THE PICTOU CHARCOAL COMPANY.

THE Pictou Charcoal Iron Co., whose works are at Bridgeville, N.S., and head offices at New Glasgow, N.S., was organized in 1891 with an authorized capital of $200,000. When the Summer meeting of the Mining Society of Nova Scotia was held in New Glasgow in June last, an excursion was made to the mines and furnace of this company, and the following is what Mr. B. T. A. Bell had to say regarding the enterprise:

The iron ores on the north side of the East River of Pictou have been opened up in several places between Springville and Sunny Brae, and are at present worked by the company in two places on the Grant farm at Bridgeville, and by the New Glasgow Iron, Coal and Railway Company, both at Bridgeville and Black Rock. They are contact deposits between the carboniferous limestones and the upper Silurian measures, and consist of brown hematites, "residuel precipitated found from the disintegration of the older Silurian rocks above," more or less mixed with pyrolusite in form of nodules and masses, mostly in the hanging wall, but also as veins or crystals in the deposits themselves. On the south side of the river there are the Weaver and Watson specular ores, but these have as yet not been worked.

The ore deposits worked by the Pictou Charcoal Iron Company being situated but a few hundred feet from the furnace, on a hillside of an elevation of about 100 feet above the same, the mining and handling of the ore is rendered especally easy. Two tunnels have been driven, one on the east and one on the west side, back of the furnace. The latter, or "A" tunnel, goes through a seam or vein of gravel ore easily mined, and ten to fifteen feet in width. After being driven in about 300 feet, a slope was driven up through the ore, at an incline of forty-five degrees south-west, to the surface sixty feet above, which showed up a large body of ore, in some places eighteen feet wide.

The ore in No. 2 tunnel is of an entirely different character being fibrous and compact, and requiring blasting. It is besides richer in metallic iron, nearly free from manganese. This ore was first worked by an open cut on the top of the hill, as it displayed a remarkable deposit of solid limonite, yielding 58% metallic iron, and three to four thousand tons were removed. About sixty feet below this cut the company has now driven a tunnel about 200 feet in the same kind of ore, besides an air shaft (at an incline with the dip of the ore of about sixty degrees) and three different levels, all in ore from ten to fifteen feet wide.

The following analyses will serve to give an intelligent idea of the above mentioned ores:—

	Gravel Ore from No. 1 Tunnel.		Gravel Ore from No. 2 Tunnel.	
Insoluble matter	12·80	6·75	8·58	5·58
Metallic Iron	53·02	53·41	54·83	56·57
Metallic manganese	1·56	1·88	0·20	0·20
Comb water	9·45	11·02	10·00	10·00
Sulphur	0·05	0.04	0·41	0·09
Phosphorous	0·12	0·02	0·03	0·21

The variation in manganese and sulphur is, however, even more marked than the above figures indicate, as crystals of pyrolusite and barite are met with here and there among the ore, without any regularity or warning. The intention of the company is to wash and roast the ore before using it in the furnace; but at present it is simply heap-roasted with wood and charcoal braize at the end of the tunnel track. From here it is afterwards carried on the tramway trucks to the chute above the stack house, and being here dumped on iron rails, placed about two inches apart, and broken sufficiently to pass through these, it falls in a wire netting (10 gauge 3 x 3 mesh) down in the stack house, whereby the dry clay to a large extent is screened through the ore.

The limestone used for flux is quarried at Springville, and is hauled three miles to furnace, costing about 85 cents per gross ton delivered. It contains about 94·0 per cent. carbonate of lime, 2·5 per cent. carbonate of magnesia, 2·0 per cent. insoluble matter.

The buildings consist of offices, stables and store-houses, carpenter and blacksmith shops, a coal shed (with a capacity of 40,000 bushels), casting house, stack house and engine house. The shops and furnace buildings are all covered, roof and sides, with corrugated iron, painted on both sides with mineral paint. The working plant proper consists of the following structures: The furnace stack is 50 feet high with 11 feet bosh and 7 feet diameter under the hill. The conventional iron shell has been dispensed with and substituted by a crinoline strapping and red brick shell. This together with the 15 inch fire brick lining is supported by six cast iron columns, and the bosh is surrounded by a boiler plate mantel, and the hearth by a water cooling cast iron jacket. The tuyers, 6 in num. , are of bronze and set in water coil breasts. The down-comer has a diameter of 36 inches, and the bustle pipe 15 inches. The top of the furnace is provided with a Weimer patent friction winch and gas seal for facilitating an even distribution of the stock, and to prevent waste of gas. The hot blast is a modified Cooper-Durham cast-iron stove, with 30 V pipes, built in two sections and provided with two combustion chambers side by side, and so arranged that the cold inlet and the outlet of the heated blast, as well as the two combustion chambers, are placed in the same end of the stove. This arrangement was successfully adopted by the manager some years ago at Katahdin iron works mine Besides economizing space and gas connections, it facilitates maintaining the blast at a high temperature with a small amount of fuel gas, the 2,000 feet of heating surface sufficing to keep the 3,000 cubic feet of air per minute (engine measure) up to 750 degrees to 800 degrees Fahr. The boilers are four in number (30 feet by 36 inches), made of best ⅝ Dalzell steel, and built in sets of two with separate draft stacks, and independent steam and water connections, and provided with gas valves and combustion chambers similar to those in the hot blast, besides separate grates for wood or coal, in case of shortage of gas. The blowing engine consists of two horizontal blowing cylinders of 5 feet diameter and 5 feet stroke, and a pair of horizontal steam engines, 18 inches by 36 inches each, capable of performing the work in case of necessity.

The elevator comprises a double Whitney hoisting machine, and two Wood & Co's safety cages. These, as well as the limestone breaker (a Forster "crusher and pulverizer") are run by belt from a horizontal steam engine of about 15 h.p. capacity. For the handling and weighing of the stock and pig iron, Weimer patent steel charging barrows and Richle's furnace charging and pig metal scales are used.

Water supply has been provided for by building a 25 foot dam on the Mill Brook, from which the water is conducted 700 feet through 3 inch wooden pipes to the furnace, besides which a reservoir is built (at an elevation of 75 feet above the foundation level of the furnace) for collecting the spring water from the hills above, as well as the water pumped from the river; in case of lack of water from the above mentioned sources. A Northey duplex steam pump (7½ inches s.c. x 4½ inches w.c. x 10. inches s.t.), is performing this work, and a series of iron pipes are laid to the reservoir, and to different parts of the work, and fitted with valves, hydrants and hose connections in case of fire.

For the carbonization of the wood, 19 brick kilns have been erected at different places. These are of the round (beehive) type, each holding 50 cords of wood, and capable of carbonizing 1,200 cords per annum, which will produce 5,000 bushel of coal. Those built in the woods are of the Plattsburg (conical) type, each holding about 30 cords, with an annual capacity of 700 cords of wood, or 3,000 bushels of coal. The present coaling capacity is, therefore, about 500,000 bushels per annum, requiring about 1,300 cords of wood. Three more kilns will be built in the spring of 1893, making the total capacity about 600,000 bushels of charcoal, which is the estimated requirement for producing 5,000 tons of pig iron a year.

The wood used for charcoal making is principally yellow birch, also beech and maple.