Canada. Parl. H of C. Select Standing Committee on Mines and Minerals, 1909/10. Proceedings.

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PROCEEDINGS

OF THE

SELECT STANDING COMMITTEE

OF THE

HOUSE OF COMMONS

ON

MINES AND MINERALS

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY C. H. PARMELEE, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1910

[App. No. 5—1910.]

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MINES & MINERALS COMMITTEE.

---1910.----

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ORDER OF REFERENCE

HOUSE OF COMMONS,
THURSDAY, November 18, 1909.

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

Messrs. Blondin, Burrell, Chisholm (Antigonish), Congdon, Conmee, Devlin, Douglas, Goodeve, Gordon (Nipissing), Herron, Lanctot (Richelieu), Loggie, Lortie, Macdonald, McCarthy, McCoig, McMillan, Maddin, Prowse, Rhodes, Smith (Nanaimo), Smyth, Stratton, Templeman, Turriff—25.

And that the quorum of the said committee do consist of ten members.

(Attest.) THOS. B. FLINT,
Clerk of the House.

THURSDAY, November 18, 1909.

Ordered, That the said committee be empowered to examine and inquire into all such matters and things as may be referred to it by the House; and report from time to time its observations and opinions thereon; with power to send for persons, papers and records.

(Attest.) THOS. B. FLINT
Clerk of the House.

MONDAY, February 21, 1910.

Ordered, That the question of the development of the nickel and iron industries of Canada be referred to the said committee for consideration.

(Attest.) THOS. B. FLINT,
Clerk of the House.

MONDAY, February 21, 1910.

Ordered, That the said committee have leave to sit while the House is in session. and the evidence taken before them, printed, and that Rule 72 be suspended in reference thereto.

(Attest.) THOS. B. FLINT,
Clerk of the House.

TUESDAY, April 5, 1910.

Ordered That the said committee have leave to sit while the House is in session.

(Attest.) THOS. B. FLINT,
Clerk of the House.

MONDAY, April 25, 1910.

Ordered, That the under-mentioned matters be referred to the said committee for consideration and report as to the expediency of the Department of the Interior and the Department of Mines making arrangements with a view of having all the mining laws and regulations now being administered by the latter department placed under the control of the Departmet of Mines, also as to the desirability of the enactment of a law relating to mines and minerals under Federal jurisdiction and the consolidation of all laws and regulations affecting the same.

(Attest) THOS. B. FLINT,
Clerk of the House.

REPORTS OF THE COMMITTEE

FIRST REPORT.

MONDAY, February 21, 1910.

The Select Standing Committee on Mines and Minerals beg leave to present the following as their first report:—

Your committee recommend that leave be granted to them to have all their proceedings and the evidence taken by them, printed, and that Rule 72 be suspended in reference thereto.

All which is respectfully submitted.

JAMES CONMEE,
Chairman.

SECOND REPORT.

MONDAY, April 25, 1910.

The Select Standing Committee on Mines and Minerals beg leave to present the following as their second report:—

Your committee would recommend that the under-mentioned matters be referred to it for consideration and report as to the expediency of the Department of the Interior and the Department of Mines making arrangements with a view of having all the mining laws and regulations now being administered by the latter department placed under the control of the Department of Mines, also as to the desirability of the enactment of a law relating to mines and minerals under Federal jurisdiction and the consolidation of all laws and regulations affecting the same.

All which is respectfully submitted.

JAMES CONMEE,
Chairman.

MINUTES OF PROCEEDINGS

HOUSE OF COMMONS,
FRIDAY, November 26, 1909.

The committee met at 11.40 o'clock, a.m.

PRESENT:—Messrs. Blondin, Burrell, Chisholm (Antigonish), Congdon, Herron, Stratton and Turriff.

On motion of Mr. Chisholm, Mr. Conmee was elected chairman.

The committee then adjourned to the call of the chair.

JAMES CONMEE,
Chairman.

WEDNESDAY, January 19, 1910.

The committee met at 11.15 o'clock, a.m.

PRESENT:—Messrs. Conmee (chairman), Burrell, Chisholm (Antigonish), Congdon, Herron, Loggie, Macdonald, Rhodes and Smith (Nanaimo).

Mr. Arthur Wilson, mining engineer, Toronto, who, at the request of the chairman, attended the meeting gave information relating to the nickel industry in Canada.

On motion of Mr. Macdonald it was

Ordered, That A. P. Turner, President of the Canadian Copper Company be summoned to attend the next meeting and give evidence, and that he be required to bring with him and produce all books, papers, &c., relating to the business of the said company.

The committee then adjourned to the call of the chair.

JAMES CONMEE,
Chairman.

WEDNESDAY, February 2, 1910.

The committee met at 10.30 o'clock, a.m.

PRESENT:—Messrs. Conmee (chairman), Congdon, Douglas, Goodeve, Gordon (Nipissing), Herron, Macdonald, Smith (Nanaimo), Smyth, Stratton and Templeman.

The minutes of the last meeting were read and confirmed.

The request made by Mr. Wallace Nesbitt, K.C., Toronto, to be given an opportunity to address the committee on matters relating to the operations of the Canadian Copper Company was granted.

Mr. A. P. Turner, President of the Canadian Copper Company, who was requested to attend the meeting was called and examined, and read a statement giving a history of experiments on the nickel industry of Canada.

Mr. E. Fred. Wood, First Vice President of the International Nickel Company, New York, and George M. Colvocoresses, Mining Engineer were also called and examined.

The committee then adjourned to the call of the chair.

JAMES CONMEE,
Chairman.

WEDNESDAY, February 16, 1910.

The committee met at 11.30 o'clock, a.m.

PRESENT:—Messrs. Conmee (chairman), Burrell, Chisholm (Antigonish), Congdon, Goodeve, Gordon (Nipissing), McCarthy and Smyth.

The minutes of the last meeting were read and confirmed.

John Patterson, Hamilton, Ont., was called and examined, and read a statement relating to his connection with the nickel industry.

On motion of Mr. Gordon (Nipissing) it was

Ordered, That Messrs. T. W. Gibson, Deputy Minister of Mines, Toronto, and Prof. W. G. Miller, Provincial Geologist, Bureau of Mines, Toronto, be requested to attend the next meeting of the committee.

On motion of Mr. Herron it was

Ordered, That all the proceedings and the evidence taken before the committee be printed.

The committee then adjourned to the call of the chair.

JAMES CONMEE,
Chairman.

WEDNESDAY, March 23, 1910.

The committee met at 11 o'clock a.m.

PRESENT: Messrs. Conmee (chairman), Chisholm (Antigonish), Goodeve, Gordon, (Nipissing), Herron, McCarthy and Templeman.

The minutes of the last meeting were read and confirmed.

On motion of Mr. Chisholm, it was

Ordered, That in view of certain representations having been made for the passing of an Act consolidating the laws, &c., relating to mines under Federal control, the House be asked to refer the question of such consolidation to the committee, and that a subcommittee, composed of Messrs. Congdon, Goodeve, Maddin, Macdonald and the chairman, be appointed with instructions to have the foregoing carried into effect.

The committee then adjourned to the call of the chair.

JAMES CONMEE,
Chairman.

WEDNESDAY, April 6, 1910.

The committee met at 11 o'clock a.m.

PRESENT: Messrs. Conmee (chairman), Chisholm (Antigonish), Congdon, Douglas, Goodeve, Herron, Loggie, Macdonald, Maddin, Rhodes, Smith (Nanaimo), and Smyth.

The minutes of the last meeting were read and confirmed.

Mr. T. W. Gibson, Deputy Minister of Mines, Toronto, who was requested to attend the meeting, was called and examined.

2.30 o'clock a.m.

The committee resumed.

Examination of Mr. Gibson continued.

On motion of Mr. Smith it was

Ordered, That a report be made to the House recommending that the under-mentioned matters be referred to it for consideration and report as to the expediency of

APPENDIX No. 5

the Department of the Interior and the Department of Mines making arrangements with a view of having all the mining laws and regulations now being administered by the latter department placed under the control of the Department of Mines, also as to the desirability of the enactment of a law relating to mines and minerals under Federal jurisdiction and the consolidation of all laws and regulations affecting the same.

On motion of Mr. Smith it was

Ordered, That a subcommittee composed of this committee residing in mining centres in each province be appointed to assist, as far as practicable, the officials of the Department of Mines in obtaining the necessary information for the drafting of the proposed legislation.

The committee then adjourned to the call of the chair.

JAMES CONMEE,
Chairman.

TUESDAY, May 3, 1910.

The committee met at 11 o'clock a.m.

PRESENT: Messrs. Conmee (chairman), Blondin, Douglas, Goodeve, Herron, Smith (Nanaimo), and Templeman.

The minutes of the last meeting were read and confirmed.

On motion of Mr. Smith it was

Ordered, That the committee having, in pursuance to the order of the House of the 25th ulto., had under consideration the question as to the expediency of the Department of the Interior and the Department of Mines making arrangements with a view of having all the mining laws and regulations now being administered by the latter department placed under the control of the Department of Mines, and

2. As to the desirability of the enactment of a law relating to mines and minerals under Federal jurisdiction and the consolidation of all laws and regulations affecting the same, the attention of the Honourable the Minister of Mines be directed to the urgent need of carrying into effect, at the earliest date practicable, the matters above referred to.

The committee then adjourned *sine die.*

(Attest.) L. C. PANET.
Clerk of the Committee.

MINUTES OF EVIDENCE

HOUSE OF COMMONS,
WEDNESDAY, January 19, 1910.

The committee met at 11 o'clock, a.m.

The CHAIRMAN (Mr. CONMEE).—Though there is not a quorum present, I suppose there will be some more members in presently, so I think we can proceed in the meantime. I might say, for the information of the members of the committee present, that I happened to meet Mr. Wilson in Toronto and learned that he had been looking into the question of nickel and nickel steel for structural material, and I thought the information he could give would be very useful to the committee, so I sought to get him to come down. I didn't have a chance to consult the committee. I, however, saw the minister (Hon. Mr. Templeman), and explained to him that I thought I could get Mr. Wilson, and if I could not get him this week, I could not get him at all, as he was going to cross the ocean again, and the minister thought I might take the responsibility of inviting him, hoping the committee would approve of the action. Mr. Wilson is here, and if the members of the committee would like to hear him I would ask him to come forward.

On motion it was decided that Mr. Wilson be heard.

Mr. ARTHUR WILSON.—I understood from Mr. Conmee that you wanted me to give you some sort of a survey of the nickel industry in this country. In the study of the nickel industry there are only two localities that need to be taken into consideration, namely, the island of New Caledonia, in the Southern Pacific, and the Sudbury district. That is, these two produce practically the whole of the world's supply.

The CHAIRMAN.—Might I just ask a question or two. I understood that you have been examining nickel deposits not only in America, but in different parts of Europe for the British government?

Mr. WILSON.—No, on behalf of British manufacturers—large battle ship and armament manufacturers in Europe, and I have made a special study of the nickel industry for some years. The conditions existing at those localities I mentioned differ so widely that I will give a brief description of the two so that you may realize their respective importance in the world's market. The New Caledonia industry was first worked in 1875, and in recent years has produced 130,000 tons a year as a maximum, and an average of 110,000 tons. It is a silicate of nickel and magnesia occurring as large surface deposits over a considerable area of the island. It varies very much in nickel contents, and owing to the tropical climate, which precludes white men from working, and the absence of fuel and the necessary fluxes, the ore cannot be treated on the island itself, but has to be shipped to Europe for treatment; that is 13,000 miles that they have to ship it in the raw state. The ore averages about 5½ per cent nickel as shipped, so they have to pay freight over that considerable distance on at least 94 per cent of worthless material. The Sudbury ore consists of sulphide of nickel, copper and iron, and averages 3 per cent of nickel, 2½ per cent copper, about 48 per cent iron and 26 per cent sulphur. The production last year, a fair average, was 21,000,000 pounds of nickel; that of New Caledonia was 15,000,000 pounds, that is two-fifths of the world's supply, Sudbury producing the other three-fifths.

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An hon. MEMBER.—Does the New Caledonia ore carry as much iron as the other?

Mr. WILSON.—No, it has only the one element of economic value, that is nickel. But in Sudbury district you have the copper and iron and sulphur in addition to the nickel. The world's production of nickel is 36,000,000 pounds a year, of which probably two-thirds is used in nickel steel and one-third in white metal manufacture, nickel coinage, nickel plating and various other purposes. The two-thirds used for nickel steel is used principally for the manufacture of government material, namely, armour plates, turrets and heavy guns—that is, on account of the high price that nickel is maintained at in the market, it is only a government that can afford to pay for nickel steel. The International Nickel Company work in agreement with the French Nickel Company, who have the large mines in New Caledonia, and with Monds at Sudbury. The maintenance of the high price absolutely forbids its being used for an infinite number of purposes for which it is essentially adapted.

An hon. MEMBER.—What about the prices?

Mr. WILSON.—Some years ago the large consumers in Europe began to grumble about the high price and combined for the purpose of securing a reduction. As soon as this came to the knowledge of the monopolists they came to terms and ever since then the large government material manufacturers of Europe have enjoyed special terms—they pay about twenty-five cents a pound, but in other steel trades they have to pay thirty-five cents and white metal manufacturers and platers pay from forty to seventy cents according to the quantities consumed. That precludes its use for many purposes. It might be used in many other trades, as for example the manufacture of locomotive parts, railway tires, ship plates, boiler plates—in fact you could not name the many needs for which people want it.

An hon. MEMBER.—What about railway iron?

Mr. WILSON.—As to steel rails it has been stated by one of the largest steel rail manufacturers in England that if they could secure nickel at such a price as would enable them to produce a steel rail at a cost not exceeding 50 per cent more than the cost of ordinary steel rail there would be an unlimited demand. Now, it is possible to do that, but the prices are maintained so high that it cannot be done at present prices. The prices at which it is sold now are out of all proportion to the cost of manufacture, which certainly does not exceed 15 cents a pound. The average price at which it is sold is 33 cents a pound, so that they make 18 cents a pound.

An hon. MEMBER.—Who controls our Canadian production?

Mr. WILSON.—The Canadian Copper Company which is really the International Nickel Company.

An hon. MEMBER.—Is that an English or American concern?

Mr. WILSON.—An American concern with approximately $30,000,000 capital—a very powerful concern, so powerful that it is impossible to get any one to go against them. It is principally a United States corporation.

An hon. MEMBER.—Do they control all the available deposits in the north?

Mr. WILSON.—No. That is just one of the peculiar features of the industry—it is unique in mining experience. There are tens of millions of tons of valuable and proved ores lying idle, not because it is inaccessible, or because of the want of a market or the lack of any process of treating it, but simply that it is impossible to induce capital to embark in the enterprise against such a powerful combination.

An hon. MEMBER.—These deposits are in Ontario?

Mr. WILSON.—Yes.

An hon. MEMBER.—And the provincial government has disposed of all the mines?

Mr. WILSON.—I suppose so.

The CHAIRMAN.—There are thousands of mining locations in which the owners hold titles in fee simple without any restriction whatever.

An hon. MEMBER.—As minerals they went with the land?

The CHAIRMAN.—Yes.

An hon. MEMBER.—What would you suggest, Mr. Wilson, in the way of a remedy?

Mr. WILSON.—I would like to get some protection from the Dominion government. You see all the nickel matte is shipped to New Jersey and refined there. That hardly seems to me to be right. They produce about 38,000,000 pounds of nickel and copper, which is all sent to the United States or Great Britain for refinement, and that means a loss of $1,000,000 a year in wages to labour in Canada.

The CHAIRMAN.—I should think so.

Mr. WILSON.—It seems to me Canada might reap more benefit from being the owner of one of the only two nickel deposits in the world, for the consumption is bound to increase, and New Caledonia cannot compete with Ontario.

An hon. MEMBER.—Is there any royalty on it?

Mr. WILSON.—No.

The CHAIRMAN.—What is the quantity there?

Mr. WILSON.—Millions of tons.

An hon. MEMBER.—Is the area over which it is distributed very large?

Mr. WILSON.—Yes, about seventy miles by thirty miles.

An hon. MEMBER.—They simply smelt it and get it into a matte and send it outside to be refined?

Mr. WILSON.—Yes, sir.

The CHAIRMAN.—What percentage of iron? What chances are there to utilize it as a structural material, taking the iron and nickel there together.

Mr. WILSON.—Of course, the present nickel steel is made by dissolving metallic nickel in a bath of steel in the open hearth furnace, but it seems it is feasible now, since the ore contains 48 per cent of iron, to roast the ore and make ferro-nickel direct from the ore and in that way you utilize the iron contents of the ore.

An hon. MEMBER.—They do not extract the iron from the nickel in its present state in this country—they just add to it to make it of commercial use?

Mr. WILSON.—All the nickel steel is produced outside of Canada, and all they produce at Sudbury is copper nickel matte.

An hon. MEMBER.—The iron is refined out of the matte in the New Jersey smelter?

Mr. WILSON.—The iron is fluxed off in the smelting and converting processes.

Mr. MACDONALD.—Who are the officials of the Canadian Copper Company.

Mr. WILSON.—Mr. Monell is the president of the International Nickel Company and Mr. Turner is president of the Canadian Copper Company.

An hon. MEMBER.—Might you not get some of these gentlemen down here, Mr. Chairman, and find what they have to say?

Mr. WILSON.—I do not think you will get much information from Mr. Turner.

Mr. MACDONALD.—We can have a whack at him anyway.

The CHAIRMAN.—He is a very pleasant gentleman, but I do not know about his willingness to come?

Mr. MACDONALD.—The committee can order him down.

The CHAIRMAN.—All right we can try that. What are the various articles of commerce into which the use of nickel might enter?

Mr. WILSON.—As I was saying, for practically everything for which ordinary steel is used now. To get the same strength of ordinary steel you would only have to use two-thirds of the weight in nickel steel. I hope it is going to be used for the Quebec bridge, and I hope in that case the government will insist on the nickel steel being manufactured in this country.

An hon. MEMBER.—You say there is an inexhaustible supply of nickel there, and its development is stayed by reason of the fact that the company now operating there controls the markets of the world?

Mr. WILSON.—Yes.

An hon. MEMBER.—And they do not develop the remaining ore and prevent it from being developed in order to further their own interests as against the interests of the country?

Mr. WILSON.—Yes. Again when you build the Canadian navy you will require still further quantities if you are going to build the ships here. I would say that as much as possible of the nickel steel should be manufactured here.

An hon. MEMBER.—What effect would an export duty have?

Mr. WILSON.—It would have the effect of causing all the nickel matte to be refined in Canada instead of as at present in the United States and Great Britain. It would be equivalent to a revenue of a million dollars in this country.

An hon. MEMBER.—It really is not a combine in Canada—it is a combination of a so-called Canadian company with an outside company?

Mr. WILSON.—I think it is all United States capital.

An hon. MEMBER.—It is just one company and they combine with the French people and the other sources of supply to control the market.

Mr. WILSON.—Yes, but the only other producer at Sunbury is Mond's, an English company, but their production is small.

The CHAIRMAN.—You say that it might be used for the Quebec bridge, for the structural material for it, and the structural material for building the Canadian navy —I suppose you include armour plate?

Mr. WILSON.—There is no steel works in Canada equipped for rolling armour plate, but it is required for many other purposes in the navy, for example, for the hull plates of torpedo boats which should be altogether of nickel steel, as well as for deck plates and for bulkhead plates.

The CHAIRMAN.—Supposing works were contemplated and sufficient capital available, how long would it take to put works in operation to produce the material, say required in the Quebec bridge or the Canadian navy?

Mr. WILSON.—Not more than twelve months at the outside.

Mr. HERRON.—Have you made any calculations or could you give the committee any information as to the cost of such an undertaking?

Mr. WILSON.—Well, that depends so much upon the scale on which you go into the matter, but I think with an expenditure of about a million dollars, one could produce about 75 tons of three and a half per cent nickel steel a day, which would be considerable.

An hon. MEMBER.—Have you any idea of the amount of capital invested in nickel mining in Sudbury?

Mr. WILSON.—I do not know, but it is a considerable sum. They built three or four smelters there one after another, but the value of the plant is not in proportion to the capitalization of their company, which is $28,000,000 or $30,000,000. That is out of all proportion to the money they spent on the plant.

Mr. HERRON.—And they make 75 per cent to 100 per cent on the cost of production?

Mr. WILSON.—Yes, they make about 18 cents per pound profit. Of course, it is difficult to get at their figures—they do not publish any kind of reports, but, basing one's calculation on their output and profits, that is what I make it out in accordance with what is charged for nickel in the markets of Europe.

An hon. MEMBER.—Have you any knowledge of the dividends that company pays now?

Mr. WILSON.—I do not know, as they have preference shares and ordinary stock, but their net profits would amount to about $3,000,000 a year.

An hon. MEMBER.—What effect has that got upon the proposition to develop the other area—the remaining areas there?

Mr. WILSON.—The business would be a good one if one could be assured of not being subjected to unjust competition on the part of a very powerful company, but nobody would invest money if they did not know what they might be confronted with. Of course, this company might put the price down to five cents a pound for a time in order to freeze out other enterprises that might start—it is a very powerful company to go up against.

An hon. MEMBER.—That is the feeling?

Mr. WILSON.—Yes, both here and in England.

Mr. HERRON.—Have you sufficient knowledge of the country to know if the areas are very much taken up?

Mr. WILSON.—Yes, all the large areas are taken up—all the large areas are held by private interests.

Mr. HERRON.—Still a great many of them are available for purchase?

Mr. WILSON.—Oh, yes. I often wonder how an export duty on nickel itself would do.

The CHAIRMAN.—How would an import duty on nickel or material containing nickel do? Would not that answer the purpose? At present they sell it back to us?

Mr. WILSON.—A very small quantity is used here. There is more used in Great Britain than anywhere else, and after that the United States and Germany. Germany has no nickel of its own; nor has the United States any nickel of its own.

An hon. MEMBER.—We might keep it for our own navy.

An hon. MEMBER.—Is there any source of further information that you could suggest in regard to matters that would enable the committee to make a recommendation, and to deal with the thing in a complete form?

Mr. WILSON.—I do not know any person who has devoted so much time to this subject as I have. In the last five years I have taken trips abroad in connection with this matter. I have been in New Caledonia, and I know Sudbury.

The CHAIRMAN.—Were you in any other parts of Europe besides Great Britain?

Mr. WILSON.—Yes, in France and Germany.

A MEMBER.—Is the New Caledonia mine controlled by a company?

Mr. WILSON.—Yes, by the Rothschilds, practically, and they work in agreement with the International Nickel Company limiting the output and fixing the price. The price never varies from year to year.

An hon. MEMBER.—No fluctuation?

Mr. WILSON.—No, and they have tied up all the government manufacturers in Europe by long term contracts at special prices, so it is absolutely impossible to get anything from them, that is in the way of making contracts to take a nickel supply.

An hon. MEMBER.—And Germany?

Mr. WILSON.—It is about the same as the United States.

Mr. CONGDON.—I suppose if the price lowered, there would be a greater quantity consumed?

Mr. WILSON.—Infinitely greater. If it were sold at between twenty and thirty cents a pound the consumption would be increased three or four times what it is. It would be adopted for very many other uses.

Mr. MACDONALD.—From your knowledge, assuming nickel was sold at the price you just mentioned, is there plenty of profit in it for the capital that might be invested in it?

Mr. WILSON.—Certainly. As I say the cost of production now does not exceed 15 cents a pound.

An hon. MEMBER.—Is the smelting of these ores more difficult than that of copper?

Mr. WILSON.—Not a bit.

An hon. MEMBER.—You state then that the cost of production of nickel is no greater than copper—what is the price of copper?

Mr. WILSON.—Thirteen cents. Of course the cost of production in Sudbury exceeds that of producing copper from ordinary copper ore as you have to separate the other metals.

The CHAIRMAN.—I am informed that the copper they get pays for the whole cost and they have the nickel to the good—do you think that is correct?

Mr. WILSON.—That is not correct; the cost exceeds the value of the copper.

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An Hon. MEMBER.—How are the mines worked?

Mr. WILSON.—They are principally open cast, that is to say, quarry mines.

Q. With a tunnel?—A. They have a shaft to draw the ore out of the quarry.

The CHAIRMAN.—You were saying that the iron is about thirty-eight per cent?—A. Forty-eight per cent.

Q. And if the nickel and iron were maintained together it would make a very valuable product?—A. Yes.

Q. Can the copper be separated from it?—A. It is possible to select the ore and use that portion which contains but little copper for ferro-nickel purposes and the balance for matte smelting. The ferro-nickel would contain a certain amount of copper, but it is generally admitted now that a certain proportion of copper is not injurious to steel, but rather beneficial. In fact, tests have proved that.

The CHAIRMAN.—I should think by the percentage of iron you mentioned, 48 per cent, it would pay to work that ore for the manufacture of iron alone, supposing no value in nickel?

Mr. WILSON.—No, that is not so, because the ore contains 26 per cent of sulphur, which necessitates roasting.

Q. Does it contain any other chemical ingredients that would damage it?—A. No, the phosphorus is very low.

An Hon. MEMBER.—Is there any probability of new nickel fields being discovered in other countries?—A. Not in the same masses.

Q. You are satisfied there is an abundance to develop there?—A. Yes, as I say, tens of millions of tons.

Q. Enough to last this country for generations?—A. Yes, for generations.

An Hon. MEMBER.—I think the committee might suggest to develop that property.

The CHAIRMAN.—You say, Mr. Wilson, the difficulty of those engaged in this particular enterprise is caused largely by the power of the International Nickel Company there and their combination with other capitalists to control the market?—A. Yes.

Q. Supposing the Canadian government took these suggestions which you have thrown out—first, if building such a structure as the Quebec bridge they might stipulate that the material be manufactured in Canada, and secondly, if building the navy they might stipulate certain materials be manufactured in Canada. If that were in the reach of capital would that give them sufficient warranty to go ahead and take their chances?—A. It would be a very great encouragement, but I doubt if enough.

Q. What would justify the installation of new works?—A. For nickel alone?

Q. Or nickel steel?—A. If you got a contract of fifty tons a day for a series of years it would be satisfactory.

Q. It would be an expensive plant to erect?—A. Yes, it would take a million dollars.

Q. What do they produce at Sudbury at present?—A. Matte. They do all the smelting there, but I think they ought to do everything there. The matte is a copper nickel matte.

Q. Is there any concern to-day in Canada where you can refine the matte?—A. No. The largest refining plant is in New Jersey.

Q. Then there is one in England—Swansea?—A. There are three or four in England.

Q. How is the nickel separated from copper?—A. It is done by a method known as the Orford process.

Q. Supposing an export duty were put on would they go to New Caledonia for their supply?—A. No, I do not think New Caledonia could compete. They would have to ship the raw ore from New Caledonia around to the east coast.

Q. Have they got a smelter there?—A. No, they would have to pay freight on 90% of worthless material.

Q. What other valuable materials are there with the nickel in the New Caledonia ore?—A. None.

Q. They have to ship the raw material to get that amount of nickel?—A. Five and a half per cent. There is no doubt in my mind that the new Caledonia ores could not compete with Sudbury ore in this country.

The Chairman:

Q. If producing a nickel metal to make a structural nickel steel you would produce it in the form of a billet?—A. Yes, or in the form of pig for conversion at steel works.

Q. Could it be rolled in any mills in Canada?—A. Yes, into plates or into certain sections.

Q. Whereabouts?—A. At the Lake Superior corporation works when they get their structural mill completed—they will have it completed in six months. I think the Dominion Steel Company can roll those things; that is, bridge material.

Q. So, if in any great hurry the material might be shipped to these mills and rolled into whatever might be wanted in the construction of these works?—A. Yes.

By an Hon. Member:

Q. Where does the New Caledonia ore go to?—A. All the New Caledonia ore goes to Europe—none of it comes to this country. Nearly half of it goes to England and the rest to Germany and France and other European countries.

Q. What proportion of New Caledonia ore compared with Canadian ore goes to Europe?—A. There is no ore going to Europe from here—it is all matte that goes—all the Mond matte goes to England.

Mr. CONGDON.—In the consumption of nickel by English manufacturers, what proportion goes from Canada and from New Caledonia?—A. There are about six millions pounds going from New Caledonia and about four million pounds from Sudbury.

An hon. MEMBER.—Why is there that disparity?—A. Well, I imagine that the Rothschilds are pretty strong people, and the nickel corporation found they could not stop them from competing in the market, so they thought the best thing to do was to come to terms with them and give them part of the European market on condition that they do not compete in price.

The CHAIRMAN.—I understand this company in Sudbury gauges its output, having regard to the market it has to supply; they have increased their works in recent years?—A. Yes.

Q. And if it were not for the monopolists maintaining the price at so high a figure the natural tendency would be to greatly increase the Canadian export to England?—A. Certainly.

Q. If this government adopted an export duty would it add to the price in England? Would that be the effect?—A. I am not sufficient of a fiscal expert to say whether placing an export duty on nickel would be a right thing, but at any rate you might put an export duty on nickel matte.

Q. Is that the only remedy?—A. And a bonus on the production of ferro-nickel pig or nickel steel in this country.

Q. Manufactured entirely in Canada?—A. Yes.

The CHAIRMAN.—Why should not the government require that such structural material of nickel steel as needed in this country should be manufactured in this country?—A. Yes, but that does not amount to very much.

Q. It would in the very near future—it would amount to a great deal if we could get it. We are proposing to expend in within three years eleven million dollars in naval construction. I do not know what proportion would be required; I fancy it would be small, but that eleven millions will perhaps grow into twenty millions within five years. There are a great many structures such as the Quebec bridge and another bridge that is required at Edmonton, and if these materials could be got reasonably

there would be a great encouragement in that?—A. It would be a great encouragement to open mines.

An Hon. MEMBER.—Is that the only thing that you have to suggest?—A. These two things, an export duty on matte and a bounty on the manufacture of pig and nickel steel in this country. I do not know if one could ask the government for a guarantee or a verbal assurance that they would see a company composed of all Canadian or English capital protected from undue competition on the part of foreign corporations.

Q. Would it be used in rifle barrels?—A. It would be used very much.

Q. Could they make the present arm lighter?—A. Yes, and less corrodible. To get non-corrodibility you want a considerable quantity of nickel.

The CHAIRMAN.—Is not the British rifle now made of nickel steel?

A. I do not think the arms are. The bullets are all nickel coated.

Q. But I am told the arms and field guns and the French rifle just made, are of nickel steel?—A. It is possible.

An Hon. MEMBER.—The heavy arms are, the field artillery and naval guns?

Mr. WILSON.—Oh, yes.

The CHAIRMAN.—I think that is what I have in mind.

Mr. WILSON.—Probably.

Q. Is there anything more you can suggest?—A. I think that is all.

An Hon. MEMBER.—I consider that Mr. Wilson has given us very valuable information and I am sure we are very thankful to him.

On motion duly proposed and seconded, a vote of thanks was extended to Mr. Wilson for his remarks before the committee.

The CHAIRMAN.—I understand Mr. H. Mortimer Lamb, secretary of the Canadian Mining Institute is here, and I think we would like to hear him.

Mr. LAMB.—Mr. Chairman and gentlemen—I am simply here to-day to inform you that after a meeting of the council of the Institute the other day a resolution was adopted expressing satisfaction that your committee had taken up the question of mining legislation, and approving of and thanking the committee for its efforts in this connection. At the same time a rider was added by which the council asked that the committee would not relax its efforts in this connection, but would endeavour to formulate a good mining law for Canada which would be a model mining law for the provinces. I think, sir, to-day it is one of the most important matters for the people of Canada, that is, the matter of the mining law. The whole thing is in a chaotic condition and we are very anxious to see it put on a proper basis.

Mr. CONGDON.—What subjects would it apply to?

A. The ownership and development of mining lands.

Q. Acquiring the title, I suppose, is the principal thing?—A. Yes.

Q. What part have we to do with that in the Dominion government?

The CHAIRMAN.—The mining districts in western Canada are larger than those of the eastern provinces—we have all west of lake Superior, except in Ontario, that is the Yukon, Saskatchewan, Alberta and MacKenzie, all the territories.

An Hon. MEMBER.—And Manitoba too?

The CHAIRMAN.—Yes, and the Yukon.

Mr. LAMB.—The council of the institute is anxious to see a law of that kind framed in order to consolidate those regulations and put them in good shape.

The CHAIRMAN.—I may say in all the provinces we have control of the Indian lands which form a very important part of mining interests, inasmuch as a great portion of those contain minerals.

Mr. LAMB.—I understand the question was considered by the committee and it was advocated that there should be a Royal Commission to inquire into this matter in order to get the evidence of many prominent mining men. In the opinion of a great many mining men that would be the most effective way of reaching a decision, because there you would get information from the men actually engaged in the matter.

We thought that the best way for you to arrive at a result that would best form the basis of a satisfactory law and settle the question of title. The latter is one of the most important matters for us, because it means the stability of titles which affects the question of capital coming into the country. The gentlemen from our council who gave evidence before you pointed out that capital had frequently been discouraged by the difficulty of securing title to these areas, and I do not think you have any question to-day which is of such importance as that. I am simply here to urge you to continue on in your good efforts and to offer at all times the assistance of the Canadian Mining Institute.

The CHAIRMAN.—Has your committee made any attempt to draft such a law?

Mr. LAMB.—We would regard that as somewhat impertinent except we were asked.

The CHAIRMAN.—I think the committee would be pleased to have from your association any suggestions you might wish to make.

Mr. LAMB.—If you would give me a statement to that effect I would be glad to bring it before the council, and I am sure they would be glad to take action.

The CHAIRMAN.—What the committee is looking for is more light.

Mr. CONGDON.—I think the most important thing is to endeavour to arrive at uniformity in a law covering the whole Dominion. I do not think any one in the House of Commons would ever over-ride any provincial legislature, and any uniformity in this respect is not to be accomplished by this parliament exercising its power under the British North America Act, and passing a uniform law, but by consideration between the government of the Dominion and those of the various provinces. I think one of the greatest things for the industry would be to endeavour to have one uniform law adopted by the Dominion and various provinces. It might not be possible to make them uniform in all respects but you could have the basis of a practicial law that would deal with essential matters pertaining to the industry, and leaving other matters that require special treatment to be dealt with distinctly by the local legislatures. The great advantage of that is, that more than any other class of the community, miners are a travelling people—where you discover a mine in the Yukon or anywhere else you find miners flocking there, and it is of an enormous advantage to know that the law which exists in the particular district into which one is going is the same as where he came from. I do not think anything could be accomplished in this regard unless the duty to do that is entrusted to one man who is competent in mining matters and the law relating to them. I believe that it might lead to uniformity on the subject, not only between the various provinces but also between the United States and Canada, and this is most desirable because we all know thousands are going to and fro between the United States and Canada, and it is most desirable that a man should know the laws of the locality in which his operations are to be undertaken.

The CHAIRMAN.—I do not think any one would conceive the idea that the Dominion would pass a law and force it upon the provinces.

Mr. CONGDON.—Exactly, so, but there is no reason why they should not consult with the provinces, and the best of feeling would be brought about by such a consultation in which all would strive to work out something in the best interests of the Dominion.

The CHAIRMAN.—I take this view, that is, if we could formulate a law that would be workable and would meet with the general approval of mining interests, that if we adopted it in the Dominion it would be a strong inducement for the provinces to adopt such measures as would work in harmony with it.

Mr. CONGDON.—I think if adopted by the Federal government with the approval of the provincial legislatures it would lead to a better enactment of the law. I believe the laws of Nova Scotia are away ahead of those of any other portion of the Dominion, and, to-day one of the greatest dangers in connection with the mining resources of the Dominion is the fact that large monopolists can gobble up deposits and leave them unworked and advance nothing in the interests of the country. That will con-

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tinue in the Dominion as long as individuals are allowed to obtain land with absolute rights. I think the wise course is to adopt measures like those of Nova Scotia. To-day, if a foreign iron industry wants to put out of competition the industries of iron in Canada all they need do is to send an army of prospectors and let them put in the three years service necessary to get a patent, and then they continue their monopoly and tie up the working of those properties. That is the worst feature in the legislation of the provinces to-day, and I think the public policy requires it to be changed. There is nothing to prevent such a monopoly coming in and monopolizing the nickel trade in Canada and working it only to such an extent as they see fit.

The CHAIRMAN.—I am aware that at one time they did aim at having such a monopoly, but the area has proved so great and vast that they have given that idea up.

Mr. MACDONALD.—I think we ought to have some of the officials of this company down here and see what they have to say. I move that Mr. Turner be summoned to attend here for examination and bring all books and papers relating to their business.

The committee adjourned.

WEDNESDAY, February 2, 1910.

The committee met at 10 o'clock a.m.

The CHAIRMAN.—The committee will remember that at our last meeting it was desired that Mr. Turner, the president of the Canadian Copper Company and the manager of the big nickel smelting works at Sudbury, might be examined. I have no doubt he will be able to give us some information.

Mr. WALLACE NESBITT, K.C.—Might I venture to say a word or two. I appear here not in the capacity in which you would naturally expect me to appear, as a lawyer, because I am not the solicitor for the Nickel Company. I was at Ottawa some years ago, and at that time my late firm, Mr. David Faskin and others, became and are still their solicitors, and I suppose one might be called the counsel. But for many years I have been connected with the company, and a number of my friends are connected as bondholders and stockholders, and, personally, nearly all the savings I have been able to make for the last 30 years are invested in this company, either in the form of bonds or preferred stock. Therefore you will quite appreciate that I have a very lively interest in the matter. It has been the subject of attention to me personally since 1892. This is the first occasion on which the company has been asked to give any information, and I rather welcome it, Mr. Chairman, because it has been the subject of a great deal of misunderstanding as to the whole situation. It has been called a trust, and I intend to have that explained. When you asked Mr. Turner to be present I at once realized that Mr. Turner, having been engaged in Canada for only the last eighteen or twenty years, could not possibly give you the information that you might want at the other end. Then as to the New Caledonia end it has been the subject of discussion, and if you will spare me the time this morning I would suggest that you ask Mr. Turner to tell you what he can, and I have brought here from New York a gentleman who was formerly head of the Carnegie steel business and who is now vice-president of the International Nickel Company, and who, I may say, in my opinion, is the greatest metallurgical expert in that line. He will explain to you why it is that refining has not been done in Canada. I think you may take it for granted that if there was any money connected with it they would try to get the money out of it. Then, on the New Caledonia side, I was informed from New York that Mr. Colvocoresses, who has been an expert for the company and has made inquiries in the New Caledonia field and had lived there for four and a half years,

was in Gowganda (up there, I suppose, in connection with the mineral fever raging there now), and I asked him to come to Ottawa to give you any information you wanted about New Caledonia. After that is over I should be glad to say a word as to the situation, as to what has taken place in Canada during the last few years.

The CHAIRMAN.—We might hear Mr. Turner now.

A. P. TURNER called and examined:—

Mr. Chairman and members of the committee, I would like to ask your indulgence in that I am not very ready at speech making, and think that in reading my notes I could better give the committee the information they desire. I wish to present to you some information as to how the nickel business has grown and as to what obstacles it has overcome in the past; what difficulties it has to contend with at present and what its plans are for the future. The Canadian Copper Company was organized in 1886 by a group of Ohio capitalists to develop the copper mines in the then unknown wilderness of Northern Ontario. At that time the presence of nickel in the ores was not suspected, and when this metal was discovered, the copper refiners of the United States and Canada were unable to cope with this disturbing element, which hardened and whitened the copper and made it unfit for the trade. To this day no copper refiner will purchase ores containing an appreciable amount of nickel. After prolonged experiments the Orford Copper Company of Bayonne, New Jersey, discovered a method of removing nickel from copper ores. They further worked out a method of refining this nickel for the market. Their process, which was protected by patents, remains to-day as the most successful method of treating copper ores on matte.

By Mr. Nesbitt:

Q. Those patents expired long ago and are open to the world?—A. The Orford Company commenced treating the ores in 1886. At this time when the Canadian company commenced operation the work was limited to mining ore, selecting the same by hand and shipping the picked ore, containing perhaps 10 per cent copper-nickel, to the refiners in the United States. This went on for three years. In 1889 the world's total production of nickel was approximately 1,800 tons per year, of which Canada produced about 350 tons, approximately one-fifth of the total supply. This was not a satisfactory showing, and the Canadian Copper Company took steps to alter this adverse condition. In this year they built at Copper Cliff a smelting plant known as the east smelter, capable of smelting 150 tons of ore a day. It was gradually increased, furnace by furnace, until in 1899 it could treat some 700 tons of ore and had cost $300,000. This smelter produced a forty per cent matte, which was shipped to the United States for refining. I should say this was composed of twenty per cent of nickel and twenty per cent of copper.

By the Chairman:

Q. I understand that the ore contains a considerable quantity of iron but it is fluxed out and not used at all?—A. In the recovery of the copper and the nickel that fluxing becomes necessary. It is not metallurgically possible to separate the iron from the copper without doing that.

Mr. NESBITT.—Mr. Wood is here to explain that and nickel steel and its difficulties.

WITNESS.—From 1889 to 1899, the nickel business grew slowly but steadily. In the year 1899, Canada produced about 2,500 tons of nickel out of a world's total of 6,800 tons. The proportion of Canada's business had increased from twenty per cent to thirty-six per cent, a pronounced gain, but not sufficient to satisfy Canadian ambitions. The smelting plant at Copper Cliff started ten years before was no longer adequate for the demands made upon it. In 1899, a new plant known as the west smelter was built at a cost of $300,000. This was along the lines of the east smelter

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and contained eight furnaces. I should explain that that plant was built in order to take advantage of a better situation as to the contour of the ground, and the furnaces were somewhat larger. This also produced a forty per cent matte which until 1901 was sent to the States. In this year the Orford Copper Company built at Copper Cliff a refinery known as the Ontario Smelting Works. In this plant the forty per cent matte was crushed and calcined to remove a sulphur and smelted to a metal carrying about seventy per cent copper-nickel. This was as far as the state of the art would allow the smelters at that time to refine in Canada.

By Mr. Congdon:

Q. What are the percentages of metal in the ore?—A. The average is two per cent copper and four per cent nickel, that is, of the Canadian copper ores that we are smelting at the present time. In the year 1902, the total world's production of nickel was about 9,000 tons of which Canada furnished over fifty per cent, the total Canadian production being 4,850 tons. This was a very gratifying showing and fully justified the heavy investments of British and American capital in the International Nickel Company which was this year organized. In 1902, the Ontario Smelting Works was purchased by the Canadian Copper Company for $300,000 and some improvements were introduced whereby the grade of matte was brought up to about 75 per cent copper nickel. Meantime all this matte had been shipped to the Orford Copper Company for refining. This Orford Copper Company owned smelting works at Bayonne, New Jersey, and were during these years purchasers of customs ores and mattes. The Canadian mattes were there refined by what was known as the Orford process which consists in smelting the matte several times with large amounts of salt cake and nitre cake both waste products of the chemical works near by, roasting the products with nitre cake and salt cake, leaching the products with acids, roasting again with soda, leaching again, and finally smelting down with fuel oil. Located as these works are at a point where almost all the chemicals can be obtained within a few miles by water and where the fuel oil is procurable within a stone's throw of the Standard Oil refineries, this Orford Copper Company was enabled to refine nickel by the Orford process at a figure at which it could be used economically in the steel trade. This introduction of nickel into the steel business gave a new impetus to the nickel industry and the International Nickel Company which in 1902 was formed to consolidate the mining and refining industries found itself confronted with the problem of enlarging and increasing the trade and at the same time re-equipping its mines, smelters and refineries with modern apparatus and methods. I wish to call attention particularly to the fact that the forming of the International Nickel Company was a consolidating of the mining and refining industries. This I particularly wish you to note on account of some of the things that have been said in this committee room as to its being a trust. Those who are acquainted with the conditions in 1902 know that the Canadian Copper Company had no process of refining. It therefore could not refine in Canada or anywhere else. It was absolutely dependent on some one to do this work for them. The Orford Company had a process by which they could do it better and cheaper than any one else and therefore received and refined all our matte. The two companies worked together in this manner for many years so that the combination of companies that took place was not a combination of competing companies but of different industries, one a producer of raw material and the other a refiner of it.

By Mr. Congdon:

Q. Any alliance between that company and the French company?—A. None whatever

Mr. GORDON.—It was stated here the other day and since that the Mond Company and the Canadian Copper Company were practically one.

WITNESS.—That is as far from being right as the other statement.

The CHAIRMAN.—I do not think that statement was made. What was said was that the market was controlled, not that those companies were a combine, but that the market was controlled. This is as far as any one stated it.

