

steel rails and of nickel-steel in Canada favorably considered by the Dominion and Provincial Governments.

He said: In my opinion, if the iron and steel industries do not affect the whole of Canada, we have but to say, God help Canada! If Canada cannot and will not deal in a generous spirit with the iron and steel industries, I have little hope for the building up of our country in modern history. I have a letter here which I will read you, with your kind indulgence, from the seconder of this motion, Mr. E. W. Rathbun, Deseronto, in which he expresses his regret that owing to unforeseen events he is unable to be present and give expression to his strong and emphatic views on this matter, which I will attempt, if feebly, to reproduce. (Mr. Rathbun's letter read.)

We in Canada occupy, permit me to say, a very humiliating position in regard to iron and steel. We are beholden, as it were, to the rest of the world, chiefly to the United States and England. This is a matter of serious moment to a country desirous of building herself up and occupying a proud position among the nations. Last year we imported more than twice as much pig iron as was made in the country. We imported \$1,700,000 worth of steel rails, which may be considered raw material. Dr. Raymond pointed out this morning that the great civilizing feature of the present day is the Bessemer Converter. There is not one Bessemer Converter in Canada, and we make a very small proportion of the iron consumed in the country, to say nothing of the steel. I should have liked to have pointed out to the Americans their position, as they stood among us here in Canada.

I believe that every citizen of Canada will admit that he would require equally as much iron and steel if he stepped over into the United States, as he does in Canada. And yet he will only have one-fiftieth of what he uses manufactured for him in his own country. Iron and steel manufactures came into this country last year worth about nine and a half, or \$10,000,000. Of that the major part came from the United States; \$4,800,000 worth from United States, and \$4,600,000 from England, showing the enormous amount which we have and which could be filled by home manufacture.

The steel rail question is rather a vexed one. The railroads desire the cheapest steel they can get. The United States dealt with their companies in a statesmanlike manner, in giving grants to their great Pacific railroads. They stipulated that those roads should be built with American steel rails; and that is the policy which should be adopted by the Dominion Government; if not even a still more generous policy. I maintain that the policy which has been adopted has not been a right one, nor in a generous spirit. When people go to war, they do not say: We are going to grant a certain sum of money and if that does not defeat our enemy we will be vanquished. They go into a fight determined to win. Now sir, I contend that should be the policy of this country and of the Government of this country, in regard to the manufacture of iron and steel. Our Government should say: We are going to make our own iron and steel, we are going to make our own rails, and, of course, in our wisdom we will adopt the best and most economic manner in which this policy is going to be carried out. But unfortunately, it appears that a certain Duty was adopted; and it was considered that if that was not a sufficient stimulant, why the industry would have to go to the wall.

Gentlemen, the Government should approach this great national and important question in a broad and generous spirit. They should decide that it is a very momentous matter indeed, a thing of prime importance, that we should manufacture our own iron and steel, and nickel steel also. And if Canada was the first to make a substantial movement in regard to the manufacture of nickel steel, it would help her considerably; because nickel steel will play a great part in the future.

It may be said that we have not the material. But that is a fallacy too absurd to dwell upon; because you are all conversant with the vast quantities of splendid iron ore and coke in Nova Scotia; and with the fact of the great iron fields of New York and New Jersey stretching away into Eastern Ontario, proving beyond a question the great supplies of that ore existing in that part of Canada alone. In Western Ontario the great Minnesota ranges run up into the Port Arthur regions, and through the western part of Canada and in Manitoba. I believe there is no question of valuable supplies of iron; and in British Columbia there is an abundance of iron ore and coking coal in the interior, and which will be of course developed when the country grows.

Therefore, I think that so far as the Dominion Government is concerned, we can very properly appeal to them to deal with this question in a generous manner.

We can point out to them that extreme protection has been necessary by all civilized countries in starting this industry. It was the case with England and Belgium, who now produce more than half a million tons each a year; and with Sweden, who produces nearly half a million tons annually. In view of these facts we can, I say, appeal strongly to the Dominion Government; and it would not be out of place for this Convention to impress upon the Provincial Governments the great importance of this industry.

I may say that I have no personal interest, either direct or indirect, in thus advocating the home manufacture of iron and steel so warmly. I have no interest in any manufactory or smelting works of any kind, nor in any mine. I merely move this resolution, from a purely scientific and metallurgical knowledge of the facts; and feeling as a citizen, and as a Canadian, that we have a great void that can be and should be filled.

Mr. Rathbun who seconds the resolution, on the other hand, gives great force to his adoption of the cause; because he is a man who is ready to put his money into the erection of a furnace. I take it the two forces should be very strong; the desire of the man who has money and is ready to invest that money in a home industry and give labor to men at home; and the desire of the man who is interested in serving the interests and the national greatness of his country.

CAPT. PENHALE—In the United States there is more iron mined and manufactured than in all the rest of the world. In 1890 over 10,000,000 tons of iron were manufactured in the United States. In the United States and in England, in the sense of wealth, Iron is King—And whether we are connected with it directly or indirectly, we all feel the benefit of that industry. Mr. Merritt stated there was not one Bessemer steel plant in Canada. If, as Mr. Merritt, said, investors are ready to put their money into that industry, then I say, make your resolutions and pass them, and get these men to put their money into the building of furnaces. And I tell you, you want furnaces.

Mr. Merritt's motion was carried. MR. JAS. B. HAMMOND, (Sudbury)—moved "With a view to bringing nickel into more general use, its claims as an economic metal being now fully established, that the attention of the Dominion Government, and the Provincial Legislature be called to the advisability of granting a liberal bonus to the inventor or patentee of a process of refining nickel, which would very materially lessen the cost of production." He said: I have only, for instance, to call attention to the policy of our Dominion Government, with regard to putting on its feet the best sugar industry. I am aware that there are false impressions being circulated with regard to the extent of our nickel country; and in the interest of the whole country, I think we should call particular attention to the fact that not one third of the deposits of a first class character are being worked; and there is an impression going about that certain individuals, having bought up, say 30 to 40 acres a piece, have got a corner on nickel; which we from that part of the country, know to be contrary to the facts.

With regard to nickel as a metal, we have heard what has been said by Mr. Merritt regarding iron, and the disadvantages under which the iron industry has labored. When two industries are weak, why can they not be married so to speak, and help each other through life. The parents are the Government, and the country. Here are two young industries, and they wish to be united in the bonds of industrial matrimony. In that respect I cordially support Mr. Merritt's motion.

Now, with regard to this motion, in connection with nickel as a separate metal. There is no one who will not agree but there is a vast future for nickel *per se*. The great drawback to the development of that metal industry in Canada has been the cost of refining it. We have it quoted in the market at nearly 50 cents a pound. The great advantages and properties of nickel used in employments of all kinds in connection with wares, cooking utensils, &c., &c., is that it is something which is not attacked by acids. I can see, in view of that, that we would simplify the circulation of the metal ten thousand times over if we could reduce the cost of refining it.

This, then, is a question for the Government to decide, whether they are not losing a great opportunity of engaging the attention of capitalists, or even lending the money and taking the mortgage, as I understand it, to help this young industry on its feet.

This motion particularly calls attention to the fact that we should first reduce the cost of refining, and then comes the consumption. The present processes of refining nickel are chiefly by chemical methods, and are expensive. Whether electricity will solve the question time will tell.

MR. G. MICKLE, (Sudbury)—In seconding Mr. Hammond's motion, I may say that we stand in this position; we have the greatest deposits of nickel in the world; but the consumption is so small that a few companies can supply the demand, and these deposits must be worked. With a view to increasing the consumption, I would support this resolution. No one now seems to dispute the value of nickel, not only as an alloy, but as a distinct metal.

I might say, I saw an advertisement by a German nickel firm, stating that nickel was the material of the future; and that it was not affected by acids; that it never lost its full value as a metal; and offering to buy back all utensils bearing their trade mark.

The only obstacle seems to be the cost of refining, and with a view to the reduction of that cost, I second Mr. Hammond's motion.

PROF. C. GORDON RICHARDSON—There is not the slightest doubt that the market for the nickel itself is practically unlimited. The trouble at present which exists in regard to the nickel industry in Canada is that there is a very high wall erected between the producers of ore and matte, and the market for the fine metal. At the present time I believe I would be within bounds in saying that the refiners of nickel and copper matte might be numbered on the fingers of one hand. They practically control the price of matte placed upon the market, and the price of refined metal put upon the market. I am not of the opinion, from what little I know of the industry, that there is any special cost in the refining of these mattes. At the present time the average price I think for the nickel in the matte would not be above 13 cents a pound, and the refiners have the difference between 13 cents in the matte and, we will say, 40 or 45 cents in the refined metal. I

think that this is an immense margin for refiners, and our industry is seriously hampered. I have a letter from Dr. Peters, stating that any company which entered upon the production of nickel matte without being prepared to refine that matte had his hearty sympathies; and therefore I am very pleased to give my support to the motion of Mr. Hammond.

CAPT. PENHALE—Would it not be a good thing for the Dominion Government to pay a man efficient in the business to go over to England and drum up the matter among the capitalists, and tell them what you have in Canada, and what a field there is for their money? In London the money is locked up; they are waiting to invest it. It seems to me that if the Government would spend \$5,000 in that way it would do more good than all the immigration schemes they ever concocted.

Mr. Hammond's motion was carried. MR. G. A. SPOTSWOOD, Kingston, moved "That it would be in the best interests of the country if it should be made compulsory by the Government that railways to be built receiving a Government bonus should be railed and bridged with Canadian iron and steel."

MR. HAMMOND seconded the motion which was carried.

MR. G. MCKAY (Sault Ste. Marie), in the absence of Mr. Thomas Ledyard, Toronto, moved "That it would be in the best interest of metallurgical developments were all fuel used in the smelting and refining of ores and metallurgical products allowed to enter duty free into Canada."

MR. SPOTSWOOD seconded the motion, which after some further discussion was carried.

The meeting adjourned at 5.30 p.m.

McGill Mining Society.

A few years ago the number of students in the mining department of McGill College, Montreal, was so small that it was thought advisable by many to discontinue the teaching of this branch of science. Sir Wm. Dawson and Dr. Harrington opposed this, pointing out that graduates in mining had been far more successful than those of any other department, and it was therefore decided to continue the course. Mr. W. A. Carlyle, Ma. E., a graduate of McGill, was brought back from Colorado as lecturer in mining and metallurgy, and from that time the course started out on a fresh career.

This year there were 25 students in mining, and it was thought that much benefit could be derived from meeting for the purpose of discussing subjects relating to mining.

With this object in view the "McGill Mining Society" was formed last December. The officers were: B. J. Harrington, B.A., Ph. D., *Hon. President*; W. A. Carlyle, Ma. E., *President*; H. Herdt, Sc. '93, *Vice-President*; A. A. Cole, B.A., Sc. '94, *Sec'y-Treasurer*. *Committee*: J. H. Featherstone, Sc. '93; R. A. Gunn, Sc. '94; O. C. Hart, Sc. '95; H. H. Barclay, Sc. '96.

Five meetings were held during the session, and they were very well attended by the students, the subjects being as follows:

1st. The Duties of a Mining Engineer, by Mr. W. A. Carlyle; 2nd. Life Underground, by Dr. Harrington; 3rd. A Debate:—"Resolved that Bi-metallism should be adopted by the nations." Affirmative, J. H. Featherstone, A. A. Cole, B.A. Negative, H. Herdt, R. A. Gunn.

This meeting proved very entertaining and instructive. At the close of the debate a vote of the meeting was taken on the merits of the speeches, which resulted in a victory for the affirmative. At the 4th meeting Capt. R. C. Adams gave a paper on 'Mica and Phosphate' and at the 5th a paper was given by Mr. T. Brown on 'Rock Drills and Air Compressors.'

This being the last meeting of the session refreshments were supplied and farewell speeches were given by the members of the graduating class.

On March 4th, the Society held an excursion to St. Henri to examine the works of the Ingersoll Rock Drill Company. Mr. Gilman, the manager, had a compressor and drill running for the benefit of those who had not seen these working before; and he kindly gave up his afternoon to explaining to the students the mechanism of the drills and compressors in construction.

The students have been asked to take note of any points of interest connected with mining that may come under their notice during their summer work, so as to give the Society the benefit of their observation next winter.

A bright future for the Society may be anticipated if we may judge by the enthusiasm shown this year; and the more sanguine prophesy that before very long the most flourishing society in the University will be the "McGill Mining Society."

The Duty on Mining Machinery.

A deputation from the General Mining Association of the Province of Quebec had an interview with the Hon. Clarke Wallace, Comptroller of Customs, on Wednesday, 9th March, on the subject of a more liberal interpretation of the law respecting the admission of free mining machinery. The Comptroller evinced great interest in the various points brought forward by the delegates, and promised that they should have his careful consideration. Difficulty being experienced by the collectors in discriminating between what class and kinds of machinery were made and those which had to be imported, it was agreed to submit a statement for reference to the Department.