

which at 5 cts. per 1,000 ft. will be 15 cts. per ton of coal. The quantity of tar obtained will be about 10 gallons per ton of coal, which at 1 ct. per gallon, half the price obtained in Boston, would give 10 cts. per ton of coal. Thus the value of the ammonia, gas and tar obtained from each ton of coal will be not less than 74 cts., while the cost of manufacturing the coke and by-products will only be about 10 cts."

These estimates, if they prove reliable, certainly present very favorable figures. The construction and operation of the Otto-Huffman coke ovens are pretty well known, and need not be described here. At the time the visit to the plant was made the several batteries of ovens were in various stages of construction, some of them being practically completed and others only just begun. The construction, as far as could be seen, bore every evidence of excellent workmanship and materials. The contract price of the plant is not known, but the preliminary estimates of the company placed it at \$1,250,000, or a little over \$3,100 per oven, which is certainly a low figure.

Steel Plant.—The site of the steel plant is directly on Sydney Harbor and comprises 460 acres of land and some 346 acres of water. In a future issue we hope to give complete details of the plant and its equipment so that here only its more general features will be mentioned. Briefly summarized the plant will comprise blast furnaces and open-hearth furnaces having a capacity of 1,400 tons of steel per day, blooming mills, general machine shop and foundry, unloading piers and wharfs, and all necessary subsidiary buildings. The only part of the plant now completed and in operation is the machine shop and foundry, which is 60 x 480 feet in plan. The blast furnace plant, consisting of four 350-ton furnaces, is next furthest advanced; indeed, the company expresses the hope of putting one of the furnaces in blast early this fall. The other main buildings had not advanced beyond the foundation work in any case. It may be noted in passing that this foundation work has been of a very heavy character and that concrete has been used almost exclusively.

Practically all of the construction materials and machinery have been imported from the United States, almost none of it being obtainable in the Province. Skilled labor has also come from the States, and the ordinary laborers are for the most part inhabitants of Newfoundland. The contractors for the blast furnaces are Riter & Conley, of Pittsburgh, Pa., and the blowing engines are to be furnished by the Edw. P. Allis Works, of Milwaukee. The fire-brick and cement used are also imported, but much of the general structural work is being furnished by the Dominion Bridge Company.

In addition to the steel making plant proper, the works when completed will comprise extensive railway yards, water-supply and drainage systems, electric lighting system, boarding and lodging houses for employés, hospitals, offices, storage houses, yards, etc. The water supply will come from Sydney River about five miles from the works, where a dam is being constructed, and will amount to 3,000,000 gallons per day. About eight miles of mains will be included in the distribution system. The general layout of the works is along a comparatively narrow area of ground about two miles long, following the harbor front. At one end are the shipping piers, followed by the blast furnace plant, open-hearth furnaces, blooming mill, machine shop and coke plant. Nearly 20 miles of railway track will be required to connect the various parts of the plant and yards.

The manager of the Dominion Iron and Steel Company, of which Mr. Henry M. Whitney is President, is Mr. A. J. Moxham, Assoc. M. Soc. C. E., who will be remembered as having been President of the Lorain Steel Co., of Lorain, O., previous to its absorption by the Federal Steel Co., and also as having been associated for many years with Mr. Tom L. Johnson in the Johnson Co., with extensive works at Johnstown, Pa., for the manufacture of street railway rails, switches and track supplies.

LUNCHEON AT THE STEEL WORKS.

At noon the visitors, who had spent an interesting morning going over the new plant in course of construction, were entertained to luncheon in the spacious dining hall recently erected for its employees by the Dominion Iron and Steel Company. After luncheon had been served:—

MR. A. J. MOXHAM said:—Gentlemen of the American Institute of Mining Engineers, the Canadian Mining Institute and of the Mining Society of Nova Scotia, if you were not mining engineers I would commence with a few words of apology for the meagre hospitality that we have been permitted to extend to you, but as you all know with all industrial matters and in all new countries the first difficulties in regard to the inner man are always great. We here have had to think a great deal more of sand and cement and stone than we have had of ourselves. But while we cannot do very much in that line, we will try and make it up by extending to you the very heartiest of welcomes, and give you many, many thanks and ask you to forget a few of our little home trials. To you one and all we extend the very heartiest and warmest of welcomes. (Applause.)

DR. JAMES DOUGLAS:—Mr. Moxham, we desire—at least I and the Institute which I represent do—to thank you personally for the greeting you have extended to us and the substantial way in which you have expressed it. If it were merely to thank you for this lunch, we would use one of the stereotyped phrases used to return thanks, but it would be improper to stop short at that. I think that we see here around us and realize more than any of us ever dreamed of, whether we belong to the American Institute of Mining Engineers—who recollect are Americans and not United States—or whether we belong to the Canadian Institute of Mining Engineers or to the Mining Society of Nova Scotia. We have all had dreams in the past, and we believe really and not merely dream, I trust, that we have good substantial grounds for believing in the great possibilities of the mining and metallurgical advancement of the Dominion, and here for the first time we see something I won't say approaching the realization of our dreams, but far exceeding it. Any one who has ever attempted heretofore in Canada to develop these iron industries have been more or less proceeding on false grounds. Of course, we remember that old attempt of the forges at Three Rivers utilized in the old French times, and since that the vacillating success on bog iron ores. In my recollection two notable attempts have been made to make some use of the iron ores of the Dominion. Both of them began at the wrong end. One was down at the Moisie, which was operated by Mr. Markland Molson; the other was at Londonderry, where instead of following the old lines they began to make steel direct by an untried method simply because it carried the name of Siemens with it. At Londonderry I believe they were wrecked upon Siemens' direct process. But here we find capital from across the line coming into this wilderness and erecting furnaces which from first to last has as its object the manufacture of coke and the saving of its bi-products, or to the end the manufacture of steel upon methods and processes well tried and well tested and of the most advanced and improved description. I think, therefore, as I said, that it would be altogether improper to confine our thanks to the Dominion Iron and Steel Company simply for the good things they have spread before us without extending our thanks to them for the far higher and more magnificent reason that these gentlemen have come here from the ends of the earth, and are erecting works, which will be a model

not only for Canada but for the whole world. I ask you to join with me in returning thanks not only for these immense mining works but to the Dominion Iron and Steel Company. (Applause.)

MR. CHARLES FERGIE:—On behalf of the Canadian Mining Institute, I beg to thank you for the kind manner in which you have received us to-day and for the opportunity you have afforded us of going over these extensive and interesting works. I can only say that I wish you every success and prosperity.

MR. J. F. LEWIS:—I wish to add one word in endorsing what Dr. Douglas said regarding the establishment of such works as this for the benefit of Canada. When we started from Quebec I thought we were going to visit Cape Breton, but since I have arrived here I have made up my mind that we are visiting New America. We see evidences of the great progress that has been made towards building this wonderful establishment of steel making and of all kinds of coke-making, and it seems to me, and I said to myself that this is surely an answer to prayer, because for the ten years that I have been doing business in Canada I have been praying for just such works as these. It is just what Canada needs, and I wish to say to you all that there has nothing been done towards forwarding the growth and extension of Canada that will at all equal these works.

DR. R. W. RAYMOND:—Of course, Mr. Chairman, I can easily appreciate Mr. Lewis' sudden piety when he finds what has been done in a wilderness in erecting the very works the Rand machine shops in Sherbrooke needed. But I have no doubt there is piety at the bottom of it. I do not believe that this great iron industry could be established as a mere pleasure. There must be duty in connection with it, even in the form of a tariff (applause). I can remember when I came up here nearly a dozen years ago. I came up to examine the iron resources, but unfortunately the utilisation of the Newfoundland ore did not occur to me, and I reported that there was a great deal of quiet and a great deal of piety and not much iron ore. I am sure that every one of us feels the progress that is being exhibited here as apart from our own progress. What we see here is a part of our own instruction and a part of our own triumph. I find gentlemen who are executing all the vast plans members of the American Institute of Mining Engineers on the other side of the line—if there is anyone who knows where the line is: I do not—and I have not had anything foreign happen to me except when the porter asked me for the key of my trunk. I have been considerably amused at my friend, Dr. Douglas, who was born in Canada, posing as an American from the United States, and my friend, Mr. James Lewis, who was born in the United States, posing as the most loyal of Canadians, and if you come to that, our own Institute, which belongs everywhere on the Continent, pretending to go around as if it were visiting strange places and be received by itself and thank itself for the entertainment which it gives itself. This is what makes the perfect harmony, as if a man meets a man who is, as Horace says "*animae dimidiaum meae*" (the other half of his soul) the two are in such perfect harmony that both his thanks and the entertainment becomes a soliloquy. We are the most magnificent hosts and the most cordial guests of whom history gives any knowledge. (Laughter.)

SHIPPING PIERS OF THE DOMINION COAL CO.

Luncheon over the members were taken over to the new furnace plant and the site of the new docks, the whole presenting a scene of great activity. Thereafter a visit was paid to the great International shipping piers of the Dominion Coal Company.

PIER No. 1.—900 feet beyond high water mark, stands 27' 0" above high water mark, double track, empties returned to yard by radial table, and return track laid between two outside tracks, which are used for shipping. Coal shipped direct from car to chutes to hold of vessel, and also by Ludlow towers and buckets; capacity 10,000 tons in 24 hours.

PIER No. 2.—650 feet beyond high water mark, stands 37' 10" above high water mark, double track, shipping carried on by chutes from cars to vessel's hold. Empties run by gravitation to drop-table at end of pier, which works automatically, dropping cars to low level track, which is laid directly below upper tracks, whence the cars run by gravitation to assembly yard, capacity 10,000 tons in 24 hours. Built of South Carolina yellow pine, on creosoted piles, and protected by creosoted cribs at intervals of 100 feet. Built in 1898.

MEETING IN THE ROSSLYN RINK.

About two hundred mining engineers and others interested in mining assembled in the Rosslyn Rink, Sydney, where a meeting had been convened under the auspices of the Canadian Mining Institute. In the absence of Mr. Fowler, President, Mr. Charles Fergie, M.E., Senior Vice-president, was called to the chair. Mr. Fergie called upon His Worship Mayor Crowe to extend a welcome to the visitors on behalf of the Town of Sydney.

MAYOR CROWE:—Mr. Chairman, and gentlemen of the Canadian Mining Institute, as well as of the American Institute of Mining Engineers and the Mining Society of Nova Scotia, I suppose it is fitting that I, as chief magistrate of this town, should bid you a very hearty welcome not only to Sydney, but I hope I may say to the Island of Cape Breton. I have no very extended remarks to make, but I would like to say that the citizens of Sydney and of the Island of Cape Breton are peculiarly interested in having a visit from such a distinguished body of men as compose the American Institute of Mining Engineers. We pride ourselves that we have in Cape Breton a large body of mineral wealth, to some extent developed and being more and more developed rapidly each year. We know your visit this year has been particularly occasioned by a desire to see the work of the Dominion Coal Company and of the Dominion Iron and Steel Company, now under construction. If we have a regret at all it is that your visit should occur this year, when things are somewhat askew owing to the rapid growth of the town, and we cannot entertain you in the way that we would desire, but we trust that what you have seen to-day, and what you will see to-morrow and on Thursday, will induce you to return at some future time. We hope it is not too much to ask a visit in the very near future; we will give you the same welcome as to-day, and we will entertain you in a more becoming manner. I have not much to add except to say that the citizens of Sydney cordially greet you, and we regret that we are not able to put at your disposal the entertainment that you deserve. We have, with the assistance of the Steel Company, arranged for a trip through the Bras d'Or Lakes, and we trust that you will have good weather, and that you will enjoy the charming scenery of a vast inland lake of salt water practically non-tidal, and which is attracting tourists year after year. Let me conclude by again saying that the citizens of Sydney rejoice to see these different societies here, and trust that the time is not far distant when you will return to us. (Applause.)

MR. W. L. LIBBEY:—Mr. Fergie welcomed you on behalf of the Canadian Mining Institute, and I am very glad on behalf of the Mining Society of Nova Scotia to extend you a hearty welcome to our province. You are here to-day, particularly the American members, to see a little of an almost unknown land to you, to a great many of you at least. That was particularly brought to my mind to-day by the re-