Mr. TURNER.—During the fifteen years previous to the formation of the International Nickel Company, the works at Copper Cliff had grown furnace by furnace and shed by shed, until in 1902 they consisted of a series of dilapidated wooden buildings, covering a lot of antiquated machinery entirely unadapted to future expansion. I should explain that up to that time the work in a certain way had been experimental. The processes at Copper Cliff had been continually changing and we were really not warranted, from the knowledge we had at that time, in building very expensive buildings or installing high-class machinery. I might further mention that one of the things that held back the better equipment of the plant was the continuous threats of an export duty, and I think with the old company that, as much as anything, kept back investments in new buildings and machinery. It was at that time in doubt whether the nickel business in Canada would be allowed to expand. Certain business interests antagonistic to the Canadian Copper Company had made use of some unscrupulous people to foster a spirit of opposition. Bills had been introduced into the Ontario Legislature providing for an export duty on nickel, which, if placed into effect, would have increased the cost of our matte one hundred per cent. The International Nickel Company in order to be independent of Canadian interests made large purchases of nickel lands in New Caledonia, and commenced shipping ore from that country to New York, where it was soon shown that the New Caledonia ore was easy to refine owing to its freedom from copper and sulphur. The officers and directors of the International Company being assured that the people of Canada had no desire to throttle one of their largest interests, took up the question of putting their Ontario business on a modern footing and building the most scientific plant in Ontario that money could buy and skill could devise. With this end in view they authorized the Canadian Copper Company at Copper Cliff in 1903 to erect what is undoubtedly the most up to date smelter in the world. For the first time electric power was used for all work around such a plant. A building covering two large blast furnaces and three Bessemer stands was erected. A steam power plant of 1,600 horse-power was built to supply steam, air and electricity, and this plant put into blast in the fall of 1904 has since its inception proved very successful. Realizing that this plant was not large enough for future development, the company in 1905 decided to enlarge, making the furnace building suitable for five large furnaces, besides a plant of 10 Bessemer stands, with a possible future capacity of 1,500 tons of ore a day. The matte is now brought up to eighty-two per cent metal before shipment to the States. As the operation of this plant requires an enormous power, the company built on the Spanish river a large water plant whereby they can generate some 8,000 to 10,000 horse-power. That the International Nickel Company should have expended this amount of money in the face of legislation which threatened to raise their manufacturing cost shows their belief in the integrity and business honesty of the people of Canada and their certainty that the people of Canada would recognize that modern business is a matter of geographical economics. The result of this policy of expansion is particularly noticeable in the fact that in 1906 the world's consumption of nickel was nearly 12,000 tons, of which Canada furnished nearly 8,000 tons. To go back to 1886, the shipments from Ontario consisted of ore carrying ten per cent metal. At present the shipments consist of matte containing eighty-two per cent metal. This shows that the company under the influence of business considerations, and not of legislative threats, have found it to their interest to do in Ontario as much refining as possible.

By Mr. Congdon:

Q. What proportion does the cost of refining in New Jersey bear to the total cost of the production of the metals?

Mr. NESBITT.—You might ask Mr. Wood that.

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Mr. TURNER.—Their pay-roll is about one-quarter of the pay-roll in this country. After the completion of its furnace and power plants the Canadian Copper Company at once began the better equipment of its mines and in 1906 its old buildings and machinery were replaced by fireproof structures and the most modern electrical machinery. The total expenditure for mine improvements was $750,000, of which $75,000 was spent for houses for its employees. There does not exist to-day more complete mining plants or more comfortable and orderly mining towns than those of the Canadian Copper Company at and around Copper Cliff. In 1907, further expansion was decided upon. A mammoth converting plant has been completed which has no equal in the world. The building itself is the third largest steel building in Canada. New shops and warehouses have been constructed and large additions made to the rolling stock. There has been spent at Copper Cliff for improvements in the past six years nearly $4,000,000. If you add the cost of houses and rolling stock it means an investment by the Canadian Copper Company (or by the parent company the International Nickel Company) of about $5,500,000.

Mr. NESBITT.—Am I safe in saying that practically every dollar has been spent with Canadian manufacturers—that this has been the policy of the company?

Mr. TURNER.—Everything that it was possible to buy in Canada.

Mr. NESBITT.—Personally, I have gone time and again to them for friends of my own who are manufacturers and appealed to them about that, and I think I can say to the committee that as far as I know that is the policy that has been adopted.

Mr. TURNER.—About the only thing in our equipment not Canadian are our blowing engines which are not manufactured in Canada. Now as to the refining end it was early realized that the Orford process dependent as it is on cheap chemicals and fuel could not be worked successfully at Copper Cliff. In order to get away from the Orford process the Canadian Copper Company and later the International Nickel Company have carried on for many years the most elaborate experiments looking for a process that might be worked in Canada. In 1891, the Canadian Copper Company brought from France, M. Jules Garnier, then the greatest exponent of the nickel industry. He built at Cleveland, Ohio, a large plant containing cupolas, reverberatory and crucible furnaces, gas producers, &c., and for several years attempted to refine nickel there but was absolutely unsuccessful. That experiment cost $150,000. In 1893, the Canadian Copper Company investigated the German process of Dr. Carl Hœpfner, and under his advice erected a plant at Cleveland where Dr. Hœpfner and his assistants tried for several months to refine the metal and failed absolutely. I might say that it cost nearly $50,000. That this failure was due entirely to the process is shown by the failure of another company organized later by Hœpfner who erected a plant at Hamilton, Ontario, and proved a lamentable failure for Canadian investors. After Hœpfner's demise this Hamilton concern adopted what was known as the Frasch process and which also proved a total failure. In 1895 the Canadian Copper Company sent a representative to England and studied the operations of the Mond process for over a year, and came to the conclusion that the process, metallurgically interesting as it was, was not adapted to the requirements of refining in Canada. That his opinion was justified was shown by the action of the Mond Company in building their own refinery, not at Victoria mines in Ontario, but at Swansea in Wales, where their cheap coal and ocean freight combined with their proximity to the market made refining an economic possibility. In 1898, the Canadian Copper Company erected at Cleveland another experimental plant in which all the expedients known for the refining of nickel were given a thorough trial. These experiments failed to produce a metal which could compete in point of cost with the Orford process. In 1904, an expenditure of some $60,000 was made at New York on another method of refining and in 1905, a third trial was made along different lines at Copper Cliff, all with the idea of finding a process by which nickel could be successfully refined in Canada. All these experiments developed the same point. The work can

be done, but the cost is prohibitive. Nothing is impossible to modern science. Certainly nickel can be refined in Canada, but not at a cost which will enable the Canadian nickel to compete with that produced abroad. The idea that Canada has a monopoly of the world's supply of nickel is erroneous. That it has the largest and most easily worked deposits of ore in the world is a false impression. The deposits of nickel ore in the Island of New Caledonia are as large as Canada has to show. The ore is soft and can be mined as easily as gravel is dug from a hill side. The ore contains no sulphur and no copper and hence no separation is necessary. It contains about seven per cent of nickel while Canadian ores carry from two per cent to four per cent. I understand that they ship as low as six and a half per cent. Formerly anything below seven per cent went to the dump. It can be taken from the ground for 80 cents per ton whereas the Canadian ore is contained in the hardest rocks that exist and is more costly to mine. The only barrier to the use of these New Caledonia ores lies in the distance from the markets. Freight has so far been a drawback, but the investment of capital in a few large modern freighters would make it possible to deliver these ores in New York or London at a price where they could compete very severely with the Canadian markets. The English, French and German nickel refiners have always drawn their ores from New Caledonia. This ore has not been smelted in New Caledonia on account of the lack of proper fuel. However, both coal and coke of good quality can now be purchased in New South Wales, 1,100 miles distant, and modern ocean facilities for shipping fuel makes the smelting of New Caledonia ores at the mine nearer a business possibility than ever before and is a situation which every nickel producer is certainly considering. I should add that there is at the present time a smelting concern operating in New Caledonia. It has started within the last six months, and it is a matter of importance that Mr. Singer, the head of the great Singer Sewing Machine Company, is backing this organization. The shipment of matte instead of ore from New Caledonia would necessarily cheapen the cost of French nickel and promote a much keener competition with Canadian nickel. The question naturally arises if New Caledonia ores are easier to manipulate and the cost of producing nickel therefrom can be made as cheap or cheaper than from Canadian ores why does the International Nickel Company make such investments in Canada, and continue to operate only its Canadian mines. One answer is that the owners naturally prefer to spend their money and build up an industry on British soil near home rather than in a French penal colony on the other side of the world all things being equal. Another reason for the continuance of the work in Canada was the fact that when these industries were combined there was already a large refining industry in New York. Further the mines at Copper Cliff had already been developed and there were already smelting facilities on the ground. Naturally the new organization took up that part of its work which was developed and ready to go on.

Mr. NESBITT.—Don't you think you could add to that that they had also a certain amount of Canadian capital and two Canadian directors who were very keen about not losing it?

Mr. TURNER.—That is a very interesting fact.

Mr. NESBITT.—Mr. Coulson, for instance, of the Bank of Toronto, was a director, and several Montreal people were holders. The Cawthras were holders and Mr. Beattie. I venture to say that there is more Canadian money in this Canadian Company than any other big Canadian concern, the capital of many being nearly all borrowed in Belgium or England. Of course the stockholders are very keen to have the work go on here where they know about it and not 13,000 miles away.

Mr. TURNER.—The splendid growth of Canadian nickel is a matter not only of brains and capital but of geography. Placed as they are the ores can be mined and shipped to New York almost as cheaply as iron ores from the upper peninsula of Michigan are carried to the furnaces at Pittsburg. The Canadian Copper Co. as shown by its history, has never been content with the policy of shipping crude mate-

rial. It concentrates 15 to 18 tons of ore into one ton of matte. It removes all the iron the ore contains and about ninety-six per cent of the sulphur it carries. It ships to the refineries a material containing only enough sulphur to warrant its being called a matte, which obtains a low freight on that account. The supremacy which Canadian nickel has obtained is due to this policy of doing in Canada all the refining that is commercially possible and shipping the material at as high a grade as can be maintained. All the elements which enter into the problem of nickel refining, coal, coke, acid, chemicals and labour are from thirty per cent to fifty per cent higher in Canada than in New York. All these considerations make it impossible to produce in Canada refined material as cheaply as can be done in the United States. Further in order to prevent nickel, made abroad from New Caledonian ores, entering the American markets the American tariff on refined metal at $120 per ton. This duty favours the Canadian markets at present since the matte contains just enough sulphur to allow it to escape this duty and go into the States free. That is a point that I wish to repeat that, shipping as we do, a product containing a small amount of sulphur makes it not only possible for us to secure a low rate of freight but allows the mineral to enter the United States free of the duty of 6 cents per pound that is imposed on refined mineral. That is not only protection for the International Nickel Co., but protection for Canadian nickel.

Mr. NESBITT.—Perhaps the committee do not quite appreciate that. But for that would it be possible for you to hold for a moment practically the exclusive United States market for Canadian nickel?

Mr. TURNER.—No.

Mr. E. F. WOOD.—There would be the same competition as in Europe. In the United States the nickel practically is all Canadian.

Mr. TURNER.—There is no Canadian market for nickel.

Hon. Mr. TEMPLEMAN.—I take it that New Caledonia nickel could go into the United States on the same terms.

Mr. NESBITT.—But then the freight.

Hon. Mr. TEMPLEMAN.—But that argument as to duty applies.

Mr. NESBITT.—If they are shipping matte they have freight to pay.

Hon. Mr. TEMPLEMAN.—It does not mean that we have got the exclusive American market. New Caledonia could do the same thing.

Mr. NESBITT.—But practically the result is exclusive.

Hon. Mr. TEMPLEMAN.—At the present time.

The CHAIRMAN.—Suppose the United States could not get any matte nickel in that form, would they put up the duty on refined nickel.

Mr. NESBITT.—I cannot say what they might do.

The CHAIRMAN.—It does not look to me that it would be in their interest to do so.

Mr. NESBITT.—All Mr. Turner is pointing out here is that owing to the freight situation they could not afford to send any New Caledonia matte into the States as against the Canadian nickel.

Hon. Mr. TEMPLEMAN.—It is a freight advantage not a duty advantage.

Mr. TURNER.—There is no Canadian market for refined nickel. The world's supply is taken in about equal parts by the United States and Europe. If nickel were refined in Canada the cost would be vastly increased first by the increased price of fuel and chemicals required and second, by the American tariff of $120 per ton. It is very evident that under these conditions it would be much cheaper to import crude ore or matte from New Caledonia than to import refined nickel from Canada. It is evident from these considerations that refining cannot be carried on at Copper Cliff where the mines and smelters are operated. The extreme distance of this point from coal supplies, the heavy freight rates on such acids and chemicals as are needed and the severity of the climate all amount to an absolute prohibition upon any refining in northern Ontario. If the industry were to be attempted in Southern Ontario or at any point where coal and acid could be obtained cheapest the nature of the industry

itself would soon call down popular disfavour. I refer to the sulphur fumes that come from the manipulation of the ores and mattes. At the 1907 session of the Ontario legislature a Bill was passed to encourage the refining of nickel offering a bonus of $120 per ton on refined nickel. That no claim for bonus has so far been made is a further proof of the inability to refine nickel commercially in Canada. The bonus is offered for five years and not one dollar has been asked for or earned. If there is any disposition on the part of the Dominion government to consider an export duty on nickel it should first ascertain the result of the Ontario legislation on the subject and be guided thereby. As it exists at present the Canadian nickel interests involve the expenditure in Canada of several millions of dollars a year. They employ 1,500 to 2,000 men. They directly and indirectly support a population of 4,000 to 5,000 people. They handle half a million tons of freight a year on Canadian railroads. They depend almost entirely upon Canadian manufacturers for their construction and repairs. All these interests would be jeopardized if not destroyed by an attempt to do in Canada more than the geography and climate of Canada will permit. Under the present system the Canadian industry has grown from a mustard seed beginning until it controls two-thirds of the world's trade. There is no reason why under the present system the industry should not grow until it controls all the world's consumption of this metal. Why not allow the industry to expand along the present methods and obtain the future promise which its past history has shown possible.

Mr. HERRON.—Is it not usual to have a witness sworn?

The CHAIRMAN.—I may say that the committee did not deem it necessary to have this gentleman at this stage sworn. We are merely asking for information which they have Mr. Turner here to give.

Mr. NESBITT.—There is no objection to his being sworn.

The CHAIRMAN.—I assume there would be no objection, but I referred the matter to the minister and he thought it was not necessary at this stage. If later on it is desired by the committee to get more minute information we could take that course or we could take it now.

Mr. GORDON.—For the information of Mr. Herron I might say that in this case I am sure you do not need it. I have known Mr. Turner for years, and I can tell my friend Mr. Herron that Mr. Turner's oath is no better than his ordinary word. His integrity is unquestioned and there is no occasion for him to be sworn.

Mr. HERRON.—I am pleased with the explanation my friend Mr. Gordon gives, I have no object in asking Mr. Turner to be sworn, only it is customary.

The CHAIRMAN.—Quite right, but so far we have not adopted it. We have not so far put under oath any of those who appeared before the committee. Of course whenever the committee so desires I shall have that done, but it seems to me that it would be about the same information we would get, and perhaps for the present we are just as well the way we are.

Mr. WHITE.—I am not a member of this committee, but with your permission I would like to ask a question.

The CHAIRMAN.—Certainly.

Mr. WHITE.—I would like to ask how the future deposits of nickel in Canada compare with the deposits in other countries?

Mr. TURNER.—Naturally the first comparison would be in connection with New Caledonia, that being the largest known nickel field at present outside of the Sudbury district, and as I have already stated the extent of the nickel area in New Caledonia is fully equal to the Sudbury district. So far as acreage is concerned it is probably three times greater than the Sudbury district. In Sudbury the nickel-bearing lands cover 400,000 acres, but every acre of that ground has not got nickel in it.

By Mr. White:

Q. I understand that you have got your development work there further ahead? —A. All the time we are developing. We have put down 10 miles of diamond drill

holes (55,000 feet), and this with other development expense would amount to a quarter million dollars. I cannot tell you how far the development of other nickel deposits has gone. I do not know that.

Mr. GOODEVE.—Is the increase in the use of Canadian nickel due simply to the fact that you have an exclusive control of the American market, or what proportion of Canadian nickel is used in the British market?

Mr. TURNER.—About one-half of our nickel is sold in the United States and about one-half goes to Europe. I cannot tell you how much we sell direct to Great Britain. Perhaps I should explain that the sales department of the nickel business of my company is handled by the Orford Company of New York, which is another subsidiary company. I am not acquainted with the details of the sales department. Mr. Wood, who represents the International Nickel Company of New York, probably could answer that question better than I can.

Mr. CONGDON.—I understand that no increase in your production would affect this question of refining under existing conditions?

Mr. TURNER.—I do not see how it could.

Mr. CONGDON.—Unless some new process of refining was discovered or there was some change in the conditions at Sudbury you think this must continue at present?

Mr. TURNER.—I should say that ten years ago when this matter of nickel refining was being agitated, we were then making in Canada forty per cent matte. That was the best we knew how at that time. Since that time we have increased from a forty per cent matte to an eighty per cent or eighty-two per cent matte. What the next ten years will bring I cannot say.

Mr. CONGDON.—Without some change in the present conditions, the mere change in your production would not affect it?

Mr. TURNER.—No.

Mr. NESBITT.—I was going to ask some questions that I think the members of the committee want to know, because going about the country and having talked with perhaps every federal minister and with every provincial minister in the last three administrations in Ontario, I know just what the average public representative wants to know. It was stated that this company has a monopoly of the areas. Now, I wish you would tell the committee what the areas are and who are the various companies that own properties with which you have no concern.

The CHAIRMAN.—I do not think that was stated.

Mr. GORDON.—As I happen to be the representative of the locality in which those works are situated, and after this thing was brought up the other day I took the pains to investigate the matter of area, and I found on looking this up that the Canadian Cooper Company own or control about 25,000 acres, or, I think, about six per cent of the lands that have been patented or leased by the government. There is the Mond Nickel Company, and if I remember rightly they have about 6,000 acres. Then there is a nickel company which is controlled principally by Mr. J. R. Booth of this city, and I think they have got between 3,000 and 6,000 acres. And then there is Mr. McConnell here, and others I might mention who have the balance of 175,000 acres which is patented.

Mr. NESBITT.—There is the Lake Superior Corporation.

Mr. GORDON.—There are several I have not mentioned at all.

Mr. NESBITT.—And the McIntyres of Montreal have a very large area.

Mr. GORDON.—The Sudbury nickel belt is composed of about 400,000 acres and about 200,000 acres have been patented or leased.

The CHAIRMAN.—You hold the opinion that that belt contains all the nickel deposits there are?

Mr. GORDON.—No, but that is what is called the Sudbury area.

The CHAIRMAN.—Could you give us an idea of what percentage your company does control or own and every particular company?

Mr. NESBITT.—It was stated here the other day, as I understand, that the whole affairs of this company were kept very secret, their profits and so on

The CHAIRMAN.—That was not stated.

Mr. NESBITT.—It was stated publicly then in the press.

The CHAIRMAN.—The newspapers made a mistake. Whether carelessly or otherwise they misrepresented the statements made here. There was no statement made here that they kept secret. There was not anything said derogatory to this company.

Mr. NESBITT.—Mr. Turner, do you happen to have your last stockholders report with you? How many English stockholders are there?

Mr. TURNER.—In the International, in the neighbourhood of 2,000 stockholders.

Mr. NESBITT.—English stockholders?

Mr. WOOD.—It is hard to tell, but I should say pretty nearly half.

Mr. NESBITT.—And Canadian? I want to correct the impression that is apparently abroad. When did you pay your first dividend on common?

Mr. TURNER.—About six months ago.

Mr. NESBITT.—And that was four per cent wasn't it?

Mr. TURNER.—At the rate of four per cent.

Mr. NESBITT.—When did you pay a dividend on preferred stock?

Mr. TURNER.—About two years ago. I could not say exactly, but I think it is about two years ago.

Mr. WOOD.—About three.

Mr. NESBITT.—You sold last year how many pounds of nickel, this apart from copper and all your other products?

Mr. TURNER.—About 13,000,000 pounds.

Mr. NESBITT.—The profit was $1,027,000?

Mr. TURNER.—Yes.

By Mr. Nesbitt:

Q. So if you excluded all the copper sales and the fact that you refine a million ounces of silver a month—that is part of your business?—A. Yes. That is a separate industry.

Q. Exclude all that and give nickel the total benefit, and what is the amount of profit per pound on nickel?—A. About seven and a half cents.

Q. That is if you give nickel the credit of the whole of that, every pound of nickel makes a profit of seven and a half cents a pound. Will you tell me what efforts the company had to make to introduce nickel?—A. Up to the time that nickel steel was discovered the amount of nickel sold throughout the world was very small, probably not more than 1,500 to 1,800 tons a year. Nickel steel opened a new field because it began entering into armour plates, deck plates, bridge work and heavy steel work that naturally made a very large output and increased the production very fast. Two or three years ago the company began working on a combination metal and it has at last succeeded in making what is known as the Monell metal which is composed of the copper and nickel as it exists in the matte, the sulphur being roasted out and the two products as shipped in the matte becoming one metal. Tests have shown that this metal has withstood the ordinary tests of strength and breaking strains better than steel.

Q. And is also none corrosive?—A. Also non-corrosive. It becomes a white metal and has taken the place largely of white metal on account of its being non-corrosive and being very much stronger. This is something new, but up to the present time there has been no profit whatever from it.

Q. I want these gentlemen to understand all about the profits one is supposed to get in this country. I have been an investor since 1892 and of dividends I have got one in the last six months. Take Monell metal. It was published all over that the Pennsylvania railroad station in New York was being roofed with that. How does

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the company stand with regard to the introduction of that metal?—A. We are losers on both roofs that we made.

Q. Explain that?—A. It had to be given at very low prices.

Q. Less than cost?—A. Less than cost.

Q. The result is that Canadian labour and the Canadian mines get the benefit and the stockholder is out of pocket, only he is in the hope that he will be very much in pocket if it becomes a popular metal, in which case it will create an increase of labour in Canada. May I ask you to tell the committee of some of the efforts that the company have made but which have failed and which have been an absolute out-of-pocket loss to introduce nickel into the various industries. It is said they are holding up the prices. That is at least alleged that they endeavoured to keep prices up.

The CHAIRMAN.—That was not alleged. You and Mr. Turner are labouring under a misapprehension.

