

tramways have been built, also a roasting floor and smelting works, the latter capable of running about 600 or 700 tons of ore per month. Hitherto the ore has been merely smelted to a regulus of about 40 per cent., in which state it is shipped.

The operations of this mine can be immensely increased whenever the present low prices may cease to rule in the copper market.

For the above particulars we are indebted to the courtesy of G. A. Drummond, Esq., Montreal. The Hanford Mines, near Lennoxville, were prospected in 1865, and up to 1st October, 1867, about 10,000 tons of ore raised. "From that date to 1st August, 1868, (10 months)," says General Adams, "we have raised to surface over 14,000 tons of vein matter, of which over 10,000 tons is dressed, burned or burning, for melting." General Adams says also:—"We have 12,000 tons in sight to-day (Sept. 4th), and one 65 foot level will disclose for stoping over 50,000 tons. The vein averages 9 feet. We are smelting with improved chimney furnaces. Average amount smelted 22 tons of ore per 24 hours. Each furnace produces daily from 6,500 to 7,000 lbs. 40 per cent. regulus, selling at the works at 5 cents per lb., or \$110 per ton. All products are shipped to Liverpool."

The regulus contains about \$30 gold and \$65 silver per ton, also small quantities of nickel, cobalt and lead.

The Ives Mine is situated in the Township of Bolton. A shaft has been sunk 25 fathoms, and levels driven at different depths for the distance of about 100 fathoms. For connection with the levels a second shaft has been sunk. The ore is a rich yellow sulphuret, associated generally with the slate, but occurring in large "bunches," several feet thick. The principal lode, which has proved extremely rich, is 13 ft. wide, and in some portions shews a width of six feet of solid ore; almost the whole ground through which the levels have been driven is copper bearing, and from the levels alone many hundred tons of ore have been raised to the surface. The Company have in contemplation, the erection of reducing works for treatment of poor ores. