop the importation of American bituminous, which is practically within a radii of 400 miles from Toronto, and from New Brunswick at a distance of 841, and from Nova Scotia at a still shorter distance, and all our bituminous coals are more or less of the same quality, although I consider that Alberta coal is better bituminous coal than the United States, but that does not make any difference. As I said before, we put the settlers there and we made a loss at the start. Then we set them on a treeless plain, except around the waterways, and the wood we shipped to them was the first wood that was available to them. We also started a sawmill in the mountains, and we made rates for the cartage of the refuse and the cartage of the cordwood at a great deal less than cost, because when they started out those people were there without the coal that subsequently came, and with a climate where they had to heat themselves, and it was quite a long distance in central Saskatchewan to go for the cordwood. Consequently I can well remember Sir William Van Horne laying down the principle on which we have worked ever since. Our carriage of slab wood amounts to less—I have the exact figure somewhere, but I do not think it would help this Committee—amounts to-day to less than one-quarter of 1 per cent of our western traffic, and besides that our average haul to-day on that commodity is less than 60 miles, so that while we are still carrying out the tenets that the old gentleman laid down as the proper thing on account of that settlement, the people are there and we still carry it out; but if we undertook to do that traffic at an average longer haul than 60 miles all over Canada, we would go into bankruptcy.

Q. You do not believe there is any difference between the requirements of central Canada and the requirements of central Saskatchewan.—A. I do not see any parallel.

By the Acting Chairman:

Q. You have given us the actual cost per mile per ton?—A. Per loaded car.

Q. Twenty-two cents?—A. Yes.

Q. And from that you have based your rate of \$9.90?—A. I have based the cost.

Q. You have also stated that it costs as much to carry a car of coal as it costs to carry a car of wheat. Why is the wheat rate greater, or the merchandise rate greater? You are figuring this upon the average earnings per ton mile, your average costs mile, of all commodities?—A. Yes.

Q. And you argue that you should get the same rate based on the average cost of all mileage?—A. Yes. It does not make any difference what is in the car.

Q. Why do you charge a four or five times higher rate for certain commodities than others? If your calculation is correct in this respect, it must be absolutely wrong in some other respects.—A. No, not as a matter of cost, because if you take the average loading of other commodities—for instance, you take the average of westbound tinware, where the rate from Toronto to Calgary is \$2, as against the eastbound rate of 73½ cents on grain, you find that

[Mr. W. B. Lanigan.]

that \$2 rate only produces an average loading of about 16,000 lbs. and a minimum of 20,000 lbs.

Q. You charged the minimum of 20,000 pounds on carload lots?—A. On carload lots, and the rate is \$2, and that is westbound traffic.

By Mr. O'Connor:

Q. If you have 2,000,000 tons of any traffic running east from Alberta into Ontario added to your business, for instance your figure for coal, \$9.90, and every other figure that you gave this morning, would be thrown out of gear?—A. No, no. Naturally, if you can increase the density of your traffic by any percentage, you will reduce a great many of your costs. Your labour cost will remain just exactly the same.

Q. It will unmistakably make every percentage that you gave this morning wrong on the new total.—A. It will not.

Q. Then it will make a new average?—A. If you increase your traffic, you would certainly decrease your overhead expenses to a considerable extent.

Q. It would make a new average?—A. A new average, certainly, but you are asking me to do something I do not know anything about, nor you do not. You start with an "if." As a practical man, I cannot start with any "ifs." If I valued the position I occupy, and I started doing business with "ifs," I would not be freight traffic manager very long.

Q. These gentlemen are asking you to look to the future, and you refuse, and you persist in looking to the past?—A. I have not refused to look to the future.

Q. I suggest that since we are talking straight to one another, that when they ask you to look to the future, and asking your assistance, because that is what they are asking—I suggest it is up to you to take into consideration the expected two million tonnage, and say what you think the average rate would be under the altered conditions. A. It would change some figures. How much that would be I do not know.

By Mr. Kennedy:

Q. Don't you think you are starting with an "if" as far as the grain crop is concerned? There might be a failure.—A. You would be surprised to hear how satisfactory the grain traffic is from year to year.

By Mr. Warner:

Q. The coal shipments would not vary unless there would be less demand, or that miners went out on strike, or something of that nature, but the seasons do fail to produce a grain crop at times.—A. I am just Christian enough to know that seed time and harvest is not going to fail year in and year out, and the product of the soil is a pretty sure thing to base your calculations on, but, remember, gentlemen, every ton of coal that you take out of a mine is one ton less in the mine.

Q. A good many people in the West feel there is only one thing to do, and that is to go out of business, unless there is some relief.—A. There are, of course, in every country, a certain number of very pessimistic individuals, but I do notice this, and I know hundreds of them scattered from Alberta to Manitoba, because I lived in that country for twenty years, and the potentialities are just as good to-day as they were twenty years ago—I know hundreds of prosperous men who have gone out there, who had not a dollar in the East, who have become prosperous there, but I do not find them saying very much. The country is all right. There is not a question about it.

By the Chairman:

Q. Some time ago you gave reasons why you carried settlers' effects and various wood for fuel purposes, and you said that if the Canadian Pacific can

APPENDIX No. 6

by these methods induce settlers to go into that western country, and if by this means you can keep them in there, I think the Committee would like you to answer this question if you can. If by giving a rate which perhaps would not be very profitable to you, you could build up the miner in the West, and solve to a certain degree the coal shortage of the East, do you think your company would be justified in giving such rate?—A. Of course, whenever we have made rates that are obviously less than cost, those instructions have come to me from my executive. In my position I am just like a salesman of any commercial organization, who might be told by his superior officer that he can go out and sell a certain line of goods for less than cost, but as I say, I have to have those instructions from my superior.

By Mr. Spence:

Q. That would mean the policy of the line?—A. That would mean a question for the executive to consider in every way.

By Mr. O'Connor:

Q. Could you work out with any degree of probability the probable effect of 2,000,000 tons of new traffic on a very long haul, such as you suggested, and assuming that you were paid the rate that you named as the present average, \$9.90, assuming all that, what effect would it have on the percentages you gave, that is, supposing that you could strike an average? You could work it out?—A. In the first place if you carried 165,611 under the present importation of anthracite into Ontario and Quebec, to replace them it would take 53,000 cars, during those two or three months of the year, or whatever period you like, to carry that business. That business would not all be C.P.R. business by any means. It would be divided between the two roads.

By the Chairman:

Q. The figures you have given are for the past season?—A. They are for the past season. It was, as far as tonnage was concerned, the largest we ever had of general tonnage.

By Mr. O'Connor:

Q. After you have answered my question, you can give that to us. If you had proceeded in this way twenty years ago the C.P.R. would not be the prosperous institution it is; if twenty years ago you had hesitated to buy that many cars, your Company would not be the prosperous company it is to-day.

By Mr. Garland:

Q. A man should look into the future, I think.—A. On the other hand, he is a good deal of a d— fool if he goes to work and spends money for cars for traffic which may not materialize. You must remember that every new box car we add to our equipment costs us \$4,500 in cash paid out, on which interest has to be paid. Before I would recommend that to our company—buy 25,000 new cars on the prospect of this traffic materializing, I would have to go very much deeper before I would jeopardize my position and reputation.

Q. But when the Committee is asking you to give a figure upon a supposition without buying the cars, that is a different question?—A. I am dealing entirely with facts. We carried the largest tonnage last year we carried for a great many years, and our cost was proportionately reduced. We reduced our cost from 21½ to 18.6 on each car, which was a very material reduction, owing to the volume of traffic. It was the largest crop year we ever had, not even excepting the year 1915, that is, so far as tonnage was concerned. Taking my figures, suppose we had two million tons more to carry—of course we would not have, even under the most optimistic calculation that amount—and that

we had a reduction in our grain traffic, we would be just where we were before, in regard to the density of traffic.

By Mr. O'Connor:

Q. The question can be answered, having regard to future assumptions. I am asking you could you do it upon last year's business?—A. Why guess?

Q. Every time you make arrangements for next year you guess.—A. I guess just as much as every other business man guesses, and very frequently my guess is wrong. It is on exactly the same basis as every business man takes, with the same risk. But I am not going to go to work and ask our company to spend on superstructures or under-structures a large amount of money, and then to buy 325 per cent engines, and spend \$100,000 apiece for them, to buy these open dump cars at \$7,500 apiece that will carry 100 tons, and go into this investment under these terms and conditions. You had better speak to somebody else about that. I certainly will not take any such chance with my business reputation.

Q. I have not asked you to buy even a hand-car, let alone the cars you mention.—A. Our grain traffic increased over 1921 on western lines practically 2,000,000 tons, which produced a difference in our operations of about 3 cents—I am speaking very roughly—about 3 cents or a little less than 3 cents per loaded car mile. That 2,000,000 tons of additional density practically created that difference because, as far as labour conditions and as far as material conditions were concerned, they were not very different. As far as the percentage paid to labour was concerned, that was not very different in 1922 to 1921. The additional density of tonnage, the employment, created that reduction.

Q. Of about three points?—A. In the loaded car mile.

By the Chairman:

Q. About 12½ per cent?—A. I can give it to you exactly. It was 2.9.

By Mr. O'Connor:

Q. 2.9 per loaded car mile, that would be between 11 and 12 per cent?—A. As against 23 and 22, it would make 21.

Q. All calculations for next year by rate men are guesses?—A. You bet they are.

By Mr. Logan:

Q. Do you mine for commercial purposes or for home consumption?—A. Almost entirely for commercial purposes. Our Lethbridge mine is the only one; 99 per cent of it is consumed.

By the Chairman:

Q. Is it steam coal?—A. No.

By Mr. Logan:

Q. Would it pay to bring that coal as far as Toronto for your own consumption?—A. No.

By the Chairman:

Q. It is not a steaming coal?—A. This is perhaps the best evidence. We have two sources of supply for our steam coal purposes, that is what is brought in from the United States across the lakes at about a rate of thirty cents a ton westbound, westbound ships going up and landing at Fort William. It costs us approximately an average of \$5.50. Our western coal runs us at the mouth of the pit from \$4.50 to \$5. I am speaking generally, not in exact figures. As far as the economic use of these two coals, which are practically the same class, is concerned, there is this difference. Broadview is the point where we

APPENDIX No. 6

can use American coal brought up via Fort William; that is the limit where we can use it profitably. It is also the limit where we can use the Mountain coal profitably, that is, from a strictly dollars and cents standpoint. There is another factor whereby we use Western coal as far as Brandon, and use American coal up to Winnipeg and west-bound to Brandon. The thing is this, that of all the production of Alberta coal one-third of it is used to-day by the railways. We feel that it pays us to keep a bituminous coal mine on our line, working to the extent which we can contribute towards it profitably. While Broadview would be the point where we would have to stop, we can go a little farther, because this is an industry on our tracks. But of course we could not take it beyond Brandon without increasing our costs to an extent which would not be justified.

By Mr. Warner:

Q. I would like to ask you one more question. It is public knowledge that there has been a calculation made that the utmost freight rate that could be paid on coal from Alberta to Eastern Canada here would be \$6 a ton. We are not asking the railway companies to do what they cannot afford to do, but do I understand you to say that upon considering all new methods of carrying this coal that are likely for them to undertake, and using every method possible to meet this new situation, do you think it is impossible to meet that and to carry coal at that price? Mind you, we are not asking the railway companies to do something they cannot do, but I would like to know whether your company has made an effort to figure on some new methods and some different way to what they have been handling that freight, to meet that situation and to allow that coal to come here, not at a loss to the railway companies, but in view of the benefit that would accrue from using our own coal in Canada and supplying the people against a need that might arise at some time, of having to go without coal and so on; all of these are possibilities. I would like to know whether you have gone into it seriously and figured on that \$6 rate?—A. As a railway company and as a transportation company you may rest assured, Mr. Warner, that we have given it the most serious thought.

By Mr. Garland:

Q. Does the C.P.R. haul wood from Winnipeg to Calgary, or from Calgary to Winnipeg?—A. To a very small extent. Slabs used to come down from a little mill above Calgary.

Q. Do you haul from Regina and Saskatoon?—A. We might, but I do not think we carry very much.

Mr. GARLAND: Mr. Chairman, I would like to file this document, which is attested by the Board of Railway Commissioners for Canada. It is the C.P.R. fuel Order.

(Document placed on file and printed as an appendix hereto.)

The CHAIRMAN: Any further questions of this witness?

Mr. WARNER: I do not think all of my question has been answered, Mr. Chairman.

The CHAIRMAN: You may not have heard him; he said it was a matter of his policy as the head of a railway company.

By Mr. Warner:

Q. Do you feel that it is possible to meet this rate?—A. The \$6 rate?

Q. Yes.—A. It is absolutely impossible.

Q. You think it is impossible?—A. I think it is absolutely impossible. I do not think we ought to be asked, except for some exceptional purpose, to

carry any traffic at less than what it costs us to carry it, or what it costs us to do business, or even at cost as far as that is concerned. I have not dealt with Mr. Butler's calculations, but if you will allow me to say so, I have looked into that question. In the first place, that road was built by the late H. H. Rogers, of the Standard Oil Company. Mr. Rogers was a very wealthy man, but he came pretty nearly going broke even at that. He gave an order, regardless of everything, to build a railway from those Virginia mines to tide water, that would carry the maximum amount of freight with the maximum loading of cars and in the maximum of trains, all practically in one direction. He had on his line there some 700 odd coal mines. I have the whole record of it here somewhere. His road consisted altogether of 526 miles of railway, on which are situated 107 coal mines. That road carried in 1921 (which is the latest record) 4,387,177 revenue tons one mile per mile of railway. The C.P.R. for the same year carried 818,743 revenue tons one mile per mile of railway, which was the highest in Canada. Its average earnings were \$12.31, the average earnings of the Canadian Pacific Railway for the same year amounted to \$6.21. Its loaded direction is all down grade, operating with the maximum of loaded cars in maximum trains at an operating ratio of 68.83 on the dollar. The operating ratio of the C.P.R. was 80.55. The Virginia Railway extends from Deepwater, West Virginia, to Sewall's Point, a coal road pure and simple. Here are his actual words: "I want a road from the Virginia coal fields to the sea. It must be a road on which the modern locomotive can handle eighty 50-ton carloads of coal from the mines to the seaboard without breaking up the train, and the eastbound grade must not exceed ten feet to the mile." The work was executed by an engineer, and daringly executed, the only exception being a stretch of eleven miles where the eastbound grade is over 100 feet to the mile, on which by far the largest locomotive in the world raises an eighty ton car entirely over the crest of the line. The whole coal territory is being tapped, and if the Virginia Railway hauls 10,000,000 tons of the mines product annually it can operate 400 years before exhausting its freight supply.

The absurdity of comparing that condition with the conditions that exist in Canada must be obvious. I read of course some of Mr. Butler's evidence, and it sounds all right, it listens all right, but I noticed that in his statement of the haul to Fort William, a rail haul, he allowed the railway a great deal less per ton per mile earning power than he allowed a boat from Fort William to the Bay ports, and then he suggested—and I am going to deal with this very shortly—that coal handling plants should be erected at Welland, Sarnia and some other points. Well, our plant at Fort William, which is of the latest type of coal dockage of course, cost us \$1,408,999.60. It was built before the war, and of course those prices would be easily doubled to-day.

It seems to me that all of Mr. Butler's calculations based upon buying coal cars that would handle 100 tons at a cost of \$7,500, plus locomotives at \$100,000 apiece, putting up coal plants at a cost of \$2,000,000 or \$3,000,000 apiece, would pretty nearly eat up all the velvet there is in that traffic, and leave a deficit which I amongst others would have to meet, as we are meeting it to-day. I do not think Mr. Butler is absolutely carried away, but he is impractical.

By the Chairman:

Q. Have you anything further to add, Mr. Lanigan?—A. Nothing further, Mr. Chairman.

The CHAIRMAN: All right. We will adjourn until 11 o'clock to-morrow morning. We are to have two witnesses from the eastern part of Canada appear before us.

(Committee adjourned until Thursday, May 17th, 1923, at 11 a.m.)

[Mr. W. B. Lanigan.]

APPENDIX No. 6

THE BOARD OF RAILWAY COMMISSIONERS FOR CANADA

I, RICHARD RICHARDSON, of the City of Ottawa, in the County of Carleton, and the Province of Ontario, Assistant Secretary and Registrar of the Board of Railway Commissioners for Canada, pursuant to the provisions of Sections 24 and 68 of the Railway Act, 1919, Do HEREBY CERTIFY that the document hereto attached and marked "A" is a true and correct copy of Item 125 of the Canadian Pacific Railway Company's Tariff C. R. C. No. W-2657, on file with the Board.

IN WITNESS WHEREOF I have hereunto set my hand and affixed the official seal of the Board of Railway Commissioners for Canada at Ottawa this fourteenth day of May, A. D. 1923.

R. Richardson
 Assistant Secretary and Registrar,
 Board of Railway Commissioners for Canada.

| Description | Per 100 bushels Grain in cars | | Distances | Per 100 bushels Grain in cars | | Distances | Per 100 bushels Grain in cars | |
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LOUISIANA COMMISSIONERS—Continued
 LLEW 122 ON CANADIAN RAILWAY TARIFF C.R.C. NO. W-2657

ITEM 125 OF CANADIAN PACIFIC RAILWAY TARIFF C.R.C. No. W-2657

FOREST PRODUCTS—Continued

| Fuel Wood (not exceeding 4 feet in length) | MINIMUM WEIGHT |
|--|----------------|
| Fuel wood except rough sawmill slabs: | Pounds |
| Cars under 36 feet in length..... | 35,000 |
| Cars 36 feet and over in length..... | 40,000 |
| Rough Sawmill Slabs: | |
| Cars 36 feet and under in length..... | 30,000 |
| Cars over 36 feet in length..... | 35,000 |
| Sawdust and Shavings..... | 30,000 |

Table of weights to be used when actual weight cannot be ascertained by weighing on track scales.

| | DRY Pounds per cord | GREEN Pounds per cord |
|-----------------|---------------------|-----------------------|
| Alder..... | 2,500 | 4,000 |
| Ash..... | 3,000 | 4,500 |
| Basswood..... | 2,500 | 3,800 |
| Birch..... | 3,000 | 4,000 |
| Elm..... | 3,500 | 5,000 |
| Fir..... | 2,625 | 5,250 |
| Oak..... | 3,500 | 5,000 |
| Pine..... | 2,500 | 5,000 |
| Poplar..... | 2,500 | 4,000 |
| Soft Maple..... | 3,000 | 4,000 |
| Spruce..... | 3,000 | 4,000 |
| Tamarac..... | 3,000 | 4,000 |

See Pages 5 and 6 for application of rates.

| Distances | Pacific Group A | Pacific Group B | Distances | Pacific Group A | Pacific Group B | Distances | Pacific Group A | Pacific Group B | Distances | Pacific Group A | Pacific Group B |
|-----------|-------------------------------|-----------------|-----------|-------------------------------|-----------------|------------|-------------------------------|-----------------|------------|-------------------------------|-----------------|
| | Rates in cents per 100 pounds | | | Rates in cents per 100 pounds | | | Rates in cents per 100 pounds | | | Rates in cents per 100 pounds | |
| Miles | | | Miles | | | Miles | | | Miles | | |
| 10..... | 2½ | 3 | 300..... | 7½ | 9 | 700..... | 12½ | 13½ | 1,100..... | | 18 |
| 25..... | 3 | 3½ | 350..... | 8 | 9½ | 750..... | 13 | 14 | 1,150..... | | 18½ |
| 50..... | 4 | 4½ | 400..... | 9 | 10 | 800..... | 14 | 14½ | 1,200..... | | 19 |
| 75..... | 4½ | 5½ | 450..... | 9½ | 11 | 850..... | | 15 | 1,250..... | | 19½ |
| 100..... | 5 | 6½ | 500..... | 10 | 11½ | 900..... | | 15½ | 1,300..... | | 20 |
| 150..... | 5½ | 7 | 550..... | 10½ | 12 | 950..... | | 16 | 1,350..... | | 20½ |
| 200..... | 6½ | 8 | 600..... | 11½ | 12½ | 1,000..... | | 16½ | 1,400..... | | 21 |
| 250..... | 7 | 8½ | 650..... | 12 | 13 | 1,050..... | | 17 | | | |

When rates are not shown for the exact distance, use the rates given for the next greater distance.

HOUSE OF COMMONS,

COMMITTEE ROOM 436,

THURSDAY, May 17, 1923.

The Select Standing Committee on Mines and Minerals met at 11 a.m., the Chairman, Mr. Carroll, presiding.

The CHAIRMAN: Gentlemen, we may as well proceed. I wish to advise the Committee that we have received from Mr. D. Chisholm, the Property Commissioner of the City of Toronto, certain information which he did not have when he gave evidence here, and I will ask that it be made part of the record. It shows the cost of taking in 11,000 tons of Welsh coal to the City of Toronto. Then we have Mr. McEachern of the Dominion Coal Company here to give evidence before the Committee.

Mr. Chisholm's letter reads in this way:

"TORONTO, May 13th, 1923.

JOHN T. DUN, Esq.,

Clerk of the Select Committee re Mines and Minerals.
Ottawa, Ontario.

Dear Sir,—In reply to your letter of May 9th, I beg to say that the City purchased approximately 11,567 net tons Welsh coal, in two separate shipments, the first cargo costing \$12.72 per long ton, or \$11.35 short ton, c.i.f. Montreal, and the second \$12.00 per long ton or \$10.71 short ton, c.i.f. Montreal. This fuel, as will be noted, was purchased on a Montreal basis, the City of Toronto arranging transportation from Montreal to Toronto. The movement of this coal (on both shipments) entailed unloading at Montreal from the ocean boats to smaller vessels, which carried tonnage to Toronto, as follows:—

| | | | |
|----------------------|--------|-------------------------|---|
| Mapleheath | 2,450 | net tons, (approximate) | |
| Morrow | 1,900 | " " | " |
| Cataract | 867 | " " | " |
| Mapleton | 2,000 | " " | " |
| Maplehill | 2,100 | " " | " |
| Hamilton | 1,500 | " " | " |
| Advance | 750 | " " | " |
| Total | 11,567 | " " | " |

The handling charge on the first cargo from Montreal to Toronto was at the rate of \$1.75 per net ton, which included unloading at Montreal, wharfage and harbour dues, insurance, and transporting to Toronto. The second cargo cost \$2.75 per ton, and although the figure is higher than in respect to first shipment, it was the best obtainable from Steamship Agents at that time.

The cost of unloading at Toronto dock was approximately 50c per net ton.

With regard to Welsh coal competing with American anthracite, I do not think there would be any question as to the quality of Welsh anthracite, as the analysis taken for the Department showed the Welsh coal which we received to be somewhat superior to American anthracite. Of course, the cost of the coal would no doubt be the governing feature, and the Department has not been in close touch with the Welsh market

during the past few months, consequently I have no figures before me to show the existing rates and costs.

I trust that this information will meet your requirements, but if anything further is desired, do not hesitate to write me, and I will be glad to comply.

Yours truly,

D. CHISHOLM,
Commissioner."

ALEXANDER McEACHERN, called and sworn.

By the Chairman:

Q. Mr. McEachern, what is your occupation?—A. At present I am chief inspector of Mines for the Dominion Coal Mines and the Nova Scotia Steel Mills Company.