Mr. NESBITT.—What is the charge we are here to meet?

The CHAIRMAN.—No charge whatever. The Canadian Copper Company was not brought into the question at all.

Mr. NESBITT.—All I can say is that your reporter has taken it down very badly. The charge was made that we were starting with other companies to keep up prices. I want to show you that we are hundreds of thousands of dollars out of pocket trying to introduce this metal.

The CHAIRMAN.—I know the company's history pretty well. It was the International Nickel Company that was spoken of.

Mr. NESBITT.—This is the International Company that is appearing. The Canadian Company is only a subsidiary company, and I intend to tell you how the International came to be formed.

The CHAIRMAN.—It was the International Nickel Company which had some understanding or combine with the New Caledonia Company.

Mr. NESBITT.—That has been denied this morning, and I want to deny it under oath if you want it.

The CHAIRMAN.—That was what was alleged here, not that the Canadian Copper Company made large profits.

Mr. NESBITT.—The Canadian Copper Company is owned by the International Company just as the Anglo-American and the Vermilion is owned.

Mr. E. M. MACDONALD.—The impression I gathered from the statement made by Mr. Wilson was that the International Company, in conjunction with other nickel producers of New Caledonia controlled the production of nickel and kept its price at such a figure and the combination was of such a character that it prevented production in other quarters, and that they were able to realize a very large amount of money on a low production.

Mr. NESBITT.—That is the very thing I am asking him to meet.

Mr. MACDONALD.—That is the impression I gathered.

Mr. NESBITT.—I want to show the endeavours of the company to increase its production. I have heard my friend Colonel Thompson say to the Prime Minister, the only beneficent trust was a trust which would enable a man to wear four hats in a year where he had only been accustomed to wear one. In other words, the cheaper they could make this metal the better they would be satisfied. That is the object of the company and I want Mr. Turner to prove it. Far from being linked up with the other companies I remember that as late as 1903 it was a question between the Rothschilds and this company who could stand the competition longest.

The CHAIRMAN.—That has passed away.

Mr. NESBITT.—It has not passed away, it is as active as ever.

Mr. GOODEVE.—Mr. Turner made a statement that the Orford Company controlled his sales generally and the output of the other company. I would like Mr. Turner to

tell us what other companies are handled by that company and how it is handled by them.

Mr. TURNER.—You mean the subsidiary companies of the International Nickel Company? There was combined in the International Nickel Company the Canadian Copper Company at Copper Cliff, the Orford Copper Company of New Jersey, the American Nickel Works at Camden, New Jersey, the Anglo-American Iron Company of Canada, the Vermilion Mining Company of Canada, and the Huronian Company of Canada. In addition there were two Caledonia companies, one known as the Nickel Corporation, and the other The Society de Menier. As you all know, the Canadian Copper Company was the property that had the nickel mines; the Anglo-American Iron Company had some nickel lands, but also had large iron beds in Hastings county. The Huronian Company is the water-power company. It is the concern which built and operates the power plant on the Spanish river. The Orford Company was the refining company in New Jersey. The American Nickel Works had been a refiner of nickel in times gone by, and it was taken in because Joseph Wharton, who was the parent of the nickel industry, was at its head. The two Caledonia companies were not active companies. They were land companies in New Caledonia.

By the Chairman:

Q. What companies existed outside of that group you have mentioned? What other company existing outside of that group is an active producer of nickel? We know that the Mond Company is running at Sudbury, but outside of the Mond Company and the ones you have mentioned can you give us the names of others?—A. The Mond Company of Victoria Mines, the large French organization and ours are the three largest in the world, but there are many small companies operating. There is a small amount of nickel produced each year at Fredericton, Missouri. There are now two concerns operating in North Carolina and the ore they are getting is similar to New Caledonia ore. In addition there is the Societè Le Nickel, a large French organization in New Caledonia. There is a concern known as L. Ballande which is refining New Caledonia ore in Belgium. Last year the Krupps at Essen brought large quantities of ore from New Caledonia which they used in their works. Then there is the Pappenburg, another German company, who obtain their ore from New Caledonia; also Basse & Selve, Altena, and Frankenstein, of Hamburg, who secure their ores from New Caledonia. Then there is what is known as the Societè Metallurgie Caledonie, headed by Mr. Singer, which is doing refining in New Caledonia to-day. So far as other deposits are concerned, as already stated, New Caledonia and the Sudbury district have the largest deposits that have been discovered so far. But there is nickel at Lovelock, Nevada, at Riddles, Oregon, at Custer county, Idaho. It is known that there is a large deposit of ore similar to that of New Caledonia in Patagonia, South America. Mr. Gray, who writes to different metallurgical papers, tells us that there are now large finds in Tanganika, South Africa; iron ore in Cuba contains nickel and large low grade deposits are found in Norway. These deposits we know have been looked over and we know they exist.

By Mr. Congdon:

Q. Practically then the International controls the nickel?—A. No.

By the Chairman:

Q. What would be the production of those companies, leaving the Mond Company of Sudbury out of consideration? What quantity of nickel would those other companies produce?—A. I cannot tell you that, because the German companies buy from mine owners in New Caledonia. There are a great many mines there. The ore is easily mined and those companies obtain their ores there.

Q. I suppose you gather from that that there is a movement to impose an export duty on nickel ore?—A. I know of no such movement myself.

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By Mr. Congdon:

Q. What would be the effect of an export tax?

The CHAIRMAN.—I was just going to ask that.

By Mr. Congdon:

Q. Such an export tax would secure refining?—A. It would shut up the Copper Cliff works.

Q. Your shipment of matte is simply due to the fact of a cheaper mode of getting the metal. If you could get a cheaper matte you would do it?—A. Certainly. We ship in our matte 18 to 20 per cent of material absolutely worthless. After the 80 per cent is considered, 18½ per cent is sulphur and 1 to 1½ per cent iron. The sulphur and iron are absolutely useless, and yet we pay freight on it of $6 per ton. We are not such bad business men that we wish to throw money away on freight on worthless material. There is no sentiment in the matter. We would be willing enough to do it if we could refine in Canada. There is no sentiment about it.

By Mr. Nesbitt:

Q. You have to keep up a double office staff.

By Mr. Herron:

Q. But I understood you to say the percentage in the New Caledonia ore was only 6 to 8?—A. I think the average shipped is 6½ per cent.

Q. Is that shipped in that state to Germany?—A. Yes.

Q. They pay freight on 93 per cent?—A. Yes.

Mr. NESBITT.—I am glad you asked about that because Mr. Wilson stated it was 30,000 miles more or less.

The CHAIRMAN.—It was stated as 13,000.

Mr. NESBITT.—Everything seems to have been multiplied by three.

By Mr. Congdon:

Q. It costs 80 cents per ton to mine?—A. That is only the mining of the ore.

The CHAIRMAN.—There is another gentleman who came here to give evidence.

Mr. NESBITT.—I would like you to hear Mr. Wood, of New York.

The CHAIRMAN.—We probably have time to hear the two.

E. F. WOOD, called and examined:—

Mr. WOOD.—Some of the things that I wanted to correct are some of the impressions that were reflected in the press and talked in Canada as to the wasteful methods of treating the ores. All the iron is thrown away and the sulphur. We have made a very careful study of this and while we know it would be possible to save some of the sulphur we would have to manufacture it into sulphuric acid for which there is no market in Canada in proportion to the amount which would be manufactured. With regard to the iron, there is not enough iron.

By the Chairman:

Q. What percentage of iron does the ore contain?—A. About 40 or 42. If it were not for the copper contained in this ore the various schemes which have been suggested for the manufacture of ferro nickel for use in steel-making would furnish a very attractive field, as the sulphur could be removed by roasting, and the residue of iron and nickel smelted in a blast furnace to a ferro alloy. But there is no commercial method known for the removal of the copper from the nickel before removing the iron and sulphur, and that is the part which does not seem to be understood even by some people who consider themselves metallurgists.

By Hon. Mr Templeman:

Q. That means that all the iron is lost?—A. That means that the iron is necessarily lost.

Q. You cannot recover that and recover the copper?—A. You cannot recover the iron and nickel together without having the copper with it, and that will ruin it for the purposes of steel-making.

By Mr. Congdon:

Q. Take the iron by itself?—A. I do not know of any method by which it would ever be saved, although if we were in a district like Pittsburg our slags could be run into a blast furnace probably, and they would be willing to pay us something for it, but they cannot be smelted in Canada.

Q. I suppose if they discovered some process of hardening copper?—A. That is a dream. If you harden copper what use would it be, because you can buy steel for one-sixth or one-tenth the price of copper, which has all the desirable qualities for hard metal.

Q. What is the injurious effect of copper on nickel and iron?—A. It has a tendency to make the steel red short. That is, to crack in rolling and forging, and while steel-makers are not as much afraid of carrying copper in steel as they were 15 or 18 years ago, still you cannot sell a high grade steel carrying any appreciable percentage of copper. Usually the specifications call for copper under ·5 per cent, so that if you offer a material for steel-making containing any material quantities of copper you would find that it would be refused.

By the Chairman:

Q. Have you sufficient knowledge of the Sudbury ores at all to say to what extent the ore could be hand-picked as regards that portion which contains the larger percentage of copper. Is it true that the copper is not disseminated through the whole ore body, but occurs more or less in the lenses, and can be to a considerable extent separated?—A. You could pick ore that would be higher in nickel and lower in copper and higher in copper and lower in nickel, but you could not make a commercial practical separation sufficiently close to make a reasonable ferro nickel. With an ore with 2 per cent copper and 4 per cent nickel, which is about the average of the ore we put out, you might probably sort down to 4½ per cent nickel and 1 per cent copper, but if you could do that I think that would be the extreme limit.

By the Chairman:

Q. And you think that is not commercially possible?—A. Absolutely it is not commercial. The copper is too nearly uniformly disseminated through the ore to make any mechanical separation possible. It is somewhat like the other dream. We have also tried a magnetic separation and whilst you can produce heads that are higher in nickel and lower in copper you cannot make a separation. We have heard a great deal about the manufacture of nickel steel in Canada particularly the manufacture of nickel steel for the Quebec bridge if it is built of nickel steel as undoubtedly it should be, for such a tremendously large structure. The manufacture of nickel steel in ingots is a very simple process. It simply consists of making an addition in the crucible or open hearth furnace of the proper percentage of nickel.

By Mr. Nesbitt:

Q. That is about what?—A. About three and a quarter per cent.

Q. How much would that add to the cost of nickel steel?—A. For steel making, taking 35 cents a pound for nickel, it would be about 75 pounds of nickel per gross ton. That would be about a cent and a quarter per pound for all the nickel. While the difficulties of making nickel steel are very slight, nickel steel will be for a great many years be only made in large quantities by very large steel works for the reason that the things in which nickel steel is of the greatest advantage to use are things that are very large such as guns, armour plate and material for very large bridges. There is no advantage in building a small bridge of nickel steel for you have got to have a certain amount of steel for stiffness and ordinary steel is strong enough. When you

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come to a bridge such as the Quebec bridge there will probably be plates of 8 feet by 90 feet long, bars probably of 15 to 20 inches by 2 inches up to 70 or 80 feet. The mills to roll those items would have to be enormously heavy and expensive. It would cost millions of dollars to build and operate, and would require to have a large quantity of material to occupy it. Take as an example, the eye bars of Blackwell Island Bridge, New York. They were 18 by 2 made of nickel steel. They were rolled on the 42-inch universal mill at the Homestead Steel Works. This mill has a capacity of 20,000 tons a month and the tonnage of bars rolled for the whole bridge was from 3,000 to 4,000 tons. The mill probably cost half a million dollars, so that the bars represented an investment. For small work such as forged automobile parts and those things it is perfectly practicable. They might make steel in Canada. The making of the steel is easy enough and the plant required for the manufacture of small things is not large but when you get into the greater things such as armour, protective deck plates, guns and material for heavy bridges, you have got to have an established plant with sufficient business to operate it before you can commence to make nickel steel.

By Mr. Nesbitt:

Q. Perhaps you can tell the committee the difficulties of refining in Canada?—A. Mr. Turner went rather fully into the fact that we have been experimenting with the view of finding some method of refining which was practical for Canada. The present Orford process is a chemical process. We are located in a bunch of chemical works where we are not a nuisance. We would be excluded from the vicinity of Ottawa or Toronto or from your nice agricultural country along the lakes where we could get anything for reasonable prices. The expense, as was explained, of having it up at the Cliff is prohibitory. Take our fuel. It is probably less than one-half at Bayonne what it is at Copper Cliff, and the fuel consumption is very heavy in some of our processes. In the first smelting the coke runs I think to 40 per cent and in our reverberatory work we require a very special coal, a selected coal. In our final smelting of our nickel we require a practically sulphur free oil. We have a great deal of trouble getting a sufficiently high grade oil free enough from sulphur. You cannot either smelt nickel or heat it for rolling with a sulphur bearing oil.

By the Chairman:

Q. What about electricity? Can that be used for the purpose?—A. There were those experiments which Mr. Turner mentioned. We have spent in all $150,000 trying to get electrolytic separation which would be practical. We have met with no success whatever. The electrolytic separation costs as much as the selling price of nickel.

Q. That would depend on the cost of electric power?—A. That is figured on the basis of cheap power.

By Mr. Nesbitt:

Q. You put up your own works?—A. We measured our current used.

By the Chairman:

Q. What rate per horse-power?—A. We have always figured it at $12 per horse-power which is about as cheap as you can get it. I have not heard of any being sold for much less than that. But even if you get electric power there is the consumption of chemicals. The difficulty in the electrical process we have run into is that we do not get a clean separation. You get some pure nickel and some pure copper and then you get some material which is a mixture and it has to go through the process again. A great deal has been said about the use of electric furnaces. We see no method by which an electric furnace can be used in this process. The electric furnace has not been a cheap or economical substitute for cheap fuel or even reasonably priced fuel.

All the steel people with whom I have discussed the subject agree that the electric furnace is not commercially practicable except as a finishing furnace, which would indicate that it would work out very badly for anything in our line.

By Mr. Herron:

Q. You said that the fumes of this smelting plant is injurious to vegetation?—A. Yes, they are obnoxious. We could not operate in an agricultural country.

Q. You cannot compare the value of the property of New York with that at Sudbury?—A. Not at all, but we are not located in New York but in New Jersey, out of New York on a swamp which is given over to chemical works largely, and the amount of smoke, &c., they make is not considered a nuisance. There is the Standard Oil Co., and the Bergenport Chemical Co., and other compaules which are operating on various chemical processes and we are not noticed down there.

Q. Such a locality might be discovered in the vicinity of Sudbury?—A. But Sudbury is barred by the tremendous freight rates. If you were going to refine at all in Canada the nearest point you can ship from would be some point where you have got some very cheap freights, lake freights, and near a field of chemicals.

By Mr. Nesbitt:

Q. Perhaps you can tell the committee that you have to use ton for ton practically all salt cake?—A. Rather more than that. It is sulphate of soda.

Q. And there is none of that to be had?—A. They use a considerable quantity of nitre cake which is a by product of the manufacture of dynamite and that material is very cheap but it is very difficult to freight because it contains a large amount of sulphuric acid.

By Mr. Congdon:

Q. What distances are other mattes shipped from?—A. Do you mean nitre cake and salt cake?

Q. The Blackwell Island Mountain Company in Chester County, California, ship their matte to New Jersey?—A. Some of that copper stuff comes from all over the west. I do not know about that business. That was before my time. I know at one time a large amount of matte came east for refining, but now they all refine themselves because they have adopted the Bessemer process.

By Hon. Mr. Templeman:

Q. I want to have a little information in regard to iron. I think you said there was 45 per cent of iron?—A. I think that is about correct, about 40 to 45 per cent.

Q. All that I understand is wasted?—A. Yes, that is slagged off

Q. Is there no possibility of utilizing iron. I am not familiar enough with what should be profitable iron mining but 40 per cent of ore appears to be pretty heavy? —A. It is not. Iron to be taken out commercially has got to be well over 50 per cent, about 52 is the bottom limit in the Messaba iron ores in Michigan.

Q. We should like to see an establishment of the iron industry?—A. You build an iron industry on a foundation of quicksand and it would quickly go smash.

GEORGE M. COLVOCORESSES, called and examined:—

By Mr. Nesbitt:

Q. You were sent out by the International Nickel Company to make a study of the New Caledonia situation?—A. Yes, I have been out there twice.

Q. You stayed four and a half years I think?—A. The first time three years. Only a year the second time.

Q. What is the total area of the New Caledonia lands bearing nickel?—A. The total area of the New Caledonia nickel bearing lands is approximately one third of

the island, that is roughly one and a half million acres which can be considered nickel bearing.

Q. And Sudbury is about 400,000 acres?—A. Yes, but that does not mean that every acre has nickel.

By Mr. Herron:

Q. At what depth is the nickel ore got there?—A. The deposits are surface deposits found on the hillside and they lie more like iron ore than like the Sudbury deposits of nickel. The greatest depth I have known to be worked is roughly about 60 feet, going into the hillside, but they extend over as large as 1,000 feet quite often. That is they lie like a sheet of paper on the hill. Striking it right inwards you cannot mine more than 50, 60 or 80 feet, but up or down you can mine for over 1,000 feet in depth.

By the Chairman:

Q. What would be the thickness of the seam?—A. Practically at right angles possibly 50, 60 or possibly 80 feet. The seams lie on the surface instead of dipping down into a formation of hard rock. There is practically no hanging sills on the New Caledonia deposits.

By Mr. Herron:

Q. Then the surface ores containing nickel would give no idea of the extent or quantity of that million acres of nickel-bearing land you speak of?—A. Only in a general way. As a matter of fact, only a small proportion of that million and a half acres have been thoroughly prospected and only a small proportion developed.

By the Chairman:

Q. Have you sufficient information as to the occurrence of nickel ore in northern Ontario to say what the limit is?—A. There is 400,000 acres.

Q. You mean by that the Sudbury district and the immediate vicinity?—A. I understand that that was the figure given by the Ontario Geological Survey.

The CHAIRMAN.—There are five times 400,000 acres of nickel lands in northern Ontario. It is not limited by the Sudbury district. We have it in Thunder Bay and Rainy River district.

By Mr. Nesbitt:

Q. What about climate? It was stated we could have a refinery here, because the climatic conditions in New Caledonia were such that white men could not live?—A. The statements shown me were altogether erroneous. The climate of New Caledonia is sub-tropical. It is a good deal colder than in some parts of Australia. It is a similar climate to that of Cuba, similar to Porto Rica, and similar to the Honolulu Islands, and while we were up there we employed a large proportion of white labour. We had Dalmatians working up to 200 in our mines, we had Frenchmen, Germans and some Italians and Japanese and Chinese coolies, but we never found that the white men suffered any ill effects from the climate.

Q. Any Irishmen there?—A. I do not think so.

By Mr. White:

Q. You said there was no hanging wall. Did you mean that the ore was quite on the surface?—A. Yes, I was trying to explain the deposits which lie like a blanket over the surface.

Q. Very cheap to work—A. It is very cheap, we never have to use timber or blasting; it is mostly shovel work.

By Mr. Nesbitt:

Q. A company started there within the last six months?—A. I understand that this is a French company made up of Singer and others, with head offices in Paris

They have recently started and purchased mining land and started operating a refinery and smelter near the north end of New Caledonia.

Q. Apart from that, how far would it be from cheap coal?—A. They have recently found coal of a fair quantity in the islands of New Caledonia, and I think it may be found that there will be sufficient to operate a smelter on the spot. Apart from that, Newcastle, New South Wales, is in a direct line 900 miles away, and we used to bring over in coal steamers right along from Newcastle. As far as the stones go Mr. Wilson stated that there were no stones in the island of New Caledonia. That is absolutely wrong. There is any quantity of satisfactory stones, enormous beds that can be quarried very cheaply, and great beds of gypsum are there also.

Q. I understand there is neither copper nor iron mixed with the nickel there?—A. There is no copper in the ore, and in the ore itself there is no iron, but the coating of the ore is made up very largely of the irony earth.

Q. No sulphur?—A. No sulphur whatever.

Q. Nickel derives its name from the German name, meaning devil. That is, it is a thing that is absolutely the devil in connection with any metal?—A. Owing to the chemical difficulty of separating it it is very elusive. There is one point I would like to make. One gentleman stated that the freight on New Caledonia ore was very high. Our freight from New Caledonia to Europe is no higher than from Sudbury to New York, which is about $6 a ton. It is ocean freight all the way.

By the Chairman:

Q. In that case you have to pay on 94 per cent of waste materials. That doubles up your freight very heavily?—A. On the other hand, it has always been found that the difference on the price of coal and labour and being near your market compensated for that.

Q. If it compensated in New Caledonia it would also compensate Copper Cliff on the material in the matte from Sudbury?—A. That is a different proposition altogether. I simply mean that in New Caledonia they cannot sell a pound of nickel. I think recently they thought it cheaper to send that ore to France and Germany where their market lay. Now a company has recently started up smelting in New Caledonia, and if that is successful, and I have no doubt that it will be, other smelters will be worked there.

Q. Mr. Turner stated that the Orford Company, or one of the companies in association with the Canadian Copper Company, had brought ore from New Caledonia to the nickel works and treated it there. Has that ceased?—A. Yes, that has ceased.

Q. Why has it ceased?—A. Our mines here in Canada and our mines there were working partly for some time and then considerations, some of which Mr. Nesbitt and Mr. Turner have told you of, led them practically, I do not say to absolutely, close down, but to suspend operations in New Caledonia and to greatly increase the operations in Canada. One consideration was the Monell metal. Monell metal could not be made from New Caledonia ore at all.

By the Chairman:

Q. The inference is that your business was more successful in dealing with Canadian ores than in dealing with New Caledonia ores so far as smelting them in the United States is concerned. Is that so?—A. I do not think that is a fair statement. There were a great many considerations to be considered in the New Caledonia business. One was the very great distance from our head offices and the great difficulty in which our officials were placed from not just knowing what was going on in New Caledonia.

Q. These were elements no doubt?—A. Then the introduction of the Monell metal, which is made exclusively from Canadian ore; the fact that the mines in Canada were very much more developed than in New Caledonia and also that the Orford works were better equipped to handle Canadian than New Caledonia material for this

metal. Up to three years ago copper was extremely high. We got no copper from New Caledonia.

Q. Does that not bear out that you found the treatment of Canadian ores or your business in connection with them more profitable than you did the others?—A. We found it more advisable. So far as the profit goes I would not think that was a fair statement. We found it more expedient at that time under the circumstances. Now European companies who could buy from Canada are all still buying from New Caledonia.

