

shaft is formed by a carbon block. These blocks are in electric communication on the exterior of the furnace by means of copper bars. The carbon electrodes to which electric current is distributed pass two-thirds of their length into the shaft. The electrodes are prisms 72 centimeters in diameter and 135 centimeters long. Three sets of experiments were made as follows: (1) Electric reduction of iron ore and obtaining different classes of pig, grey, white and mottled. (2) Electric reduction of iron ore containing a definite amount of carbon in the charge, with a view of ascertaining the amount of electric energy absorbed in the production of one ton of pig iron. (3) The manufacture of ordinary steel of good quality from the pig manufactured in the preceding experiments. The electric energy absorbed per ton of pig was found to be 226 horsepower years. The processes were quite satisfactory to the commission.

Of course the question of cost is an important factor. The following are the figures which make up the approximate cost of producing a ton of pig iron: (1) Ore (hematite) metallic iron 55 per cent., 1.842 tons at \$1.50 per ton, \$2.76. (2) Coke for reduction .33 tons at \$7 per ton, \$2.31. (3) Consumption of electrodes at \$5 per 220 pounds, 77 cents. (4) Lime, 30 cents. (5) Electric energy 226 horsepower years at \$10 per e.h.y., \$2.26. (6) Labor at \$1.50 per day, 90 cents. (7) Different materials, 20 cents. (8) General expenses, 40 cents. (9) Repairs, maintenance, etc., 20 cents. (10) Amortization (machinery and building), 50 cents. Exclusive of royalty, \$10.60.

In his conclusions Dr. Haanel points out that the results obtained at Livet were the results of experiments in furnaces not specially adapted to the work required to be done. With the improved furnaces of which the commission has secured detail drawings, better figures can be obtained. He remarks that the processes of electric smelting must yet be regarded as in the experimental stage, no plant existing at present where pig iron is commercially reduced to pig by the electric process. The more remarkable therefore it appears that experiments made off-hand, in furnaces not at all designed to be used for the production of pig, should give a figure of cost which would enable an electric plant properly designed and managed to compete with blast furnaces.

As experience is gained better and cheaper methods will be introduced, and it is reasonable to suppose that as the electric process is applicable to the smelting of all other ores, such as copper, nickel, silver, etc., it can be successfully applied to the production of iron and steel. The full text of Dr. Haanel's report will be awaited with much interest.

THE ST. LAWRENCE ROUTE.

The St. Lawrence route, which acquired such a bad reputation last season, bids fair to retain its bad name, three disasters having occurred during last month, within a few days of each other. The Allan liner Hibernian went ashore near Cape Ray, Newfoundland, and is a total wreck. The Turret Bay, of the Inland Navigation Co.'s fleet, and one of the best of the coal carriers of the St. Lawrence, went ashore on St. Paul's Island, near Newfoundland, and all her crew but nine were lost. The Vancouver, of the Dominion line, went ashore near Matane, but fortunately got off without injury, after a detention of about 12 hours. All these accidents are attributed to fog. It is to be hoped that the establishment of seven wireless telegraph stations, which the Dominion Government has contracted with Marconi to have in operation by next season,—in fact four of them are

promised by August next—will have the effect of preventing such disasters in future, for fortunately the electric current is not interfered with by fog. The four stations to be established at once will be at Fame Point and Heath Point, and at Point Amour and Belle Isle in the northern channel. The three other stations will be at Cape Race, Sable Island and a point near Canso.

—We have to congratulate our esteemed contemporary, the Engineering News, of New York, on having reached its thirtieth anniversary. Commenced as a modest monthly in Chicago, under the name of The Engineer and Surveyor, it soon became a weekly, and it has prospered in every way, and is now one of our most valued weekly exchanges. It was established by George H. Frost, who still remains its active head. We wish it continued success.

NEW CATALOGUES.

Copies of the following catalogues can be had by those interested on referring to the Canadian Engineer:

The Goldie, McCulloch Co., Galt. Heavy Duty Engines.

The Jenckes Machine Co., Sherbrooke, Que. Standard Crushing Rolls.

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Canadian General Electric Co., Toronto. Street Fixture, Ceiling Fan, Motors, Noark Fuse and Service Boxes, Noark Single Branch Cut-out Blocks.

H. W. Petrie, Toronto. Monthly Stock List of New and Second-hand Boilers, Engines, etc.

Works of Westinghouse Electric and Manufacturing Co., East Pittsburg, Penn. Their Industrial and Sociological Aspect, illustrated with Camera Pictures.

Fairbanks, Morse & Co., Chicago. Pumping Machinery, Jack-of-all-Trades Engine, Dynamos and Motors.

Browne & Sharpe Manufacturing Co., Providence, R.I. General Catalogue of Tools, etc.; Clamp Ring for Micro-meter Calipers.

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Diamond Saw and Stamping Works, Buffalo. Saws.

Kynoch, Ltd., Birmingham, England. Roller Bearings.

Pittsburg Meter Co., East Pittsburg, Pa. Acme Dry Gas Meter.

John Steptoe Shaper Co., Cincinnati, O. High Grade Machine Tools.

Jeffrey Manufacturing Co., Columbus, O. Conveyers, etc. Coal Cutting Machinery.

DeLano-Osborne Engineering Co., Toronto. Bridges.

James Morrison Brass Manufacturing Co., Toronto. Fairbanks Bathroom Scale.

—The Ontario Association of Stationary Engineers held its annual meeting in Brantford, May 23rd, when the following officers were elected: President, J. G. Bain; vice-president, Geo. Fowler; registrar, W. G. Blackgrove; treasurer, Charles Moseley; auditors, W. J. Webb, H. E. Terry, all of Toronto. The Board of Examiners, of whom there are twelve, were re-elected. The next meeting is to be held in Toronto.