Q. Is that the British Empire Steel Corporation?—A. Yes.

Q. How long have you occupied that position?—A. About two years, I think.

Q. And previous to that?—A. I have occupied nearly every position in the way of operating. I have been mine manager, superintendent, assistant general superintendent, and almost everything else.

Q. Have you worked your way up from an ordinary miner?—A. From an ordinary mine boy.

Q. I presume you have some knowledge of the coal fields of Nova Scotia?—A. Yes. I have some notes here. I may say that I have a general knowledge of the Nova Scotia coal fields, from reading, and a practical knowledge of many of them gained by following mining.

Q. Have you any statement to make as to the fields, their extent?—A. There is said to be four basins in Cape Breton County; the coal was originally supposed to be in four basins, although a Mr. Brown over sixty years ago gave it as his opinion that the land area was only the segment of a very large basin extending out towards the coast of Newfoundland. I may say that his contentions at that time have been more than confirmed as the properties have been developed. These basins are known as the Lingan Victoria, Glace Bay, The Sydney Mines and Bras D'or, and the Morien Basins, Cow Bay as it was originally known. Recent exploration, however, has led to the opinion that the first three are a part of one great basin, which after devious foldings and corrugations gives an appearance of being separate basins coming together under the sea and forming one large basin, which extends far out under the bed of the ocean. Sections of the coal measures in the Glace Bay, the Lingan Victoria and the Sydney Mines Districts have been co-related, and it can now be stated that the same seams are being worked in the different districts although separated by the waters of the Sydney Harbour and Lingan Bay. To the average person, that is hard to understand.

Mr. LAPIERRE: Could all these technical details not be given to the stenographer?

The CHAIRMAN: I suppose they could.

Mr. LAPIERRE: Technical information has been given to us in several instances already, and it has not helped us any. All we are trying to get at is how to get cheap coal in the central part of Canada.

Mr. O'CONNOR: Mr. Chairman, even with the little knowledge I have of the situation, I think this is of absorbing interest, for this reason, that anyone

[Mr. A. McEachern.]

wanting to put a dollar into coal, if you give him this information now you may hasten the day when cheap coal will arrive.

Mr. LAPIERRE: I have no objection to it going into the record. It will save time to do it that way.

The CHAIRMAN: Time is of no value to us.

WITNESS: My only reason for giving this evidence is, that I cannot intelligently describe the coal fields unless I go into some details. I know of no other manner of getting at these particulars.

By the Chairman:

Q. Have you a map or plan, Mr. McEachern, to show what you mean exactly?—A. Yes, sir. I have here a plan showing these four basins. Anybody who will follow me can see the windings and twistings of the coal basins. I am pointing to the collieries, the Sydney Mines, Campbell Mountain, Cape Dalton and over to Cape Morrow. I merely want to make myself clear.

Q. You had better follow on with your general statement.—A. I am afraid you will have to ask me some questions.

Q. Do you know what the present output of coal is? I suppose you are talking entirely from the viewpoint of the Dominion Coal Company?—A. Well, I included the four districts. Generally speaking it is of the Glace Bay field. I included the Cumberland output, the Pictou section, and Glace Bay.

Q. Those are all mines operated by the British Empire Corporation?—A. They are all operated by the British Empire Steel Corporation.

Q. What is that output?—A. I will read this, if you have no objection. I think the output can be increased. With a sufficient number of suitable men, a steady market at a price to warrant legitimate profits, I can see no great reason why the output cannot be greatly increased. But to hasten the rate of output would be very costly. That is due to the fact that the great bed of coal lying under the sea can only be reached from certain points on land. These points must be favourable to the opening up of new collieries that will reach as far as possible under the water, to extract all the coal possible. Small collieries cannot do this, as they are very limited in their outputs and extensions. Large collieries must be put down and operated on a large scale, while everything about them must be of the most permanent nature. To open up and equip such collieries entails a large initial expenditure. Underground railways would have to be so constructed that they must last the life of the mine, no matter how long that may be. Airways, haulage-roads and other main ways must also be of a permanent nature.

Q. The question I first asked you was, the present output of the Dominion Collieries.—A. I will come to that, Mr. Chairman.

Q. Perhaps you had better go ahead and make your statement.—A. The question I have asked myself is this: How long do you think the undersea coal will last? I have asked the question of myself in order to bring this out. I have asked, how long do you think the undersea seams will last? I say that I am unable to say how long these collieries will last, not knowing what new methods of mining will be discovered in the course of coming years; but from what I know of undersea mining in England it can be stated that coal has been won from a distance of from 5 to 6 miles. The use of electricity in the coal mines will no doubt add to the distance from which coal can be extracted and hauled, as it is more profitable than other powers now in use, such as steam and compressed air. The loss in transmission is not so great. Of course I am not forgetting the danger of electricity in coal mines, but properly handled this can now be reduced to a minimum. The limiting factors will be transportation, ventilation, strata pressure, and mine costs. It looks as if the latter would form a prime factor in limiting the life of undersea mining.

[Mr. A. McEachern.]

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Q. How many collieries have you working under the sea?—A. Fourteen Dominion and Scotia are being worked under the ocean, and five others are projected over a straight line of 20 miles. That will give each colliery a two-mile section, which is large enough for profitable mining.

Q. Are those the only small workable seams in those coal pits?—A. There are a number of small workable seams, some of which have been worked in the past, and others are now being worked. It might seem feasible at first glance to say that more of these small seams could be mined, seeing that they have not been exhausted on land as some of the thicker seams. But this cannot be done at the present time. The reason is that the large seams now being worked are among the best, and can only compete in the market against the American coal, which is of good quality. Both of these coals have created a demand for high grade fuel. Few of the small seams are up to the standard of the thicker seams, and at present we are mining just sufficient of this less superior coal to sell it without interfering with the demands of the market. This tends to limit the output for the province, as 85 per cent of the Nova Scotia coal is drawn from undersea areas, thus producing the best grades of coal.

Q. What are the possibilities of increasing the output, could you double it or treble it?—A. With a sufficient number of suitable men?

Mr. O'CONNOR: From his Company's standpoint?

The CHAIRMAN: Yes, from his Company's standpoint.

By the Chairman:

Q. You are talking entirely from the Dominion Coal Company's standpoint?—A. No, sir. I came here as an independent witness.

Q. But we are talking about the output; we have an idea of what the output of the Dominion Coal Company is now. That takes in the collieries operated by the British Empire Steel Corporation?—A. Yes.

By Mr. Logan:

Q. What is the present total output of Nova Scotia?—A. I know in the past it used to be seven millions. I think it is about 3,500,000. The maximum for the Dominion Coal Company was nearly 5,000,000 tons. That was the maximum.

Q. Let us get that down. What year was that?—A. That was 1913.

Q. In 1913 the Dominion Coal Company produced nearly 5,000,000 tons of coal?—A. Nearly 5,000,000 tons.

By the Chairman:

Q. You do not include the Nova Scotia Company?—A. No.

Q. Or Spring Hill?—A. No.

Q. Or the Acadia?—A. No.

Q. Which are all part of the Dominion Coal Company?—A. Yes.

Q. Can you give us the present output of all these mines operated by the British Empire Steel Corporation?—A. I am afraid I overlooked that part of it.

Q. Approximately six and a quarter million tons, is it not?—A. I suppose so. I can get that later for you, if you like.

Mr. KNOX: Point out on the lower map on the wall where these mines are located.

By Mr. Logan:

Q. Will you point out where the Cape Breton coal field is?—A. This map is very small. I will never be able to point out what you want.

[Mr. A. McEachern.]

Q. What is the distance in mileage?—A. It is between 32 and 35 miles.

The CHAIRMAN: We want it from a geographical standpoint.

Mr. KNOX: That is the nearest we have had to actually getting at where these mines are located.

Mr. LOGAN: I think I can point them out. I point out on this map the Inverness coal fields, the Pictou County, the Acadia, the Drummond and the Cumberland. Those are on Cape Breton Island. When we go to New Brunswick, there is a field called the Minto field. I might say that the carboniferous are all there in the Maritime Provinces.

By the Chairman:

Q. What are the possibilities for a very large increase in output?—A. With a sufficient number of suitable men, a steady market, and a reasonable profit that would warrant the initial expenditure necessary to equip a sufficient number of new collieries to take care of the increased output, I think probably ten million tons could be taken from the properties owned by the British Empire Steel Corporation alone. That includes Cumberland, Springhill, Acadia, Pictou, and Scotia Sydney mines and Cape Breton, Morien and Lingan Basins.

By Mr. Kennedy:

Q. That is a total of ten millions?—A. Yes. That is the British Empire Steel Corporation alone. That has nothing to do with the outside.

By Mr. Logan:

Q. I suppose if you had enough money, and enough men, and enough machinery, it could be made fifteen million or more. After all, it is a matter of men, money and machinery.—A. It is a matter of men and money, but there is perhaps another consideration. That field only contains about 1 per cent of your Canadian reserve, and we are going to make it pretty hard for our children's children unless somebody comes in with something new in the way of motive power.

Q. Not if the geologists are right. They say that there will be enough for our children's children's children.—A. I think there is a little more. I am taking the calculations of the Province of Nova Scotia, 1914, and their calculations were, for Cape Breton County, 5,664,248,000 tons; Pictou County, 1,324,176,000 tons; Cumberland, 845,454,000 tons; Inverness, 862,000,000 tons; Victoria County, 14,000,000 tons.

Q. Making a total of—?—A. 8,713,000,000. I might say that since then that in your own field up there the first borings showed 119 feet thick.

Q. You mean the Cumberland?—A. Yes, and they found by going further, 188. That is approximately. Now, I might say something else, that all these calculations are based upon a distance of three miles from the shore.

By Mr. O'Connor:

Q. At what depth?—A. It dips gently.

Q. You have 3,000 or 4,000, or 2,000 feet depth?—A. That is the angle. I am speaking of three miles from the seacoast.

Q. You are speaking of the content?—A. Yes.

Q. Your cubic area, and then you take it at 2,000 feet depth, or 3,000 feet depth.—A. That varies in different fields. For instance, in the Hub section there is 39 feet there; Scotia, 24 feet; Lingan, I think it is about 43 feet, and some seams are empty.

By Mr. Logan:

Q. That is the total thickness of the seams?—A. Yes.

[Mr. A. McEachern.]

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Q. Will you explain to the Committee how we work in Nova Scotia? In Nova Scotia we mine slopes, not shafts.—A. We mine both, sir.

Q. I mean, in Cape Breton, you principally mine in slopes?—A. No, we have perhaps the biggest mine in No. 2, shaft mines are the Caledonia Shaft, mine No. 10 is a shaft mine, No. 1 is a shaft mine.

Q. Near the sea there are slopes?—A. In the case of No. 2 there is a shaft first.

By Mr. Knox:

Q. Is this large quantity all of the same class?—A. No. I made a statement here which appears to be objectionable. They are not the same. The seams are not the same in quality, in composition, and as I said here, the companies are now taking practically the best, or the most of it as the best, to compete in the American market.

Q. Well now, what class of coal is that?—A. The seams that they are working now extensively are the Harbour, the Phelan, and the Emery.

Q. Is that anthracite or bituminous?—A. I am speaking of all bituminous coal class B-2.

By Mr. Logan:

Q. Can you give us a sample analysis of that bituminous coal in Cape Breton, say?—A. I would have to go to authorities for that. I think I could find it. I could only take it from authorities. I could only take the records of other men, geologists, and such like.

By the Chairman:

Q. Do you think we need go into that, gentlemen? We have the authorities here.—A. As the Chairman says, you have them here. I do not think it would do you any good to hear them.

By Mr. Logan:

Q. Have you got the analysis of the Sydney Reserve Mine, for instance. Let us take one mine.—A. The old reserve mine?

Q. Yes.—A. The moisture was 1.6; voluble matter, 39; fixed carbon, 54, and ash, 6.7.

Q. Is that about an average analysis?—A. Well no, moisture is down to 1.4 in one case, and some are higher—2.6 and 1.9.

Q. What are your b.t.u.'s?—A. British thermal units, No. 7, 13,868, and No. 9, 14,040.

By Mr. Knox:

Q. Would that be about an average for the mines you are operating?—A. They vary. There are some down to 12,620. The lowest is 12,620, and so on. They are high, some of them—very high.

Q. What are the highest?—A. I have given you the highest already.

By Mr. McBride:

Q. When you are mining on the sea there, have you got to keep the roof of the mine propped up?—A. We cannot remove many props with our roof. That is the practice in England, but our conditions do not permit that.

Q. In British Columbia they do?—A. Yes.

Q. You have to keep the roof propped up all the way where you take the coal out?—A. No, where you have no valuable land, buildings, or rivers or lakes, or under the sea where you have a sufficient cover, you extract the coal. You do that by driving narrow work, or rather what they call room work. You would perhaps leave 40 feet for support there, and remove 20 feet, driving cut-throughs at intervals of about 75 feet. When you have got

into a barrier, at some part where your boundary is, if you had sufficient thickness so that you are not afraid of breaking the sea bottom, you would extract all the coal.

By Mr. Warner:

Q. What thickness of seam have you in the place where you are working?—

A. We have seams down there in the field where I am working—I can describe them—there is the Mullin seam, which varies from 5 to 8 feet. The next is the Clark seam. I do not know much about it. It was not good at the crop. The next was the Larrou, about 4 feet 2 inches; the next, Imrie, 4 feet 4 inches, and the next Phelan, 6 to 8 feet. There are two intervening seams there, Back Pit and Butt Lear, from 2 feet 4 inches to 4 feet. You come to Phelan, between perhaps 6 and 8 feet, and then you come to what is known as the Harbour; that is between 5 and 6 feet, and I think that would correspond with the Victoria. There is also the Blockhouse seam about 8 feet thick.

By Mr. McBride:

Q. Are we to understand that you are only taking a portion of the coal out of these mines?—A. No. Each mine has a certain thickness or strata intervening varying from 100 to 160 feet.

Q. Did you not state that you were leaving a certain amount of coal for the support of the roof?—A. You are following a vein of coal at an angle of say 8 per cent. If the vein of coal is 6 feet thick, you drive what they call "narrow work" first, and open it up in sections of say 1,000 feet, depending upon conditions. Now you drive open work there. That is all in one seam. It has no connection with below or above.

By Mr. O'Connor:

Q. It is like two different storeys of a house?—A. Exactly, except that you must not work one so as to interfere with the other.

By Mr. McBride:

Q. But how do you keep the roof of that mine supported?—A. With timber.

Q. Do you leave that timber there after you take the coal out?—A. We leave it there after the first working, but after we have finished we take everything that is worth taking.

Q. Then, does the roof gradually settle down and fill up the mine again?—A. It absolutely falls down. It breaks up, and fills up behind. It comes in solid, and it falls down in the bottom of the pit.

Q. If that was on the sea, would it break the bottom of the sea so as to let the water in?—A. Yes, sir. Of course engineers take precaution that you do not attempt to extract all the coal until you have sufficient cover to prevent anything like that happening.

By Mr. O'Connor:

Q. Have you ever tried the Belgian system of pumping in sand?—A. No. They are talking about introducing that into Acadia now. I might interject that in that question of this gentleman (Mr. McBride). Sometimes when that is done, when extracting coal under the sea, as you remove a portion of the coal you do this hydraulic stowing. You put in sand, or a substitute of gravel, and as you remove the coal you fill this in, and then you can take all the coal, and the subsidence in this case is very limited.

By Mr. Warner:

Q. Has the sea water ever broken through in any place where they are mining under the sea?—A. Yes, in two cases in Inverness.

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By Mr. Logan:

Q. Not in Cape Breton County?—A. No, not in the field that I am speaking of now.

By Mr. Warner:

Q. I might ask you if you have any idea how much coal would be taken out under an acre of land where you had a 6-foot seam—how many tons?—A. An acre of land?

Q. Yes.—A. There are a million tons to a square mile one foot deep. There are 640 acres into a square mile. I think there are 43,560 square feet into a square acre. Multiply that by 6 feet, and then you would have to take out that portion which was left for supports, say 30 per cent, depending upon conditions, of course. I might say that in our case the Government restricts the opening, and requires certain barriers until you get to a thickness of over 500 feet. They compel you to work your mine in sections not greater than one-half a square mile, and that must be enclosed by a barrier not less than 90 feet thick, and you are confined altogether within not more than four openings. When you have gone beyond 500 feet the law does not say anything. You are at liberty to extract all the coal the mining engineer thinks it is safe to do.

By Mr. O'Connor:

Q. You have referred to a couple of mines where the sea came in. Have you a personal knowledge of that?—A. Yes, sir, I was one of the commissioners there.

Q. Did you go down?—A. No, because both mines were flooded when we got there.

Q. Are you satisfied that it was the sea?—A. Yes, sir, absolutely.

Q. Have you heard anything of the operations at the Port Hood?—A. Yes.

Q. Are you aware that the sinking of the new slope has lowered the water in the old slope 11 ft.?—A. No.

Q. If the sinking of the new slope is lowering the water in the old by pumping 11 ft., and maintaining it in that way, what would that indicate?—A. Well, let me tell you my experience at our investigation. I was asked to go there as one of three men to investigate the cause of the flooding of the Port Hood mine, and we asked immediately the Commission was formed, to have borings and the solid measuring, that is, the thickness of the roof measure. We found from the borings that there were 943 ft. There was a pond right just a short distance above the shore line, and we had a man there, and the underground manager persisted in saying that the water went from the pond. Now, to satisfy ourselves about that, for three weeks prior to our investigation there were tide gauges set both in the tide and the mine, and I might say that the tide rose and fell in the mine in unison with the sea tide, but not to the same extent. Now, the water in the mine was salty. The water in the pond was fresh.

Q. Generally speaking, mine water is always brackish?—A. No.

Q. Is not the bulk of the water that you do get in a submarine mine from the sea?—A. Yes, and no.

Q. The saline substances are extracted as they percolate through the rock, and as a general proposition it is brackish water?—A. It is not really fresh water. It is surrounded, and is taking up the substances of the acids and minerals.

Q. I thought you could explain that curious phenomena at Port Hood, which to my knowledge certain engineers say is not tide water.

MR. LOGAN: Do you want these minutes loaded up with questions of phenomena at Port Hood?

Mr. O'CONNOR: The importance to the people of Canada is this, that it may be, from what the witness says, that we have 7,000,000,000 tons of coal, and we have not.

Mr. LOGAN: We could eliminate the Port Hood mine, and still have 7,000,000,000 tons of Coal. I, as a member of this Committee, object to this evidence being put in here.

The CHAIRMAN: Why?

Mr. LOGAN: We are here to get an idea of how much coal there is in Nova Scotia—about how much coal is available, and I do not think that we should go off on a side line and have this witness discuss the question of a break which occurred some years ago in a small mine, which mine did not produce over four or five hundred tons a day.

The WITNESS: About that.

Mr. LOGAN: It is true, there were one or two breaks in the whole of Nova Scotia, but that is of no interest to those men here.

The WITNESS: It may be, to some extent. That particular place is very much disturbed, and we have no other conditions similar to that, with the exception of one place at Long Beach. Everywhere else shows a uniform stratum, and it would be unfair to assume now that because we had a break into a place that was very much disturbed, that that is general. It is sandstone strata and there are many breaks there.

Q. That is the only place of all the Nova Scotia areas that there was a breakage?—A. That was in the Port Hood. It was a small leak. It was not the fault of the mine there.

By Mr. O'Connor:

Q. It could be overcome by pumpage?—A. Yes, I have no doubt that fracture would close up.

Q. What I was driving at was if it was the sea, and second, whether that coal field could be won back again.—A. Yes, it can be worked again.

Q. Assuming that it was the sea that came in and flooded the work, and there is a very good reserve of coal, and with your slope dipping as you have described towards the sea—is it not possible in any of these cases where that does occur to sink a new slope to a greater depth and win your coal again?—A. Certainly.

Q. So it is not a serious matter when the sea does come in?—A. No, you protect yourself by barriers from the water.

By the Acting Chairman:

Q. What are they charging for the coal transportation?—A. I have not inquired for two years.

By Mr. Logan:

Q. Do you know what the company is selling its coal to the employees for?—A. No, I do not even know what I am paying for it myself. I should say approximately \$1.50 a ton.

By Mr. Knox:

Q. Can this witness tell us the cost of producing the coal?—A. Not now, sir, I do not know. I have not been in the operating end for two years. I am chief inspector.

By the Chairman:

Q. I suppose you can say that the further developments that you make in this mine, that is to say, seaward, the more the cost of the coal is going to be?—A. Naturally.

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The CHAIRMAN: That is the reason I was bringing out some information about these submarine areas.

By Mr. Knox:

Q. And there is no possibility of developing inland?—A. Oh, yes, there are small seams inland.

Q. They are not good as a prospect, I presume?—A. Some of them are not.

By Mr. Logan:

Q. This is referring to Cape Breton?—A. I am speaking principally for Cape Breton. I did not intend to give this at all.

By the Chairman:

Q. You have given us some of the difficulties which have enhanced the cost of coal as you go seaward?—A. Yes. Of course I have given that already; ventilation, transportation, strata pressure, over-burden, superincumbent weight and all these things. There comes a time when if the burden becomes too great it becomes so that you are unable to work the mine any further. In my opinion that will not be the case, because the mines are deepening very gently. In Belgium they have about twenty mines over 3,000 feet deep and one over 4,000. I think by the time you are down 4,000 feet, the distance is prohibitive or the cost.

Q. You understand there is considerable prejudice in the settled parts of Canada, in Ontario especially, against the use of soft coal for domestic purposes?—A. Yes.

Q. What has your own experience been along that line?—A. We have always found it quite satisfactory.

Q. Suppose there is something in the prejudice against bituminous coal, what would you suggest as a remedy for it?—A. What I would suggest would be the erection of by-product plants at your large industrial centres and converting the coal into coke. Down our way coal produces about 64 per cent; it varies in different places as high as 70 per cent including the brush, extracting the gas—in some of the States I have read they have sold it for 40 cents per thousand feet, speaking from memory. I think there is something over 12,000 cubic feet extracted from a ton. Then we have other by-products, such as ammonia, sulphate, tar, benzol, which are all valuable. If that was done you would take all the energy out of the coal and get the best value from it. Some figures I have seen I think give the best results to-day, by taking the by-products out of the coal and converting it into coke. Those who have used it earnestly and have tried to give it fair play—I am speaking of weight, not bulk—say that ton for ton it compares favourably with anthracite. They claim that having extracted the by-products and using them, as compared with the utmost they can get from coal, there is a gain of 54 per cent and some say as high as 100 per cent.

By Mr. Lapierre:

Q. Have you any anthracite coal?—A. No, sir.

Q. Tell us the difference between the use of bituminous coal and anthracite.—A. As compared with anthracite?

Q. Yes.—A. I have never used anthracite.

Q. You have no definite knowledge yourself, from the use of it?—A. No

By Mr. McBride:

Q. Would that not give you a market for your by-products?—A. If the coke is a suitable substitute for anthracite, a sufficient proportion of the coal would be coked for that particular purpose.

Q. That is not what I mean. I mean, if you can find a market for your gas, benzol and other by-products?—A. We could find gas for running generators to electrify some of your railways, instead of running your machinery by steam, you could run it in that way.

Q. That is what we hope. Your coke would successfully replace anthracite?—A. I am afraid you will be obliged to get a substitute anyway, because my best information is that American anthracite is fast becoming depleted.

Q. The coke you can produce from your coal is a satisfactory domestic substitute for what is now used in the domestic field in Ontario?—A. Are you speaking of anthracite?

Q. Yes.—A. Yes, from my own knowledge.

Q. It is only a question of disposing of the by-products?—A. I have asked Mr. Gray personally, who has used it, and he says that ton for ton—you might say that Mr. Gray being an official of a coal company might be more favourable, but I remember seeing two other independent people outside the corporation altogether, and I have seen their statement of where they had tried it, and they said that ton for ton anyway it compared favourably with anthracite.

By Mr. Church:

Q. What percentage of coke is available?—A. Sydney I think produces 64 per cent. A ton and a quarter of coal will produce a ton of coke.

By Mr. O'Connor:

Q. Halifax City uses some anthracite?—A. I don't know.

Q. You do not know anything about that?—A. I know they use it, but I have not used it.

Q. Is coke going into Halifax City from you?—A. I think so, in one or two cases there.

Q. There was a witness before the Senate the other day—who is your coke man?—A. Mr. Lucas.

Q. He was before the Senate Committee?—A. Yes.

Q. The Committee might safely take Mr. Lucas' evidence, he knows all about it?—A. He should; he has been long enough at it, and is quite capable of taking care if it.

Q. You have no reason to doubt his statement that they are replacing anthracite by coke?—A. No, sir. I cannot see what motive he would have.

By Mr. Lapierre:

Q. Are there any plants where the by-products are being used or sold so as to reduce the price of coke, in the East?—A. There is Sydney, but that was intended for something else, it was intended for steel.

Q. The by-products are extracted from coal in Sydney?—A. In some cases, not all.

Q. Is there any place in the Maritime Provinces where the by-products are being extracted from coal and the coke sold?

The CHAIRMAN: I might answer that question, Mr. Lapierre, by saying that they use all their coke in connection with their steel business.

Mr. LAPIERRE: I want to know whether there is any other plant besides that?

The CHAIRMAN: Not in the Maritime Provinces. Of course they extract a tremendous amount of benzol and I understand that the Imperial Oil Company is taking their whole output.

Mr. LAPIERRE: I wanted to find out whether any plans were suggested by the witness as to the operation, where Nova Scotia coal was being treated, the by-products sold, and the coke afterwards sold.

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WITNESS: Not that I know of, not that I am aware of. I have something here referring to England in 1913, but I am afraid it will not interest you.

The CHAIRMAN: You will give us this material, to be included in the record?—A. Yes. I have here a memorandum of coal resources in Nova Scotia, calculated in 1914 by the Mines Department, Halifax, N.S.

| | | |
|------------------------------|---------------|------|
| Cape Breton County.. | 5,664,248,000 | tons |
| Pictou County.. | 1,324,176,000 | " |
| Cumberland County.. | 845,544,000 | " |
| Inverness County.. | 882,000,000 | " |
| Victoria County.. | 14,112,000 | " |
| | 8,730,080,000 | " |

Cape Breton County

| Company | Sq. Miles | Thickness Feet | Tons |
|--|-----------|-------------------|---------------|
| D. C. Co.. | 235 | 50 | 4,109,160,000 |
| N. S. S. & C. Co.. | 128 | 15 | 1,128,960,000 |
| Broughton Areas.. | 76 | 6 | 268,128,000 |
| Weatherbee.. | 14 | 8 | 65,856,000 |
| Lingan Coal Co. (Now D. C. Co.).. | 9 | 8 | 42,336,000 |
| Isle Royale, near Broughton.. | 5 | 6 | 17,640,000 |
| Colonial Coal Co. | 2 | 5 | 5,880,000 |
| McKay.. | 2 | 4 | 4,704,000 |
| McAvity, False Bay Beach-Tracy Seam .. | 2 | 5 | 5,880,000 |
| T. Routledge.. | 5 | 5 | 14,704,000 |
| Total.. | | | 5,664,248,000 |

Inverness County

| | | |
|-----|----|-------------|
| 150 | 10 | 882,000,000 |
|-----|----|-------------|

Victoria County

| | | | |
|---------------------------|----|---|------------|
| New Campbellton.. | 24 | 4 | 14,112,000 |
|---------------------------|----|---|------------|

Pictou County

| | | | |
|---------------------------|----|----|-------------|
| Acadia Co. (Stellarton).. | 20 | | |
| Intercolonial.. | 8 | 20 | 376,320,000 |
| N. S. S. & C. Co..... | 2 | 3 | 3,528,000 |
| Thorburn.. | 2 | | |

Cumberland County

| | | | |
|---|-----|----|-------------|
| Springhill.. | 130 | 10 | 764,400,000 |
| Joggins.. | 23 | 5 | 67,620,000 |
| River Hibbert (Strath- cona).. | 4 | 2½ | 5,880,000 |
| River Hibbert (Minu- die).. | 2 | 4 | 4,704,000 |
| Fundy Min (Joggins).. | 2 | 2½ | 2,940,000 |

[Mr. A. McEachern.]

POWER OF COALS AND GAS

Good bituminous coal produces about 14,450 B.T.U. on combustion, while one pound of this same coal will generate $12\frac{1}{4}$ cubic feet of combustible gas, weighing 0.045 pounds per cubic foot. One thousand cubic feet of this gas, weighing 45 pounds, will develop about 1,000,000 B.T.U. of heat, but 45 pounds of coal in combustion with oxygen will only produce $14,450 \times 45$ equals 650,250 B.T.U. Bearing this fact in mind, it would seem more economical to relieve all bituminous coal of its volatile gases and use the product of combustion. The saving from this method would seem to amount to about 54 per cent over the best results obtained from the present practice.

The Government testing plant at St. Louis has opened the eyes of the scientific world to the merits of consuming gas instead of coal to develop power. One of the tests showed that it required 5.27 pounds of Illinois (Springfield) coal to develop one horsepower-hour, while only 1.79 pounds of the same coal converted into gas produced a horsepower-hour. Of an Indiana coal it required 4.53 pounds to produce one horsepower-hour by the steaming method, but 1.61 pounds of the same coal converted into gas developed the same power.

This discovery led to the testing of the power of lignite, which is the poorest quality of the various grades of coal. It was found that it required 10 pounds of lignite by the steaming method to produce one horsepower-hour, while but 2.82 pounds of this coal was necessary to develop one horsepower-hour by converting the same into gas. This shows a better result from lignite by 100 per cent than is obtained from either Illinois or Indiana coal through the steaming method.

Some idea of the relation between the coal coked and the products obtained at modern gas works can be obtained from some figures published in the Journal of Gas Lighting (Feb. 24th, 1914, page 492). These show that the average "residuals" obtained during 1913 by the three London (Eng.) gas companies, per long ton (2,240 pounds) of coal coked were: coke 12.47 cwt., coke breeze 5.20 bushels, tar 10 gallons, ammonia liquor 36.11 gallons of 8 ounces, and gas 12,420 cubic feet.

The CHAIRMAN: I understand Mr. Pratt is here, and that he is leaving for Toronto to-night. I suppose he would like to give his evidence now.

Mr. KNOX: Might I ask, Mr. Chairman, if it is possible to have copies of the evidence given before the Senate Committee furnished us?

Mr. LOGAN: We get that every day.

The CHAIRMAN: I get it every day, at least.

Mr. LAPIERRE: I do not get it every day. Sometimes I get two or three copies at a time.

The CHAIRMAN: I do not mean every day. I mean every day it is printed. You mean for the members of the Committee?

Mr. KNOX: Yes.

The CHAIRMAN: They can be obtained readily.

GEORGE R. PRATT, called and sworn:

By the Chairman:

Q. Mr. Pratt, what is your position?—A. At the present time I am Fuel Engineer for the Alberta Government. My business at the present time is the developing of the resources of the Alberta coal fields.

Q. If you wish, the Committee will allow you to go ahead, and we can then ask questions if we care to do so.

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By Mr. Kennedy:

Q. Have you any statement to make, Mr. Pratt, with regard to coal?—

A. Yes, sir. I have been studying the question of Canada's fuel for the last fifteen years. Probably a history of what I have done will give you the reasons for the position or for the stand I take at the present time. It goes back quite a long time, and probably you may think some of these things are not relevant to the question.

Q. How long does it go back?—A. About fifteen years.

By Mr. Logan:

Q. To qualify you as a witness, as we say in Court, what qualifications have you as a mining engineer?—A. I have no qualifications at all; I am not a mining engineer. There are two separate fields. One is the handling as it leaves the mine, and that is all I have studied, not mining at all, that is a different thing altogether. I am more of a mechanical engineer than a mining engineer.

Going back to the start, or to the first time I gave any consideration to fuel values, that was about 15 years ago. At that time I was shop supervisor for the Canadian Pacific Railway under S. J. Hungerford, now the Vice-President of the Canadian National Railways. At that time I was handling the maintenance work, also the operation of the power plant. At week ends during the winter time the coal consumption at the plant increased by about 25 per cent when the shops were shut down. For a number of weeks both Mr. Hungerford and myself used to go over, and they complained about the amount of coal used. The reason was that during the time the shops were shut down more coal was required for heating. I came to the conclusion that the development of power from coal in a steam plant, the power provided electrically was practically in addition to the fuel value of the coal, and the orders given at that time were to run some of the lights and generators, with soft coal for heating. That was a peculiar condition, and was apparently against the laws of nature. But upon looking into the steam end, while I had possibly known it before, I discovered that from 3 to 5 per cent only of the heat value of the coal got into the machine or into the electric engine. My firm opinion is that future fuel will be electrical for heating. That means that our prime movers have to be increased in efficiency, to be able to distribute the coal or the heat value that is in the coal. From that I worked for possibly ten years endeavouring to get a prime mover that would suit the engine at present in existence. The best engine in the world is the Diesel engine, to provide more heat. You can provide more heat at the electrical end with the Diesel engine than with any other engine. The average engine runs about 15 per cent, the locomotive is less than 6 per cent efficient; that is to say, if you use a ton of coal you only use 6 per cent of it in doing work. For ten years practically I went into that proposition. Finally I came to the conclusion that a new prime mover would have to be developed. During the year 1918 the C.P.R. were advised that they could not get anthracite coal, and the question was asked as to whether they could not use the soft coal so-called of Alberta for heating purposes. With the information I had gained while looking into this prime mover question, I said that I would probably devise a means of burning that coal under the same conditions as anthracite and giving the same results. I was told to go ahead with it. I proved the fact that it could be done, but on account of the manner of making the proposition, it was practically delayed for a year. During that year anthracite coal came back, and they had no use for this proposal. But this coal was used commercially in quite a number of places. Of course it meant a change in the furnaces. Three years ago the Alberta Government decided to open a plant in Winnipeg to further the use of Alberta domestic coals. I happened to hear about it, I got into touch with them, and

[Mr. G. R. Pratt.]

followed it up for about a year and half. In November of 1921 I was asked by the Alberta Government if I would take over the operation of that plant, which I did finally. I found that there was quite a lot of prejudice against the use of so-called soft coals, but with the experience I have had and the tests I have made I determined that to my mind it was not due to the coal at all, but to the methods of using it. I figured that possibly this device I had been working on would be a cure-all for that, but I found that it was not necessary to use this cure-all. I might say that the device is a bridge dividing the upper half from the fuel bed. By using one lump of coal in the place of a bridge, the coal could be used without any change in the furnace at all. The fact that we were desirous of putting coal on the market, thereby inferring that we desired to change, was the reason the lump of coal was used. The first season was used for experimenting, the next season, the season in between the first season and the last, we got out quite a lot of propaganda, we got out several pamphlets and books based upon the experiments and tests we had made, and last winter within seven per cent of the whole of the market went to Alberta and some Saskatchewan coals.

By the Chairman:

Q. What market did you develop, how far east?—A. The market I am talking of goes as far east as the Winnipeg market.

By Mr. Logan:

Q. It includes Winnipeg?—A. It includes the Winnipeg market. Previous to that it was all anthracite coal. The demonstration we have in Winnipeg consists of taking a store in the downtown district, very close to the shopping district, or right in the shopping district rather. We installed one of each type of domestic equipment. The first season we actually demonstrated to the visitors who came into the office, but we found that that was too slow, and that created another reason for getting out propaganda and literature, circulars and so forth, so that those who did not come in would have the advantage of what we had learned. I believe it was that that led us to extend the market and practically take the whole of it.

In connection with the steam market, we have taken I believe 50 per cent of that market. The condition there is peculiar. We have, I believe, the worst steam coal competitive conditions of any place on the continent. To begin with, there are the American coals, which are piled up at the lake heads during the fall, as return loads from grain. The dealers as a rule get their stock at that point; they buy what they consider their season's coal, then during the same period that these coal piles are piled up there are other large coal piles dumped by the American operators at Duluth and other points along there. After the orders have been filled by these same operators, at the end of the season, the end of the buying season, these same operators sell these dumped piles of coal for whatever they can get for them. They are very often sold at less than the apparent cost price at the mine. At first sight that might appear to be a loss, but it is not. That coal is put there at a time when they are filling orders as fast as they can, they are getting their price for it, it is like a concern working at capacity of possibly a little below capacity. After the operating costs and overhead have been paid, anything else you can produce can be produced at a fairly low price. That means that those coal piles, while they apparently cost a certain amount, anything they are sold for, even at \$1 a ton, is profit to the mines producing it. That coal is thrown on the market around January and February, and practically kills the prices that then prevail. The Western operators in the steam business have certain costs which are higher than the cost of producing on the American side, to a large extent due to a smaller

[Mr. G. R. Pratt.]

output and the fact that their development over the whole of the year is greater than their average output. It means that if they make any effort to beat a market of that sort, it is very uncertain as to whether they can hold out, or whether they would after paying out money or having spent money in trying to get a market, have to drop out of it. That means that coal sold from the West in the Winnipeg market for steam purposes only is a different proposition from the Western market itself.

I may say that we have separated the kinds of coal coming from Alberta. One kind I will call steam, which is bituminous, bituminous coking and non-coking. Another kind of coal is domestic coal. These coals are what we consider the best for domestic purposes. Handled properly I do not think, in fact I know that there is no coal in the world as suitable for domestic purposes as the Alberta domestic coal. Until very recently it had been considered that the only coal which was suitable for domestic purposes was a type of coal like the hard coal, without any volatile matter. Practically all the pamphlets and scientific work had been based upon the idea that there was no heat value that could be obtained from the gases which came from the coal or which were in the coal. That meant that anthracite coal, which is low in volatile gases, was the only suitable fuel. This method of firing which we have provides means of getting the heat from those gases. The equipment that was in use or that was installed in Winnipeg and the West has all been made in the East, and only having one class of coal to deal with, it was built for anthracite coal, as they thought. We have changed the whole of that condition from anthracite to Alberta coal, without making any change in the equipment, and in doing so we have actually increased the capacity of the heating equipment.

When using anthracite coal practically 70 per cent of the heat is obtained from the coal burning against the side of the fire pot to the house, and a small portion by radiation off the hot fuel on to the steel surface of the combustion chamber. With coal where you can get heat from the gas in addition to the fire pot heating surface, you have a passage and the heat goes travelling through. You have a greater heating capacity with soft coals than you have with hard coals.

While talking of soft coal, there is really no meaning to the term soft coal. It seems to have become established from the fact that anything that was not hard coal was soft coal. Take the bituminous coal burning in domestic furnace, I do not mean the so-called Alberta domestic coal, but bituminous coal, such as steam coal; you can obtain practically equal value from the steam coal in the domestic furnace as anthracite, provided you go to a little more trouble when putting it on. We have made it one of the main points in our business in connection with Alberta domestic coal, that you can throw it in and forget it. But when you are using some of the other coals you have to go three or four times in order to build a fire up, as compared with one time going to the furnace with Alberta domestic coal.

By Mr. Garland:

Q. Before you leave that point, you were talking about the high cost in the Alberta mines, and you mentioned the overhead. Will you tell the Committee what is meant by that? Was that due to the number of mines operating in proportion to the total output?—A. One reason is the number of mines operating. Another is that the mines operating in the domestic field are only operating five or six months in the year, and part of that time instead of operating at full time they may work one or two days, then close down two, three or even four days. That means that the overhead costs of the year's operations must be carried by the amount of coal produced during the time they are operating.

[Mr. G. R. Pratt.]

Q. Your labour costs and other costs would go down if you could find a market?—A. If we could find a market. That is a good business viewpoint.

By Mr. Lapierre:

Q. Owing to the unsteadiness of labour, you have to pay higher wages than you otherwise would pay?—A. If we could work the mines a longer period, we would have a better argument for lower rates of pay.

Q. Under your conditions, your mines could be operated twelve months a year?—A. There is nothing to hinder them at all.

Q. The only reason for carrying on operations for a few months during the year, is the lack of a market?—A. Yes.

By Mr. Garland:

Q. You stated very definitely that the Alberta domestic coal was a superior coal for that purpose?—A. Yes.

Q. You did not tell the Committee just why it is; will you explain to the Committee why it is better than any other coal?—A. I thought I had done that. The reason I consider Alberta coal the most superior as compared with anthracite is the fact that with anthracite you have to make anthracite coal redhot before it starts to burn; you have to heat it redhot, otherwise it will go out. For instance, if your fire gets down low, the pieces of unburned coal will drop into the ash pit. With the Alberta coal, what we call the free burn, that is to say if one end will not burn, or if one end takes root, that coal will burn regardless of whether you have a high draught or a low draught. If you have a high draught, it will burn away very quickly, but if you choke your draught I have seen it in the fire as long as 72 hours and longer; that is to say, you can throw in your coal, regulate your draughts, and go away and forget it for ten, twelve, twenty-four or forty-eight hours, depending upon the amount of heat you want.

By Mr. Lapierre:

Q. You have considerable experience in the shipping of that Alberta domestic coal, and you have had opportunities of following its shipment condition?—A. Yes.

Q. What would you consider the distance which coal from Alberta containing moisture content of that degree could be transported profitably?—A. Well, the actual distance does not cut a great deal of ice. It is more the condition that the coal is in at the point of shipment and the cars in which you take it off at the end. I do not want it understood that it requires any care, but the general practice for shipping coal in the west for domestic purposes has been in box cars. There may be two reasons. The coal is as a rule mined in large lumps. Unfortunately the operators created in the west a desire for large lumps. Our work actually consists in reducing it from large lumps to a small size, and I believe that finally the coal will be from 5 inches downwards. When that time comes, it means lower cost of wages, and in putting those large lumps in the car you have to keep sort of a rein over it. Then, the box cars were the only cars available, so the two together might have led up to the idea that box cars were the only ones required. While it is still understood that box cars are the only desirable cars, I have no doubt at all that if box cars were not available we could transport the coal in the open cars.

Q. From Alberta coal fields to Ontario in open cars?—A. Yes, the coal which we would select for the market. There are other classes of coal. We would not want to bring the moist coal. We do not want to waste a lot of money carrying water down, so the coal selected would be the best grade of coal, and my personal opinion is that if the cars were available, we could

APPENDIX No. 6

bring that coal down in open cars. The surface might show a little slack, but it would not go more than two or three inches in. That has been tested out very well by the Edmonton University at Edmonton. They have had pits in which they put the coal. They put the coal on the ground and in open sheds. Some of the coal on the ground, after two or three years' exposure, showed possibly from three to nine inches of slack. The coal in the shed, out of sun and rain, showed practically no slack after one season. The coal in covered pits is practically as good now as it was three years ago, and we found that coal left from season to season, and even in empty houses, three and four years, when the coal is in the basement, showed very little sign of disintegration.

Q. Would you tell the Committee what method you have of distributing your coal in Winnipeg, I mean, the domestic coal?—A. In the regular manner. Some of the better class dealers put in a pile as a sort of elastic band to take care of a shortage, but where possibly they try to deliver the coal from the car to the consumer. Every time it is moved—the consumer has to have a large lump, unless they have telephoned that they want small coal. Mine is a different proposition than the dealer's. It is better to handle it from the car to the consumer. In order to take care of a shortage, and weather conditions, some of them put in a pile, which they use when the cars are not available.

Q. In a pile under cover?—A. No, in the open. Some of the more prosperous ones have sheds, but that is not the average.

Q. But, for our information, would you not advise coal dealers in Ontario, handling your coal, after the 2,000 miles of transportation—would you not advise that this coal, if received in Toronto, be kept under cover?—A. Yes.

Q. That would be advisable?—A. Yes.

Q. From your past experience do you think that coal could possibly be hauled 2,000 miles to the Toronto market in open cars?—A. Yes. Not from my experience, but from my opinion. I have nothing to base experience on.

By Mr. Garland:

Q. The opinion of the witness is possibly right. In the West the demand is for lump coal?—A. Yes.

Q. The lump coal is not satisfactory, that is, the type of car will not be suited, because on the long trip it will break up, and the demand in Ontario is for small coal?—A. Yes. I think you could take 5-inch down, and transport it in open cars, and you would not see any disintegration at all. I have noticed the stove-sized coal stored in the open for years, and show no signs of slack at all, but it seems to be the larger lumps that break down. That is one reason for the opinion I have on this market, that this market is more for the small size than the larger size.

By Mr. O'Connor:

Q. Is it because the small size becomes air dry?—A. No, the reason for the slack is that some of the surface moisture dries out of it. If you have a large lump, the tendency is first of all for the air to come off the surface.

Q. That is, it contracts?—A. Yes, that contracts.

Q. And the inside does not, so it has to break?—A. Yes, it gradually works down.

Q. Is the contraction in both the same throughout?—A. You have not got the same leverage.

Q. It is really air drying?—A. Yes.

By Mr. Warner:

Q. What kind of cars are used for the transportation of United States coal to our markets? Are they box cars or coal cars?—A. To the western market?

[Mr. G. R. Pratt.]

Q. Yes.—A. The head of the lakes is the limit, as a rule. At the head of the lakes it is dumped in piles.

Q. How is it brought to the head of the lakes?—A. In boats.

Q. From the American side?—A. I do not know, but I think they are all open cars.

Mr. STUTCHBURY: I think Mr. Logan means from the head of the lakes of Winnipeg.

The ACTING CHAIRMAN: No, I did not mean that.

Mr. STUTCHBURY: You mean, the steel gondolas?

The ACTING CHAIRMAN: Yes.

By Mr. Lapierre:

Q. I understand that during the coal shortage last year the mines of Alberta were shipping coal to the United States?—A. Yes.

Q. Now, what cars were used in transportation?—A. Box cars.

By Mr. Garland:

Q. Has the witness had any experience in transportation and railroad matters?—A. I think I will continue with the general statement first, if you do not mind. Knowing what we did with the Winnipeg market, we thought we had kept track of the conditions in the east. A number of cars were donated by several of the coal operators and several of the newspapers in the west also assisted, and the Ontario Government decided that they would make some investigations, and the Dominion Government offered to assist. The Alberta Government arranged to give advice, and demonstrations were put on. The coal was brought down and from results reported, it is evidently satisfactory for the Ontario market. That being the case, a request was made to the Canadian National Railway asking them if they could quote freight rates, which would enable the coal to come into Ontario. We had our own ideas as to what that freight rate could be, but looking at the railroad company, they have not quite followed our request. They have investigated it from a different standpoint, as to what they could transport the coal for, not as to whether they could get a rate which would bring it in on the market. I will read you a letter which was received by Mr. H. Stutchbury, a letter from J. E. Dalrymple, vice president of the Canadian National Railways, dated the 10th of May, 1923, from Montreal, and addressed to Mr. Stutchbury, Alberta Trade Commissioner, Chateau Laurier, Ottawa. It reads as follows:—

“DEAR SIR,—

Rates on Coal from Alberta to Ontario Points.

Your telegram of the 9th inst. to our Mr. Crombie, respecting the above, has been referred to me.

It is intended that the special rate of \$9 per net ton will apply on coal shipped during the months of May, June, and July, from the following shipping points on the Canadian National Lines in Alberta, viz.:

| | | |
|-------------|-------------|------------|
| Drumheller, | Tofield, | Dinant, |
| Rosedale, | Clover Bar, | Roundhill. |
| Wayne, | Edmonton, | |

in trainload lots of 50 or more cars per train, subject to a carload minimum weight of 90 per cent of the marked capacity of car, but not less than 60,000 pounds per car.

[Mr. G. R. Pratt.]

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Shipments to be from one consignor at one shipping point, to one or more consignees at one destination reached by Canadian National Lines in Ontario:—

Ottawa, Brockville, and west thereof, to and including Windsor and Sarnia.

From other shipping points on Canadian National lines in Alberta, the rates will be as shown below, and subject to the same conditions as applicable from Drumheller and Edmonton:—

| | |
|----------------------|-----------------------|
| From Cardiff..... | \$9.10 per net ton. |
| From Wabamun..... | } \$9.20 per net ton. |
| Big Valley..... | |
| Ardley..... | |
| Three Hills..... | |
| From Evansburgh..... | \$9.30 per net ton. |
| From Cadomin..... | } \$9.50 per ton net. |
| Coal Spur..... | |
| Robb..... | |
| Mountain Park..... | |
| Foothills..... | |
| Lascar..... | |
| Stereo..... | |
| Lovett..... | |
| Saunders..... | } \$9.70 per net ton. |
| From Brule..... | |
| Errington..... | |

All the rates quoted herein are subject to an additional switching at the mines, as provided on pages 12 and 13, as amended, of our coal tariff No. W. 260, copy of which you undoubtedly have in your possession, and are also entirely exclusive of connecting line switching charges—should delivery be required on the tracks of a connecting railway at destination.

If there is any further information you desire in this matter, I shall be glad to have you communicate with me.

Yours truly,

(Sgd.) J. E. DALRYMPLE,
Vice President.

P.S.—The rates quoted herein will not be published in tariff form until advice of acceptance is received.

(Sgd.) J. E. D."

I might say that there are quite a number of mines that we would not want to bring coal from. It is the moist coal, and we do not figure on paying freight for moisture. The letter mentions a 90 per cent minimum. We did not figure on any minimum. We thought the railway would transport as much coal as it possibly could, and that means 15 per cent of the capacity of the car. Instead of saying 36 tons to a 40-ton car, it would mean 46 tons to a 40-ton car. The paragraph in the letter stating that "shipments to be from one consignor at one shipping point," it means that one mine has got to place an order for a train of cars. The rate varies from \$9 to \$9.70 for the various other mines. Most of these mines quoted are steam mines and we would not want to bring in coal from them. We have not made any effort to accept that. To begin with,

[Mr. G. R. Pratt.]

we are trying to get the lowest price from the operators. Until you can go to a man and say, "What is the price on a certain quantity of goods?" you cannot get any definite price. At the present time it is all on a one-ton basis, and we ask the operator what the price will be and he quotes the price. If you can go to the mines and ask what is the price on 20 or 50 or 100 tons, then it is a different proposition altogether, and he can naturally quote a price which is lower than the price which he would have to give on small lots. There is another viewpoint. I do not think there are many of the mines in the West that have paid any dividends at all. Some of them have gone out of business. Some of the largest and best-equipped mines have had to go out of business on account of the loss of the market. Well, now, if they quoted a rate on one-ton lots, it would mean that the parties they are selling coal to at the present time will say that they can buy at a certain price. Besides, I submitted here a few days ago a statement as to how that \$9 per ton was made up. In order to make it better understandable it was all given in percentages and so much per car mile. I do not think there is any question but what those rates from the statistical point of view were correct. It has been quoted. You can get at anything by statistics, but I hope that the rate offered us will be made from a human standpoint rather than from a statistical standpoint. The rate was based on the average of work done during a certain period. That average also had costs of operating which were a lot higher than the average, and also must have had costs of operating which were much lower than the average, in order to make that charge. We consider that this coal handling in trainloads as we propose, or as we think it should come under—it is what the railroad man calls a nice train; it is no trouble; so far as breaking is concerned, every car is loaded, and there is less damage to drawbars in terminal sheds. One witness stated that the train would lose its identity. Perhaps it might, but at the same time it is coal. Any cars which were dropped off at one point would be picked up as coal at another point, and as far as possible the train would come through from the starting point to the terminal point as coal. I thought, while they have given consideration, getting at some of the costs—the overhead costs, from a statistical point of view, I was in hopes that every item would be considered as well from a human point of view. In order to make it better understood, perhaps I will read out these figures:—

| | |
|----------------------------------|------------|
| Repairs to track.. | \$1,539.22 |
| Road locomotives.. | 1,462.69 |
| Yard locomotives.. | 114.80 |
| Freight cars.. | 3,546.17 |
| Shop and machinery exp.. | 854.65 |
| Nil traffic exp.. . . . . | ..... |
| Superintendence, nil.. . . . . | ..... |
| Enginemen.. | 790.87 |
| Trainmen.. | 863.15 |
| Fuel.. | 2,232.30 |
| Other supplies.. | 595.28 |
| Engine house exp.. | 442.20 |
| Yard service.. | 1,326.62 |
| Wrecks, etc.. | 131.81 |
| Damage.. | 245.12 |
| Contingencies.. | 1,458.43 |

As to the item for shop machinery, \$854.65, I do not think "shop machinery" should have been included in that. The shop machinery would be there whether this train was handled or not, and I do not know whether the mechanical

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department of the C.N.R. included shop machinery in the case of road locomotives. On the top of that, there is an item for contingencies of \$1,458.43. That was explained as being due to clerical work, due to handling that train. If there was only one train, that extra clerical work could possibly be worked in, but if there is quite a number of trains, that amount is high. In taking those figures, the mileage has been taken as 4,252 miles. In the statements made by the witnesses for the C.N.R. it was stated that the averages had been obtained by considering the returning empty freight, which was 50 per cent of the total train cost. In this particular case the whole of the return has been taken as well. It seems to me that some of that average should have been taken off that mileage. Take the return trips, while it is a fact that all the cars and locomotives have got to go back, as a rule the return trains are run at the maximum that the locomotives will carry. For instance, it is not good policy, and the railways do not send out trains unless they are loaded to capacity of engine. What Mr. Lanigan said yesterday was the general practice. Then, if you had to get your engines back to terminals, to your working terminal, send the engines light with a caboose. It must be economy to put on a full tonnage train, and they must save money by doing that, so I do not think it is fair to charge the full amount of the return mileage.

By Mr. Logan:

Q. Has the grade going back anything to do with that?—A. The grade going back, it is practically all downhill. I will not say all downhill, but the gradual slope is from the west to the east. That item for repairs to locomotives would be \$34,333 per hundred thousand miles. Some roads figure that a locomotive is due for general repairs after it has done 100,000 miles. It varies a little less than that, and possibly as high as 100,000 miles. That is worked out from the figures given for repairs to locomotives. That is the basis on which it is worked, so that in 200,000 miles you have practically a new locomotive.

By Mr. Garland:

Q. Do you mean that is the basis of the C.N. figures?—A. Yes.

By Mr. Kennedy:

Q. What is the usual life of an engine?—A. It is usually limited to the traffic. There are locomotives on the Canadian Pacific thirty or forty years old. A locomotive of that age has lost its identity long ago. They go through the shop, and they are as good as new when they come out. If new portions are wanted, new portions are put on, but the locomotive is put away after it becomes too small to handle the traffic it is wanted to handle, but what I was saying was that in just every two years you buy a new locomotive according to the figures stated.

By Mr. McBride:

Q. In other words, it costs as much to repair a locomotive in two years as the locomotive is worth?—A. Yes. It was also stated that the rate on grain was 12 per cent higher than the rate on coal. If that is the case, and grain is being hauled at a profit of 12 per cent, it covers what the company left out in offering us that \$9 rate. I think that covers the case.

The Committee adjourned until 11 a.m. May 18, 1923.

13-14 GEORGE V, A. 1923

HOUSE OF COMMONS,

COMMITTEE ROOM No. 436,

FRIDAY, May 18, 1923.

The Select Standing Committee on Mines and Minerals met at 11 a.m., the Chairman, Mr. Carroll, presiding.

The CHAIRMAN: Do I understand, Mr. Pratt, that you did not finish your evidence yesterday?

Mr. PRATT: Well, I do not know whether there are any more questions that you wish to ask me.

The CHAIRMAN: Have you any further statement to make?

Mr. PRATT: I do not know whether there is anything on the question of Canadian fuel as a whole—on the problems of heating as a whole—in Canada.

The CHAIRMAN: If you think you have any more information, we would be glad to hear you.

Mr. O'CONNOR: Would you permit me just for a moment, Mr. Chairman? This is the first time that I have attempted to address you formally. At the beginning of this investigation, (and I bring your mind back to the conditions under which I have been attending here from day to day), I was a witness. It developed that I had made a study of the situation, and being a practising counsel, a suggestion came to me that I might help you in perhaps an honorary capacity, as I wished to attend the meetings. You asked me, and to the best of my ability, I have endeavoured to steer the Committee in a sort of way, that is, to bring out all the points here and there, pro and con, and I assure you that it was to the best of my ability, regardless of east or west. I want to suggest, as regards Mr. Pratt, that he is a fuel engineer. He is an Alberta man, but nevertheless, an honourable man. He is a fuel engineer, and I think we should find out from Mr. Pratt something about fuel generally, apart from Alberta. In the same connection, in respect to a witness who was heard yesterday, (I say it deferentially) I do not think that this witness left on this Committee the impression that he wished to leave. I do not think this witness brought out all his information.

Mr. PRATT recalled.

By the Chairman:

Q. Have you any general evidence to give us on the matter of fuel, further than you gave us yesterday? You are still sworn?—A. I might say that although I have been working for Alberta, I am not an Alberta citizen. I have for the past fifteen or sixteen years been working on the heating problem entirely on my own. The fact that I am employed by Alberta just happens to be that I knew something about the general fuel conditions, and I suppose they thought possibly I was the man to take the position which they had in mind. Now, to my mind, Canada has not got a fuel problem. It is just a question of using the fuel which we have to the best advantage. I believe that eventually this country will be heavily populated. We have got to use our resources in coal. The east has a certain quality and kinds of coal, and the west has certain kinds of coal. Now, it is probable that advances will be made in the transfer of coal from the heated coal to electrical power. As I stated yesterday, the present development of the steam engine or heat engine is very inefficient,

[Mr. G. R. Pratt.]

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and under the average circumstances, I do not suppose that it exhausts more than 15 per cent of the heat value of the coal into work done. Well now, taking the best steam producer in the world, it has not more than about 25 or 28 per cent efficiency. That means to say that you have got at least 72 per cent to come and go on for improving that. If that can be done, it means that the coal can be converted into electrical power. That is not impossible, and the probabilities are that there will be a heat engine at some time that will enable the heat of the coal to be converted electrically by economic means. If central heating, central steam stations, could be combined with the water stations, electrical heating could be distributed much better than transporting coal individually to the householder or to the large steam user. It might be that in certain districts coal could be transported to that particular district to a large power station, and converted into electrical energy in combination with the water powers. That would mean that the best economy would be obtained from the coal. At the present time I do not think that the average of the domestic furnace is more than 25 per cent of the heat value of the coal that is obtained in the house. Now, if say 60 per cent of the heat of the coal could be converted into electrical energy, there would be an enormous saving of Canada's resources in fuel, and much more convenience in obtaining heat. Another system which might be employed is, instead of the individual heating system in the house, to take one, two, or four blocks, and create a central steam heating system in that block. I am talking about city blocks. That would mean the saving of all the individual losses, which would mean more efficient operation of the plant, even under present conditions. You would probably get 50 or 55 per cent efficiency from the coal of the plant as a whole. That would save at least half the fuel. Then again, there is the probability of converting the coal, which varies in districts.

By Mr. Logan:

Q. Before you leave that central heating station system, would you mind describing more in detail what you really mean by that?—A. You take one or two city blocks. Every house will be piped up to one central power plant in that block, just the same as this system is done here, except that they would be smaller units than they are in this particular collection of buildings.

Q. Supposing you have a block of say twenty buildings to heat, now, if you are proceeding to build a central heating station, what would be the process?—A. I would take one house in that block, and make that the heating plant for the whole block.

Q. How would you heat it?—A. With steam.

Q. Describe the heating plant.—A. It would be a steam boiler with pipes from the central steam boiler, with radiation in the various houses on the way. You get away from the expensive street distribution by street mains. Instead of going along streets, you just cross the pipes into your blocks. That would mean, in addition to the saving of fuel, an enormous saving in labour.

Q. You would have a considerable loss of heat in transmission?—A. Very little. I put in a plant at Weston. We carry about fifteen miles of steam lines. At the present time the increase of efficiency made in pipe covers or pipe insulations is enormous. The saving has been enormous in the last few years. The losses from a separate boiler plant are away less than anything you would get in a distributing plant. I think that all the various schemes, such as converting coal to coke, converting coal power to electrical energy, and central heat distribution should be gone into from the Canadian point of view as a whole. We have got to get away from the purchasing of coal from the United States, whether it is for steam or whether it is for heating purposes. This country

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is going to have an enormous population, and even if things at the present time do not warrant making that change, we should have some data to gradually work up to the time that that thing becomes necessary. It seems foolish to spend the amount of money that we do across the line for fuel. One reason is that there is the idea that the only coal worth using is the best coal. That is becoming changed. The general idea is that all coal is good coal, but some might be better than others. In taking any coal, no matter what the heat value is, you cannot get the maximum results from it provided you consider it from the actual value. You can take coal running as high as 55 per cent ash, that is, stuff that has been thrown away from the domestic mine as being of no value. Burned under ordinary conditions, it is of no value, but considering the kinds of coal you have got, you can do anything with it. Take the Souris lignites. You cannot get very much for that considered as fuel. Take foreign countries, such as Italy, Souris coal would be extremely good coal; or some of the countries in South America—if they could get coal equal to that, they would say it was the best coal in the world. It is not the heat value of the coal, but it is the equipment and skill that is used in taking the heat value from it.

By Mr. Warner:

Q. Well, the central heating plant could only be used in cities, and where the population was close together.—A. Yes.

By Mr. O'Connor:

Q. Would you mind if I put you a few questions on gases? We have in Canada coals some of them having much higher in fixed carbon than others, and some others very much higher in gases?—A. Yes.

Q. Now, the fixed carbon, that is the heat retaining substance?—A. You mean, from a domestic standpoint?

Q. From the steaming standpoint, too.—A. No.

Q. They understand it better?—A. Within the last ten years there have been made enormous advances in furnace efficiency.

Q. Will you tell the Committee about the heat value of the gases as compared with the heat value of carbon—the real heat value. A lot of people think that these gases go to waste, and that they are not making much of a loss. Will you explain, what is known to me, that the gases have really the greatest value if properly used?—A. The easiest way to explain that is that anthracite coal is practically—we will say for argument's sake, that it is all carbon. The heat value of that carbon I believe is 14,600. I will check that afterwards. If you take oil, which is practically all gaseous matter, that will run between 19,000 and 20,000 B.T.U.'s per pound. Some coal—take a coal which is all carbon, the maximum amount of heat that you can get from it is the maximum heat value of the carbon. If you have, we will say, oil—some oil mixed with that carbon, you have got naturally a greater heat value per pound of coal. You might say that the bituminous or the gaseous coals, are carbon with certain oily matters increasing the heat value. In burning that gaseous matter you have got to have a certain size or area of combustion chamber, to allow the gas to remain long enough in contact with heat to come to ignition point. The whole theory has been, and is now, that if the flames did not touch the shell of the boiler, that you wanted to heat, you could get heat from it. That within the last few years has been exploded altogether. Once you have made the heat, you have got to use it or throw it away, but you cannot waste it. When I say you cannot waste it, I mean that whether you use it or not, that heat is dissipated in the building somewhere, or adjacent to it. The only way you can do it is to have a furnace chamber

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large enough to see that all those gases are burned. With the old style all the flames impinged on the boiler shell, the shell of the boiler, holding the gases before they change to the ignition point, but if they are burned in a chamber which is large enough, and hot enough, to start and furnish the heat, you have the heat and you can make any use you like of it. After it is made you cannot destroy it.

Q. Now, these gases are nitrogen and carbon and hydrogen, and what else?
—A. Well, to all intents the combustible gases are carbon—

Q. I mean the gases that are there first of all?—A. To all intents, the gases that come from your fuel are carbon, and a combination of hydrogen and carbon—hydrogen and carbon. They are the oily gases. In addition to that, your air contains an enormous percentage of nitrogen. That nitrogen has got to come in with the air. You could not get oxygen without the nitrogen. If you supplied all oxygen and no nitrogen, you would never be able to control the temperature of your flame. You would not get any brick work, or anything that I know of, which would stand up to the temperature.

Q. The nitrogen, if I may, is an element higher than carbon?—A. Not nitrogen.

Q. I mean, hydrogen.—A. Yes.

Q. And it is that hydrogen that is largely wasted, that you are speaking of?—A. If you do not get your proper furnace conditions. Now, having converted your coal, you can only burn half of your fuel. After the gas leaves the fire, you have an enormous proportion of carbon partly combined with oxygen, which you have still to burn. If you have not got a furnace temperature high enough, when you are running a house furnace at low efficiency on hard coal, that gas does not become hot enough to ignite, but in the larger plants where you have equipment and conditions to burn that, why, you get the advantage of all that unit. The nitrogen acts more as a conveyer. While you have to heat all that amount of gas up to a certain amount of temperature, it does no work.

Q. If I might help you, from the Alberta standpoint at this stage, your point, when you are dealing with Alberta coal, is that the ordinary domestic consumer burning coal, and the conditions under which the domestic consumer burns it, if he knows how, can really get as much heat out of Alberta coal as he can out of anthracite coal.—A. I believe they can get more per unit of the contents of the coal under the conditions, that is, provided the fuel is put in the furnace in the proper manner.

By Mr. Logan:

Q. Have you had experience in under-feed stokers?—A. Oh, yes. Well, the stoker should be such as to suit the kind of coal. If you get one coal in the district, a certain type of stoker is the best, but if you are in a district where you want to take advantage of any coal that is offered, there are times when you get a coal which would suit a chain grate stoker best, or a kind of coal that would suit the under-feed stoker best, or the over-feed stoker best. I have come to the conclusion that the best all-round stoker is the chain grate. Where you have to take any coal that comes along, the chain grate is the best type.

Q. Have you any experience with the Robb carburettor? It is a new patent of a man named Robb. They are just putting it on the market?—A. What is it for?

Q. It is put in the furnace and has a tendency to consume more of the gas, and produce more heat. They claim with it that they can save about 20 per cent.—A. Well, it sounds to me more like something for burning the gases. There is one they put on the smoke pipe. It is claimed that it takes all the gases not consumed back to the furnace, but that is more psychology than fact.

By Mr. O'Connor:

Q. Do you know anything about the coking of it?—A. No, I have not gone into that. That is a science in itself.

By the Chairman:

Q. Is there anything else you wish to say, Mr. Pratt?—A. No, sir.

Dr. CHARLES CAMSELL, called and sworn.

BENJAMIN F. C. HAANEL, called and sworn.

The CHAIRMAN: I have to make a statement here, gentlemen. It was our idea, when we started the work of this Committee, not to duplicate the evidence taken before the Senate Committee. Both these gentlemen gave evidence before that Committee. The other day a member of the Committee made a motion here, which was carried of course, that these gentlemen should be called here. We cannot very well avoid that. Since that motion was made, some evidence has been given which will necessitate some explanation by some of the members of the Mines and Minerals Department, and for that reason perhaps we will not be duplicating the evidence given in the Senate. I have here the evidence given by Mr. Graham two or three days ago in regard to peat, and I will just ask Dr. Camsell two or three questions about it.

By the Chairman:

Q. Dr. Camsell, what is your present position?—A. Deputy Minister of the Mines Department.

Q. How long have you occupied that position?—A. Three years.

Q. You have been making a study of the fuel supply of Canada?—A. Yes.

Q. Its development and so forth?—A. Since November of last year I have been acting as Chairman of the Dominion Fuel Committee which was formed at that time.

By Mr. Warner:

Q. Is that an International Commission?—A. No, it is a Fuel Committee, a Fuel Board.

By the Chairman:

Q. Mr. Haanel, what is your position?—A. I am Chief Engineer for the Mines Department, in charge of fuels.

Q. For how long have you occupied that position?—A. Since 1908.

Q. Have you been investigating the fuel question in its various phases during some of that time?—A. All that time.

By the Chairman:

Q. Dr. Camsell, I wish to bring to your attention the evidence given by Mr. Graham regarding peat and the process of making it into fuel. Will you turn to page 205 of his evidence—I do not know whether you have it marked or not. I asked him to explain what he meant by de-hydrating peat, and he gave the answer which you see there. Have you in any way investigated the method which Mr. Graham explains?—A. Mr. Graham's process was laid before the Department of Mines in 1913, and a report was made at that time by the fuel engineers of the Department of Mines, Mr. Haanel being one of them, and Mr. John Blizzard being another. Mr. John Blizzard is now Assistant Superintendent of the Fuel Testing Station at Pittsburgh for the United States Government. They were assisted in that investigation by Albert Stansfield, who is now connected with the University of Alberta. Their report was prepared at that time and given to the Department. Later on that same process

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was brought to the attention of the Department of Mines, and a second report was made by Professor J. B. Porter, of McGill University. The results of both these reports were such as to lead the Department of Mines to consider that no encouragement should be given on the part of the Government towards demonstrating that process. Later on, either last year or the year before, the same process was again brought to the attention of the Department and was referred to the Research Council. The Research Council then went into the process, made certain inquiries, and came to practically the same conclusion. After getting a report upon the process from the United States Bureau of Mines, and I believe also from the British Fuel Research Board, the conclusions arrived at by the Research Council were practically the same as the conclusions arrived at by the Department of Mines previously. So that the Research Council did not consider it necessary or advisable to support financially in any way a demonstration of this process.

Q. You will notice that in Mr. Graham's evidence he suggests that his system will take out more water from the raw peat than your system, thus making a better fuel, what he calls de-hydrating. Did you observe that in his evidence?—A. I observed that, yes, sir.

Q. In the experiments you have mentioned, has that been borne out by the experimenters?

Mr. HAANEL: The question of utilizing peat as a fuel, or the utilization of raw peat as a fuel depends upon the extraction from it of the moisture, and the extraction of that moisture costs too much money, that is, to remove it by artificial means. In the process employed in Europe, and which we have had demonstrated to us in Canada, we have employed the heat of the sun in removing that moisture. The peat found in our bogs contains 90 per cent of water and 10 per cent combustible substance, therefore to get one ton of peat we have to raise ten tons of raw peat, that is, one ton of absolutely live peat.

For many years, I might say for perhaps 25 years attempts have been made to separate that large amount of water from peat by various means, either by pressing the peat, or by artificially drying it. We cannot afford to take the combustible substance in peat and use that up in evaporating the moisture from peat. It is a low-grade fuel, and must naturally sell at a less cost than fuel of higher grades. Attempts to get the water from the peat upon a commercial scale have all failed economically. It has been found possible and has been demonstrated amply by men competent to carry on investigations that water can be pressed out of or separated from peat to the extent of 80 per cent, and up to almost 98 per cent by pressing alone and leave about 66 per cent of solids and 34 per cent of water in the peat after pressing. But that was on a laboratory scale, and the latter figure of 34 per cent was only got at by way of carbonizing. That was indicated in the de-hydrating of certain properties possessed by peat, which caused the peat to retain moisture. I might make it clear to the Committee if I say that peat for fuel purposes will humify. Peat possesses colloidal properties. It is perhaps fitting if I tell you what that means. A colloid is a substance which when mixed with water, the particles remain in suspension, and when the subdivision is carried on to a still further degree those particles of matter approach in dimensions those of a molecule. Then they behave as molecules more or less, and when it is in that state there is an enormous attraction between these different elements. If you should put them in a hydraulic press and attempt to press out that water, any opening which is large enough to permit the fuel molecule to pass will also permit the water to pass, or if not the substance will clog the opening and the water will be retained.

A colloid is the ordinary gelatine which you serve on the table, that is, a true colloid. That is a well known example of a colloid particle. Gelatine

[Dr. Charles Camsell and Mr. B. F. C. Haanel.]

contains an enormous quantity of water as compared with dry substances. No attempts whatever, no quantity of pressure and no kind of press you can conceive of would ever squeeze one drop of water out of that gelatine. Peat is not similar to gelatine in that respect, but it possesses certain of those properties. Peat also contains a certain quantity of colloid, such as gelatine. That occurs in different classes of peat; in some it is low, but it is generally about 1½ per cent of humified peat.

By Mr. Warner:

Q. I was going to ask you if there would not be considerable saving in shipping space if the peat was pressed rather than dried in the sun without pressure?—A. I presume you refer to briquetting, do you not?

Q. Yes.—A. It would be far better if we could do that economically. We can do many things with peat; we can make magnificent fuel out of peat, if we want to spend the money. But what we are after is to render it in some form which can be used for domestic purposes, or for purposes of heat energy lying dormant in water. All attempts to briquette peat have failed economically, that is to say, the resulting fuel is of low heat value. It is a desirable fuel, but of no heat value at all.

Q. You take it for granted that the value of the fuel is not sufficient to justify the expense of providing the pressure to get it into a smaller space?—A. Exactly. You must extract ten tons for every ton of substance you are going to work up into briquettes.

Q. You have extracted the water by some means or other?—A. Water pressure is prohibitive, as far as cost is concerned. You can press down to 70 or 75 per cent; that has been demonstrated. But you have enormous quantities of water left in that peat, which has to be evaporated by artificial means. When you have it down to 70 or 75 per cent, you have to use so much other fuel to drive off that water that there is scarcely any fuel left for heat.

I am going to describe the process for a minute or so. The best known process for converting peat into a high grade fuel which has been brought out or tried out upon a very large scale, but which entailed an enormous expenditure of money is a carbonizing process brought out by Dr. Acebry, a Swedish professor. He devised that process of carbonizing peat, by heating it in a low temperature, the carbon content of the peat was increased, and the water content was also increased by virtue of the combination of oxygen and hydrogen. He was able to increase the calorific value of that peat from 9,000 to 11,000 in a dry state, and at 12,000 he made an excellent fuel by that process.

By the Chairman:

Q. How much water did he extract from the peat, what percentage?—A. That is very interesting. On a laboratory scale, a very small scale, he reduced it down to 34 per cent, but when it was applied on a practical scale he failed to reduce the moisture below 70 or 75, and 70 was the limit. After the cakes of peat left the press, he had to put them through an artificial drier to dry out the rest of the moisture.

Q. What would be your objection to getting out a fuel of that kind?—A. No objection at all, Mr. Chairman.

Q. I think you have some objection.—A. I would like to have it.

Q. But what would be your objection to making that peat of commercial value for fuel?—A. I will describe the plant. The Swedish professor interested several people in the formation of a company.

Q. Is that form of briquette of peat commercially of any value in this country?—A. It is not of any value in any country, with costs in the vicinity of \$60 a ton.

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By Mr. Logan:

Q. \$6 or \$60?—A. \$60.

By Mr. Warner:

Q. How would it compare with coal in weight?—A. About 12,000 B.t.u.

Mr. LOGAN: That means that you have money to burn.

By Mr. O'Connor:

Q. Did you say 12,000 B.t.u.?—A. 12,000 B.t.u. We have not dealt with calories up until now. The B.t.u. is the English system. In 1902 or 1903, I forget the year, that Swedish professor interested several prominent men in England in the scheme. The capital of the company that had been so formed was about \$200,000 or £40,000. That was increased in successive years to £1,000,000 sterling. Such men as the Honourable Mr. Balfour and the Crossleys of the Crossley Manufacturing Company, who manufacture engines, automobiles and one thing and another, were members and subscribed large sums of money. The company erected a plant at Dumfries, Scotland, and experimented in that section for a number of years up to the war, but failed to produce any commercial briquettes up to the outbreak of the war. During the war, the British Government was looking for a smokeless fuel, a fuel which possessed other qualities, which could be burned in the trenches. They acquired the plant, spent £1,000,000 in addition to what had been already spent, in enlarging the plant so that it would have a capacity of 60,000 tons of briquettes similar to the one I have shown you. The plant was not finished in time for the trenches, but it was operated after the war. During the operation one of the Swedish professors in charge of such investigations went to Scotland to test the plant, or to report upon a test made at that plant. He reported that it was a plant which employed enormous quantities of heat, and that that heat was applied to finish the product. Heat is employed all the way through, and therefore heat is the important item. The process revealed that the quantity of heat required to manufacture a ton of briquettes was greater than the quantity of heat realized when the ton of briquettes was entirely burned.

During the time that plant was in operation there was a price set on the best English steam coal I think of 20 shillings per ton. They employed that kind of coal, a much higher quality of fuel than peat, to turn out those briquettes. The test of a typical day's run showed that in producing 136 tons of briquettes 119 tons of the best English coal were consumed in the process, or, putting it in another way, 590,000,000 calories, which calories were employed, were required to produce those briquettes, that is, the heating value of the briquettes, 590,000,000 had a value of 690,000,000 calories, or the value of the coal consumed in making briquettes took 60,000,000 more put into the process than could be taken out of it; in other words, the plant was operating on a negative efficiency, despite the efforts of the best engineers available in Great Britain.

By Mr. O'Connor:

Q. What do you say as to the criticism that they were endeavouring to produce an absolutely smokeless substance?—A. That was for trench work.

Q. You would be met with that criticism. What do you say about commercial peat? You would be met with the criticism that that was what they were after, and that that caused the expense?—A. If the British War Department wanted special fuel for particular purposes at that time, they could afford to and would pay \$200 a ton for it, whereas in peace times it would only have the value of ordinary fuel.

Q. What I want is an answer to that criticism. You were saying that they were aiming at an absolutely smokeless fuel, and that the expense was justified.

Under commercial conditions, such an expense would never be justified?—A. Such an expense could not be justified. I am coming to that point. That plant was operating on a negative efficiency. A Swedish engineer made a report upon that process; we have it in our office. It was presented to the Swedish Government. The Swedish Government sent him over there for the purpose of investigating the plant. He made the statement that if that efficiency were increased to fifty per cent and certain changes were made in the plant which would enable a certain amount of heat to be saved which was then being wasted, even then the fuel produced could never sell on the market commercially until a good class of coal rose to a height of \$30 or \$35 a ton.

Another thing is that the plant would have to be large enough to produce 80,000 tons of briquettes where the output would be only 40,000, assuming a 50 per cent efficiency; 50 per cent of the manufacturing product would be consumed in heat to make the other 40,000 tons of briquettes.

By the Chairman:

Q. So far as we are concerned, we could not consider that commercially under present conditions?—A. Absolutely.

Q. It is of no value even to consider it?—A. None at all.

Q. You have been experimenting with peat in Canada, sun dried?—A. Yes.

Q. Will you give us your experiences in that field, now that you are here?—A. Canada undertook the investigation of peat bogs in 1908. That work was undertaken on account of a petition which was presented to the Minister in charge of the Department at that time, asking that such an investigation be undertaken, on account of the large number of failures and the consequent loss of money which had occurred up to that time by people who had attempted to manufacture peat fuel on a commercial scale. The first thing the Department did at that time was to employ a Swedish engineer who was conversant with these matters. The Department sent him to the peat using countries of Europe, to investigate the status of the peat industry. After investigating various peat plants all over Europe he returned, and published his report called Peat and Lignite. That report describes various processes for pressing water out of peat artificially, drying and briquetting, in addition to the air-dried machine peat process. He recommended on his return that the Department of Mines should operate a small commercial plant such as was then being used in Sweden, to be erected upon a bog near Ottawa, to be used as a demonstration plant, to show how peat fuel could be manufactured on a commercial scale. The Department did that, and they did it because the air-dried machine peat process was the only process in the whole world which was being employed on a commercial scale. Every other process, every other attempt—and there were many of them, hundreds of them—had absolutely failed, with the attendant loss of all the money invested. The mine operated that plant for a period of two years. At the end of that time, they abandoned the plant or stopped work, because they considered they had finished their investigation, and that no good purpose was being gained by continuing the plant.

Q. What was the result of the investigations after two years experimenting?—A. We could make fuel on a small scale, which we could sell on the open market for certain domestic purposes for cooking stoves, and open grates, at prices attractive to the public.

Q. Would you mind telling us what the price was?—A. I have it here somewhere. No, I have not got it here. As I remember the figure, the cost of making that fuel was in the vicinity of two dollars, and you put on top of that the overheads and the fixed charges, and that would make it \$3.50, or \$5—about \$4, I think it was.

Q. Now, you have spoken about countries in Europe that use this peat as fuel. Do you think that notwithstanding the fact that they do use it success-

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fully in the old country, that it would not meet with the same success here? I mean, comparing the climates, say in Ireland or in Europe?—A. In my personal opinion there is a very large market for peat fuel in this country, such as we are making—such as we have made during the last four years. That peat fuel is a most excellent auxiliary fuel for use in the spring and late fall.

Q. It is not of very much value in the very cold months of December, January, February or March, in this country?—A. No. We recommend it for four months in the year for heating purposes.

Q. Now, you say the cost is about \$5 a ton. Would you mind looking at page 206 of the Evidence. I asked the question of Mr. Graham, "You say the Department of Mines has refused, has neglected or refused, or at any rate has not attempted any other method than the one you know of?—A. The only one they have tried for fourteen years, on which they have spent \$400,000. I may say that recently the Department of Research has made a small appropriation to determine to what extent the water can be removed from peat by mechanical means. Then, the other important question of whether carbonized briquettes, as made by my process will be a feasible proposition. I submit that it will prove two things, the quality of the fuel, the process of making these carbonized briquettes, and the system of dehydrating, how far it can be carried on by mechanical means." Now, your answer to that, or rather, Dr. Camsell's answer is that there have been four reports made on this very subject?—A. Yes.

Q. There has been the Porter report of McGill, the departmental report, the report of the Research Board, and one other.

The WITNESS, (Dr. Camsell): The United States Bureau of Mines.

Q. And in general those reports were what? That this process could be used on a commercial basis for fuel?—A. No, it could not be used on a commercial scale.

Q. Now I will ask you one more question. I see here that Mr. Graham stated (page 206) "that recently the Department of Research have made a small appropriation to determine to what extent the water can be removed from peat by mechanical means." I understand that Mr. Graham has been given advantage of that.—A. May I read the letter which I received from the Research Council on that question?

Q. Yes. I wanted to clear up the question as to whether there was or is any misunderstanding between Mr. Graham and the Department, and I took the matter up with a gentleman in another department, and I think this is the result of it.—A. On the first day of May the Secretary of the Research Council wrote me to say:

"The Research Council have decided, with the approval of the hon. James Robb, Chairman of the Sub-Committee of the Privy Council on Research, to make a grant of \$300 to the Deputy Minister of Mines to meet the expense of a demonstration to be attempted by Mr. James Graham of his methods of drying, carbonizing, and briquetting peat. This grant has been given on the definite understanding that the demonstration is to be under the supervision of the Department of Mines, which will, at the end of the experiments, present a report on the results of the same, indicating whether the processes involved would, if carried out on a commercial scale, prove successful."

By Mr. O'Connor:

Q. What May is this?—A. The first of May of this year.

Q. That is the same date as Mr. Graham gave his evidence?—A. Yes. I took the matter up with my own Minister and he suggested that I might explain the situation of the Department of Mines to Mr. Robb, and I wrote to Mr. Robb

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and told him that we had investigated this process previously, and that the Department of Mines had gone on record with respect to it. I may as well read you the letter to Mr. Robb: The latter is dated the 5th of May, 1923.

"The principles which Mr. Graham proposes to apply in his process were the subject of an investigation and report by a committee of three officers of this department some ten years ago. The result was a unanimous opinion that the process was impracticable for the main reason that all the peat manufactured by the process would be consumed in the operations to produce the necessary heat and power. This opinion has since been confirmed by officers of the United States Bureau of Mines, who were asked to report on it by the Research Council.

"Similar opinions have been expressed by the British Fuel Research Board in published articles, and the consensus of opinion in Europe is that the only practical method of eliminating the water from peat is drying by natural agencies—the wind and sun. These conclusions have been arrived at in Europe only after a very great deal of money has been expended in trying out various processes.

"In view of these conclusions, and the firm conviction of our officers on this subject, I hesitate to ask them to again go into this question. Mr. Graham also is not content that any of our officers supervise the test, so the conditions under which the grant is given make it necessary that the test be made under the supervision of this Department."

By the Chairman:

Q. Does Mr. Graham still insist that some departmental officers should not have supervision of this test?—A. I believe so. Mr. Graham came to see me.

Q. If Mr. Graham was shown the fact that the expenditure of government money must be under the supervision of some person who will be responsible to the government, or a minister of the government, well, I do not know. What do you say about that, Mr. Graham?

Mr. GRAHAM: I would suggest that if you want to get the facts, do not leave it to any person with preconceived ideas on this subject, such as the Mines Department have got.

The CHAIRMAN: I am asking you, have you refused to make your experiments, to use the \$300, or any part of it, to demonstrate that you have a commercial fuel. That could be answered yes or no.

Mr. GRAHAM: I was never asked.

The CHAIRMAN: Will you please answer yes or no? Have you refused to have this experiment made under the supervision of some person in the Department of Mines?

Mr. GRAHAM: Absolutely not, but I have asked that outsiders, neutral parties, be present.

The CHAIRMAN: I do not see why the Department of Mines should have any objection to neutral parties being there.

Mr. GRAHAM: I asked Mr. Camsell if he had any objection to outside engineers, and he will consent to nothing of that kind. He says it has to be in the Department.

The WITNESS: (Dr. Camsell.) Those are instructions laid down to me by the Research Council.

By the Chairman:

Q. Would you have any objection to what Mr. Graham calls a neutral engineer present with Mr. Graham?—A. Absolutely none.

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Mr. GRAHAM: I am awaiting the results of the test.

By Mr. Garland:

Q. Might I ask a question, Mr. Chairman? I would like to ask Mr. Camsell if the Department has carried on any tests under any other methods but the one method?—A. No, I do not think so.

Q. I understood there is simply one method that has been tested by the Department, only one so far. Is that true?—A. That is the case, because of the fact that numerous tests have been made.

Q. Abroad?—A. Yes, and it is the consensus of opinion everywhere in Europe where peat is being manufactured to the extent of twelve to fifteen million tons annually.

Q. I am quite satisfied that the evidence is correct. The only difference is that in the country where I come from they drain the bogs, and get the peat semi-dry.

By the Chairman:

Q. Have you had any information from Mr. Oligny, a French gentleman of Montreal, on his peat process?—A. I saw him to-day, and asked him to furnish us with information regarding his process.

Q. But you have no direct information regarding what his process is? He sent me some samples, and we asked him to come here, but for some reason or other, he did not appear.—A. I believe he was operating at a bog down near Montreal, and that this process was looked into by the Department.

Q. Do you know the result of whatever investigation there was?

The WITNESS: (Mr. Haanel): Mr. Oligny said the process in which he was interested, not now, was investigated about a couple of years ago, and that like other processes, has absolutely no commercial possibility at all.

Q. I notice that Mr. Graham says that the capital required would be \$800,000 to build a plant to produce 120,000 tons. He says that was the valuation of independent engineers. Now, what would you say, if that estimate was right—what would you say of the possibilities of making this peat of commercial value in this country I mean, taking into consideration all the other elements?—A. I cannot consider any process that is not practical myself. Here are the facts. I think Mr. Graham makes the statement, "Q. To what extent do you heat it?—A. In carbonizing up to about 450 degrees Fahrenheit. Q. You say you apply about 400 and some odd degrees of heat?—A. Yes, in the carbonization, that is, for about 20 hours." We have been carrying on work and doing research work for several years, and it has been carried on in Europe and the United States. France has done a good deal of work, and Belgium and England. Now, we know this; it is a fact, that carbonization, that is, the breaking up of the peat into carbon, tar, and combustible gas, begins practically at 550 degrees Fahrenheit, and at this temperature commercial carbonization requires 20 to 30 hours. This pertains to cellulose, hard and soft wood, and also to peat which has been carbonized under similar conditions. 550 degrees Fahrenheit is the exothermic point of cellulose. I do not know how any person can figure the cost of plant. Enormous amounts of money have been spent on briquette plants, and one thing and another, and even the most intelligent engineers and investigators have the greatest difficulty in arriving at even an approximate figure of the cost of such a plant. There is the National Coal Briquette Company which has spent in the vicinity of \$12,000,000 on a project which they thought would cost one or two millions.

Q. Are these the results of practical experience?—A. Research work. Now, carbonizers have been investigated from every angle by a large number of people, and they know pretty well what the carbonizer will do. In addition

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to that, you have expensive hydraulic presses, you have artificial dryers, and then you have your briquetting presses, and you have all your conveying devices, one thing and another, power plants.

Q. Coming back to your own method, has there been any successful attempt made in the method of the sun drying, and what you might call natural ways of extracting this water from the raw peat? Has there been any effort made anywhere in Canada to place it successfully on the market as a fuel?—A. Yes, since 1918, by the Peat Committee appointed by the Federal Government and the Government of the Province of Ontario. It was composed of R. A. Ross, Consulting Engineer, of Montreal, Mr. R. A. Harris, of Toronto, representing the Ontario Government, and another engineer of Toronto, and myself representing the Federal Department. We have experimented with several types of machine.

Q. Has any person outside the Government attempted to make this fuel on a commercial basis?—A. Mr. Shuttleworth, of Brantford, has on one or two occasions.

Q. With what results?—A. With no results, but they had another process. They tried to carry out this process by different means. You must make this distinction. We have not changed one iota the process for an air drying machine, which is the method employed in Sweden, Germany, and European countries, not in one single respect. What we have been doing is developing automatic machinery to save labour.

By Mr. Logan:

Q. Unfortunately I was not here at the first of your sessions. Has there been any evidence given here in reference to the extracting of the by-products of the bituminous coal in Canada?

The CHAIRMAN: I think it was given before the Senate Committee.

Mr. LOGAN: That is a very important matter as far as bituminous coal is concerned, particularly in Nova Scotia, as to the possibility of extracting the by-products of low-grade coal, for instance, in Nova Scotia. It is a matter of such importance that I think time should be spent in investigating it, and that the Deputy Minister and Mr. Haanel should be heard.

The CHAIRMAN: You would suggest that we have these gentlemen back here again?

Mr. LOGAN: Yes, for a special session.

The WITNESS (Dr. Camsell): I would like to give you some idea of the way the Canadian Government adopted the idea of air-drying. It was because of the experience that was gained throughout Europe during fifty or sixty years, and it has been incorporated pretty well in this book by Mr. A. Hausding, who is a recognized authority on peat manufacturing. He says this:—

(p. 72) "Every artificial drying plant (dehydration plant) has up the present, no matter how promising it seems to be, always proved too expensive, both as regards plant costs and running expenses. For this reason the manufacture of any hydrous peat is out of the question.

"Many other attempts to condense or to dehydrate peat by mechanical agents have either not got further than the experimental stage on the small scale, or the application for a patent; or the results obtained after working them did not correspond to the expectations entertained to such an extent as to allow of hopes for a favourable commercial success, even after overcoming the difficulties which usually become apparent in the preliminary trials.

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"To this class belong all attempts to remove water from peat, enclosed in cloths, by water pressure (or hydraulic) presses, which is in itself a roundabout method and which gave a very costly fuel with at the same time, a low output, and also attempts to employ centrifugal force for the same purpose, which were made by Cobbold, Gwynne (London), Hebert (Rheims).

"In more recent times, many attempts have again been made to solve the peat problem by dry pressing, wet pressing, fore pressing, and after pressing, in order to deprive the peat of its water by pressing, artificially heating, sucking away the air, and evaporation. No one of these new and newest discoveries deserves a detailed description, and they may all, without further consideration, be rejected as uneconomical. Experts conversant with the matter, knowing and taking into account the nature of peat, occupy themselves only with the further development and extension of the methods mentioned under (8) in all cases, except that of installations of the kind described further on for power stations in bogs."

The CHAIRMAN: We will ask you gentlemen to come back again, as has been suggested by Mr. Logan.

NORMAN T. AVARD, called and sworn.

The CHAIRMAN: Mr. Logan, you know Mr. Avard's qualifications; go ahead with your examination.

Mr. Logan:

Q. Mr. Avard, what is your present position?—A. General Manager of the Maritime Coal, Railway & Power Company, at Joggins Mines.

Q. Where is your head office?—A. The head office of the Company is in Montreal.

Q. Where are your local offices?—A. At Joggins Mines, Cumberland County, Nova Scotia.

Q. How long have you been connected with that Company?—A. 16 years.

Q. Before becoming General Manager, did you act in the capacity of sales agent?—A. Yes. I had charge of the department as General Manager.

Q. During that time, what has been the highest annual output of the Maritime Coal Company?—A. In the vicinity of 200,000 tons, or a little better.

Q. In what year?—A. 1917.

Q. What was your output during the past year?—A. Our output during the past year was approximately 112,000 tons.

Q. How do you explain the reduction?—A. The falling off of the market.

Q. How many coal areas does your company control?—A. 26 square miles.

Q. All situated in the County of Cumberland?—A. Yes.

Q. I suppose you are fairly well acquainted with coal conditions in the Province of Nova Scotia?—A. Yes.

Q. There are three fields—four fields?—A. Yes.

Q. Where are they situated?—A. There are the Cape Breton County coal fields, the Inverness, the Pictou County, and Cumberland County.

Q. The largest producer of coal in the Province of course is, what company?—A. The British Steel Corporation.

Q. I suppose you are about the next largest operator?—A. Yes.

Q. You have no connection with the British Empire Steel Corporation?—A. None whatever.

Q. What is the estimated quantity of coal in the areas controlled by the Maritime Coal Company?—A. In the areas controlled by the Maritime Company, the estimated quantity is something over 200,000,000 tons.

Q. How far is that coal situated from the City of Montreal?—A. About 700 miles.

Q. How do you reach Montreal at the present time, or how could you reach it if you had a market there?—A. By rail is the only feasible way at the present time.

Q. What rail?—A. Canadian National Railways.

Q. From what point?—A. Maccan Junction.

Q. How near are you to tidewater?—A. We are on the Bay of Fundy, practically on the shore. For the Montreal market the distance is too great, on account of competition with Cape Breton water transportation.

Q. Has there been any suggested method of decreasing the cost of getting coal into the St. Lawrence market?—A. It has been suggested and considered. A project has been considered of constructing a railway to tidewater, on the Northumberland Strait.

Q. What would be the distance?—A. About 24 miles.

Q. If you had such a railway constructed, would you be in a better position as far as distance is concerned?—A. Yes.

Q. To get into the St. Lawrence market?—A. Yes.

Q. Than the British Empire Steel Corporation in Cape Breton?—A. Yes.

Q. You are now on tidewater, on the Bay of Fundy?—A. Yes.

Q. Do you have any rail haul to the Bay of Fundy at all?—A. No, just a tramway of about 300 feet.

Q. Have you coal docks and a loading plant?—A. Yes.

Q. Therefore you could take coal and without any rail transportation put it into barges or vessels?—A. That is correct.

Q. Where is your principal market at the present time?—A. Our principal market is the Canadian National Railways.

Q. In days gone by have you sold coal in the Province of Quebec, for instance?—A. Yes, to some extent.

Q. In what parts?—A. Quebec, Montreal, Sherbrooke, Three Rivers and adjacent points.

Q. Why do not sell coal at those points now?—A. The freight rate under ordinary conditions is too high.

Q. What was the freight rate when you sold coal to Montreal?—A. Last year for instance we sold some, and the rate was \$3.80.

Q. But in the days when you sold large quantities up there, what was the rate?—A. If I remember correctly the rate at one time was \$1.80.

By the Chairman:

Q. And now?—A. At the present time it is \$3.60.

By Mr. Logan:

Q. When the rate was put up from \$1.80 to \$3.60, your market in Quebec was closed?—A. Only under exceptional circumstances.

By Mr. Lapierre:

Q. This increase in rates was gradual?—A. Yes, at first, but latterly it was very steep.

By Mr. Logan:

Q. The result of the increases in freight rates has been that your market is very limited?—A. Very much curtailed.

Q. It is confined practically to the Maritime Provinces?—A. That is correct.

Q. How many collieries have you in connection with your Company?—A. We are operating seven at the present time.

[Mr. N. T. Avard.]

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Q. And how many are idle?—A. Of the Maritime Coal Company?

Q. Yes.—A. Five.

Q. How many?—A. Five.

By Mr. Lapierre:

Q. Were those five that are now idle operating when you were selling coal in the Province of Quebec?—A. Yes.

The CHAIRMAN: It might be an inference, but I presume Mr. Lapierre's questions tends to show that if the market in Quebec was available they would be operating the whole twelve.

WITNESS: Might I offer a word in explanation in connection with this large number of collieries? They are all more or less, excepting one, in a state of initial development; they are there ready for comparatively rapidly increasing the output if a market was available.

By Mr. Logan:

Q. Have you made any estimate of the quantity of coal you could produce to-day if the market were available, I mean with the present slopes you have?—A. Only a few weeks ago I had an estimate made for our Board in the consideration of future possibilities, as to the possibilities of the future collieries, the present initial development, and with these collieries we figured that we have access to 35,500,000 tons. That would be only going to a depth of 8,000 feet, which might easily be exceeded.

Q. That is, on the slope, not vertically?—A. Not vertically, they are all slopes.

Q. As a matter of fact do you know the depth of the lowest slope in Nova Scotia?—A. The vertical depth?

Q. Yes.—A. No, I do not.

Q. Do you know the depth of the slope?—A. Not in Pictou County.

Q. How many tons did you say you would have access to?—A. We blocked out 35,500,000 tons ready for production.

Q. I suppose if the market were sufficient, you could very readily block out a very much larger field of coal on your different areas?—A. Yes, that is possible, but with the present initial development, if those developments were carried on to any practicable extent it would offer a very large output.

Q. You have stated that your present openings are meant to mine 35,000,000 tons of coal; have you made any estimate of how many tons a day you could mine from your collieries if they were all in operation?—A. Well, that depends of course upon the amount of capital available and the number of men available when wanted. Those collieries should be very easily increased to a daily production of 2,000 tons, and with time and capital the production could be increased beyond that quite considerably.

Q. I believe you have in connection with your Company a power plant at the mouth of one of your collieries?—A. Yes.

Q. And that you sell power to adjacent industries?—A. That is correct.

Q. As well as to towns?—A. That is correct.

By Mr. Lapierre:

Q. What price do you get for the power developed that is sold to adjacent corporations, per horse power?—A. It is not sold exactly in horse power units. The present rate schedule is \$3.50 per kilowatt of demand per month, plus a meter charge of 5½ cents per kilowatt hour for the first 90 hours' use of demand; 5 cents per kilowatt hour for the next 180 hours' use of demand, and 3½ cents per kilowatt hour for anything over that in any one month, all subject to a ten per cent discount.

Q. Can you give approximately how close to the price that would be in horse power?—A. It would depend altogether upon the consumption per horse power of demand.

By Mr. Logan:

Q. When was your power plant opened?—A. I think it was in 1906. I was not with the Company at the time.

Q. I believe you have the honour of having the first power plant of its kind on this Continent?—A. That is correct, I understand.

Q. To get back to our evidence, Mr. Avard, let me ask you this: As far as the price of coal is concerned, I will ask you this question, because it is available to any Member of the House, what is the price you received from the Government of Canada for your coal last year, run-of-mine?—A. Last year the contract price was \$5 per net ton at Maccan Junction. That was subject to a labour clause, a wage clause, which increased the price to \$5.40 and a fraction later on. At Maccan Junction we have to transfer it about 12 miles on our own railway.

Q. On your own railway?—A. Yes.

Q. Leaving the Maritime Coal Company, how many other coal companies are in existence along those twelve miles of railway?—A. There are seven others on that line.

By the Chairman:

Q. In addition to the Maritime Coal Company?—A. Yes.

By Mr. Logan:

Q. How many are operating?—A. Those are operating.

Q. In addition to the seven how many are not operating?—A. I think there are nine or ten.

Q. Ten not operating?—A. Yes.

Q. Can you give us any reason why they are not operating?—A. Largely because of the lack of a market. A number of them opened during the war boom, and later on had to discontinue.

Q. How much coal is estimated to be in the areas, in what we will call the Joggins-Maccan areas—we call it the Northern Coal Field I think—can you give that to us, I do not want it exactly?—A. Well, I would have to make an approximate guess at that. I do not know the separate estimates for that section, but I would say about 350,000,000 tons.

Q. Let us go now to the other side of the Basin. We have what is known as the Cumberland Basin, what is referred to as the Cumberland Basin?—A. Yes.

Q. The Joggins and all those others you have been mentioning are on the northern side of that Basin?—A. Yes.

Q. Going to the south side of the Basin, what is the largest colliery there?—A. The Spring Hill.

Q. Operated by what Company?—A. The British Empire Steel Corporation.

Q. Do you know how many areas they control?—A. I think about 28.

Q. 28 square miles?—A. Yes.

Q. Out of those 28 square miles, on how many are they operating?—A. I have understood on one.

Q. In that one square mile they have how many collieries in operation?—A. Three at the present time.

Q. Do you know if they have any idle?—A. One idle.

Q. What is the production from their present operations?—A. I understand about 2,500 tons daily.

Q. Per day?—A. Yes.

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Q. Where do they ship their coal?—A. Locally, to the local market. They ship some from their seaport at Parrsboro.

Q. Connected in what way?—A. By their own railway, with the mine.

Q. Where is that coal they ship by Parrsboro marketed?—A. Mostly in our Bay of Fundy ports and Halifax.

Q. Do the Bay of Fundy ports include St. John?—A. Yes.

Q. That is what you mean?—A. Yes.

Q. The other means of transportation is by the Canadian Government Railways via Spring Hill Junction?—A. Via Spring Hill Junction.

Q. Do you know the estimated quantity of coal in the areas of the British Empire Steel Corporation in Cumberland County?—A. You are asking me for an estimate. The total estimate for the County is approximately 850,000,000 tons, which would leave them about 500,000,000 tons. I have been informed that since these geological estimates were made they have proof of other large deposits in that district, amounting to probably 100,000,000 or 200,000,000 tons.

Q. Do you know the thickness of the seams they are operating?—A. The thickness varies. In the main seam, they are operating from 8 to 11 feet.

Q. How wide is it?—A. I don't know that that is known. It extends for miles. One of their main collieries, the main producing colliery to-day is I understand 600 or 700 feet deep, and their levels on either side are probably 3,000 to 4,000 feet.

Q. From the time a man leaves the surface until he gets to where he wants to go is about two miles?—A. Yes.

Q. What is the quality of the Spring Hill coal, as a steam producer?—A. It has a good reputation as a steam producer.

By Mr. Lapierre:

Q. Would it be suitable for domestic purposes?—A. It is used very generally for domestic purposes.

Q. Where?—A. In the Maritime Provinces.

Q. How is it sold to the consumer down there?—A. That is according to the locality; it runs from \$9.50 to \$12.00.

By Mr. Logan:

Q. It is considered one of the best domestic fuel coals in Canada, is it not, the Spring Hill coal?—A. Yes.

Q. Have you any analysis of the Spring Hill coal?—A. No, I have not.

Q. From memory can you give the Committee the analysis, generally?—A. Well, when you are speaking of an analysis, you can get almost any analysis you like from a seam of coal. If you take a piece of coal, of real coal, it is a lump of coal, and if you analyze it, which is frequently done in geological tests, you will get a very good analysis, whereas if you took what would be a real commercial analysis you would get a considerable variation. For instance, take a car of coal which has been made ready for shipment, and take a number of samples from different sections of the car, put them all together and take an analysis, you would get what I would call a commercial analysis.

By Mr. Garland:

Q. That is what the Government does?—A. Yes, very frequently, but not always.

By Mr. Logan:

Q. To come to the point in reference to the analysis of Spring Hill west slope coal, what do you consider the fixed carbon?

Mr. GARLAND: That is very satisfactorily laid down in the Government reports.

Mr. LOGAN: They are absolutely misleading. I have never seen a Government report which would agree with the reports we get at McGill University or any other University.

By Mr. Logan:

Q. What is the fixed carbon?—A. The fixed carbon on Spring Hill coal—I am on delicate ground now—I would say is about 65 per cent.

Q. And what B. t. u.?—A. That B. t. u. would run from 13,000 to 14,000.

The CHAIRMAN: About the same capacity as anthracite

By Mr. Logan:

Q. I believe it is very low in sulphur Mr. Avar?—A. Comparatively low.

Q. Less than one per cent?—A. In some cases.

By Mr. Lapierre:

Q. What is the price of the coal at the mouth of the pit, screened?—A. I understand their price to-day is \$6.75 at Spring Hill Junction.

Q. What would be the freight rate from the mine to Montreal?—A. \$3.60 to-day.

Q. Anthracite is selling to-day in Montreal at \$15.50?—A. That may be so, I do not know about that.

Q. Can you not enter the market of Montreal under present conditions?

By the Chairman:

Q. It does not speak very well for the British Empire Steel Corporation?—A. That is the difficulty, so far as Cumberland County is concerned.

By Mr. Logan:

Q. Cape Breton coal can be brought to Montreal in 10,000 ton lots at about \$1 a ton?

By Mr. Lapierre:

Q. Is the coal brought from those other mines as good or of as high quality?—A. The Cumberland County Mines?

Q. Yes.—A. The quality varies in many cases.

Q. Your difficulty is the rail haul entering the Montreal market?—A. Yes.

Mr. LOGAN: The difficulty is the question of markets.

By Mr. Spence:

Q. Is Cape Breton coal as good?—A. Yes, it is usually classed about as good.

By the Chairman:

Q. No. 6 would not be as good?—A. No. They have a large number of seams.

By Mr. Logan:

Q. How many different seams of coal have you discovered, in the Maritime Coal Company's areas for instance?—A. We are only operating on three seams, but there are other seams available. I would not just like to say offhand how many of them have been proven.

Q. Is there any other statement you wish to make before we close?—A. In connection with the Cumberland field, I would like to state that I do not think the necessary investigation has been made to prove the value of that coal field. I think steps could be taken which would be of great value in showing up the resources of that section, which have not been taken.

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By Mr. Lapierre:

Q. Have you ever shipped screened coal for domestic purposes into the Province of Quebec?—A. Yes, to a limited extent. We prefer of course to sell run-of-mine wherever possible.

Q. American anthracite is landed in Montreal now at \$12 a ton; why could you not meet that competition?—A. I would not like to say that a ton of Nova Scotia bituminous coal is equivalent to a ton of American anthracite. Of course there are different grades of American anthracite as well as any other kind of coal. In making a general comparison you are not getting very far.

By Mr. Lapierre:

Q. Would a larger production not reduce the cost at the pit?—A. Yes.

Q. You could with a larger market reduce the cost of production?—A. Yes.

Q. So that a comparatively small reduction in freight rates would enable you to get into the Province of Quebec?—A. I would hardly say that, when you compare \$3.60 with a water rate of \$1 or less from Cape Breton.

Q. Your competition is the water rate?—A. Yes.

Mr. LOGAN: Are you going to have any witnesses here from Pictou?

The CHAIRMAN: Not that I know of. If Mr. Avard is going to take very much longer, I will have to ask the Committee to adjourn.

Mr. Garland:

Q. Have the operators in your field made any attempt to educate the consumers along the lines of the availability and the value of your coal?—A. Not so far as our County is concerned. The only educational propaganda would be carried on by the British Empire Steel Corporation. They have a considerable market in Montreal.

Q. Do you not think you could help that Province a lot by a little propaganda?—A. Undoubtedly.

The CHAIRMAN: I think it is quite possible that with sufficient propaganda it could be done, and it would not need very much. If the people of Alberta can capture the Winnipeg market inside of two or three years by propaganda of that kind I do not see why we should not put in 100 per cent of the coal in Montreal.

Mr. LAPIERRE: The first shortage that would have to be met would be the shortage in Central Ontario.

By Mr. O'Connor:

Q. You had been selling coal before you became manager?—A. I had charge of the sales department.

Q. You have some knowledge of the Montreal market?—A. I could not say to any great extent.

Q. Can you answer this general question as to whether the Province of Quebec takes all the Nova Scotia coal it can get?—A. No; there is severe competition with both American bituminous and anthracite.

Q. But Nova Scotia could not possibly fill the whole of Quebec's demand?

Mr. LOGAN: They could if there was development enough.

By Mr. O'Connor:

Q. But as a matter of fact you know there exists a tremendous demand in Quebec for Nova Scotia coal which you personally have not been able to supply, but which nevertheless exists?—A. There is a large market there, which should be satisfied with Nova Scotia coal.

Q. If you could get it up there for about \$1 a ton?—A. Yes.

Mr. GEORGE R. PRATT: Mr. Chairman, the witness stated that bituminous coal was not equal to anthracite as domestic coal. Undoubtedly that is because

[Mr. N. T. Avard.]

the public have not been educated to believe that bituminous coal is as good as anthracite. We have in bituminous coal a greater heat value than anthracite. I think it is a mistake to leave it for the Committee to infer that that coal is not as good as anthracite. It is generally understood that it is better than anthracite.

WITNESS: Yes, that is correct. It all comes down to a matter of educational propaganda. If the people become accustomed to using anthracite coal they find great difficulty when they begin to use bituminous coal, and for the same reason people accustomed to using soft coal would have great difficulty in getting the fires going with anthracite.

Mr. PRATT: That was the idea when anthracite came on the market. It was thought that soft coal was no good that it had no heat in it and it required a lot of education to dissolve that idea.

By Mr. Logan:

Q. At the time you had the low freight rates, Mr. Avard, do you know how far into Ontario Cumberland County coal was being used?—A. I believe as far as Brockville.

Q. What coal did they burn at Brockville?—A. Spring Hill.

By Mr. Lapierre:

Q. Before leaving the previous question, could that bituminous coal be used in furnaces which are now consuming anthracite?—A. I think it could be used to much better advantage in a specially designed furnace. There is no advantage in attempting to utilize a heating equipment devised for a special fuel, by the use of another fuel.

Q. What would be the origin or cause of that?—A. That would be a question for a heating engineer or a fuel engineer to answer, someone with more technical knowledge than I have. A furnace may be designed for certain conditions and certain qualities of combustion, and if you change from one kind of fuel to another, you must conform to that in the construction of your fuel-consuming equipment.

Q. That is that people now with furnaces in for using anthracite coal would have practically to change their heating apparatus if they changed to your coal?—A. I would think so, to get the same efficiency.

Mr. LOGAN: What do you say about that, Mr. Pratt?

Mr. PRATT: I think that is wrong. We have proved that to be wrong in the West. When we started out with Alberta coal, the coal recommended for heating or furnace work was the Alberta domestic, and for heating water boilers the bituminous, the same class of coal you have. Better results were obtained from the bituminous than from the other. We have changed from the bituminous to the domestic coal. It all depends upon the method of putting the coal on the fire. We have found that by putting the coal in the fire properly you can get greater efficiency with the present equipment than with the hard coal. When you say the furnace is being designed for hard coal, you are wrong. A furnace is not designed for any hard coal at all, it is simply a fire pot to throw the coal into.

WITNESS: That may be.

Mr. PRATT: The same equipment could be used for this coal as for any other.

The CHAIRMAN: Anything else?

Mr. LOGAN: That is all, I think.

The CHAIRMAN: Before the Committee rises, I would like to say that Mr. Knox made a motion that every member of this Committee be furnished with a copy of the evidence before the Senate Committee. I have a note here saying

[Mr. N. T. Avard.]

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that six complete sets of the evidence taken are being sent. It says that each member of the House of Commons has been supplied with a copy of the evidence to date through the post office.

Mr. LOGAN: That is right, Mr. Chairman. I spoke this morning in the examination of the witness in reference to the Robb Carbureter, a process by which better results can be secured in the burning of coal in furnaces. Mr. Robb is in Montreal, and is willing to come here and give evidence any time we call him. I think it would be a good thing to have him here. I will move therefore that he be called as a witness.

The CHAIRMAN: What day would you suggest?

Mr. LOGAN: Any day.

The CHAIRMAN: We might get him here on Tuesday.

Mr. LOGAN: All right. I will give you his address. His name is Roland W. Robb.

The CHAIRMAN: We will adjourn now until Tuesday morning next at 11 o'clock.

(The Committee adjourned until Tuesday, May 22, 1923, at 11 a.m.).

HOUSE OF COMMONS,

COMMITTEE ROOM 429,

WEDNESDAY, May 23, 1923.

The Select Standing Committee on Mines and Minerals met at 11 a.m., the Chairman, Mr. Carroll, presiding.

R. W. ROBB, called and sworn.

By the Chairman:

Q. Mr. Robb, what is your business?—A. I am District Manager of the Robb Engineering Works, and Manager of the Robb Coal Carburetor Company.

Q. These are situated where?—A. Our Head Office is at Amherst, Nova Scotia; my office is at Montreal.

By Mr. Logan:

Q. Mr. Robb, have you been making a study of the economical burning of fuel for domestic purposes?—A. Yes, that is part of my business.

Q. Whom have you been associated with in that study?—A. The Robb Coal Carburetor Company, and Mr. D. W. Robb, consulting engineer, of Amherst, Nova Scotia.

By Mr. Forrester:

Q. Where is your plant?—A. Amherst, Nova Scotia.

By Mr. Logan:

Q. How long has D. W. Robb been in the engineering business?—A. I should say forty-five years.

Q. He is your father?—A. Yes.

Q. As the result of your investigations, have you and your father produced any apparatus to conserve the coal?—A. Yes, we have an appliance called the Robb Coal Carburetor that saves at least 20 per cent, for the ordinary house-

[Mr. R. W. Robb.]

holder, and on power plants it will save from 10 to 15 per cent. This has been found in actual tests which we have made in various parts of Canada.

Q. Will you describe to the Committee this carburetor?—A. Yes. I think perhaps the best way would be through the circulars which I have here; I can put them before you so you will see just at a glance what it is, and then I can explain. I have them in both French and English.

Q. Now, Mr. Robb, will you proceed with the general principles of this carburetor?—A. To begin with, the combustion of coal is a simple matter in a house heating furnace; it is a recognized law by all engineers that when you burn coal half the combustion takes place in the fire bed, the fuel bed, and half of it above the fuel bed in the combustion chamber. Now, it takes from 16 to 18 pounds of air to burn a pound of coal, and you can only get about half this amount through the gate bars in the bottom of the furnace and all that you can get in there is absorbed in the first three or four inches of the fuel bed. The result is that when you put green coal on the fire, it is simply coking; that is, the gases are passing off without being ignited unless you can admit air to the bed. If you open your damper in the top door, you let in cold air which will chill the furnace, and you will still have waste. We have a simple device, consisting of a casting—if you will look at the last page of the circular you will find a cut of it; this is a series of baffles on the inside. This casting is bolted to the inside of the fire door, and it gets very hot; we admit air through the door which passes over these baffles and is heated and it is sprayed over the fuel bed. That is all that the carburetor consists of. If you turn to the centre page, you will find two examples of what takes place; the top right corner shows green coal with the gases passing off being unconsumed, and in the lower left hand corner you will find the carburetor spraying the hot air over the coal and burning these gases. That is with the carburetor attached. It has been found from actual experience that a saving of from 20 to 25 per cent has actually been made on house furnaces with this attachment, and a considerable decrease in the smoke has been apparent; of course, they go together. Of course, there are both visible and invisible gases passing up, it is not all smoke wasted, if you have not some attachment like that.

By Mr. O'Connor:

Q. You really turn the furnace into a carburetor, is that not it?—A. No, that name originated with the automobile, to get the right mixture of air and gasoline; this is exactly the same thing. It gives you the right mixture of air with these gases.

Q. In the furnace?—A. Instead of gasoline and air it is the volatile matter of the coal and air, giving a proper mixture; it does exactly the same thing as a carburetor.

Q. Now, in an automobile what happens inside the carburetor? The air and gas mix, is that not it, in the proper proportions?—A. Yes, to atomize the gasoline and make it explosive. For instance, in its fluid form, you could put a match in it and it would not explode.

Q. You have a very excellent device there, apparently, which warms the air so by the time it gets into the furnace the air is in a condition whereby it will properly mix with the gases and they will burn?—A. Yes.

Q. I call that turning the furnace into a carburetor. We are not differing about anything.—A. Of course, the engine burns the gasoline.

By Mr. Warner:

Q. Is it difficult to adjust and operate?—A. It is very simple indeed. The fact of the matter is that in Montreal a good many people have furnace men, they are Italians and more or less ignorant men, and all the adjustment that

is necessary is this butterfly damper in the fire door. That is on the front page there. The cut shows it wide open. For different kinds of fuel it requires a little different adjustment. In burning bituminous coal, where there is more volatile matter, you require more air, and you might find that it worked better with the damper half open. With hard coal or anthracite, you might find it better three-quarters closed, and in addition to that there is the damper in the pipe, of course, a key damper. It is not shown here but we insist on that in every case, with the regular old fashioned key damper the ordinary householder will very soon find just about the right way to adjust that to get the best results.

By the Chairman:

Q. It must enormously decrease the volume of smoke, too?—A. It does.

By Mr. Logan:

Q. What is the price of it?—A. It is a very cheap device. The ordinary household device, 6A, costs \$25 installed. For instance, a man that burns—the average householder burns at least 10 tons, and generally a great deal more, and say 20 per cent saving on that would mean at the present price of coal, \$30 to \$35 a year, so it is considerably over 100 per cent on his investment, and he will make that saving every year. In addition to that, he will get a great deal more comfort in his house, his coils in the morning will be warmer, and so on.

By Mr. Drummound:

Q. You say you could adjust it to the use of either hard or soft coal?—A. Yes.

Q. I see in your price list you have two kinds of carburetors; one for hard and one for soft coal.—A. As a matter of fact, we have gone a little finer than there was any need of. In the soft coal carburetor, the orifice is a little larger, because the soft coal requires a little more air, and that applies more to large power boilers. On the ordinary house furnace, that refinement is really not necessary.

Q. Either one attached to the ordinary house furnace will give satisfaction?—A. They will give satisfaction, but on the large power boiler where they are burning soft coal, we have larger orifices.

By Mr. O'Connor:

Q. How long have you been manufacturing these?—A. We have been manufacturing them for a little over a year now.

Q. How many of them are in use now?—A. I could not say exactly; I have not a list of the Maritime Provinces, but in Montreal there are about in the vicinity of 100, and in Toronto I think there are probably 150 or more.

By Mr. Lapierre:

Q. Could the price not be greatly reduced if it became in general use?—A. Yes, if it became generally used, so you could get quantity production, and we hope to reach that next year. You see, last year was spent more in introducing it, getting it installed.

By Mr. Forrester:

Q. That would not burn more coal?—A. No, it burns less.

Q. Even when it is not checked?—A. Yes, of course by the use of it you can keep your furnace checked and get better combustion than you can without it, because you are getting this air on top.

By Mr. Spence:

Q. This device is attached on the inside of the door of the furnace?—A. Yes.

Q. And it comes right out with the door of the furnace?—A. Yes.

By the Chairman:

Q. Can you attach it to any furnace?—A. Yes.

By Mr. Logan:

Q. In what large buildings is it being used?—A. In Montreal, I think the largest building, perhaps, we have it in is the Canada Cement Building.

By Mr. Lapierre:

Q. That is the big building on Phillips Square?—A. Yes. Of course, that is a power plant; they have large power boilers, and I may say that they put the carburetors on one boiler on trial, and made a test which they checked themselves very carefully, and they found they made 12.4 per cent of a saving. As a result of this, they equipped the other boiler with the carburetors, and they are making a saving which means to them in dollars and cents about \$1,000 a year, on an expenditure of \$250. Of course, you will understand the percentage of saving on boilers of that kind is not as great as on a house furnace, but they are more efficient to start with, and naturally the percentage of saving is not as great. The house furnace is probably the most wasteful of any coal consumer that we have.

By the Chairman:

Q. Would that not obviate what they call banking the furnace? I generally throw a shovelful of ashes over the hot coal at night. Would this obviate the banking of the furnace, to some extent, by regulating that draught, or do you know?—A. Yes, because you could keep your dampers shut a great deal more and still keep your fire in. That is logical. You could get the air in there and burn it slowly; you could keep your fire in. The great trouble is in banking your furnace you have too hot a fire to start with, and it would probably burn out if you did not bank it up. You have to keep your damper open to keep a certain amount of air in, because the only air you can get really is through your grates and your coal would probably burn out unless you checked it that way.

By Mr. Drummound:

Q. Do you install these under any guarantee?—A. Yes.

Q. What guarantee do you give?—A. On house furnaces, we guarantee a saving of 20 per cent and install them on a thirty-day trial. On boilers, we guarantee 10 per cent saving, and agree to make a test at a fixed charge, and if we do not show a 10 per cent saving, we will take the carburetor off, and there will be no charge. If we do make the saving, they have to pay for the test, which generally runs around \$75 or \$100. It is a comparatively simple thing to make a test on a house furnace. All you have to do there is to watch your temperature and check quantity of coal consumed.

Q. This guarantee of yours, the test must be made by your own people?—A. We make the test for them, and they have the privilege of checking it.

Q. What I was meaning was this: in selling your appliance to an individual, heating his house, would you sell it under a guarantee of any test made by himself?—A. We have been leaving it, as a rule, to his own judgment, and we find invariably that they are absolutely satisfied.

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Q. The most of these successful devices are sold under a guarantee to these people that if after a 30 days trial they are satisfied, they pay for it, and if not, they are taken away. Is that the guarantee you give to the private individual?—A. Yes.

By Mr. Knox:

Q. Are any of these in use in Ottawa?—A. No, we have not attempted to introduce them here. I might say also that my brother in Boston has sold probably 1,000 of them in that district.

By Mr. Lapierre:

Q. You manufacture these in a Canadian plant?—A. Yes, sir. A great many appliances of this sort are complicated, and require a lot of attention, and get out of order. This is a simple thing, once you put it on and get it properly adjusted you can forget it.

By the Chairman:

Q. How long will one of these last?—A. It should last as long as the furnace.

Q. It is made of the same material, I suppose?—A. Yes, it is a very heavy casting.

Q. Is there any other statement now you would care to make, Mr. Robb?—A. I might say that in connection with this carburetor we have been putting them in prominent places for many prominent engineers. For instance, men like G. H. Duggan, of the Dominion Bridge Company, and F. A. Combe, consulting engineer, men that understand the principles of combustion, so we would get their support, and we are getting it. We have numerous letters and testimonials from people of this sort, and I personally am confident that if every householder would put one of these in that at least a 20 per cent saving in our fuel consumption would be made. There is no question about it. I have copies of tests here; I can leave them with you if they are of any use, made by the T. Eaton Company, and the Canada Cement, the Maritime Telegraph and Telephone Company at Halifax, the Royal Bank of Canada—I might just say that in Toronto, the Bank of Toronto equipped every branch of their bank in Toronto with this device; they bought ten. Sir Clifford Sifton put eight on in Toronto.

By Mr. O'Connor:

Q. I suppose it takes a few minutes after you light the fire before it gets hot enough?—A. Yes.

Q. There is a little smoke at first?—A. Yes.

Q. And then it ought to practically cease?—A. It will not consume it all, it will reduce it perceptibly, but it is not intended as an absolute smoke consumer; you will have to get more than that for the absolute consumption of smoke from bituminous coal. The object of this is principally to get better combustion.

By Mr. Arthurs:

Q. What is the object in insisting upon the check damper?—A. You can get air in above and below the fire, and as a result of that you can cut down your chimney draught to a great extent. For instance, if you have not that air going in above your fire, you will have to have your damper open wider to get more chimney draught, to force more air through your grates. In other words, you are forcing it and not getting good combustion, you are wasting coal.

The CHAIRMAN: Are these check draughts on the doors of all furnaces?

Mr. ARTHURS: I believe they are; almost every furnace has a check draught.

[Mr. R. W. Robb.]

Mr. SPENCE: Might it not be wise to put in the result of the T. Eaton Company's test?

Mr. LOGAN: Read it so it will be in the evidence; read some of the testimonials.

The WITNESS: This is the T. Eaton store at Moncton; the test was made by their own engineer, Mr. J. F. Mackinnon. It was a Springhill Run of Mine bituminous coal.

By the Chairman:

Q. That is a Nova Scotia coal?—A. That is a Nova Scotia coal. The method of stopping and starting is known as the alternate or running conditions. The water meter in the feed line to the boiler was used for water measurement, and the number of Imperial gallons registered being multiplied by 10 would give the weight of water in pounds. All coal was weighed by standard scales. Readings of the water meter, steam pressure and feed damper were taken every 15 minutes, and checked by the engineer of the plant and Mr. Shaw, agent for the carburetor company. The boiler was a standard horizontal tubular of 150 horse-power, 72 inches in diameter by 18 feet long. Now, I have the complete data of the test here; it is rather long, perhaps if I gave you a resume of the results it would be all right. This test A was without carburetor, and test B was with carburetor. The duration of the test was for eight hours. You will observe from the figures that the percentage of saving of coal by the carburetor was 16.44 per cent.

Q. Give the number of tons under similar conditions used; is it tons or pounds?—A. It is pounds. You will observe that the weight of coal as fired without the carburetor for the eight hours was 5,100 pounds, and with the carburetor it was 5,250. I will explain that. This, on the face of it, to the layman, looks as though more coal was used with the carburetor than without it, but it is all determined on the evaporation of water, and you will observe that without the carburetor the total weight of feed water evaporated was 27,200 pounds, and with the carburetor it was 33,450 pounds.

By Mr. O'Connor:

Q. It does not matter how much coal you use, so long as you relate one to the other?—A. It is based on the pounds of water you can evaporate per pound of coal. It is figured out and given here as follows: the vaporization per pound of coal from and at 212 degrees—that is the way they figure it—without the carburetor, was 6.40 pounds, and with the carburetor 7.66 pounds. The net result comes to the percentage of saving given, namely, 16.44 per cent.

By the Chairman:

Q. And after making that test?—A. For some reason they were carrying a bigger load on the boiler the second time, when they had the carburetors installed. We could not control that, they were carrying a bigger load than they were without the carburetors. Consequently, they burned more coal, but evaporated a great deal more water in proportion.

Q. As a result of that test they have kept that installation?—A. Yes, and they are recommending it for their Winnipeg plant.

By Mr. Drummond:

Q. That kind of test would not apply to a hot air furnace?—A. No, that is a different proposition entirely.

By the Chairman:

Q. You have a whole list of names here which I am not going to read, of persons who have taken this test and installed these carburetors. Are they still using them?—A. Yes, all still using them.

Q. Do you care to hear any more tests now? Suppose, for example, Mr. Robb, that a man wanted to get one of these in in Ottawa, would you instal them here?—A. Yes.

By Mr. Drummond:

Q. All over?—A. In any part of Canada.

By Mr. McBride:

Q. I do not know anything in connection with this carburetor, but I will say this, that some years ago there was a firm agreed to put a heater in a steamer I had. The man said he would take \$700 and put it in, or he would take the savings in one year's fuel.

The CHAIRMAN: As payment?

Mr. McBRIDE: Yes, as payment. I thought the savings of one year's fuel would be the safest proposition, but I had to pay him nearly \$1,200 at the end of the year, instead of \$700.

The CHAIRMAN: That is, the savings were \$1,200?

Mr. McBRIDE: Yes.

By the Chairman:

Q. Have you any other general statement to make, Mr. Robb?—A. I understand that the object of this Committee is to determine how Canada can be self-sustaining in the fuel supply, and it seems to me to a great extent that it is a matter of appliances and educating the people to use these appliances. We have, I think, all the coal we need, and good coal in Canada, both east and west, and there is no reason why it cannot be used. The users of coal are divided into three classes; at least, I have divided them that way. There are the manufacturers, industrial plants and so forth, all using bituminous coal. There is no reason why they should not use our own coal. The second class is composed of the central heating plants, apartment buildings and office buildings; they are fairly large heating plants, and they, to a great extent, are using American coal, and the only reason for that is that they are accustomed to it, and in the large centres, the cities, there is an objection to the smoke of bituminous coal, but that can very easily be overcome by appliances. Of course, in the cities where the large office buildings and apartment houses are, there are smoke ordinances that have to be more or less observed, and as I said before this can easily be overcome by appliances. It is a matter of getting the public and the engineers educated up to equipping their furnaces and boilers with these appliances. In every case it is to their own benefit, because large furnaces can always be equipped with appliances that will consume the smoke and effect large savings in coal consumption.

By Mr. O'Connor:

Q. Are there not by-products of smoke, too, that are very valuable, extracted from these smoke consuming appliances?—A. No, I cannot say that there are for the ordinary user; they have to have special manufacturing processes.

By Mr. McBride:

Q. Have you installed any of these carburetors in a Scotch Marine Boiler?—A. I believe we have.

Q. With what results?—A. There is no reason why they should not get the same results as on any other boiler, on a hand-fired Scotch Marine Boiler. This appliance pertains to hand-fired boilers only, not to forced draft or stokers or any special apparatus.

Q. It would be installed on the door of the boiler, would it?—A. Yes.

[Mr. R. W. Robb.]

By Mr. Drummond:

Q. I understand that it would not be a device that it would be advisable to put on a locomotive engine, for instance?—A. No, that is a forced draft proposition. The third class that I had in mind is the ordinary householder, which could be divided into two classes; that is, the city dweller and the urban dweller. The city dweller as been accustomed to burning anthracite coal, and naturally he is used to it, but the price of it is so high now that it is almost prohibitive, and there is no reason why he cannot burn our soft coals. It is simply a matter of becoming accustomed to it. Of course, the smoke nuisance enters into the question to some extent with the city dweller, but with the urban dweller it should not be a factor at all. In Nova Scotia they use it entirely, I think. I have burned the Nova Scotia coal there all my life. I might say that I have here—

By Mr. O'Connor:

Q. Where you state "urban", you mean "rural"?—A. Yes, that is what I mean. I meant to say "suburban". I have here a table showing the comparative cost of heating with different kinds of fuel. It was published in the "Montreal Star"; I do not know whether any of you noticed it or not, and it was compiled by a committee of the Engineering Institute of Canada, of which Mr. F. A. Combe, consulting engineer of Montreal, is chairman. It is very interesting, and the figures are correct, as they have been taken, not from special tests, but absolute practice, and I have checked it over with my own experience of last winter in my own house furnace, and it checks up exactly, and you will find that the cheapest fuels are Welsh anthracite, semi-bituminous, and bituminous. For instance, Welsh anthracite will cost \$24 for 100 feet of radiation, and the semi-bituminous the same, and the bituminous, good run-of-mine, that is similar to Nova Scotia coal, \$24.80. That is practically the same, for the reason that the average householder has about 500 feet of radiation, so our own bituminous coal is only 80 cents higher than the Welsh; multiply that by five, and it is only \$4 more per year.

By Mr. O'Connor:

Q. By "semi-bituminous", you mean the same as semi-anthracite; that is, half way between anthracite and bituminous?—A. Yes, practically.

Q. The term, in your mind, means the same?—A. Yes. I have the figures here derived from last winter's firing of my father's furnace with Springhill Cumberland County coal, at \$8 a ton. He heated his house for \$22.34 per 100 feet of radiation. That is lower than any coal, but probably west of the Maritime Provinces, Montreal, you could not get it as cheap as that, it would probably run \$10 a ton. If this is of interest I will be glad to leave you a copy.

The CHAIRMAN: Would you suggest, gentlemen, that we put this in the minutes?

Mr. LOGAN: Yes, I would.

COST AND RELATIVE ECONOMY OF HEATING WITH DIFFERENT FUELS

This table is made up according to prices prevailing in Montreal in May, 1923, and is referred to in the accompanying article.

FUEL REQUIRED PER SEASON TO HEAT 100 SQUARE FEET WATER RADIATOR SURFACE

| Kind of Fuel | Price per ton | Amount pounds | Cost of | Remarks |
|--|---------------|---------------|----------|--|
| Welsh Anthracite (screened). | \$ 17 00 | 2,820 | \$ 24 00 | Easy to burn, hot fire; very little ash; not sized but should be screened; breaks rather easily. |
| Semi-Bituminous..... | 13 00 | 3,700 | 24 00 | Gassy, slightly smoke; coal not sized preferable for furnace to have large fire pot and flues; sections should be kept cleaned from soot. |
| Bituminous (Good run-of-mine). | 10 00 | 4,950 | 24 80 | Smoky, dirty; coal not sized preferable if not much fine screenings; furnace and flues should be of ample size; necessary to clean furnace sections daily. |
| Bituminous Springhill mines, Cumberland County. (Actual cost)..... | 8 00 | 5,588 | 22 34 | |
| D. W. Robb's residence from Oct. 1st to May 1st, 1922-23 (Actual cost) | 10 00 | 5,588 | 27 93 | |
| Welsh Semi-Anthracite.... (Screened). | 16 00 | 3,220 | 25 80 | Free burning, gassy, small amount of ash; coal not sized but should be screened; breaks easily. |
| Coke (Metallurgical)..... | 16 50 | 3,150 | 26 00 | Clean, ash easy to handle; very little draft required; heats up quickly; light weight (2 tons coke takes same space as 3 tons coal) requires more frequent firing than coal. |
| Coke (Gas house)..... | 14 00 | 4,550 | 31 90 | Similar to metallurgical coke, but more friable and not so clean; requires more attention, some clinker, burns quickly unless draft kept very low. |
| American Anthracite..... | 16 25 | 4,000 | 32 50 | Clean, easy to burn; familiar to general householder; large quantity of slate and ash, making ash sifting advisable. |

The WITNESS: Before I close, it has occurred to me that it might be of assistance to you gentlemen to have an engineer give you a report on the various appliances they would recommend for burning our own coals. It seems to me it is only a matter of recommending them to the public and letting the public know about them, more or less propaganda, to get them to equip their furnaces to burn our coal. An excellent man is F. A. Combe. He has had considerable experience of this already, being Chairman of the Special Committee of the Engineering Institute of Canada, investigating the different fuels desirable for the householder, so he has had considerable experience already in that respect. I do not know that there is anything more than I can say, unless there are any questions.

The CHAIRMAN: Are there any further questions, gentlemen?

By Mr. Drummond:

Q. I see by this pamphlet that it works equally well with a wood furnace?

—A. Yes.

Q. What would be the saving in wood, the same?—A. It would be the same percentage, yes; practically the same percentage.

Q. There is not the same gas from wood as from coal?—A. There is a great deal of gas from wood; it is invisible gas, you cannot see it, but it passes off unconsumed.

By Mr. McBride:

Q. Like in coal?—A. Yes.

Mr. O'CONNOR: If you look up the books of analyses already in, I think you will be able to make a comparison.

The CHAIRMAN: Any other questions, gentlemen?

The WITNESS: You can smother a wood fire as well as a coal fire.

By Mr. Logan:

Q. Is there much anthracite slack used in Montreal?—A. Yes; that is a point I meant to mention. That is a thing that could be overcome very easily by appliances. There is a great deal of anthracite screenings used in connection with office buildings and apartment houses and so forth. As a rule, the general practice is to mix it with bituminous coal, simply to keep down the smoke, to neutralize the smoke to a great extent. It is an expensive fuel to burn; it sounds as though it would be comparatively cheap, as it runs in the vicinity of \$8 a ton, but the heat units are very low, and it is very high in ash and slack and incombustible matter, so in the end it is really a very expensive fuel to burn. In other words, roughly speaking, it would take about two tons of that coal—that is, the anthracite screenings we are getting to-day—to equal a ton of our bituminous coal. By the use of appliances, they could do away with anthracite screenings entirely, and use bituminous coal without any mixture. There is no reason why that should not be done, and it would be to the advantage of the users, because they would save a great many dollars per year.

By Mr. O'Connor:

Q. Your point is that there is more incombustible matter in slack coal of all kinds?—A. Yes, but particularly in anthracite screenings which we are getting in Canada. They are selling us the poorest quality. They have lots of it left on the dump, and I question if they could market it in the United States, some that we are getting in Canada.

By Mr. Spence:

Q. The information we get now is that they are briquetting it, and that they take a mixture now that makes a good fuel?—A. I do not know about that; I know they are briquetting the screenings from the Welsh coal.

Q. I think we had one witness, Mr. Cox, who said they had several hundred thousand tons of coal somewhere near Reading, Pennsylvania, that had been piled up for years, and they were experimenting with a binder, and they had at last discovered one that was very satisfactory, and they had sold several cars around \$10 a ton.—A. Even if briquetted, it would still be low in heat value, and still have a large percentage of ash. That is, the anthracite screenings.

The CHAIRMAN: Gentlemen, any further questions now? If there is nothing else, we will excuse the witness. We have no other witnesses this morning.

The Committee proceeded to discuss the peat situation as presented by Mr. Graham of Ottawa, and the Chairman appointed a sub-committee, consisting of Messrs. Lapierre, Spence, and Kennedy, to go into the matter, and report back to the main Committee.

The CHAIRMAN: There was another matter brought to my attention by Mr. Spence. There is some correspondence accompanied by this sample of fuel, from a gentleman, Dr. Dick Grant, who is Director of Physical Culture

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at Havana, Cuba. They were addressed to Hon. Arthur Meighen. Shall I read these letters, or shall I explain in brief what they are?

Mr. SPENCE: I think you might just as well read them; it will not take long, and it is a very important thing.

The CHAIRMAN: (reads)

"I wrote a few days ago about a patent fuel, that is made from garbage, sawdust, etc. Last night I saw a test made with the fuel (made from sawdust) in a 150-h.p. engine that had had no fire under the boilers for ten days, so that everything was cold, but in 20 minutes after the fire was lighted there was 15 pounds of steam, and in 52 minutes 27% seconds the safety valve was blowing off. Then the load was moved from the other boilers to this one for one hour and twenty minutes when they stopped adding any more fuel, and after one hour the engine was still taking the whole load from this boiler which still had a steam pressure of 100 pounds, when the load was changed back to the other boilers.

Mr. George told me that this fuel has six more heat units than the best soft coal and two more than anthracite. I enclose a signed letter from him giving his opinion of this form of fuel.

At Arnprior I remember seeing very large banks of sawdust, also at Hull and at other points along the Ottawa, and in many part of Canada are as large amounts of sawdust which would be worth millions of dollars if converted into this form of fuel. This fuel can be made very quickly so that in a short time there could be manufactured millions of dollars worth, even if sold at as low a price as five and a half dollars a ton, which would leave a clear gain of three dollars a ton, and supply a fuel of better quality than can be bought at eighteen dollars.

I had a barrel of the different qualities of fuel packed to send to you but the express charges would be \$25 on it, so am not sending it forward until I hear from you. I believe it would be much more satisfactory to have some fuel expert sent here by the Canadian Government or by some men of wealth who might be interested in this opportunity to make great wealth and at the same time to do an incalculable amount of good to Canada and save her the spending of vast sums of money in the U.S.A. for coal.

I shall send you a small sample by mail of the same kind of fuel that was used last night, and by it you can see what it looks like, only when made by high pressure it will be much better than this which is made by hand power. I hope that you may be interested in the fuel problem of Canada, and especially in this fuel, as it surely will prove to be one of the greatest blessings that she has ever had bestowed upon her, and to you shall be the gratitude of the nation.

I am yours always sincerely,

Dick Grant.

P.S.—This fuel is practically smokeless, being about the same as anthracite in this respect.

Here is another letter to Hon. Mr. Meighen, dated April 24th:—

"I am taking the liberty of sending you a new kind of artificial fuel that can be made from any organic matter such as sawdust, straw or garbage, and can be produced for less than three dollars a ton, as the inventor will furnish the fluid for making it for two and a half cents a gallon; eighty gallons being required to make a ton of coal.

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I saw a test made last week by a reserve officer of His Majesty's navy, against coal and also petroleum, in which the artificial coal showed the highest efficiency. This officer was the assistant engineer on the *Queen Mary* in the Jutland battle, and also on the *Vampire* when it made the world's record run from Plymouth to New York. He says that he never saw, used or heard of any other fuel that is equal to this in efficiency, and is positive that the manufacture of it will not only solve the fuel problem, but will revolutionize the production of high power.

The enormous accumulations of sawdust throughout Canada could be utilized in this way, which will surprise you when you see and have tested the sample I am sending you that is made from the same material. There are also several very valuable by-products that can be saved in a properly equipped plant, that would make a general installation of these over Canada a great source of national wealth, and would be the cause of great national gratitude to the one who sponsored the movement that would make it possible, as I imagine you would be able to.

With our kindest regards, and hoping the sample may arrive safely and surpass your expectations, if you may be interested in any such problem that may hardly be termed a legal question, even though it be absolutely legal.

