

Concentration of Iron Ores.—Probabilities based on its Success.

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The business of crushing low grade magnetic ores and separating the mineral from intermixed rock by various magnetic adjustments has become an established industry in the United States. Some 26 mills are in operation, erected at cost ranging from \$15,000 to \$300,000. The plants engaged present features of no very distinctive type, and for each is claimed rival qualities of economy and efficiency, which will be determined ere long by extensive experience. The subject of concentration has won the attention of British iron-masters, to whom the proposal to render hematites magnetic by calcination, to be followed by the use of the magnetic separator, seems to commend itself as a practical method of enriching the furnace charge and thereby reducing the cost of fuel. These processes are of interest from their remarkable success in dephosphorization. They have shown conclusively that phosphorus accompanies the ore chiefly if not altogether in the form of apatite in the gangue, possibly as a phosphate of alumina in some ores. The increase of the sulphur content by the concentration process is its sole disadvantage, but it brings out the benefit of initial roasting, which also serves to facilitate the disintegration of some ores. The preparation of iron ores for the furnace is, in consequence of the attention directed to it by the success of the magnetic concentration process, likely to engage much immediate attention. To the furnace manager the subject is obviously commended, but to the mine owner it means the gift of value to properties which have after years of operation been put out of the market by mines offering richer ores, or which have never invited development by reason of low iron content. The first case put is that of several mines in New Jersey and New York, whose record has not supported the popular superstition that ores increase in richness in proportion to their depth. The extent of such property is probably not generally known. The State of New York alone has 14 anthracite, 1 coke, and 8 charcoal furnaces out of blast. There is no scarcity of iron ore, the output for 1888 having been 1,266,000 tons. It was only 4,000 tons less in the year 1879-80. A recent report on the iron mines of the state shows that 30 mines of magnetic ore, 8 of heratite, 11 of bog ore, and 3 of fossil ore are idle. One of the causes assigned for this state of things is the competition of richer mines, in which ore is won at less cost. Within 40 miles of New York the Peckskill mines occur at the southerly end of a range of magnetites, limonites and carbonates, extending 60 miles in length through Putnam, Dutchess and Columbia Counties. The success of large concentration works at the Tilly Foster mine attracts attention to the lean ores of this great iron range, and operations are in progress for the extension of concentrating enterprises. It is probable that ere long the importation of Spanish ores will receive a check from the competition of the product of New York and New Jersey concentration mills. The duty of 75 cents a ton has not interfered with the development of the Juragua mines in Cuba, the property of the Bethlehem Iron Company, from which the yearly output has reached 266,000 tons. Another large Cuban mine of rich magnetic ore is under development, and the extension of trade between Cuba and the United States consequent upon the recent reciprocity treaty with the island is likely to help the mining interest. Over against the successes which the concentration process may win must be set the cheapness with which the hematites of the Southern States are mined, and notably the development of newly discovered mines of great extent in Virginia. This State is coming rapidly to the front as a producer of coal and iron, and there are features in her position which make it altogether probable that she will attain an industrial development which will soon secure for her the very front place in the Union. The recent extension of mine railways in the Pyrenees, and the introduction of machinery to aid the cheap labor of the Spanish mines, will afford American furnaces on the Atlantic coast another competitor to deal with for cheap ores of high quality. In fact the various sources for supply which have been traced leave no room for doubt that on the sea board the American iron making interest is practically independent of the great ore producers of the North-Western States. While Chicago enjoys exceptional facilities for distribution along the path of western extension, it does seem that the south has more varied resources, a wider range of production, and a more hospitable sky than the western plains. The situation sketched indicates rather intense competition than that there shall be any friction which will hinder western progress. The Eastern States have had to follow the chariot wheels of a westward moving force, but the regenerated South moves on another line with new energies developing at every step of her progress. Is Canada likely to come in for any favors, or any degree of regard, that will help the development of her mineral interests, while new enterprises are not only absorbing American capital, but bidding largely for foreign syndicates and foreign shareholders? This question need encourage no pessimism, but the rather provoke energy and enterprise. Without these foreign capital will be of disadvantage rather than gain to us.