Mr. NESBITT.—A real reason, if I may express it, was that the Orford Company being taken into the International Company had been a purchaser of both the Canadian and New Caledonia nickel. Now the head offices are in New York, 34 hours from here and 30 days from New Caledonia.

By the Chairman:

Q. That is an element for consideration. What I was leading up to was, that there must be some reason because your shareholders are looking for dividends, to take that step and if you could get more dividends from New Caledonia than here you would?

Mr. NESBITT.—You would have to drop investments here which have been made after practically full consultation with both governments, federal and provincial, and after assurances from both that they were perfectly safe, that no sane legislature would make such a tax as suggested.

Hon. Mr. TEMPLEMAN.—Surely no government would pledge themselves.

Mr. NESBITT—They did not pledge themselves but——

The CHAIRMAN.—What tax is that, what legislature is talking about tax?

Mr. NESBITT.—I think I spent every session for ten years, meeting first the Harty government, then the Ross government, then the Whitney government, and I am glad to find that I have not to come down here and meet the Laurier government.

The CHAIRMAN.—What was the tax and who proposed it?

Mr. NESBITT.—The first piece of legislation passed by the Harty government, which you will remember Mr. Chairman, as you voted for it—they passed an Act that every person should be compelled to manufacture from nickel in this country out of all lands granted by the government.

The CHAIRMAN.—It was not exactly that. It was this: that the ore had to be manufactured in Canada. They did not compel them to do it, but if they manufactured it at all it had to be done in Canada.

Mr. NESBITT.—That is the same thing. Some members of one of the governments, you know all about it, Mr. Chairman, or you ought to know, were very much interested and confiscated three or four of our charters because they said we were not manufacturing in Canada. They came to Ottawa and got legislation here and put through an order in council to secure an export duty. This industry started originally through some gentlemen having acquired a great quantity of iron lands in Hastings County for which they built the present railway. They then built an enormous smelter which proved a failure. The iron ore of Hastings county proved to be so full of sulphur that it proved to be absolutely useless and the railway was practically of no use. They then moved up and discovered copper at Sudbury. Then they discovered that the copper was practically useless because of the nickel that was found in it. They discovered to their horror, that when they had begun the work that there was nickel. The whole thing then lay dormant. About that time yellow fever broke out in the south. You are perhaps not able to see much connection between yellow fever and nickel, and yet, strange to say, it was the birth of nickel. A crank, a faddist, or a theorist wanted to fit up an hospital ship to go about from port to port where the fever patients were. Endeavouring to make his cases for that he made experiment after experiment until it suddenly struck him that a meteorite he had seen contained a certain hard substance which he wanted. Analyzing that he dis-

covered nickel. Now you get your nickel steel. He attempted first by pouring one per cent, then one and a half and two per cent into the steel to get what nature had done in the comet or meteor falling to earth and he got his hard combination. I have not followed that up. That led to the American government taking it up for the navy and to Sir Charles Tupper, at the instance of Sir John Macdonald, visiting all the great works of Europe and so on. It was then thought that Canada in this nickel industry was going to be the greatest country in the world. All that fell down because they found all the difficulties that Mr. Wood has pointed out about nickel. The gentleman who was running the Orford works, making experiments in their works, found the Orford process by which he could get pure nickel. He then got hold of General Tracy, secretary of the American navy. The American navy spent a great deal of money testing out nickel and your nickel business started in a very small way. At that time the nickel fields were owned by the gentlemen who had started in first with iron, that is the Anglo-American Company. People talk about their holdings. They are not charging I suppose, a dollar an acre. Those gentlemen owned the nickel producing fields, Colonel Thompson owned the process and they had to find their market. You thus get three combinations. I was interested at first and came in through the Bank of Toronto which was a very large lender to the original nickel producers, that is the Ohio crowd as they were called. They were large operators and that accounts for the Canadian interest coming into it. That was away back in 1891. That went on in a very limited way for some time. They could only do a small business up here and they produced about a 10 or 18-inch matte. Then finally it was found that a competition of the Rothschilds was such that they could not compete with them.

The CHAIRMAN.—How do you account for the price of nickel?

Mr. NESBITT.—It is lower in my time. It went down to 30 cents. If you are a small buyer you will pay 40 cents or more.

The CHAIRMAN.—Within the last four or five years there has not been much fluctuation?

Mr. NESBITT.—The best answer to that is that I have been a stockholder in the International Nickel Company for a number of years and I got my first dividend on common stock last July, and that at four per cent. It has always amused me this talk about enormous dividends. I paid for preferred stock over two years ago 100 and I will let you have it at 92. I have been connected with that company since 1892. In 1902 it became an absolute necessity to form what is called this trust. Now, it bears no more relation to what is ordinarily known as a trust than I do to a cow. A trust means that competing companies are brought in under one management and competition is squelched. All that the International Nickel Company did was this: It was found that Colonel Thompson, representing the Orford Company, was buying his ore in New Caledonia and buying it here, and it was necessary, if possible, to unite the producing company with the manufacturing company and the selling company. In other words, the International Nickel Company has to-day not got one competing company in its whole number of subsidiary companies, which are six or seven. It owns the stock of the Huronian Company which makes the electricity. It owns the stock of the Anglo-American Company, which is the Hastings Company and which has not been developed. It owns the stock of the Vermilion and Creighton mines, the Orford Company, which was the manufacturing company, and of the other company which was the selling company. It is exactly the same as a factory which buys its material, manufactures it and sells it, and nothing more. It does not own a dollar of stock in any competing company nor has it any relations with a competing company. It has never had one dollar of government or municipal aid. It has never had a dispute with its workmen, and I have represented that company since its inception, and it has never had a complaint against it of unfair dealing, either in the letter or spirit. It has struggled along until it is to-day the most complete smelting outfit of its kind in the world. It has the most model village for its workmen in the world. It has

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paid the best wages; it has a plant costing $5,000,000; it employs 1,500 to 2,000 men. It is one of the great industries of the country. It has struggled through a period of economy and thrift to a position that it is now paying six per cent on its stock, and yet to-day every blatherskite is attacking it from one end of the country to another and is calling for an export duty and for refining in Canada, which are utter impossibilities, and the only effect of which would be to shut down the whole of those smelters and drive them out of the country. I am speaking perhaps with a good deal of warmth, but for the past twenty years, believing in this concern, and believing in its management, I have put every dollar I could earn into its bonds or preferred stock. It is not very much, because a lawyer does not get much at the end of a year, but I do not propose without reason to lose it. But every yapping newspaper reporter immediately raises the cry of patriotism which, as Lord Palmerston said, was the last refuge of a scoundrel, and tries to close up this company which has among its shareholders 1,200 British and Canadian stockholders, among them some of my personal friends whom I advised to buy stock. In making the attacks that are made by the newspapers, without knowing it perhaps, they are attacking Canadian capital.

The CHAIRMAN.—May I ask you a question. Your objection is to imposing an export duty?

Mr. NESBITT.—I think it would absolutely shut up those smelters.

The CHAIRMAN.—That is the only danger you see ahead, but if without imposing an export duty the manufacture of refined nickel steel could be brought about successfully, would you have any objection?

Mr. NESBITT.—None whatever. Our company would welcome it. That is another matter. To my knowledge they have spent, I would say, $150,000 in endeavour after endeavour to get refining here. Now who are those men who are at the head of this concern. There is Mr. Duncan Coulson, one of the great bankers of this country. He has been director for years. Then there is Mr. Cassells, of Montreal, and Col. Hunsiker, of London, England. Then some of you know, perhaps, Colonel Thompson, of New York, Mr. Converse, Mr. Wood and others, and they are stockholders. They are not out on sentimental considerations. Do you suppose that they want to carry on a double staff at Copper Cliff and a double staff of management and clerks if they could avoid it? They have all that kind of thing down at Bayonne, in New Jersey. If it could be done in one place they would do it. To say that they are doing that for the good of the American flag is nonsense, and has only to be stated to bear its refutation. They have struggled in every way to get the last item of cost out of the manufacture of nickel and the last item of cost from the refining of it in Canada. They have done every possible thing. Now about other companies. It was stated that other companies were squeezed out. Lord Strathcona and others started the production of nickel and failed because of the difficulties attending it and the limited market. It is a very uncertain market. You all know about those tin plates used in camps. They spent nearly $100,000 experimenting in making those of nickel instead of tin and zinc and failed. It was hoped by Colonel Thompson that if that could be accomplished we would have an enormous productive capacity in our mines. Market after market has been tried, and market after market has failed because it was not a commercial proposition. They are struggling to get the Monell metal introduced into the market and the results, if successful, will be of greater benefit to Canada than any other discovery, because you can then utilize the thousands of acres of the low grade ores containing nickel and iron in northern Ontario which are practically useless in competition with New Caledonia nickel.

The CHAIRMAN.—What is the particular distinction?

Mr. NESBITT.—It would be enormously less expensive in the refining.

Mr. WOOD.—There is no separation of the copper and nickel. It is the natural ore.

Mr. NESBITT.—There has been an enormous advertisement about the profits those people are making out of that. Mr. Wood assures me that they got the railways to

try that and they have actually had to let them have the metal at less than its cost. In other words they are experimenting for the benefit of this country and yet there is a continuous yap in the papers about nickel trusts and the profits of the stockholders. The stock is open to anybody to buy except in this sense, that it is not stock on the market, because it would have been idle a few years ago to have had it so. Something was said about the Canadian navy. I do not know what armour you will have on the Canadian navy, very little I should say, as they are only armoured cruisers. I do not believe that fifty tons would be used. On behalf of Mr. Turner, might I make this suggestion. As there has been the greatest possible misunderstanding about this company and its affairs, I would be glad if this committee could visit the works, go over them with Mr. Turner from start to finish and see exactly what is being done in this country and then enlighten the public of the kind of industry that has grown up in their midst notwithstanding all those attacks. And all this has been done by attending to and minding our own business. Am I at liberty, Mr. Turner, to make that offer?

Mr. TURNER.—I shall be very glad to see them.

Mr. NESBITT.—I could arrange about that if you could tell the day when you could come. It is impossible to get you to understand the difficulties that have been met with in this business unless you have been on the ground.

Mr. WOOD.—In regard to a question that was asked and was not satisfactorily answered. You asked why the Caledonian ores were dropped and Canadian ores developed. There was one point which Mr. Colvocoresses did not bring out and that was the fact that in my opinion the only practicable, the only reasonable method was to smelt the ores in New Caledonia or on the adjacent coast of Australia. I had Mr. Colvocoresses look over the situation there purely from that end of the line. We were unwilling to put up a plant or change our Orford plant to run exclusively to New Caledonia ores.

By Mr. Herron:

Q. I asked a question a moment ago and perhaps it left a wrong impression as regards the ore, the competitive ore of New Caledonia and that of Canada, and the competitive quantities of Canada and those of New Caledonia. You said, I think, there were over one million acres of New Caledonia nickel bearing ore at a depth of say 60 feet?—A. Nickel bearing land.

Q. In Ontario I understand it goes to a depth of 1,400 feet?—A. In one case only, Copper Cliff.

Mr. WOOD.—It is a very small vein.

By Mr. Herron:

Q. Would that not leave Canada owning more than one-fifth of the entire nickel ore of the world instead of less than that?—A. I think it is perfectly impossible to make comparisons in that way. If the million acres in New Caledonia were covered to the depth of 60 feet there would be a supply for thousands of years. If all the Canadian country was covered to a depth of 300 or 400 feet you would have an equally big supply. It is not how much but how good deposits you have in one place that you can work commercially, and so far as tonnage is concerned you cannot absolutely measure the quantities of Ontario and New Caledonia. It is not an easy thing to do because in neither case have developments proceeded continuously enough so that the tonnage can be measured up. There has been more development work done in Canada than in New Caledonia, but at the same time the development work done in New Caledonia proves that there is a very large reserve of valuable nickel ore there, that will average about six to seven per cent in nickel and which can be taken out and shipped away and smelted. It is impossible for me to give an exact figure about that, but I know that the French Nickel Co. stated that it had a 50 years supply in reserve. If they are selling about 100,000 pounds of ore that would represent about 5,000 tons a year, so that that would give them 5,000,000 tons alone. I think they

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have only half their holdings prospected and probably they have an equally large amount on the other half. So far as our own holdings are concerned we have developed perhaps some millions of tons also. I would not like to state definitely because we have not done the same amount of diamond drill work, but we know there is a large reserve of valuable ore.

By Mr. Herron:

Q. Your first answer left the impression on my mind that New Caledonia probably owned greater quantities of nickel than Canada. I understood from the witness on the previous day that Canada owned two-thirds of the nickel ore of the world.

The CHAIRMAN.—Three-fifths I think he said.

Mr. COLVOCORESSES.—I do not think it is possible to make any such comparison.

The CHAIRMAN.—That remark was that three-fifths of the nickel produced was from Canadian ores.

Mr. NESBITT.—That is about right. Our company produced about 67 per cent. I was in England in 1902 when there was a very severe competition for the supply for the British navy. There were tenders from the French company and others and all I need say without going into the details, is that the competition ended in the French company getting the supply. I understood, as a matter of fact, that our tender was a little less per pound, one half penny I think, than the French company, but they said they preferred the Caledonia ore. Mr. Ross at that time was initiating his policy and Captain Tulloch and Mr. Harvey and others came out from the imperial government to look up the enormous nickel areas here and to get their nickel here and keep the industry in Canada. That resulted how? I made inquiries a few days ago and I have been told that the Ontario government offered to do anything they could to give them all the nickel lands they wanted on condition that they were not to be tied up but immediately developed, and the whole thing fell through. Nothing came of it. We failed. The French company got it and I do not think we have ever supplied a pound to the British navy. People talk about a combination. Let them go to Senator Ross or some of those who know about it and ask about the combination that existed at that time.

By Mr. Herron:

Q. Was there any condition with the British government that they would not take Canadian nickel?

Mr. NESBITT.—No, no, but the French Nickel Company are powerful and if things are equal they would naturally have the preference.

Mr. COLVOCORESSES.—In Europe, until recently, it was believed that New Caledonia nickel was of a better quality than the Canadian nickel. Many contractors at first refused Canadian nickel altogether. Now I think that prejudice has been entirely done away with. For instance the German silver people would not use the Canadian nickel for a long time.

Mr. HERRON.—That gave rise, I suppose, to the impression.

The committee adjourned.

WEDNESDAY, February 16, 1910.

The CHAIRMAN.—The committee some time ago wished to have Mr. Patterson, of Hamilton, examined, and he is here. So far we have been taking statements, and I suppose it is the privilege of the committee to have these statements taken under oath. For myself, I think a simple statement would suffice, but I should like to know the opinion of members of the committee.

Mr. GORDON.—What is the subject of the statement Mr. Patterson is to give us?

The CHAIRMAN.—The object of the committee just now is to get all the information we can regarding the nickel resources of Canada and the character of the deposits, their utilization and markets for our nickel, with a view to see if it is possible for this committee to make a recommendation for legislation which will have a tendency to develop more activity in the nickel industry in this country. If my information is correct, our nickel ores are smelted and the matte is shipped to the United States and other countries to be refined. Whenever we import nickel or nickel steel in the shape of articles of commerce, we use Canadian nickel, which has been refined and manufactured outside of Canada. It is just a question whether, having regard to the fact that Canada has a very great deposit of nickel, which is scarce everywhere else throughout the world, anything can be done by our government which would tend to a greater development of the industry with greater benefit to the Canadian people. That is what I assume the object of this investigation is. As far as my information goes, Canada gets about one-fifth of the expenditure in the production of nickel. That is to say, for every dollar expended in connection with the industry in Canada, four dollars are expended in connection with it in foreign countries. If we can capture some portion of that, of course it will be to our great advantage.

Mr. SMYTH.—If Mr. Patterson is to give us information as to the process of manufacturing nickel, his evidence should be given under oath, but if he is simply dealing with the area of the nickel mines and matters of that kind, it will not be necessary to have him make his statement under oath.

The CHAIRMAN.—So far as the committee has any information on the subject, there is no longer anything secret about the process. Twenty years ago the process was patented, but the patents have expired, and there is no longer any secrecy about the manufacture. There are several processes for the refining of nickel. Each company, so far as the evidence has come out, employs a process of its own.

Mr. GORDON.—I suppose Mr. Patterson will tell us of some process by which nickel ores may be reduced and refined at a profit.

The CHAIRMAN.—I think that is the object of calling Mr. Patterson.

Mr. HERRON.—Before the gentleman proceeds with his statement, I should like to know if he is in the employment of any nickel company in the country.

Mr Paterson, Hamilton, called.

By the Chairman:

Q. I understand, Mr. Patterson, that you are connected with a company that undertook to develop some of the nickel mines?—A. Yes.

Q. In what year?—A. In 1900. We sold out two years ago.

Q. Did you erect any works in the vicinity of Sudbury?—A. We erected a small establishment there, but our principal works were at Hamilton—the refinery.

By Mr. Gordon:

Q. What is the name of the company?—A. The Nickel Copper Company of Ontario.

By Mr. Goodeve:

Q. Why did you sell out?—A. One reason is we needed some seven or eight hundred thousand dollars more to develop the property.

Q. To whom did you sell?—A. Mr. J. R. Booth and Mr. O'Brien, of Ottawa.

Q. Have they been operating the mine?—A. They have built a railway in.

By the Chairman:

Q. They are preparing to operate?—A. Yes. I thought I would in this matter simply give a little history of my connection with the nickel industry. My connection with nickel business originated shortly after I had succeeded in interesting some

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people in the erection of a blast furnace at Hamilton. While in correspondence with a number of English steel manufacturers we discussed the question of the manufacture of nickel steel plates in Canada for use in the English and American works, and became thoroughly convinced of its practicability if we could enter the United States market. We found that the conditions there were such that with their tariffs it was impossible to send any refined nickel, or manufactures in which nickel was the material of principal value, without a duty of one hundred and twenty dollars per ton. We succeeded in getting a clause put in the new tariff bill, about 1899 or 1900, which was being arranged, by which refined nickel and manufactures of which nickel was the component part of chief value, would be allowed free into the United States, but after a long fight this was thrown out and the original tariff bill applied to these commodities. After that we endeavoured to get the Dominion government to put an export duty on nickel matte, or nickel ore, equal to the American duty on refined nickel, agreeing at the same time to put up a very large nickel plant, and also that, if the United States took off the duty on nickel alloys, we would immediately be satisfied if the Dominion government did the same thing. A vote in favour of this was carried practically unanimously with the exception of the late John Charlton, who afterwards became one of the strongest advocates of the idea.

The question always seemed to be whether New Caledonia ore would compete successfully with Canadian nickel, but we were satisfied from the investigations made that it could not do so, and the fact of it being brought to the United States was only in order to hold the market there for the company who were refining. About that time I secured a charter for a company called the Nickel Steel Company of Canada, and purchased a number of nickel properties in the Sudbury district, and also a large quantity of iron properties near Michipicoten, and a quantity of coal lands in Pennsylvannia and some maganese properties in Nevada. The people who were interested with me at the time were the late Senator Wood, of Hamilton; Messrs. David Colville & Sons, of the Dalzell Steel Company, Motherwell, Scotland, who were at that time the largest manufacturers of steel plate in Great Britain; Mr. Arthur Keen, Messrs. Vickers, Son & Maxim, John Brown, of the Atlas works; the North Londsale Steel and Iron Company, Bolcklow, Vaughan & Co., and others. Mr. Wood on two occasions went over to England and met some of these people; for instance, Sir John Colville, of the Colville firm, and Mr. Arthur Keen. Mr. Keen came out with Mr. Wood to America, and matters were fairly well arranged for the starting of a very large plant in this country. Messrs Wellman, Seaver & Company, of Cleveland, made the plans for the plant, which would have been one of the most up to date in the country. However, the trouble was that we could not get the free entry into the United States or an export duty which would put us on equal terms with them, and matters hung fire for several years in the endeavour to get either one or the other arranged. In the meantime we had constructed a refinery in Hamilton under the Hepfner process, which was abandoned before making any great progress with it, and adopted a system invented by Mr. H. A. Frasch, who had previously condemned the Hoepfner process in Cleveland. Mr. Hoepfner's process, however, along with some of his other inventions, was, and is still in use in Europe, at Papenburg, Germany, Vienna, and other places, and is also in use at the Brunner Mond Company, Northwich, England, for part of their output. The Frasch process was as far as we went perfectly satisfactory, and we turned out quite a little material from ores that we mined near Worthington. We found, however, that it was impossible to get sufficient capital to complete our plant in such a way as we desired, as the larger of our mines needed a good many miles of railway to be built, and, between that and the smelter, and the completion of the refinery, from seven hundred to seven hundred and fifty thousand dollars would be necessary. About this time, Mr. O. C. Barber, of the Diamond Match Company, who was connected with the Sterling Boiler Company, of Chicago and Barberton, Ohio, which company manufactured most of the boilers for the United States gun boats, torpedo boats, &c., wished to become interested in the company, as their boiler tubes made of ordinary steel only lasted from

20 to 24 months, when using distilled water, which was necessary on gun boats and torpedo destroyers, while nickel steel tubes lasted about eight years. They considered that they could make a good deal more money by becoming interested in the nickel business. The first payment on account was made, but immediately thereafter some of our shareholders from Cleveland and other points in Ohio began suits against the company to prevent the sale or the carrying out of the agreement, and also for a winding up order. We had strong suspicions that the suits were brought entirely in the interest of other parties than those who instituted them, but they delayed matters for a couple of years, and, although we eventually settled at a much smaller price than they were asking for, the delay was fatal to the deal we were making with the Stirling Company. Some time after this, Mr. W. A. Stiles, who was connected with the American Smelting and Refining Company, approached us with the object of buying out the company, and, as we had then over $1,000,000 besides interest invested, with the American market closed to us, and not much chance of immediate returns, our people felt very much like selling. A long series of experiments were made by Mr. Bernard Guggenheim, one of the chemists of that company, and Mr. Karl Eilers, and, after about eight or nine weeks, they were perfectly satisfied that the process was all that it claimed to be. Shortly after that, however, Mr. Anton Eilers, Chairman of the American Smelting and Refining Company, said that they could not go on with their arrangements, and it turned out that, in their new reorganization, in which Messrs. J. P. Morgan & Co., were the financiers, the money for the nickel proposition had been cut out altogether, and $77,000,000 which was arranged for, was used only for other smelting and refining processes and properties. We were much surprised at the change in their views, as they had been extremely anxious to go into the business, and the Hon. J. M. Gibson, now Lieut.-Governor of Ontario, went with me to see Mr. Eilers at New York. We received a letter from him stating that there was no trouble in connection with the process, or with the properties that we had, but the change in their views was from other matters altogether, and eventually we found from one of the members of Messrs. J. P. Morgan & Co., that they had refused to put the money in the concern unless the nickel business was eliminated for the reason that they had already financed the International Nickel Company, for Mr. Schwab and Messrs. Thompson, Converse and Wharton. This was somewhat discouraging, as it showed the difficulty in getting money in the United States to go ahead with the business, and we shortly afterwards arranged with Messrs. McKenzie and Mann to take an interest with us when building their railway up to the Hutton Mines, which were within a few miles of one of our large properties. We arranged with Mr. J. W. Gates, of New York, and Mr. O. C. Barber, of the Diamond Match Company, Messrs. Harvey, Fisk & Son, of New York, E. C. Tower, of Albany, Messrs. McLaughlin, Paul W. Morton, of the Equitable Life Assurance Company, John A. Drake, Colonel Rae, of the American Tobacco Company, and a few others to put in sufficient money to go ahead with the business on a large scale, taking the chance that when we started the government of Canada would assist us to such an extent, either by the export duty, and some similar arrangement, that we could compete on even terms with the United States company, then known as the International Nickel Company. Our new company had hardly been formed, in fact, the agreements were not all signed, but Colonel Gibson and myself were in New York to close arrangements, when one day Mr. Chas. M. Schwab ran against some of the people who were going into the syndicate, and assured them that the International Nickel and the Rothschilds had made contracts with every user of nickel in the world for fifteen years, of which two years had elapsed, and that he himself had been a party to making most of the contracts, and consequently there was no market for business for another company. It was stated by him that his company, the New Caledonia, and the Mond Company were all working in harmony, and, in fact, that the agents in London for the New Caledonia and the American companies, was the same firm, Sir Henry Merton Company. We, however, figured on still with Aaron Hirsch & Sohn, of

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Halberstadt, Germany, who had very large connections all over the world, and who were willing to take a quantity of nickel at fixed prices, which would have been advantageous to us. The trouble, however, immediately commenced that nearly all the people who were going in the company (with the exception of McKenzie & Mann) were in one way or the other connected in finances with the Morgan firm, and that Mr. Schwab's statements, and the knowledge that Messrs. Morgan & Company had financed the International Nickel Company, caused them almost unanimously to withdraw from the company. A few of them agreed to stay, but not enough to float the company successfully, unless we offered stock publicly which we did not wish to do. After this we became acquainted with a firm of lawyers in Pittsburg, who went a long way toward arranging the money for our requirements, but again the trouble came up between the duty of $120 on refined nickel going into the United States, and the financing of various companies in Pittsburg which also reached back to New York. In all this time we could have possibly started a refinery in the United States, and probably made some money, but our people were averse to doing so, and thought that it was only a question of time when we would be placed on an equal footing with the United States company. We endeavoured to make arrangements with Mr. Prosser, the American agent of Krupps, and also with Mr. Franz Krupp, a large user of nickel for the manufacture of German silver, and a few English companies, but, for a large refinery, we found that, unless we could get entries to the American market, it would not be much use trying to handle the European, and it would also take a considerable time to get any business at all. The number of set-backs received in financing, owing to these conditions eventually discouraged the larger part of our shareholders, and, when some gentleman in Ottawa offered to buy out the properties at a price that would give us our money, and about 6 per cent interest, they were nearly unanimous in offering to sell out. That company has, I believe, built some miles of railway into one of the properties, and are figuring on putting up smelters and refineries in Norman township near Sudbury, but so far, I understand they are figuring more on the sale of matte than on refining, and I have not had sufficient acquaintance with their plans to know just what they intend. The properties in Canada that are nickel bearing extend over a very considerable amount of territory, and are composed of what might be said to be the outside edge of the crater of an immense volcano that at one time existed in the Sudbury district. The nickel ore being heavier than rock, which was at that time in a molten state, settled to the edges or lower part of the crater, and is seldom found in any other place except a few cracks which have run out from it. It is doubtful if the actual size of the nickel mines themselves would be more than a few hundred acres in area, but so far I do not think that any of them have given out in depth, and it is likely that they will continue for over 1,000 feet down. The new Caldonia mines, from all the evidence that can be gathered, are of a slightly higher grade of ore, but carry no copper, or other metals, and are not nearly as valuable as the Canadian, and, while in some cases they reached depth of 50 or 60 feet, they have not, from the evidence we secured in France, nearly one half or one third of the actual mineral that there is in Canada. The amount of nickel produced in other places like the United States, Sweden, &c., does not amount to 1-50 of that which is now produced here, and there have been no new discoveries made in recent years of any deposits that will be worth working in competition with the Canadian. The reduction of the United States duty would undoubtedly tend to the development of refining in Canada, and I think, in that case, it is quite possible that the price of nickel will be reduced so much that its use in a great many lines other than those to which it is now applied could be quickly developed, and the output increased by a very large amount. As far as any one can tell, the supply in Sudbury district is almost unlimited, most of the largest mines not having yet been touched.

By Mr. Gordon:

Q. You say there was a million dollars invested by your company; do you mean

that there was that amount invested in nickel lands?—A. That included the lands and refinery at Hamilton and a good deal of law costs.

By the Chairman:

Q. Can you give the committee any information as to the amount of expenditure necessary for the refining of nickel—bringing the matte into refined nickel as compared with the production of matte?—A. I understand that 80 per cent matte can be manufactured for about $100 a ton. The refined nickel sells at say 30 cents a pound. About 60 per cent of the matte is nickel—that would be $360 a ton for the nickel.

Q. But that is not answering my question?—A. I am getting at that. The general impression has been that the cost of refining the nickel and copper is about half the selling price, so that would be about $180 a ton, as against $100 a ton for the production of the matte.

By Mr. Gordon:

Q. The price varies?—A. Yes.

By Mr. Goodeve:

Q. I understood you to say that the principal reason for the shareholders of your company withdrawing from the industry was that all the mines were practically combined?—A. Mr. Merton was the salesman for the whole of them. That is what Mr. Schwab told me, and I have no reason to doubt it.

By the Chairman:

Q. Does that condition still continue?—A. Yes.

By Mr. Gordon:

Q. Was not the real reason for your company withdrawing from the industry lack of capital?—A. Yes, lack of capital. When we got the capital people were dissatisfied with the chances of selling in the United States. The combination was a little too hard for us.

By the Chairman:

Q. When you speak of a combination, you do not mean a combination in Canada, but outside of Canada?—A. Yes, that is correct.

Q. I should like to ask you a question about matters that have come to my attention here. I have before me the evidence of Mr. Stephenson and Judge Burke, who are the principal owners of the Orford process, in giving evidence before the committee that was investigating the tariff question at Washington, 1900. It is a very long document, but I should like to read a little of it to see if you can corroborate some of the statements it contains. Speaking of the Canadian deposits he says:

> They produce there a matte carrying copper and nickel at a cost to themselves of about $25 a ton of matte.

That was ten years ago?—A. Matte was then about 40 per cent instead of 80 per cent.

Q. He continues:—

> All of this matte is shipped to our works in New Jersey for treatment, and of the railroad freight about one-half goes to the Canadian roads, making a total expenditure per month, under present conditions, of about $28,000 expended in Canada.

Mr. GORDON.—The expenditure, you say, is $28,000 per month.

The CHAIRMAN.—Yes, I take that to mean for mining and producing the matte and railroad transportation.

Mr. GORDON.—How long ago was that?

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The CHAIRMAN.—That was in 1900. They spend a great deal more now. He continues:—

> On the other hand, the expenditure at my works and at those of Joseph Wharton, of Philadelphia, and to the American railroads for transportation amount to about $100,000 per month; you will thus see that the interests of the United States is four times as great as that of Canada in the working of these mines. Of the nickel brought into the United States for treatment, about one-third is consumed in this country, and one-half of this consumption is by the United States government direct. The consumption of nickel in the United States, outside of the government, did not last year exceed 800,000 pounds. The effect of putting a duty upon raw material——

That was the question before the committee, whether the United States should put a duty on nickel ore or nickel matte.

> The effect of putting a duty on raw material would be at once to transfer refining of the Canadian nickel matters to Liverpool, but this would not give the market to American ores.

Then he goes on to speak about the ores of the United States—ores in Nevada and some other states where they produced a certain amount of nickel, but the ore was very scattered and not of great value. Then Mr. Burke, the other partner in this concern, comes before the committee.

Mr. SMITH.—Do I understand you to say that they did put a duty on?

The CHAIRMAN.—No. There is a duty on refined nickel. Mr. Patterson wanted to send his product to the United States market and these gentlemen wanted to convince the committee that it was in the interest of the United States, on account of the greater expenditure in that country to allow this Canadian raw material to come in free, and that is what they did. Mr. Burke continues before the committee in this way and gives similar evidence to what I have read. He makes this statement:—

> I wish to say in addition that every pound of this nickel is refined and that the chief labour of that is in this country (speaking of the United States). The amount of money paid out to labourers in that respect in the past year would be about $300,000, and of course the putting of a duty upon either nickel ore or nickel matte would result necessarily in the refining of this product in Canada or in Great Britain, or in Germany.

Q. That is the trend of the argument. Now, I have here a comment by a mining Journal, which I do not need to read. I should like to ask Mr. Patterson what he has to say to that argument of these gentlemen?—A. They have changed their mind now. They say it would stop the refining altogether if they put a duty upon the matte imported into the United States.

Q. That is what they say here?—A. They say it would close down the mines.

Q. I am not speaking of the duty in Canada. I am speaking of the duty in the United States. Suppose the United States put a duty upon nickel ore or upon nickel matte, do you think the effect would be to drive the refining of the nickel into this country?—A. I think it would.

Q. You agree with that?—A. Yes, I think it would.

By Mr. Congdon:

Q. Would you require to make the duty as high here as in the United States?—A. That is not what I mean. Nickel matte goes in free, but there is $120 a ton on refined nickel. If that duty was taken off, or a similar duty put on raw material, the refining would be done here.

By Mr. Gordon:

Q. In the evidence read by the Chairman it was stated by Judge Burke that they were paying out in Canada about $28,000 a month. That was in 1900. I understand to-day their pay roll alone amounts to $100,000 a month. That remark would not

apply now. They were producing nickel matte at that time containing about forty per cent. Now they have that refined down until it is eighty-two or eighty-five per cent.

The CHAIRMAN.—That is correct. There is a much larger expenditure in Canada now.

By Mr. Goodeve:

Q. If an export duty were put on nickel ore and nickel matte, have we the other necessary material to refine it in Canada so that it would go into competition in the markets?—A. I think there are three or four processes that would work out all right.

Q. We have it stated that owing to the existence of certain bi-products on the other side which we do not possess that we could not compete, and the putting on of an export duty would only result in shutting down our mines?—A. There is only one process using that, that is the Thompson and Bartlett process. There are others by which the ore is refined as cheaply without using that process.

Q. Then you think the nickel could be refined here?—A. There is no question about it.

By Mr. Gordon:

Q. Why do not the Canadian Copper Co. refine here?—A. They are connected with a lot of other companies down there. The Orford Co. was originally a copper refining company. They are connected largely with the Standard Oil Company, and use a lot of the refuse or stuff that comes from the Standard Oil Works in the refining of copper, and they also use it in the process for refining nickel. There are two or three other processes in use that are pretty nearly as good as that. There are others which have been only tested in a small way which appear to be better. Mr. Booth I understand intends to use the Schuler process. I once examined the process with a Mr. Rae, a son of the president of the American Tobacco Co.

By Mr. Congdon:

Q. Are any other processes in use in a large way?—A. Not in a large way. They have a process for making about two tons a day in Germany. The Mond process is entirely different. They heat the nickel matte, and when it is about nine hundred degrees centigrade, they put in a lot of carbon monoxide, which converts the nickel into a vapour. The vapour is cooled and the nickel comes out in the form of shot. It is a continuous process repeated over and over again. It was originally a very dangerous process but they have got over that feature of it. At Swansea at first they could not use it because it was so dangerous.

By Mr. Gordon:

Q. Why do they not refine it here?—A. Because they sell all their product to Vickers Sons and Maxim.

Q. Do you think that what they would save in freight would not counter-balance other disadvantages?—A. No, the freight on the refined metal is higher than the freight on the matte.

By Mr. Chisholm:

Q. Suppose it were refined here, you would be up against that combination and you would be no better off than you were before?—A. Not much better off, but you would have a chance in the United States market. There are always new organizations springing up there.

Q. But there is the combination?—A. Mr. Booth is strong enough to undertake it here and could put up a fight.

Q. But I understand there are contracts made away ahead there?—A. There are some contracts made at forty cents, but if the nickel were offered at 25 cents a pound those contracts would be broken. There is quite a market to be got with Hirsch & Sohn, but the trouble is while they have a number of establishments all over the

world—a large number are in the United States. If you sell to them you immediately go against the tariff in the branches in the United States.

By Mr. Goodeve:

Q. If we were to put on an export duty, would it have a tendency to force the United States refiners to use New Caledonia ores, and shut out ours altogether?—A. I do not think it would. The New Caledonia ores have been a bugbear held up for a number of years, but they are making very little use of them. The Rothschilds are not doing anything there. They are arranging here to do all their work with Canadian ores.

Q. And they are using nearly all Canadian matte?—A. Yes.

By the Chairman:

Q. Apart altogether from the export duty, would it assist this industry, or those who would venture into the refining of nickel or the production of nickel-steel in Canada, if there was an import duty on refined nickel and alloys containing nickel?—A. We do not use enough. The principal use of it is in steel works.

Q. Would it help?—A. I do not think it would.

Q. It would not then be any help at all to get the market of this country?—A. No, there is no nickel-steel made here.

Q. But suppose it was made here?—A. Then it would be a help.

Q. Nickel steel could not come from other countries to compete? Nickel steel comes in now?—A. In small quantities.

Q. But suppose it came in large quantities?—A. The principal use of it here in Canada is in bridge work. There is no place in Canada where they make that kind of steel.

Q. It comes in now under our tariff free. If there was a duty would not that have the effect of giving to the manufacturer here the advantage of the Canadian market for whatever it is worth?—A. Oh, yes, it would do that right enough.

By Mr. Congdon:

Q. Do you think the present company export the matte, not because they could not refine it as cheaply at Sudbury, but on account of things outside altogether?—A. The whole reason is because they have the whole American market for themselves, and nobody can meet them there so long as the tariff stays as it is, unless you put up a refinery over there.

By the Chairman:

Q. The only means by which they got the matte in free was by showing that they were expending a large sum of money in the United States, and that it was not to the interest of the United States that it should be shut out. That is the argument that prevailed with the committee. Leaving out of view for the present an export duty, the operation of which is doubtful, the Canadian government made it a condition in aiding railways, not long ago that the rails should be manufactured in Canada. That is giving quite an impetus to smelting and the production of iron and steel in Canada, is it not?—A. Yes.

Q. You are in the iron manufacturing business?—A. Slightly.

Q. Now, if the same principle were adopted with regard to structural nickel steel, would it not have a tendency to encourage the establishment of such works in Canada?—A. I am afraid not. The trouble is that to put up a plant to manufacture shapes and things of that kind for bridge work requires an enormous capital. It is all well enough to make rails and things of that sort where you do not require such a plant, but to make angles and things of that kind requires a plant costing several million dollars, and the output required for Canada would not keep it running thirty days a year.

Q. You have in mind one state of things, but I am asking you a different question. I am not asking if that would be sufficient to induce capital to take hold of the

industry; I am asking you, would it be a help?—A. Yes. My idea is in Canada we should be able to manufacture nickel steel ingots and sell them to English manufacturers to build warships or anything of the kind.

Q. To what extent do you think that could be successful here?—A. I think that if the government here said we will do as the Ontario government did with the saw-logs—if they said, we will require the nickel to be refined before it was sent out of the country. I think they would get a great many more industries in the way of nickel steel.

Q. You favour an export duty?—A. I am not so much in favour of an export duty as I am in favour of requiring the manufacturing of the ore in the country the same as saw-logs must be manufactured here.

Q. It amounts to the same thing?—A. Well, of course it is a different way of getting at it.

By Mr. Herron:

Q. You mean an export duty on the raw material, the matte?—A. Yes, or a manufacturing clause, that the matte must be further refined into steel nickel before it is exported.

By the Chairman:

Q. That would immediately result in this condition of affairs. The mines in the United States—in Oregon, Nevada, and other States—which were producing considerable nickel previous to the opening up of the Sudbury mines would supply the United States manufacturers?—A. There really was none worth speaking of in the United States except at Lancaster Gap. The production of the United States mines before the Sudbury mines were developed was between eleven and twelve thousand dollars.

Q. I think it was more than that.—A. In 1900, it was eleven thousand dollars.

By Mr. Gordon:

Q. Is there an import duty on nickel going to Germany?—A. Yes.

Q. Is there an import duty on nickel imported into France?—A. Yes.

Q. And the same in all the European countries?—A. Yes, all except England.

Q. What is the import duty in Germany?—A. I do not know what it is now. It was pretty light until the change of tariff a few years ago. I have not heard since that.

Q. They do not produce much nickel in Germany.—A. They practically do not produce any—say five tons a year. It is only a bye-product.

Q. Will they have a profit on the manufacture?—A. They bring in the nickel in the raw state, and refine it in Germany, and they get a little matte from Sweden. That is refined at Papenburg. The principal users in Germany are the Krupps. Krupp makes the German silver, and is the largest importer. Krupp the gun maker is the next. Outside of those two, the rest do not amount to much.

By Mr. Gordon:

Q. Is the United States the largest market?—A. Yes. The United States is the only country that has gone much into making nickel steel bridge work, and they are making nickel steel rails now. The Pennsylvania road buys twenty-five or thirty thousand tons a year of nickel steel rails for its heavy curves. The subway in New York is laid with nickel steel rails.

Q. If you get them to take off that duty, you would have the trade?—A. Yes, it went through the committee. We had it in the committee. What we had there was, 'nickel or alloys, in which nickel is the component part of chief value.' Those would be admitted free.

Q. How much export duty would allow it to be mined here, and taken to the United States without losing the market?—A. I think that even half what they have there—sixty instead of one hundred and twenty dollars—I think it would make quite

a difference. The proper thing would be if somebody would go on and refine. The time that we proposed to do before if we had had any assurances we would have gone ahead, and just as soon as the United States took off the duty we could take off the duty here.

By Mr. Chisholm:

Q. All the export duty could do for you would be to induce the Americans to manufacture here instead of on that side?—A. Yes, or take off their duty.

Mr. CHISHOLM.—It would not help our Canadian companies any.

By the Chairman:

Q. Or drive them to the production of more United States ore, or to the utilization of New Caledonia ore—what about that?—A. I do not think that cuts much figure. I think that is more cry than wool.

Q. You think that is not likely to succeed?—A. Not likely.

By Mr. Burrell:

Q. Would you prefer an export duty or a bonus for the home market?—A. I think probably the bonus would be the most attractive to people here.

By the Chairman:

Q. How much of a bonus do you think would be necessary? Supposing the government were to encourage it in other ways, by utilizing it in government works, and insisting on its use in the construction of larger bridges in railway construction, and also give a bonus, how much bonus would be necessary?—A. It is a hard matter to say. It would depend on the size of the plant put up. If it was a very small plant it would need a bonus pretty nearly equal to the United States duty. If it was a larger plant, less would do.

Q. Supposing you had a plant calculated to meet the best conditions, what would be the most economical line of action?—A. A plant making three thousand tons a year, I think, if they got a bounty of a hundred dollars a ton. It would warrant them in competing. That would be a bonus of three thousand dollars. That would be one hundred dollars a ton. That would not be equal to the duty in the United States, but it would enable them to go into other countries.

Q. You said an export duty of sixty dollars would be an inducement?—A. Yes, I think that would be quite an inducement to them to establish the industry here.

By Mr. Chisholm:

Q. What would be the good of getting it here? You say it is controlled by a trust?—A. I believe you can get plenty of business if you are ready to take it. That is the whole thing.

By the Chairman:

Q. The United States tariff does not prevent you selling your nickel in the English market?—A. No.

Q. Why do you not sell there?—A. The price in the English market is about ten cents a pound less than in the United States. Because England is free trade they get that advantage, and the price for each country is fixed. It is ten cents higher in the United States than in England.

Q. What is the cause of that? Is there a combine that controls the market?—A. That is the general impression. When these people have only one agent it looks as if they were pretty well together.

By Mr. Burrell:

Q. What is the cost of producing nickel?—A. We figure that we could produce nickel from the ores we had if we got, say, twelve cents a pound for copper, that we could produce nickel for about fifteen cents a pound.

Q. That is in the refined state?—A. Yes. Of course, that does not include interest on the plant—it is the actual cost of manufacture.

By the Chairman:

Q. In that you figure the value of the copper to you?—A. Yes.

Q. How much a ton?—A. The ore carries about one-third copper, and two-thirds nickel as a rule.

By Mr. Gordon:

Q. When you are estimating the cost of producing nickel, do you take into consideration depreciation of plant?—A. Yes, but not charges on capital. There is nothing taken off to meet the contingency of the mines running out.

By Mr. Burrell:

Q. Every pound of copper you produced would reduce the cost of nickel?—A. Yes.

By the Chairman:

Q. What is copper selling at now?—A. Heavy copper wire is selling now at fourteen cents a pound. I think copper is quoted at twelve and a half cents.

By Mr. Gordon:

Q. How much New Caledonia nickel has been imported into the United States?—A. Only three shipments four or five years ago.

Q. Under present conditions we are getting the whole market practically of the United States?—A. Yes.

Q. We are refining nickel ore to the extent of eighty per cent?—A. Yes, making matte. The difference between making matte now and some years ago, when Mr. McArthur was there is this: they used to make ordinary matte, and now they are making bessemer matte, bringing it down to eighty per cent instead of forty per cent.

Q. Under present conditions we have the whole market of the United States?—A. Yes?

Q. Do you not think that if we put an export duty on nickel, enough nickel ore would be brought in from New Caledonia to counter-balance the effect of our duty?—A. I do not think so. The cost of manufacturing New Calidonia ore would be even more than the difference between the export duty, supposing you put on $120 a ton—it would cost more to manufacture the New Caledonia ore than to take the Canadian ore with the export duty added. It would be cheaper to pay that duty than to bring the ore from New Caledonia. At New Caledonia the work has been done largely in the past by convicts who were paid next to nothing for their labour.

By Mr. Congdon:

Q. Have you any idea what it cost to bring it over to the United States?—A. I do not remember. I have papers on it, and I could hunt them up, and ascertain. The work by convicts is done away with now. They have to hire labour, and it is almost impossible to get labour for the mines. They have to bring labour from Europe. New Caledonia is a very long island, and they have practically to carry this ore on the backs of mules if they take it any distance. There is only one harbour, that is Noumea. The people who have examined into it very thoroughly, and are not connected with any of the companies, say it can never compete with the Canadian ore, even with a heavy handicap against Canadian nickel.

By the Chairman:

Q. Is it correct to say that their ore runs perhaps six to seven per cent nickel, and that to treat it in America, they would have to ship ninety-three to ninety-four per cent of waste material in order to get that percentage of nickel?—A. Yes.

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Q. That is correct as far as your information goes.—A. Yes, that is correct. In addition to that, in getting that six or seven per cent of nickel, you have to throw away three-quarters of the ore of much lower grade. There is a lot of nickel ore which runs only four per cent.

Q. You have to pick it to get that?—A. Yes. They only ship the ore when it contains over six per cent, and then the ore contains neither copper nor gold.

By Mr. Gordon:

Q. We have a lot of low grade ore in Canada?—A. Most of it runs higher as you go down. One of the principal mines we owned at Sudbury was supposed to be low grade ore. We figured on four per cent ore, but Mr. Booth has put in six or seven thousand feet of drill holes, and finds it much better.

By Mr. Goodeve:

Q. Before the tariff commission, they pointed out that the amount of money expended in Canada on getting out this ore in matte was twenty-eight dollars, as against one hundred dollars expended in refining the matte on the other side. Since then they have increased the percentage of nickel in the matte from forty to eighty-two per cent. How much additional labour does that represent?—A. The labour is very little more—probably twenty-five per cent more.

Q. So the advantage of refining to the country is much larger in the United States than in Canada?—A. Yes.

By the Chairman:

Q. Is the proportion three to one?—A. Yes, I should say it is. Of course, nobody can get at the exact figures.

By Mr. Gordon:

Q. Supposing the pay roll at Copper Cliff is one hundred thousand dollars per month for the production of matte as they produce it here, this matte goes to New Jersey to be refined; what would you say would be the cost of the labour in refining it?—A. That is more than I can tell you.

Q. Taking the expenditure in Canada at one hundred thousand dollars, what should it be there?—A. It should be twice that.

By the Chairman:

Q. I think it would be more?—A. It should be twice that anyway. Of course, the other day, when Mr. Nesbitt and others were here, they said the cost of refining was a bagatelle, only one-fourth of the cost of mining.

By Mr. Gordon:

Q. They have an immense plant at Copper Cliff, have they not?—A. Yes. That is what they have sworn to all along, that the refining was the most expensive part of the work until a week ago, when they changed their tune altogether.

Q. I can understand their contention on that point when they were producing forty per cent matte?—A. The cost of refining is a little different, but not much. The process is altogether the same, and the metal has to be separated just the same as when it was forty per cent matte. The only thing there was a little more iron in low grade matte, and that is not very much of a difference.

By Mr. Congdon:

Q. Supposing an export duty or some other change compelled them to refine in Canada, where would that refining probably be done?—A. It depends on the process. There are some processes you could use up north as well as in Hamilton or Toronto. There are others which can only be used where the winter is not so severe. There

are twenty or thirty processes, and the only reason why they have not been tried very much is that nobody has had the money to utilize them.

Q. They made several tests of the Hoepfner process?—A. The only process tested, I believe, was the Hoepfner, and that was at Cleveland about fourteen or fifteen years ago. We were not pleased with the Hoepfner process ourselves, but he claimed he had improved it so much that he thought it was all right. Then we got a Mr. Frasch to come over, and he was the one who had judged against it at Cleveland —condemned it there. He came, and was with us for a couple of years. and he did the same thing again. He said the process had been improved, but still there was one defect about it. He used a great deal of material, such as gun cotton, and the process was very dangerous, and there was no use of adopting a process which might blow up the place some day. It was more the danger attending the process than the process itself that was objected to.

By Mr. Gordon:

Q. I suppose there is no use of anybody going into that business unless he can command a large amount of capital.?—A. Large capital is necessary. The people in Ottawa paid us $1,500,000 for the property, and they will spend as much more before they get through.

Q. They are satisfied to go into the business under the present conditions.—A. They are not satisfied, but they take it as it comes. They figure the demand for nickel is increasing so much, and the number of mines is so small, that they will make money out of it.

By the Chairman:

Q. What about Monel nickel?—A. That is nickel matte with iron and sulphur taken out. There is a little gold, platinum, and copper left, but it makes an alloy. The five cent nickel coin contains twenty-five per cent nickel and seventy-five per cent copper. Monel is the other way around—seventy-five per cent nickel, and twenty-five per cent copper.

Q. I see the *Mining Journal,* of London, England, speaks of it as a metal that will take the place of German silver?—A. I think it should. It is a little harder, and takes a better polish.

Q. The writer speaks of it as having proved very good in boiler tubing.—A. It would be pretty expensive for that.

Q. Would it not be an excellent material for use in gun boats and torpedo boats? —A. There is no doubt about it, but it is expensive for boiler tubes.

By Mr. Smyth:

Q. But if it lasts so long it might be the cheapest in the end?—A. Yes.

By the Chairman:

Q. However, it is a metal which can only be produced by using a large percentage of nickel?—A. Yes, nickel is the principal part of it

Q. Have you anything further to say?—A. No, nothing in particular.

The committee adjourned.

WEDNESDAY, April 6, 1910.

The committee met at 11 o'clock a.m.

The CHAIRMAN.—I should like to say a word or two with respect to the powers of the committee. It seems, according to the order of reference, the committee is empowered to examine and inquire only into such matters and things as may be re-

ferred to it by the House, and report from time to time its observations and opinions thereon. I assumed that the House had given the committee wide enough scope to enable it to deal with all matters, such, for instance, as the question of the consolidation of the laws relating to mines under Federal control, which the committee proceeded to discuss at its last meeting, but there being a doubt entertained as to the authority of the committee to consider the question which was not specially referred to it for consideration, I therefore thought it would be advisable to defer action until the necessary authority of the House has been obtained.

I might also say with respect to the sub-committee which was appointed at the last meeting for the purpose of taking into consideration the question of the consolidation of the mining laws, that of the five members chosen none represented the province of Quebec. I would like to ask some questions of some of the members. If this committee is formed there is going to be a good deal of work ahead of it, and there is not much use appointing members thereon unless they are prepared to give us a pledge that they will work hard on this sub-committee. Now, Mr. Maddin is on the committee, and while I think he is a faithful worker, I would like to have his assurance that he can continue on the committee after the recess. The labours of the committee might involve a month or six weeks time.

Mr. MADDIN.—Do you mean after the House adjourns?

The CHAIRMAN.—Yes.

Mr. MADDIN.—Where would the committee meet after the House adjourns?

The CHAIRMAN.—I suppose they would meet here, and I presume the scheme would be to go to the various provincial governments, at least those that have mining interests, and consult with them as to the framing of a law. My own opinion is that it would not be wise for the committee to attempt to arrive at an absolute agreement with the provinces to adopt our law in advance, because they are all perhaps more or less satisfied with the good qualities of their own law, but I think we could get a great deal of assistance and a great deal of information from them, and if we could be assured of their sympathy and support in helping us to frame what would be a model law, then we would have gone a long step in advance. Our object is to get a uniform law as far as possible which would be in the interest of the mining industry of the whole Dominion of Canada, and this sub-committee can work this out.

Mr. RHODES.—Have we the necessary authority from the House?

The CHAIRMAN.—No, we have not that authority.

Mr. RHODES.—Your work would go for nothing unless you had that authority.

The CHAIRMAN.—I have discussed the question with the minister. He is quite willing to ask his colleagues for the necessary appropriation to cover the expense to have this done. Now, it is a question whether the work should be undertaken by the sub-committee or by the Department of Mines which would, I suppose, employ lawyers to prepare the proposed act consolidating the laws.

Mr. GOODEVE.—The members of the committee will remember the view we took last session, and this was supported by Mr. Stratton and other members. We have the Department of Mines which would, I presume, get legal men to draft it, but there are expert men, such men as Dr. Haanel, Prof. Brock and men of that nature, besides the minister. The department having the necessary money, it does seem to me that it should therefore take hold of that very question. Furthermore, there are copies of mining laws of all the provinces of Canada. The men I have named are members of the Mining Institute of both America and Canada, which met in Toronto last year and in Montreal a year ago. This question was brought up by Prof. Miller. Now, it seems to me it is the duty of the department to bring down a skeleton Bill before the House and then we would get it in shape. I do not see the necessity of relegating all the various powers of parliament to committees.

The CHAIRMAN.—I want to say to my good friend here that we have had Prof. Haanel and all these gentlemen. We have had the Department of Mines in Ontario

well officered and we have had the Geological Department in Ottawa for thirty years and we have not yet got a satisfactory law.

Mr. GOODEVE.—You are practically reflecting on the department.

The CHAIRMAN.—No. We have the Minister of Mines, but it is still the Geological Department. What I say is this, that no set of men of that character can make satisfactory laws; that is, in my judgment. They are not in touch with public sentiment. We have to get a law that will work out satisfactorily for the mining interest of this country, and have to put it more or less in the hands of men having the right sympathy. That is evidenced by the Department of Agriculture. It was simply a bureau of agriculture attached to some other department for many years both in Ontario and in the Dominion, and it did no service for the agricultural interest of this country. Now, you have a Minister of Agriculture for both the provinces and the Dominion, and you dare not take them away. You dare not go back now to what it was formerly.

Mr. SMITH.—I was not there at the last meeting, and was not aware exactly of what transpired, but I do not think a sub-committee of this committee ought to assume the responsibility of initiating this thing. The responsibility of drafting a Bill ought to be undertaken by the responsible minister and the officials of that department. Now, their efforts can be supplemented, I can quite understand that, without any special power from parliament. You have four mining provinces, British Columbia, Alberta, Ontario and Nova Scotia. You can constitute a sub-committee from this general committee representing men in these provinces that would work with the officials of the department when they go into those provinces to carry on the work without taking any parliamentary responsibility in the matter at all.

The CHAIRMAN.—That is not taking any responsibility.

Mr. SMITH.—You propose to ask parliament to appropriate money to spend on this purpose. What I say is that the whole thing ought to be initiated by the responsible minister. This committee ought to give assistance to the officials of the department. There is another thing you would have to consider. This matter does not only involve the Mining Department, but if we carry out what we propose to do we involve the Interior Department. The only way we can have this matter brought under this one head, and I think you are quite right about that, is to bring the matter under the Mining Department by consultation with the ministers themselves, for which the minister would have to assume the responsibility. This committee cannot dictate who should assume that responsibility. My idea is that the whole responsibility of making inquiry, approaching the provinces, consolidating these laws under the Dominion authority must be initiated and carried on by the expert officials of the department under the direct responsibility of the minister, and the only thing we can do to help them is to supplement their efforts by having men in the province of British Columbia to consult with those people when they go out there; the same thing in Nova Scotia, Alberta and in Ontario where you have mining interests. That would free the committee from any responsibility, and would also, in my opinion, result in far greater success in carrying out this proposition.

The CHAIRMAN.—If the committee would be required to go to the different provincial authorities, the only expense that I can see would be necessary would be the travelling expense if the members would give their time. I submit that they ought not in addition to that be called upon to pay money out of their own pockets for expenses.

Mr. SMITH.—If the officials of the department were to come to British Columbia the members of British Columbia would assist them, the same thing in Nova Scotia, but the responsibility would be placed with the officials of the department and there would be no expenditure on the part of the members of this committee.

Mr. MADDIN.—When this committee held its first meeting, one of the first things that was suggested was to secure uniform laws in all the provinces of Canada, and

it was suggested that after examining the mining regulations of the different mining provinces, a draft of a Bill might be prepared, that the best features being selected from the different Mining Regulations Acts as something suitable for the Mining and Mineral Department of the Federal government. The province of Nova Scotia had a Mining Institute before they had a Canadian Institute. Their mining laws are the oldest in Canada, and we think we have in the province of Nova Scotia the best mining regulations in the English speaking world. That has been stated outside the province. A great deal of assistance could be had from them, but those regulations are down in the library, the same thing with regard to British Columbia, Ontario and Alberta. The suggestion of my friend, Mr. Smith, that experts from the Mines Department should go to the different provinces is a very good one, and that they should work there in harmony with some of the members of the different provinces to be appointed by this committee. I would like to point out to this committee that the Fisheries Committee appointed Dr. Wakeham to go down to Nova Scotia and Prince Edward Island and take evidence with regard to the lobster fisheries with a view to looking into the question of the lobster fisheries. When coming from Prince Edward Island, Commander Wakeham wrote me he would be at certain places on certain days. He also wrote Mr. McKenzie that he would visit a number of points in Victoria North on certain days. Mr. McKenzie met him at Victoria North, and I met him afterwards and went with him to different points in South Cape Breton. Evidence was taken at these and various other places, which was submitted at this session of parliament, together with certain recommendations made by Commander Wakeham to the Marine and Fisheries Committee, and the recommendations were favourably received. Perhaps when the experts returned from their ambulations around with regard to mines and minerals, their recommendation might meet the same reception. At any rate, I suggest the best way to get at this matter is that men like—I do not know all the men in the Mines Department, but there is one man there, Joseph Hudson, who has had a large experience with mining matters in the province of Nova Scotia, and he has passed examinations on the mining laws of the province of Nova Scotia and knows something of them, and that men such as they have in the Mines Department should go through the different provinces and they would be able to come back and make such suggestions to the head of the department, the Hon. Mr Templeman, as would enable the members of the committee to recommend to parliament the adoption of a uniform law.

The CHAIRMAN.—It is a question as to what steps should be taken. We, however, are not authorized by the House to deal with it at all, and, therefore, further consideration of the matter will, for the reasons I have already given at the outset, necessarily have to be deferred. We have a gentleman here from Toronto, Mr. Gibson, who is Deputy Minister of Mines for the province of Ontario, and in view of the fact that we are not exactly in position to deal with this question to-day, perhaps it would be as well to postpone that discussion and hear Mr. Gibson now. In the meantime we can see what authority we can get.

T. W. GIBSON, called and examined:—

By the Chairman:

Q. You are Deputy Minister of Mines for the province of Ontario, I believe?—A. Yes.

Q. Before asking definite or particular questions, I would make this suggestion: Our object, as I explained personally to you this morning, is to get whatever information you would feel disposed to give us in regard to the working of your mining law, and the extent particularly of your nickel area in Ontario, also we would like to get such information as you could give us as to what extent these nickel deposits might be in the control of one or two or more companies, if there is anything of that kind existing, and any other information that may have occurred to you that would in-

terest the committee. You might just give us a statement which would be very much appreciated?—A. Mr. Chairman, and gentlemen of the committee, I did not have a very clear idea of what would be expected of me when I came down here, and therefore I have not prepared any material or made any systematic arrangement of any ideas which I might have in order to lay them before the committee. The chairman has outlined some of the subjects on which I might speak, and I might say something about these several matters, but it might save the time of the committee and prevent me introducing irrelevancies if some leading questions were put by yourself, or by some members of the committee, to which I would be very glad to make reply to the best of my ability.

Q. In order to draw out an answer, to what locality do you consider the nickel area of Ontario confined? What I mean by that is, are there not discoveries of nickel in other sections in Ontario than in the immediate vicinity of Sudbury?—A. I should say as to that, the largest known area of nickel-bearing lands is in the Sudbury district. There is an area there perhaps 37 or 38 miles in length by 8 or 10 miles in width, roughly speaking, of an eliptical shape at the outer edge, and in certain relations to which the deposits of nickel ore have been found. These deposits constitute by far the larger proportion of the known nickel-bearing lands in the province of Ontario. Outside the Sudbury district, however, there are other nickel-bearing areas. There is nickel in the silver-cobalt ores of the Cobalt mines. I do not think that very much actual use has been made of the nickel constituents of the cobalt ores. In addition to that, there has recently been found about two or three miles west of the Timiskaming and Northern Ontario Railway, and in the vicinity of the height of land between the great lakes and Hudson bay, a deposit of nickel ore which resembles in composition and character the ores of the Sudbury region. That deposit has been examined, and so far as the examinations have gone it has not proved to be large, but the interesting fact is that the pyrrhotite in Dundonald township is practically of the same character as the nickel-bearing pyrrhotite of the Sudbury region. Unfortunately the surface of the ground there is largely covered with drift, and only a few outcrops of rock have been found. I do not regard it as impossible at all that this discovery may lead to an extension of the known nickel-bearing areas of the province. Nickel has been found in small proportions in some other bodies of pyrrhotite in Ontario, but I think not to such an extent as to warrant us in calling them ores.

Q. Then, Mr. Gibson, coming to the Sudbury district, to what extent can you give the committee information as to what extent that land—the nickel-bearing area—has been alienated from the Crown? What extent remains with the Crown for disposal?—A. I think it is quite natural to suppose, and I believe the fact to be, that practically all the lands upon which nickel has been found in commercial quantities have been taking out in quantities by those who have found them. That is what one would expect. Practically all the lands upon which nickel has been discovered are now no longer the property of the Crown.

By Mr. Congdon:

Q. They are in very numerous hands, I suppose?—A. They are not all concentrated in the hands of one company or two companies, but there are certain concerns with very large holdings.

Q. I suppose that is necessary for the working?—A. Yes, it is a natural thing for a company to desire to have large reserves of ore.

By the Chairman:

Q. Then it is not in the hands altogether of one or two companies?—A. I think not. I think the Canadian Copper Company is possibly the largest holder of nickel lands. The Mond Nickel Company have a small area; the Dominion Nickel Copper Company have pretty large holdings, and there are private individuals and other companies that also hold in the aggregate a considerable area of nickel land.

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By Mr. Congdon:

Q. Do you consider there is any mode of limiting the individual holding of any one concern or whether it is possible to do so?—A. I do not think it is possible to do so. You may limit the number of acres that a company can acquire from the Crown, but there is no way of limiting the quantity they may acquire from private owners.

Q. Is there any burden on the land which they do not work?—A. There is a small tax per acre in the unorganized townships; they pay a small tax on it.

Q. Is that by agreement or is it subject to change?—A. That is by the law of the Ontario legislature.

Q. What is the tax?—A. Two cents per acre.

Q. It can be increased?—A. Yes.

By Mr. Maddin:

Q. But not to present holders?—A. Yes.

By Mr. Rhodes:

Q. What is the royalty?—A. There is no royalty.

By Mr. Maddin:

Q. Under what conditions are leases granted to persons applying? Supposing a man goes prospecting, spends the greater part of the summer prospecting, makes a discovery of a mineral, gold or silver, or any other mineral and comes into the mines office and makes application and takes up the amount that he requires, can any Tom, Dick or Harry come into the Mines Office and take up all the surrounding area without prospecting or staking it?—A. No. Perhaps I might explain the mining law of Ontario a little.

By the Chairman:

Q. That is very important, because it discourages prospectors from going out; if they could go out and gobble up the result of their small prospects?—A. That is so. The mining law of Ontario underwent a revision in the year 1906. Previous to that time the mining domain of the Crown was administered by the department in Toronto direct. That is, all applications for mining lands had to be made in writing to the department and were passed upon by it. In 1906 the system was decentralized, and the province was divided into mining divisions, having reference to the convenience of each separate mineral area, and in each of these divisions was appointed a mining recorder to whom all applications for mining lands situated within that division were required to be made. It was also provided that no one could apply for, or stake out, mining lands except on the authority of a miner's license. These miners' licenses were issued on the payment of a fee which was first fixed at $10, but has since been changed to $5. They lasted for a year or, rather, under our law, they all expire on the 31st day of March next after the date of issue. The holder of a miner's license is entitled to stake out three mining claims in any and all of the mining divisions in the province during the license year, but he must actually stake out the claims upon the ground. He must go upon the ground, make his discovery and put in his posts as the mining law directs, blaze his lines, and then, having put upon the ground the evidence of his discovery, he goes to the mining recorder and makes his application. If the mining recorder, upon referrence to his books and records, finds that ground has not yet been taken up by any previous discoverer, he recrods the applicant's claim and that is the beginning of his right. He goes on then to do so much work, as prescribed by the Act, and having finished his work he pays for his land and gets his deed.

By Mr. Herron:

Q. What is the area of a mining claim?—A. There is one unit of forty acres which applies to claims of all kinds.

By Mr. Congdon:

Q. Gold and silver?—A. Gold, silver, iron, copper and all other minerals.

By Mr. Douglas (Strathcona):

Q. Does the miner holding the license have to prove that there is minerals on that land before he can get a claim?—A. He himself must supply proof in the shape of a sworn statement to that effect.

Q. That he believes there is minerals on that claim?—A. That he has made discovery of valuable minerals.

By Mr. Congdon:

Q. Do you see any advantage in the license?—A. The license, of course, answers the purpose of producing a revenue. The cost of administering the mining lands is considerably greater under the system of mining recorders than under a centralized system.

Q. I mean, you do not see any advantage in it except for the purpose of raising a revenue?—A. There are other advantages. One of these advantages is that upon the holder of a miner's license having his claim recorded in the recorder's office, the recorder endorses on the back of his license the fact of his having had the application recorded, and that is evidence to the holder of the license and to any other individual who desires to know that he has this claim recorded in the office.

Q. Any one can get a license?—A. Any one can get a license who is over eighteen years of age.

Mr. CONGDON.—We have abolished it because it was so inconvenient in the Yukon.

By Mr. Maddin:

Q. Is there any provision for the reversion back to the Crown of these leases in the event of no work being done?—A. You speak of leases. It is hardly correct to use that term under the present Ontario law.

Q. Well, title. What do you call them?—A. If the grant has been made we call that a patent. But until the grant is made it is simply under the authority of the miner's license and by virtue of his having a claim recorded in the recorder's office.