I am yours always sincerely,

Dick Grant.

P.S.—If you are not in any way interested in this, after the sample arrives, I would consider it a great kindness if you will refer the same to someone who may be interested, for I believe this opportunity to be one of the greatest that can possibly have been brought to your notice, in any line of endeavour, or utility.

Dick Grant.

Here is another later letter, dated May 12, as follows:—

"I received your letter of the 30th April on May 5th, and sent you a sample of the fuel made from sawdust on May 9th by regular first-class post, as there is no parcel post between Cuba and Canada, it seems. I was going to send the same by express, but the express companies advised me not to do so, as it is usually necessary to allow at least three months for a parcel to go to Canada by express.

"If on examination the sample I sent you is of any interest to you, as I feel sure it will be after reading a clipping from to-day's paper which I enclose, then I believe it is the logical thing to have a fuel expert sent down here to see the different forms of fuel made, and a practical test like the one I wrote to you about. By so doing the necessity of fitting up a plant to make the fuel and arrange the fire grates to get the best results would be obviated, as the plant here is making the fuel all the time, and Lykes Bros.' engine is at our disposal.

"Wherever pulpwood is cut, the refuse can all be converted into this commercial fuel. It takes about $\frac{1}{4}$ ton of this fuel to make two tons of the same, and if made in connection with an electric or power plant the roasting can be done by the heat of the smoke on its way to the chimney. One ton of sawdust will make over a ton of fuel, about 400 pounds more.

I am yours always sincerely,

Dick Grant.

Now, here is a letter from Havana, Cuba, I presume to Dr. Grant; it is dated April 21, 1923, and is as follows:—

(Mr. R. W. Rebb.)

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"I, Louis George, Chief Engineer, Lykes Bros. Inc., Havana, Cuba, on April 19, 1923, tested a Substitute Coal Product of The Industrial Carbonifera T. K. Co. Having raised 150 pounds of steam in 30 minutes in an 150 horse-power Henie Boiler and maintaining said pressure for one hour, carrying full load. I am thereby convinced that their products are superior to soft coal and equal to anthracite. And in my opinion, if their products are made by adequate machinery instead of by hand as is the case at present, they will be superior to any coal yet known.

"For further information refer to the subscriber at the above address.

M. Louis George,
Comm. R.N.V.R.

Late of the Horwick Squadron,
Comadore Turwod.

That is all the correspondence there is.

Mr. LAPIERRE: That process would be of tremendous importance to Northern Ontario, where there are so many sawdust banks, and where sawdust is at present wasted, where it is polluting our streams; I think it is of sufficient interest to warrant a much further enquiry, because it appears to me that that is of tremendous importance to Canada.

The CHAIRMAN: Do you know if this has been tested in Canada before?

Mr. O'CONNOR: Not to my knowledge.

Mr. LOGAN: I agree with Mr. Lapierre that it is one of the most important matters that has come before this Committee. If we can utilize the sawdust and other material of that kind to manufacture fuel—

Mr. SPENCE: If it turns out to be as good as they say, it would be a wonderful thing in solving the fuel situation in this country; not to the fullest extent, but it will help, and I believe it would do a great deal towards solving the situation we have to face. We should have the experts test the value of these samples, and I would suggest that you send these letters and the fuel to our experts, and have them test it before the next meeting.

Mr. LAPIERRE: If you consider that practically all your sawdust is in the centre of Ontario, where the coal shortage is more acute, you will see the importance of this project. This applies to Central Ontario, where they have the large cities, and no coal.

Mr. SPENCE: I believe that if it could be made out of sawdust it could be made out of straw as well.

The CHAIRMAN: Your suggestion is that we send this sample to the Government Fuel Tester?

Mr. SPENCE: Mr. Meighen thinks it is going to be of some service to the country, and he wanted me to bring it before the Committee.

Mr. LAPIERRE: I should think that we ought to be able to get very valuable information from the Biological Department and the Mines Department; they should be interested in this.

Mr. SPENCE: He says there that you can get the filler for 2½ cents a gallon. I do not think there is any hope of our getting filler at that rate in this country. They get more weight in this way; they put more filler in. They put 400 pounds of filler into one ton of sawdust, so that gives 2,400 pounds.

The CHAIRMAN: Very well, I will forward the letters and the fuel to the proper place.

If there is nothing else, the Committee will now adjourn.

The Committee adjourned.

ERRATA

EVIDENCE OF B. F. HAANEL BEFORE HOUSE OF COMMONS
COMMITTEE ON MINES AND MINERALS*Hearing on May 18, 1923*

P. 330, line 28, reads: "to raise ten tons of raw peat, that is, one ton of absolutely live peat", should be: "to raise ten tons of raw peat, that is, one ton of absolutely dry peat".

P. 330, line 40, 41, reads: "on a laboratory scale and the latter figure of 34 per cent was only got at by way of carbonizing", should be: "on a laboratory scale and the latter figure 34 per cent was only got after wet-carbonizing".

P. 330, line 41, 42, reads: "That was indicated in the dehydrating of certain properties possessed by peat, which caused the peat to retain moisture", should be: "The difficulty in dehydrating is due to certain properties possessed by peat, which cause the peat to retain moisture".

P. 330, line 42, 43, reads: "I might make it clear to the Committee if I say that for fuel purposes peat will humify. Peat possesses colloidal properties", should be: "I might make it clear to the Committee if I say that for fuel purposes peat must be well humified, and such peat possesses colloidal properties".

P. 330, line 44, reads: "A colloid is a substance which when mixed with water", should be: "A colloid is a substance in a finely divided state, which when mixed with water".

P. 330, line 48, reads: "enormous attraction between these different elements", should be: "enormous attractions between the particles of substance and the molecules of water".

P. 330, line 48, 49, reads: "If you should put them in a hydraulic press", should be: "If you should put such a mixture in a hydraulic press".

P. 330, line 50, reads: "large enough to permit the fuel molecule to pass will also permit the water to pass", should be: "large enough to permit the water molecule to pass will also permit the particle of substance to pass".

P. 330, line 53, 54, reads: "which you serve on the table, that is, a true colloid. That is a well-known example of a colloid particle", should be: "which you serve on the table. That is a true colloid, and is a well-known example of a colloidal substance".

P. 331, line 1, reads: "as compared with dry substances," should be: "as compared with the dry substance."

P. 331, line 4, reads: "but it possesses certain of those properties," should be: "but it possesses certain of its properties."

P. 331, lines 6, 7, reads: "generally about 1½ per cent of humified peat," should be: "generally about 1½ per cent in well humified peat."

P. 331, line 15, reads: "for domestic purposes, or for purposes of heat energy lying dormant in water," should be: "for domestic purposes, the large quantities of heat energy now lying dormant in the peat areas."

P. 331, line 17, reads: "the residue fuel is of no heat value. It is a desirable fuel, but of no heat value at all," should be: "the resulting fuel is of low heat value compared to the cost."

P. 331, line 23, reads: "Water pressure is prohibitive," should be: "Hydraulic pressing is prohibitive."

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P. 331, line 28, reads: "there is scarcely any fuel left for heat," should be: "there is scarcely any fuel left."

P. 331, line 32: "Dr. Acebry, a Swedish professor," should be: "Dr. Ekenberg, a Swedish inventor."

P. 331, line 33, reads: "He devised that process of carbonizing peat, by heating it in a low temperature, the carbon content of the peat was increased," should be: "He devised that process of carbonizing peat to destroy its colloidal properties. By heating it at a low temperature in the presence of steam under pressure, the carbon content of the peat was increased."

P. 332, line 4, reads: Q. How would it compare with coal in weight?" should be: "Q. How would it compare with coal in heat?"

P. 332, line 22, reads: "The plant was not finished in time for the trenches," should be: "The plant was not finished in time for use of the fuel in the trenches."

P. 332, line 26, reads: "and that that heat was applied to finish the product," should be: "and that all the heat produced was applied in the process."

P. 332, line 36, reads: "putting it in another way 590,000,000 calories, which calories were employed, were required to produce those briquettes, that is, the heating value of the briquettes, 590,000,000 had a value of 690,000,000 calories, or the value of the coal consumed in making briquettes took 60,000,000 more put into the process than could be taken out of it," should be: "putting it in another way, 650,000,000 calories were employed to produce those briquettes, that is, the heating value of the briquettes was 590,000,000 calories, while the coal had a value of 650,000,000 calories, and the value of the coal consumed in making briquettes was 60,000,000 calories more put into the process than could be taken out of it."

P. 333, line 41, reads: "The mine operated that plant for a period of two years," should be: "The Mines Branch operated that plant for a period of two years."

P. 336, line 24, reads: "Mr. Oligny said that the process in which he was interested, not now, was investigated about a couple of years ago, and that like other processes, has absolutely no commercial possibility at all," should be: "Mr. Oligny's process, in which he was interested, but is not now, was investigated about a couple of years ago, and that, like other processes, has absolutely no commercial possibility at all."

DISCUSSION

HOUSE OF COMMONS,

COMMITTEE ROOM 436,

Thursday, June 14, 1923.

The Select Standing Committee on Mines and Minerals met at 11 o'clock a.m., Mr. Carroll, the Chairman, presiding.

The CHAIRMAN: Gentlemen, the first thing before the Committee this morning seems to be that the evidence of two witnesses was very badly transcribed. I refer to the evidence of Mr. Haanel, of the Mines Department, and to the evidence of Mr. Avard, who was here from Nova Scotia, I think. Personally I promised Mr. Haanel that we would see to it that his evidence as given, or transcribed, as it appeared in the proceedings would be changed, and I understand that the evidence of Mr. Avard is almost as bad. I suppose we require a motion that No. 14 be reprinted.

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Mr. SPENCE: Was it not taken down as it was given?

The CHAIRMAN: He says not.

Mr. SPENCE: These reporters do not very often make mistakes.

Mr. GARLAND: I think the fact is simply this, that one witness in particular, not Mr. Haanel, but another witness, was a very poor witness. He was very weak, he got erratic and got tied up in cross-examination. I think no blame should be attached to the reporters.

The CHAIRMAN: I am not blaming the reporters at all. I am not finding any fault with the reporters.

Mr. GARLAND: May we have some explanation as to just what is wrong with the remarks as reported?

Mr. McBRIDE: If his evidence were changed in any way, it would not be sworn evidence. We could not allow him to change his evidence and take it as evidence.

Mr. DAVIS: Would it involve recalling that witness?

The CHAIRMAN: I think the reporters will acknowledge themselves that there were some mistakes.

Mr. O'CONNOR: I remember that that man was a very hard witness to report.

Mr. LOGAN: I would move that this evidence be reprinted.

Mr. SPENCE: Are they important changes, or just minor ones?

The CHAIRMAN: There are some very important changes in Mr. Haanel's evidence.

Mr. SPENCE: A man under oath makes a statement in here, and then when he sees it does not read well, he changes it.

Mr. GARLAND: I would suggest that the clerk might read that to the Committee.

The CLERK: I do not think I could make myself intelligible; it is very technical, but I will let you see the corrections.

Mr. McBRIDE: Supposing this were changed; copies of the original have been in circulation, and supposing that is brought up on the floor of the House during the debate. One person might have an old copy, and another person a new one, and it would leave the Committee open to all sorts of criticism.

Mr. KENNEDY: Would there be any objection to printing this as a separate report?

The CHAIRMAN: That was my suggestion to him, that it be printed as an errata. Shall that be done, gentlemen?

Carried.

The CHAIRMAN: Now, what about Mr. Avard's evidence? Will you prepare something, Mr. Logan, to put in as an errata to Mr. Avard's evidence?

Mr. LOGAN: I hardly think there are enough errors to warrant it. They are very minor errors.

The CHAIRMAN: Very well. Now, sometime ago I wired the Alberta Coal Operators' Association of Calgary. That was on May 23rd. The telegram was as follows:—

"Alberta Coal Operators' Association,
Calgary, Alta.

"Some weeks ago Sir Henry Thornton on behalf Canadian National Railways offered nine dollar ton rate on coal from Alberta points to Ontario on understanding that operators at shipping points would

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co-operate to achieve the common object. House of Commons Committee on Mines and Minerals considering subject desires know what action if any you have taken to help out.

“W. F. CARROLL, Chairman.”

There was also a similar wire sent to Premier Greenfield of Alberta, and there was no reply from him directly, although there was a reply from his secretary, which is here. The reply to the wire to the coal operators came from Drumheller, Alta., on May 26th, as follows:—

“Answering query directed Coal Operators’ Association re co-operation with railway to move coal Ontario have considered suggestion. Conclude positively no chance for large movement at rate of nine dollars prepared domestic coal sold not close to cost at pit mouth National Railways by managers this week refused coal offered for shipment to Ontario at nine dollars unless offered in train loads of fifty cars shipped by one consignor to one destination. Such restriction ridiculous. Would prohibit movement if rate was six dollars.

“S. L. McMULLEN, Secretary,
“Red Deer Valley Coal Operators’ Assn.”

Discussion followed, and the matter was left over for further consideration when preparing the report.

The CHAIRMAN: Sometime ago a sample of Havana fuel was brought to this Committee. It was submitted to Mr. Haanel of the Department of Mines, and he writes as follows:—

“Dear Sir,

On May 25th I received a letter from Mr. Dun, Clerk of the Committee, asking that samples of a patent fuel received from Havana, and which it is stated is made from sawdust, be examined in our laboratories and a report be submitted to the Committee.

I have just received this report, and I am enclosing two copies for your Committee.

From the analyses and other determinations which were made in our laboratories, you will note that the ash content is specially high, that the heating quality is low and that the waterproofing qualities are bad. It would appear from the sample submitted that briquettes made from sawdust in this manner will not meet with favour if placed on the market.

Yours sincerely,

(Sgd.) B. F. HAANEL,

Chief Engineer,

Division of Fuels and Fuel Testing.”

The following is the report or analysis which Mr. Haanel submits:—

“REPORT OF ANALYSIS

of a sample of sawdust briquettes from Havana, Cuba, sent to Rt. Hon. Arthur Meighen by Mr. Dick Grant and referred to B. F. Haanel from the House of Commons Fuel Committee.

| <i>Proximate Analysis</i> | <i>As Rec'd Basis</i> |
|---------------------------|-----------------------|
| Moisture | 6.3% |
| Ash | 16.0% |
| Volatile Matter | 52.1% |
| Fixed Carbon | 25.6% |
| Sulphur | 0.7% |

Calorific Value

| | |
|---|------|
| B. T. U. per lb. | 7240 |
| Apparent Specific Gravity (of single briquette) | 0.82 |

REMARKS:

(a) This fuel according to the above analysis corresponds roughly to Canadian woods of equal moisture content. The ash content of these sawdust briquettes is however abnormally high.

(b) The apparent specific gravity figure of 0.82 is significant. The bulk weight of this fuel is to be calculated as roughly 29 lbs. per cu. ft. as compared with the determined figure of 32 lbs. per cu. ft. for air dried peat, of 16 lbs. for ordinary hardwood (cordwood) and 55 lbs. for anthracite coals.

(c) The water proof qualities of these sawdust briquettes are poor. On being immersed in water they soften and crumble when handled.

(d) Sawdust briquettes as per sample submitted are to be put in the same class of fuels as wood and air dried peat and may be considered only as supplementary to anthracite, coke, etc., and not a substitute for standard household fuels.

Reported by,

MESSRS. NICOLLS & MOHR,
Chemists."

The CHAIRMAN: That would seem to dispose of that matter.

Mr. Mewburn, I understand that you wish to say something to the Committee?

Mr. MEWBURN: I am not a member of the Committee, but there is a matter which is coming before the Minister of Finance, which might interest this Committee. That is the question of manufacturing coke for domestic purposes from bituminous coal. I understood that this matter had been dealt with by you. As I understand it, the present raw bituminous coal, from which coke is made for manufacturing purposes, is allowed to come in with a drawback of 99 per cent. In the city of Hamilton they are putting up a large coking plant on which they are spending \$2,250,000. The City Council of Hamilton, and people representing places in that vicinity, all of whom went through a very acute situation last winter regarding the fuel situation, have apparently come to an arrangement with this concern whereby it will spend another \$100,000 in manufacturing coke for domestic purposes. They have undertaken to turn out 100,000 tons a year, and they also agree in writing to sell the coke, for domestic purposes, for \$1.50 a ton less than the price of anthracite coal. We say, looking at it purely as a matter of vital interest to the community, which has been up against a very serious problem as far as heating is concerned, that the Government should consider allowing that drawback on bituminous coal for domestic purposes, the same as for manufacturing. Of course, we recognize the fact that the Minister and the Government would probably say, "Why not use Nova Scotia or Alberta coal?" For technical reasons, they say that is not as well suited for this purpose as is the Pittsburg coal, but the chief difficulty is the question of freight rates, and the Minister admits it is impossible to deliver Nova Scotia coal in Ontario to compete with bituminous coal from the United States. Of course, the other argument is that the public should get used to using Canadian coal. I quite agree with that; they are now testing out that Alberta coal up through Kitchener and through that district, but if the Government could see its way clear to allowing that drawback, even for a short period, it would be a very good thing. I understand the Dominion Fuel Board has

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strongly recommended this as a substitute for anthracite coal. I thank you very much for your courtesy in allowing me to appear before you and say these few words.

Discussion followed, and the matter was left for further consideration.

The CHAIRMAN: I have a telegram here from the Edmonton Board of Trade, which I would like to read into the minutes:—

“EDMONTON, ALTA., 14th June, 1923.

“W. F. Carroll,
Ottawa, Ont.

Edmonton Board of Trade favours your Committee recommending appropriation for coal transportation and equipment engineering experts to determine greatest cost reduction possible for Alberta coal to Eastern Canada. Give copy to Chairman Senate Committee.

(Sgd.) JOHN BLUE,
Secy. Board of Trade.”

Discussion followed.

Mr. GARLAND: Mr. Kennedy has requested me to read a letter from A. Chard, Supervisor of Freight and Traffic of the Department of Railways and Telephones, Alberta, enclosing a memorandum prepared by himself and Mr. McGeer on the evidence given by Mr. Lanigan. The letter and memorandum is as follows:—

EDMONTON, May 29th, 1923.

“Dear Mr. KENNEDY:—

According to press despatches we are not getting very far with our application for train lot rate on coal to Ontario. I am attaching herewith a memorandum which Mr. McGeer and I prepared as a criticism on Mr. Lanigan's statement in the press some days ago in which he stated that the net cost of transportation was \$9.90 from Lethbridge to Toronto. Possibly these figures, which are compiled on C.P.R. annual reports, may be of some use to you.

I note in yours of April 23rd to me that you could not make use of the information forwarded you on account of resolution not being allowed to be discussed in the House. However, I believe that the publicity given the western route will have the effect of at least giving us the equalization on grain and other commodities in which we are most interested. I expect to be in Ottawa the first week of July when the Cabinet is supposed to further hear the appeal.

Yours very truly,

A. CHARD,
Supervisor of Freight and Traffic.

D. M. KENNEDY, Esq., M.P.,
House of Commons,
Ottawa, Ontario.

“With reference to Mr. Lanigan's statement appearing in the Edmonton Journal under date of May 16th, 1923, which reads as follows:—

‘A net cost of \$9.90 a ton for hauling coal from Lethbridge to Toronto was given by Mr. W. B. Lanigan, General Freight Traffic Manager of the Canadian Pacific Railway, giving evidence this morning before the House Committee on Mines and Minerals.’

13-14 GEORGE V, A. 1923

It would appear to me that the cost stated by Mr. Lanigan was exceptionally high. The average distance from the coal mines of Alberta to Eastern Canadian points would be approximately 2,200 miles. Mr. Lanigan's figure of \$9.90 per ton on the train which he has taken, namely, a train of fifty cars loaded to capacity of 46 tons per car, would give a gross earning of \$22,770 per train. According to the annual report of the Canadian Pacific Railway 1922, the freight train earnings per train mile are given at page 34 as \$5.32. This would give an earning of \$11,704 on the same movement of a train of coal from Alberta to Eastern Canada. The cost of operating per train mile on the average of the whole system was \$4.02 1921. This would give the cost of operating the same train loaded with coal from Alberta to Eastern Canada a total of \$8,844. It is true that there would be an empty car movement from Eastern Canada to Alberta but at a maximum the empty car movement should not cost more than 50 per cent of the cost of the loaded car movement, making a total cost to the Canadian Pacific Railway for the movement of the train of coal, including the empty movement, of \$13,266.

In view of the fact that coal is a low grade commodity in value and a maximum tonnage commodity in measurement, it is reasonable to assume that the revenue to be expected from the movement of coal would be considerably less than the average, and it is also reasonable to assume that the cost of handling coal would be considerably less than the average cost.

There is the further factor to be considered and that is the length of haul which the movement of Alberta's coal to Eastern Canada would involve which has an unquestionable advantage in the matter of reducing the operating cost as against a short haul movement where the shorter mileage would have to absorb the same terminal expense and the same overhead expense as the long haul movement. There is further to be considered the fact that the rolling stock used for the movement of coal would otherwise be idle on the sidings.

In view of these facts, the \$9.90 cost stated by Mr. Lanigan is obviously incorrect, and it would appear that an \$8 a ton rate would not only take care of all operating expenses but would leave a substantial margin of profit besides.

The average cost in 1921, which was a year of high operating costs on the Canadian Pacific Railway, per train mile was \$4.02. Assuming the distance from the Alberta coal fields to Eastern Canadian consuming points to be 2,200 miles, and assuming that the cost of hauling the empty car movement to be as great as the cost of the loaded car movement, and assuming that all of the cars carrying coal to Eastern Canada are to return empty, the result would be a train movement of 4,400 miles. This would result in a total cost, if the average figure of cost of the Canadian Pacific Railway for the year 1921 is taken, of \$17,688 as against Mr. Lanigan's figure of \$22,770, or a margin of slightly more than \$5,000.

The revenue per train mile on the average of the whole system is given at \$5.32. The revenue per train mile at a rate of \$9.90 per ton for 2,200 miles on the train taken by Mr. Lanigan would be \$10.35 or \$5.03 more than the average earnings per train mile for the whole system. It is quite true that the empty car movement is not taken into consideration in this figure, but it is absurd to say that the cost of the empty train mileage on the return movement is going to equal the cost of the loaded car movement. The fact is that the figures submitted here are all maximum figures from the railway's point of view. Unques-

tionably considerably more tonnage than that given in Mr. Lanigan's train would be carried. It is also reasonable to assume that a certain portion of the cars would return to some extent loaded. No doubt there is some basis upon which Mr. Lanigan can justify his theory that the cost would be \$9.90 a ton, but if there were any real desire on the part of the railways to put Alberta's coal into the Eastern Canadian markets in competition with the American product now generally used, a much less rate than \$9.90 a ton should be available."

Discussion followed.

It was moved and carried that the Chairman appoint a subcommittee to discuss the report to the House, and to bring in suggestions at the next meeting of the Committee. The sub-committee was named as follows: Messrs. Garland, Logan, Ross and Spence.

A communication was presented from Mr. James Graham in regard to the peat question, and was ordered accepted and filed. Mr. Graham appeared before the Committee and made a statement, requesting that the Committee recommend to the Government that a sum of \$1,250 be granted him, upon his undertaking to furnish a similar amount, to demonstrate the accuracy of his statements in regard to his peat process. The matter was referred to the sub-committee named above.

The Committee adjourned.

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