The report of the Ontario Inspector of Mines presents a recommendation which merits the consideration of the newly created Bureau of Mines. He says, "Several gentlemen largely interested in the development of the iron industry in Eastern Ontario have suggested that test

borings throughout the principal ore occurrences in that district are a necessity to determine their extent and value. The *Iron Age*, the leading journal of the American iron trade, in commenting on the report of the Ontario Mining Commission, suggests that the quantity and quality of our eastern ores have not been demonstrated to the satisfaction of American investors. This opinion, though controverted, is still current with our American neighbors, and no answer so conclusive can be given as proper tests conducted by a competent expert in deep drilling in the magnetic deposits. The results, it is contended, would be invaluable to the investor as well as to science. Sir Richard Cartwright gave the following as his view on this matter: "As far as I can form an opinion, I am inclined to believe that the very best thing the Government of Ontario could do would be to secure the services of a thoroughly competent Swedish mining engineer or iron-master, and get this gentleman to devote some months to the study of the mines of eastern Ontario. I think most of the Swedish iron furnaces work on charcoal and often with the assistance of water-power, and that the surrounding conditions found here more nearly resemble those existing in Sweden than anywhere else. The Government would then be in a position to decide whether they would grant any public funds to promote developments, or what other steps they would take."

Phosphate Shipments from Montreal.

The following are the official returns of the quantities of Canadian phosphates shipped to Europe from the port of Montreal from July 21 to date:

DATE	NAME OF VESSEL	DESTINATION	SHIPPER	TONS
July 22	SS. Cynthia	Hull	Lomer Rohr & Co.	60
27	" Gleniffer	London	Millar & Co.	273
28	" City of Lincoln	Liverpool	Wilson & Green	500
28	" "	Liverpool	Lomer Rohr & Co.	120
29	Bark St. Julien	Cardiff	Wilson & Green	300
Aug. 1	Ship Mabel Taylor	Liverpool	Wilson & Green	370
1	SS. Swedish Prince	London	Lomer Rohr & Co.	30
1	" "	London	Millar & Co.	75
1	Bark Columbia	Glasgow	Lomer Rohr & Co.	80
1	SS. Fremont	London	" "	157
10	" Princess	Grimby	" "	125
11	" Osmanti	Liverpool	Wilson & Green	220
				2365

SHIPPER'S RECAPITULATION.

	Tons.
Lomer Rohr & Co.	1122
Wilson & Green	1000
Millar & Co.	303
Total shipments to date	2365

RECAPITULATION OF EXPORTS.

	Tons.
Liverpool	1210
London	590
Glasgow	80
Cardiff	300
Hull	60
Grimby	125
Total tons exported	2365

Phosphate Quotations.

Advices from London under date of August 12 are as follows:

"Our market here continues dull and lifeless, but with the advancing season we may hope to see a little more moving shortly. Meanwhile, however, there is no lack of supplies, and especially Floridas are offering liberally.

"From Liverpool the reports are of a similar tenor. We are advised that phosphates of good quality are too plentiful and difficult to sell. With firm offer of 80% they think business might be possible at 1s. delivered weights. 70% Floridas have, we are told, been sold at 9½d. c.i.f., but on the other hand, still lower grades are rather scarcer, and 60% is quoted at 10½d. delivered weights.

"As regards Hamburg, we hear that Canadian 80% is being offered there at 12d. per unit, and that a sale has been actually made at that price, but it is reported the sellers had a special object in making the sale in order to depress the market to cover themselves for bear sales made some time ago."

The American Sandstone Industry. A bulletin issued by the Department of the Interior, Washington, in relation to the sandstone industry, says the amount of sandstone produced in the United States in 1889 was 71,571,054 cubic feet, valued at \$10,816,057, while for 1880 the value was only \$4,780,391, an increase during the decade of \$6,035,666, or 126.26 per cent.