Q. Would the patent revert back to the Crown after a specified time in the event of no work being done on the land?—A. The position is this: That so long as the claim is unpatented so much work must be done. The law requires thirty days' work to be done during the first three months after recording the claim. Then, during the next year, sixty days' work. During the following year, sixty days' work, and during the third year ninety days' work. In all 240 days' work. Upon the work being done and proof of it being filed with the recorder, the department at Toronto will issue a grant to the party entitled, and then he has an absolute grant and there is no provision for that reverting to the Crown.

Q. Under any condition?—A. It then becomes subject to tax if it is in an unorganized district, and if the tax is not paid it reverts to the Crown.

By Mr. Goodeve:

Q. What is the amount of your tax?—A. Two cents per acre.

By the Chairman:

Q. Just one question. Does not the law now provide for an inspection? After the explorer makes discovery and claims that he has discovered minerals the inspector has to report. Is not that part of the law now?—A. There is no provision in the law under which that section may be brought into force. Those conditions are not applicable unless they are declared to be so to any particular district, and the practice has been only to require the bringing of that section of the law into force where the districts are exceptionally rich, as, for instance, in the Cobalt region.

APPENDIX No. 5

By Mr. Goodeve:

Q. Is there any provision for a payment of money in lieu of doing work?—A. No, sir.

Q. We do that in our province?—A. You are speaking of British Columbia?

Q. Yes?—A. There is no provision in our law to that effect.

Q. It must be worked?—A. It must be worked or the land is liable to forfeiture.

By Mr. Congdon:

Q. You are aware that there is a movement on the part of the Canadian Mining Institute towards securing something like a uniformity of laws?—A. Yes, sir.

Q. Do you think there is any possibility of a thing of that kind being accomplished by agreement between the Federal authority, which is now contemplating the framing of an Act, and your province?—A. That is a question which is very difficult for me to answer, as you can readily understand.

Q. Certainly, I understand that?—A. I am not in the government and cannot speak as to matters of policy.

Q. But still a movement in that direction might be successful if conducted properly, I suppose?—A. If the gentlemen of this committee were able and fortunate enough to frame an ideal mining law they might get the other provinces to adopt it.

Q. Exactly. In framing our law we ought to get what assistance we could from the provinces and make use of what was gleaned in the course of the inquiry. For instance, Mr. Gibson, don't you think we might come to some arrangement as to the extent of the mining reservations in patents of Crown lands?—A. That is a pretty important subject, Mr. Congdon, and I am not very hopeful of a general concensus of opinion on the point.

Q. Well, then, with regard to the doctrine of discovery. Is there any possibility of an agreement on that?—A. We have found in the province of Ontario a very great divergence of opinion as to what should be contained in a mining law.

Q. Exactly. You find that everywhere?—A. In 1906, when the present government undertook to revise the mining law, they asked the assistance of the mining men all over the country. They convened them in local centres and asked them to appoint delegates to a convention. That convention, consisting of delegates from the various mining districts of the province, was held in Toronto for the express purpose of framing a mining law that would be satisfactory, or fairly satisfactory, to the mining community. The utmost variety of opinion was found in the convention itself. All shades and differences of opinion prevailed on every possible point; there was nothing like unity or harmony at all.

Q. I am pretty familiar with that, Mr. Gibson, as I have had something to do with the mining laws of Nova Scotia and the Yukon. You could never get any two men to agree on any two points. The consequence is you have to strike some sort of compromise. But take this matter of the absolute title to mining property, or leaseholds. Of course, it is difficult for you to speak about the policy of the government, but I do not suppose that there is any fixed determination to stand by the patent system, is there?—A. We had the leasehold system in force under the law as it was before 1906, and I am personally of opinion that there are advantages in leaseholds.

Q. That is the tendency of modern legislation?—A. It is the tendency of modern legislation.

Q. I think so, and simply as a prevention of monopoly?—A. That is one advantage. The objection was commonly taken on the part of capitalists that they wanted a permanent tenure. They are not content with leaseholds. They say, 'Something may happen, and if our title is gone our whole investment is lost.'

Q. Do you think that objection was more serious in the early days of mining, when mining was not as well established as it is to-day?—A. I think where the leasehold system is known and understood that it is a perfectly feasible and working system.

Q. And it certainly prevents too great a monopoly?—A. There is just this about it: In Ontario, and I think in other parts of Canada too, we are largely dependent upon American capital for the development of our mining enterprises, and Americans are accustomed to a fixed tenure and prefer it to a leasehold.

Q. They object to anything in the shape of royalties?—A. That is generally objectionable to anybody who has got to pay.

Mr. CONGDON.—But particularly the Americans.

By Mr. Smyth (Algoma):

Q. Is it necessary for the owner of mining land to still continue taking out his license from year to year?—A. No, sir, not after it has been patented. Under the law of Ontario the holder of a piece of land that has been patented by the Crown requires to do nothing further in order to hold it. If it is in unorganized territory, he must pay the provincial tax of 2 cents an acre.

By Mr. Congdon:

Q. Before he gets his patent he is obliged to hold a license?—A. Yes.

By Mr. Herron:

Q. Have you a coal mining law in Ontario?—A. There is a provision about coal in our laws. Yes, sir.

Q. You have not had really much experience with it?—A. No.

Q. I hope you will have?—A. Well, we will be very glad to try it indeed.

By Mr. Goodeve:

Q. In your experience in mining have you had much complaint in regard to the laws for mining on Dominion lands among mining men?—A. It is not a general topic of conversation among mining men in Ontario. There is a comparatively small area of Dominion lands within the province. I think only the Indian lands.

Q. It was taken up, if you remember, at the Mining Institute meeting in Montreal. Mr. Miller, I think, read a paper on it?—A. Yes. That was discussed at the meeting of the Canadian Mining Institute.

Q. Have you any suggestions that you could offer to this committee that would aid them in coming to a decision in regard to the best way of formulating these laws? —A. That is a subject I have not given much consideration to. I have been through the process myself and I know how difficult it is to harmonize the views of people whose opinions are so diverse. The trouble is that in the mining business there is a great variety of interests. The interest of the prospector is not necessarily the interest of the capitalist. And then there is the promoter of mining companies. All these interests have diverse views upon the same subject. The prospector wants to get his land as easily and with as little expense as he possibly can. In Ontario we think we have hit upon a fairly good method of dealing with prospectors. We charge him $5 a year for the privilege of prospecting. On making a discovery he is entitled to stake out three claims during his license year in the division in which he is working. If he is a professional prospector who would rather look for minerals than develop them, he can move on to the next division and do the same there, and so on. He may acquire a very considerable area of land simply by discovering the minerals on it.

Q. One license would cover the whole district?—A. One license would cover the whole province.

By Mr. Smith (Algoma):

Q. He can do the work for three or four claims on one, can he not?—A. If they are adjoining he can.

By Mr. Congdon:

Q. If he has a group?—A. If he has a group of three he can work one claim for the three.

APPENDIX No. 5

By the Chairman:

Q. I would like you to say something to the committee in regard to the production of nickel, either in the form of an alloy of nickel and iron—what we might call a nickel billet, or nickel pig or the refining of nickel in Canada. Now, has your department gone into that, and what is the extent of your information on the subject?—A. There is no question that both nickel pig and refined nickel could be produced in Canada. The process that is now used for the refining of nickel by the Orford Copper Company, which refines the Canadian Copper Company's matte, is, I understand, open to be used by any one, as it is not now been patented in Ontario. The question resolves itself entirely, in my opinion, into one of economics. Is it commercially feasible and profitable? It is contended by those who are now interested in producing nickel that it is not, and I am not prepared to say whether that contention is right or wrong. There is a duty of six cents a pound on refined nickel going into the United States, which would operate against the producer of nickel in this country, because the American market would be the largest for the disposal of his nickel.

Q. That would depend on whether the United States has to get our nickel and cannot get it as cheaply as elsewhere. The natural consequence of producing refined nickel in Canada would be the removal of that duty. Would you not think so?—A. If the United States would remove the duty, that difficulty of course would be out of the way.

Q. It would disappear?—A. It would disappear. But the policy of the United States government appears to be a fixed policy of protection, and no one can estimate the probability of the removal of that duty.

Q. It is a fact that no duty is put on pulp wood going into the United States or on other commodities which that country requires; they put them on the free list in many cases?—A. Yes.

Q. In the case of the nickel matte produced at Sudbury and shipped to New York state for treatment, coke and coal is the main fuel for treating the product under the Orford process?—A. They have to have fuel, of course, to perform their operations.

Q. Whatever fuel they use is coal in some form?—A. Coal or coke, I suppose.

Q. Now, to treat the matte in Canada as they treat it would cost more money, would it not?—A. I think it would. It would be farther away from the source of supply. The coke or coal would have to be brought a longer distance, and would naturally cost more money.

Q. Are you aware that that is one of the principal reasons put forward by the producers of nickel matte in Canada, that the cost of production here renders it impracticable?—A. I believe that is one objection.

Q. The increased cost of other materials that are necessary?—A. Yes, the cost of chemicals used in the refining process.

Q. That brings me to this: Assuming that electric power is more desirable in the treatment of nickel for the production either of refined nickel, nickel matte, or nickel billet for structural purposes which might be rolled into shapes, and could be got in Canada cheaper than it could in the state of New Jersey where this matte is now treated, to what extent would that be an off-set against the extra cost of fuel? —A. Well, if electric power could be substituted for fuel, I think there is little doubt that the former could be produced more cheaply in the northern districts of Ontario than it could in many parts of the United States.

Q. To what extent have you information in regard to iron deposits in Ontario? —A. There is a very large extent of iron formation in Ontario—I think an unusually large extent. The bodies of workable ore that have been found are not as numerous as we would like. That may be due, and perhaps is due, in considerable degree to the fact that the iron formations have not been thoroughly prospected. It is a diffi-

cult and expensive business to prospect for iron ore on an iron formation where the bodies of ore do not outcrop, as they have to be searched for largely by means of the diamond drill and to a considerable extent at haphazard. Large bodies of good ore have been found in the Michipicten region, as at the Helen mine, the Frances mine, the Josephine mine, and other places. Large bodies have been found in the township of Hutton at Moose mountain and adjoining localities, and very large deposits have been found at Lake Temagami. The Temagami iron ores are of the banded character, that is, the magnetite is interspersed with layers of sillica or jasper, which render the ores low grade. They might, however, be amenable to suitable concentration processes, and if so there is a very large source of supply of iron ore within your reach on Lake Temagami. Then, in eastern Ontario there are many deposits of iron ore, principally of the magnetic variety. Some of these are of good quality and some of them are contaminated with sulphur and other objectionable ingredients.

Q. Then, in the west, in Thunder Bay and Rainy River districts?—A. There are large bodies of iron ore west of Lake Superior in the Atikokan iron range, in the Mattawin iron range and at other points. Some of them have been used, notably the ores of Atikokan, which are being smelted in the blast furnace at Port Arthur. There are large deposits of ore also on Hunter's island and a number of other places in that region. Some of them are of the banded variety and would require treatment by concentration before they could be used at the present time. But I think there is little doubt that all these deposits of iron ore will sooner or later come into demand because of the approaching time when the large reserves of good iron ore will be nearing the point of exhaustion. I mean the large bodies in the other side.

Q. You mean on the American side?—A. On the American side.

Q. Is it not generally known that some pretty important discoveries have been made at Hunter's island, although no great amount of work has yet been done?—A. It is believed there are some good bodies or ore there, but they have not been developed to any large extent.

By Mr. Congdon:

Q. Have you in the province of Ontario any license to search?—A. No, sir, the miner's license is the only authority one requires to go into the field. It is good wherever there are minerals.

By Mr. Smyth (Algoma):

Q. Except in the forest reserves. There you have a special permit?—A. Yes. I would make that modification, that we have in the province of Ontario a number of forest reserves—that is, areas set apart for the protection and propagation of timber. These are not closed to prospectors, but a prospector requires to have special authority to go in there.

By Mr. Congdon:

Q. He is not given that right exclusively?—A. He gets the privilege in common with others.

Q. Have you considered the wisdom of the policy of giving licenses to search for larger areas than title is given to later?—A. Exclusive authority?

Q. Well, exclusively to a certain number. Take, for instance, the policy in Nova Scotia. You can get a license to search over five square miles for coal. For example, say that I get the first license to search over that area. Somebody else is given the second, then a third, a fourth and a fifth. The first applicant has the first right to select a square mile within the limits of the area covered by his license. Then comes the second, and so on?—A. I have not had practical experience in the working out of any such system as that, Mr. Congdon, and I would not like to offer any opinion as to its feasibility. In Ontario we have made this provision for coal lands, recognizing

that the ordinary sized claim of 40 acres is not considered sufficient to warrant the opening up of a coal mine; that if coal is found, or if any one believes coal to exist, he can stake out an area of 640 acres, one square mile, and upon payment of a fee of $100 he gets the privilege for one year to work upon it, which privilege is renewable for another year. Then if he finds coal in workable quantities and desires a more permanent tenure he gets a lease.

Q. Of the same area?—A. Of the same area.

By Mr. Goodeve:

Q. What fee does he pay?—A. He pays a dollar an acre for the lease, and is obliged to expend $2 per acre per annum during the continuance of the lease in actually working for coal.

Q. Is there any arrangement made for going over another's land to work the claim do you know? That is for crossing, or using or tunneling?—A. Subsequent to May, 1891, all the public lands of the Crown in Ontario that were sold or located for agricultural purposes were sold or located with the reservation of the mines and minerals to the Crown, and in order that these mines and minerals might be open to be taken up by others it was necessary that others should have the privilege of going upon those lands to prospect. That privilege was freely taken advantage of, and in many cases claims were staked out on lands owned by other parties. But the staking out had reference only to the mines and minerals beneath the surface, and the person finding minerals upon the land on which the surface rights had been granted was obliged to compensate the owners of the lands for any damage he might do, or might propose to do, in working the minerals.

Q. But he could expropriate, I suppose at a price fixed? How do you fix it, by arbitration?—A. There was no provision for actual expropriation of the land.

Mr. GOODEVE.—With us we fix a limit in British Columbia.

The CHAIRMAN.—The Director of Mines was arbitrator in case there was difficulty.

The WITNESS.—That was under the old law. A slight change was made as to that. The law did not provide that the owner of the land was obliged to give up his title to the surface.

By Mr. Goodeve:

Q. Not for any portion?—A. Not for any portion.

Mr. CONGDON.—There was an easement.

The WITNESS.—An easement which would allow the miner ingress and egress, and the right to open up the soil and do whatever was necessary for the purpose of winning the minerals; and if the parties were not able to come to an amicable arrangement, then the Director of the Bureau of Mines, as the chairman has said, was authorized by law to ascertain what was a proper sum to be paid. Since that time, the authority has been vested in an official called a mining commissioner, who now performs that duty.

Q. What are included in your mines and minerals reservation?—A. Everything in the shape of valuable minerals.

Q. Are they specified in the reservation?—A. The reservation is of mines and minerals. 'Ores, mines and minerals,' I think, are the words. Then in the mining law these are defined. Under the mining law as amended in 1906 an officer known as the mining commissioner is appointed with jurisdiction over all unpatented mining claims, and any disputes which arise between adverse claimants, or otherwise, in connection with unpatented claims, may be brought before the mining commissioner if they are not, in the first instance, settled by the recorder. The recorder has jurisdiction over such matters, rather more limited in nature than the jurisdiction of the mining commissioner, but if his decision is not satisfactory either party may appeal to the mining commissioner who takes the matter up and makes his decision.

If either of the parties is not satisfied with the decision of the mining commissioner he in turn may make an appeal to the Divisional Court; that is, the ordinary court of the land.

Q. In operation how has it worked?—A. It has been one of the best features of the amended mining law, and it has worked out admirably. It relieves the minister and the department of the trouble and difficulty of settling mining disputes which will arise under any law and which are most frequent where the land is most valuable, and removes them to the jurisdiction of an officer whose sole business is to ascertain the merits of the case and to decide accordingly. If he makes a mistake, then his appeal is subject to review by the courts of law. It is a feature which I think has generally commended itself to the mining public in connection with the operation of the law, not only for the reasons I have mentioned, but also because disputes can be expeditiously and quickly settled.

By the Chairman:

Q. There appears to be no other question. Is there any other feature of your mining law or practice in Ontario that you would like to mention?—A. I can outline the law briefly if that would be of any interest to the members of the committee or give them any information, but I think what I have said practically covers the salient points. There is one matter that I would like to mention of my own motion, Mr. Chairman, if you will permit me to do so. That is in connection with the use of nickel or cobalt. I would like to put in a plea for a pure nickel or cobalt coinage for Canada. These are distinctly Canadian metals, and I think could be used to very considerable advantage, especially in the form of a coin to replace our present 5-cent piece. Our 5-cent piece is very small and inconvenient because of its size, and a coin of pure metallic nickel or cobalt, I do not care which, considerably larger than the 5-cent piece, intermediary perhaps in size between our present 10-cent piece and our present quarter, I think would answer the purpose very well. I believe it would strike a distinctly Canadian note, would help to advertise our Canadian resources of nickel or cobalt, and it would be a coin that would have a handsome appearance. It would be practically non-corrodible, very hard, and difficult to counterfeit. The pure nickel coins are in use in a number of the countries of continental Europe—in France, Italy, Austria, Switzerland and elsewhere—and their use has given great satisfaction. I have some of these coins in my pocket which I have carried for three or four years past for the purpose of giving them a test as to how they will maintain their appearance (producing coins). That, Mr. Chairman, (handing coin to the chairman), is a coin that I have carried for that length of time. It is a French coin.

The CHAIRMAN.—It looks like a brand new coin.

The WITNESS.—You can see for yourself. It looks as if it were turned out of the mint yesterday.

By Mr. Congdon:

Q. That is nickel?—A. That is a pure nickel coin. Yes, sir. There is another one (producing coin). That is an Austrian coin.

By Mr. Goodeve:

Q. About what would that represent in value?—A. Do you mean the intrinsic value? I have not worked that out.

By Mr. Rhodes:

Q. That is 20 centimes, or 5 cents of our money?—A. It represents about that.

By Mr. Goodeve:

Q. About 5 cents?—A. About 5 cents. I don't think the difference between the real value of the coin and the face value would be very much greater than the difference between the real and the face value of a 5-cent piece.

APPENDIX No. 5

By the Chairman:

Q. You said the last coin was an Austrian coin?—A. Yes, an Austrian coin.

Mr. MACDONALD.—That would not be as easily counterfeited.

Mr. RHODES.—They never counterfeit a coin of small value, do they? I never heard of such a case. When they are going to counterfeit coins they take a 25 or 50-cent piece or a dollar.

The WITNESS.—I suppose as a rule they do, but what I had in mind was, it requires machinery of a special kind to make an impression.

By the Chairman:

Q. It is very hard, much harder than silver?—A. I have in my pocket a piece of metallic cobalt which it is very hard to distinguish from nickel, and I think it would be just as suitable for coinage purposes as the nickel would be.

Q. Well, Mr. Gibson, have we any works in Canada that produce refined nickel, pure nickel?—A. No, sir.

Q. I think perhaps if you make inquiry you will find that we have. Mr. O'Brien, who has a smelter somewhere, I can't name the town——A. Are you thinking of the Doloro Mining and Reduction works in the county of Hastings?

Q. I think so, I think that is the place. Well, he told me a few days ago that they had refined the nickel—they were getting a small quantity of it in the Cobalt ores—and that they were refining it and making it pure nickel, if I am not mistaken? —A. That is news to me. I know, of course, that nickel does occur in the Cobalt ores, but it has not been regarded profitable as yet to separate it, and if it is being separated it is probably in the form of nickel oxide rather than in the form of metallic nickel; I speak subject to any later information you have obtained.

Q. You may be right, but when he said they were making the refined, pure nickel, I took it that it was in the ordinary form without asking any questions, but perhaps you are right in that?—A. I may say that the Ontario legislature passed a law three years ago offering a bounty of 6 cents a pound on all nickel refined in the country. but so far no claims have been put forward for that bounty.

Mr. RHODES.—Perhaps Mr. O'Brien doesn't know about that bounty.

The CHAIRMAN.—Yes, he knows about that, but the quantity he is producing is so very small that probably he hasn't thought it worth while to make an application yet, but I gathered from his remarks that he intends to increase the capacity of that plant?—A. I think that the Doloro Reduction Works and other works that have been put up in Ontario for the treatment of Cobalt ores are looking more to the utilization of the cobalt than the nickel; there is a larger percentage of cobalt in the ores than nickel, and the product is worth more money.

Q. I understand they are getting that, but they get this as a separate metal, don't they?—A. They do not reduce it to a metallic condition; they make cobalt oxide, of course they recover the arsenic and silver as well.

The CHAIRMAN.—Are there any further questions that any members would like to ask Mr. Gibson? As there do not appear to be any more questions I think we need not detain you longer, and I might, on behalf of the committee, Mr. Gibson, thank you very much for coming without a summons or anything of that kind, voluntarily. and giving us the very interesting information which you have given.

Mr. R. W. BROCK called.

By the Chairman:

Q. Mr. Brock, you are an officer of the Department of Mines?—A. Yes, sir.
Q. Just what office do you occupy?—A. Director of the Geological Survey.

Q. You have been attending the meetings of this committee, or most of them, during the present session?—A. I think I have been at most of them.

Q. And you are familiar with the practice of your department and also of the Department of the Interior in the granting of titles to mining lands, are you not?—A. Well, the Department of Mines, of course, has nothing to do with the granting of titles to mining lands.

Q. Will you just kindly tell the committee now what steps are necessary for an explorer who discovers mineral wealth in the province of Alberta, how does he proceed to get the title to that discovery, just tell us that?—A. Well, I understand—of course we have nothing to do with that, and I have no practical experience of that—but I understand that the method would be to put in an application in writing, which he might do at an agency, a Dominion Lands agency, and it would be referred to the Department of the Interior here.

Q. Well, is it so that you may put in an application there or that he may send his application here? Do you know anything about that?—A. Well, I think it is possible for him to put in his application at the agency or the sub-agency of the department.

The CHAIRMAN.—Mr. Congdon, you are acquainted with the conditions in the Yukon, would you mind telling us about that? We have got the evidence from Mr. Brock as far as he can give it to us.

Mr. CONGDON.—I do not see any use; if we go into that it will take us a week.

The CHAIRMAN.—Well, I understood that is just the difficulty; that there are no acts governing it.

Mr. CONGDON.—We have an act in the Yukon.

The CHAIRMAN.—What about Alberta?

Mr. CONGDON.—They haven't any there; it is pure regulation.

The CHAIRMAN.—I do not think we need pursue this matter any further then.

Witness retired.

Committee adjourned.