

AMERICAN INSTITUTE MEETING.

MR. BELL'S motion having been adopted, Dr. James Douglas, President of the American Institute, took the Chair.

DR. RAYMOND—I have a list of some 30 papers to be presented at this meeting, but as I understand we are to have another meeting at Halifax, perhaps they had better be deferred until then.

DR. DOUGLAS—I would like if some local members would give us some remarks on the resources of the locality.

EARLY COAL MINING IN CAPE BRETON.

MR. JOHN S. McLENNAN—Mr. Chairman, what I know, from an experience of close on 20 years, which with the exception of one or two is more than any one here, is about the coal trade. Some 15 years ago the American Mining Institute came here on an excursion from the Halifax meeting. That was, I believe, the first meeting of the American Institute held in Canada. There were no railroads on Cape Breton connecting with the mainland at that time. There were two railways of ten miles connecting Sydney with the mines. There were five or six different companies operating collieries here, shipping from six to seven months from Sydney harbor. The output was so limited that we looked with anxious eyes at any schooner coming into the harbor to see whether she would come to us or to the rival colliery. (Laughter.) The output was some five, six or seven hundred thousand tons, and that was a rift in the clouds. The General Mining Association, which is represented here by Mr. Brown to-night, has an ancient history beginning early in the century, and there were one or two others which never had the unfortunate episode of a sale by the sheriff, but the other properties had to change hands several times, mostly by forced sale. There was, however, considerable development during the Reciprocity Treaty and times were prosperous, but this was followed by periods of depression during which for a time only one colliery, that of the General Mining Association, was running, and that was exclusively worked for local consumption. This was followed by a gradual development of interprovincial trade about 1879, when we began to send coal into the St. Lawrence. In the early nineties the mines now owned by the Dominion Coal Company had only reached an output of some 800,000 or 900,000 tons. There was not much to do in the winter, and we used to meet at each other's houses and talk over what we would do when the mythical American syndicate came along with many millions of dollars in their pockets. I remember one man who, least he should hand over too great a property to one of these mythical American syndicates to which his mine was under option, refrained for a year from putting a bathroom in his house. (Laughter.) However, there may be a moral connected with that, as he has now retired to ease and affluence, while others who put in bathrooms are still laboring in the coal trade. However, in 1893 Mr. Whitney became interested in the coal industry of Cape Breton, and the chief point of his interest was a thing which has marked all his enterprises, his faith in sound general principles. (Applause.) He felt that coal of a fair quality and suitable for the ordinary purposes for which coal is used, within easy reach of the seaboard all the year round, was bound to become valuable, and all the development which you see illustrates the point at which our president has made a success. (Applause.) This is an example of what Dr. Douglas has referred to. The capital invested in the Dominion Coal Company was largely American, but owing to its success under the able management of Mr. Whitney—the output in 1883-84 was 800,000 tons, and this year it will be 2,250,000 to 2,500,000 tons—when it came to forming the Dominion Iron and Steel Company, owing to the success of his previous enterprise, the great bulk of the capital which has gone into it is Canadian, and this capital was raised in Canada with the utmost ease. (Applause.) While we had the utmost confidence in the physical conditions we felt doubly assured with the benefit of Mr. Whitney's sagacity and ability. He is one of the comparatively few Americans interested. A few years before we had all been seeing the advantages of consolidation but had never been able to accomplish to. (Applause.)

THE CHAIRMAN called upon Mr. R. H. Brown, but that gentleman thought it was hardly fair to call upon him without warning. "All I can say," he continued, "is that the General Mining Association was formed about 1826. When my father came out to this country he took a lease of mines for the General Mining Association in England, and it exists there up to the present time. Mr. McLennan speaks of other companies as having fallen into the sheriff's hands. The General Mining Association has never done that. It is flourishing up to the present moment, except that just now they have sold the property out to another company which will manage it in their place. I have been managing it for the last 36 years." (Applause.)

THE CHAIRMAN—They have large interests both on the mainland and on the Island?

MR. BROWN—They had all the lands in the Province. One of the English Kings gave it to the Duke of York, his brother. The General Mining Association was formed, and in 1857 they made an arrangement with the Province by which they handed over all but what they retained. First of all, they sold out the old Albion mines, subsequently the Springhill Company and the Victoria mine. They retained the Sydney mine.

THE CHAIRMAN—Long ago when I took my first examinations in surgery and anaesthetics it was a debatable question as to whether the operation should be performed immediately after the accident or wait until the effect of the shock had passed. I have often felt that that was still an open question, whether to call upon a gentleman suddenly to make remarks or to let him have the prolonged agony of thinking as to what he ought to say; therefore, out of fear we have not advised Mr. Poole that we are going to ask him to make any remarks.

MR. HENRY S. POOLE—My recollections in connection with the coal trade make me feel disposed to look backward rather than forward. To illustrate the smallness of the trade, I may mention one man who went down one day and cut the coal; the next day he was endeavoring to draw it to the surface; the third day he was to ship it and put it on board. (Applause.) My experience was not quite as extensive as Mr. Brown, who, was the previous speaker, but still in my time I have played many parts. I was for a short period manager of the mine, and at the same time acted as consular agent, then as shipper, and then as health officer, requiring me to make out some 17 papers for the clearance of each vessel. There is one feature of this neighborhood that is of interest, and that is in connection with the vast area that once existed is now only in part available to the coal miner. When you take the map which has been shown on the programme and presented to each member, you will notice that all the seams of coal dip seaward. It has always been a matter of discussion as to how far they do now extend from the shore and how far they may be mined. There has been an erosion of something like three feet a year from the cliffs to the coal fields. That might be a basis of calculation as to how long this denudation has been going on. We know that there are seams of coal dipping seaward that many miles, many miles distant. Some speculators, anticipating the success of the mechanical engineer, have taken areas lying several miles seaward from shore, in anticipation of ultimately mining the coal contained in them.

THE CHAIRMAN—Is there any distinction between the Cape Breton and the Newfoundland coal?

MR. POOLE—I understand it is supposed to be lower carboniferous, not quite the same as the Sydney coal.

MR. BROWN—There seems to be no relation at all between the two coals of Newfoundland and Cape Breton.

THE CHAIRMAN—I know we have all been interested in what we have seen to-day. My particular interest is in copper metallurgy. We see that all the works from the crude article to the finished steel are going to be performed in the small compass of these works of to-day. Most steel works make their coke at a distance and import it to their works, and therefore the works which we have seen to-day seem to be unique. Perhaps Mr. Hinchman would give us some comparative remarks on what he has seen to-day.

AMERICAN OPINION ON THE STEEL PLANT.

MR. C. HINCHMAN, of Philadelphia.—So far as the works we have seen to-day are concerned, they certainly seem to be laid out on the most modern and perfect plans that any engineer could devise, and will produce good results. So far as the works in the United States are concerned, their's has been a varied history. Some of them have been failures by reason of their being located too far from their raw materials or market. So far as mining in the State of Pennsylvania is concerned, we have had the largest development of the steel industry of any single State in the United States, although our Pennsylvania ores are generally better suited for foundry and mill iron than for Bessemer, and we have to draw our supplies from the Great Lakes. Most of the companies west of the Alleghenies draw their ore from the Lake Superior mines. The companies to the east of the Alleghenies draw their stuff largely from foreign sources, from Cuba, from the Mediterranean and from Spain, all of which furnish good Bessemer ore supplies. We who know what coal we have in Pennsylvania think there is hardly any coal to equal the coking coals of Western Pennsylvania for making Bessemer pig. Our coal makes such a quality of coke that it is carried as far west as Chicago and the Mississippi valley for steel making, and will stand considerable transportation. Those of us who are interested in Bessemer works feel that we can live in Pennsylvania after some other parts of the country will have to shut down. I know that the development of Bessemer ore on the Great Lakes is already great enough to supply all our works in the United States, and we are already exporting rails and bridges to China and into Egypt and Australia. Our present Minister to Russia built the first railroad between Duluth and the iron or Vermillion range, 75 miles back of Duluth, and is entitled to a great part of the credit for the development which followed on both the Vermillion and Mesaba iron ranges. I am glad to say that his reward came during his lifetime, as he doubled his fortune after he was 70 years of age. I hope Mr. Whitney and his associates may do the same. (Applause.) I have always believed that iron would be found here sufficient to supply all the wants of the eastern part of Canada and to export largely. We found some ore in the Bay of Fundy that analyzed very well, but the trouble was that we could not find enough of it. I never thought of going to Newfoundland, so then we began to look into New Jersey and Virginia for Bessemer ores, and we got very good ore there, but it was a small deposit and finally worked out. We then, in connection with the Bethlehem Iron Company, turned our attention to the development of Cuban ores, being too far east for Lake Superior ores. We developed the Iron Company and built a road from Santiago de Cuba thirty miles, and that has been for some years the source of the larger supply of the Pennsylvania and Bethlehem Steel Companies. I think that before long we will be exporting pig to England. I do not see why with the shorter distance of transport Nova Scotia should not develop a trade with England and Germany as well as her own. (Applause.) So far as the pig going into the United States is concerned, we should have to have reciprocity between Canada and the United States before that could be brought about, our high duty preventing the importation of any but special brands in small lots. Twenty years ago the well known iron master, Abraham S. Hewitt, favored reducing the duty upon pig from \$7.00 to \$3.50 per ton, but we were not ready for it at that time. Had that been adopted I believe we would have had a more stable business and fewer booms and depressions than have occurred in the iron business due to undue stimulation and attraction of furnaces where they could not be profitable without a duty. (Hear, hear.) When our late lamented Alexander L. Holley was superintendent of the Pennsylvania Steel Works, we had a call from the general manager of the Cammell Company, the foremost steel makers of Sheffield, England, shortly after Mr. Holley had introduced the three shifts in the 24 hours, thereby increasing the product 50 per cent. over anything that had heretofore been done abroad. So far we have managed to export our surplus, and I think that both China and Japan are going to open up a very large market to the steel works of the world. It was my duty at that time to go with Mr. John Fritz and others to Russia and consider the plans for building steel works to supply the rails for the Pacific Trans-Caucasian system, a road since completed by the Russian Government to the Pacific. We found deposits of Bessemer ore, some of which have since been developed, at Krivoi Rog. The engineers reported that the coal examined was more broken up than we had expected to find it, all the veins in Southern Russia pitching at steeper angles than we were accustomed to in Pennsylvania, but the conclusion our gentlemen came was that with the application of the same amount of brains, money and energy would pay as well in our own country. The opening up of China, which we are now entering upon, is going to afford a great market for the surplus products of all the leading nations. In the next ten years I should not be surprised to see 10,000 miles of railway built in China. They need it. There are 400,000,000 of people there, and they will readily consent after they have seen the necessity and the advantages of it. (Applause.)

DR. R. W. RAYMOND—Remembered when in 1873, as first president of this American Institute of Mining Engineers, he attended a meeting at Liege, in Belgium, he told them that if they came to America he would show them Bessemer converters making 25 tons a day where before they made 15. This iron master to whom Mr. Hinchman referred was afterwards going over the works of Edgar Thompson, jr., when he was told that he would not find an ingot in the works that was cool enough to sit on. That was the history of the Bessemer works in those times, and I think that Alex. Holley took the English industry by the scruff of the trousers, and when they were making 15 tons a day we were making 25; when they went up to 25 we were making 50 tons a day, and when they made 50 tons we went up to 100, and they sent a man to Bethlehem to remodel his works, and who made 100 when we were making 250. We forced the tail of the procession to march. (Applause.)

MR. HINCHMAN—As an illustration of the growth of the industry, I may say that it was originally more trouble to furnish a railroad with ten tons of rails than it is now 100,000 tons. Mr. J. Edgar Thompson, the far-sighted president of the Pennsylvania road, has probably done more to establish the steel industry of this country than any other single railroad man, and most of them have followed in his footsteps, but the man who is chiefly entitled to credit for mechanical development was Mr. Alex. L. Holley, who brought the Bessemer patents to this country.