The Jeffrey Manufacturing Co. of Columbus, Ohio, have in the hands of the printers, a revised Illustrated Catalogue and Price List showing all the chain links and specialties manufactured by them. A wrought chain is one of the latest additions to their already large list of chains. This Company have the largest line of chain links from which to select, of any manufacturer in the world and their list should be consulted by both the dealers and users of such machinery in general.

MINING NOTES.

[FROM OUR OWN CORRESPONDENTS.]

Nova Scotia.

Cariboo District.

The once productive Lake lode has been doing nothing for some time but pumping water, and authentic reports concerning the mine are lacking.

The Dixon property continues to produce largely, and from present appearances will maintain its out-put for some time to come.

The Halifax Mining and Prospecting Co. have ceased operations in this district, and the affairs of the company have been settled here by the manager, Mr. Edward Whidden.

Darrrs Hill.

The management report a scarcity of labor, and a shortage of quartz on that account. The western stopes show a larger lode than usual, while the eastern stopes, though showing large bodies, are in low grade rock. The mill continues to give great satisfaction.

South Uniacke.

Reports from this district say Messrs. Thompson & Quirk are expecting bigger returns than usual, the quartz raised being of exceptional richness.

Work on the Nitherow property is reported satisfactory, the grade of the quartz being better than for some time.

No encouraging news is reported from the Neilly property, although the shaft is still sinking.

Waverley.

The lodes of quartz found near the Rutherford farm, about two miles from Waverley, have recently been tested with a reported result of \$3 to the ton. The property has changed hands, and a small crew of men are at work prospecting and getting ready to open up the property. The lodes are near a good water power, and should be worked very cheaply.

The Lake View Co. closed down the 1st of August, the pumps, however, are still keeping out the water.

The Sophia Mining Co. have lowered the water in the Tudor lode sufficiently to commence stoping in the western end. No reports as to grade of rock have been received.

Renfrew.

The water in the Ophir lode is below the 250 ft. mark, and a strong lode eight inches thick is visible. This will be opened out next month. Considerable uncertainty exists as to the depth of the old workings, the greatest reported being 400 feet, but the present management think this figure too large.

The Free Claim remains closed down.

Gays River.

The Coldstream Co. have filled their ore bin with material coming from the new shaft, and started their mill on the 10th inst. It is proposed to drop the whole 50 stamps on this mill run.

Pictou.

The Explosives Committee, appointed by the Provincial Government, will meet at Stellarton, on Thursday, September 3rd. The members of the committee are, Mr. E. Gilpin, Inspector of Mines; Mr. H. S. Poole, of the Acadia Co'y; Mr. R. S. Brown, of the General Mining Association; Mr. H. Rae, Spring Hill; Mr. Thos. Johnston, Westville; and Mr. R. Crosby, of Cow Bay. The purpose for which they have been appointed is to ascertain which, if any, explosives may with safety be used in gaseous mines. Now that powder is prohibited in dusty or gaseous mines a safe and reliable substitute is required.

Cape Breton.

A party composed of President I. P. Gragg; Director M. F. Dickinson, jr.; G. G. Frances, M.E., of London; W. Ingalls, M.E., of the Mining and Engineering Journal; Pierre Humbert, jr., M.E.; H. O. Aldrich, of Cobb, Aldrich & Co.; G. F. Lord, of Lord & Mandell; Emerson Coleman, of New York; G. H. Newman, of East Hampton, and about a dozen other stockholders and friends of the Eastern Development Company, left Boston about the middle of the month for a two-day trip of inspection of the Coxheath Copper Mines and various points of interest in Cape Breton. They were much interested in examining these mines, and were unanimous in the opinion that Coxheath is destined to be a large producer with a profitable future. The party also visited the International coal mine, the town of Sydney, sailed on the Bras d'Or lake to Baddeck, took a drive in Big Baddeck Valley, and were handsomely entertained by Prof. Alex. Graham Bell at his beautiful country seat at "Beim Bhregh," near Baddeck. The \$350,000 of bonds necessary to erect concentration works, railway and smelting plant of a capacity to handle 200 tons of ore per day, will undoubtedly be immediately provided for, as a result of the actual values shown to exist at this mine.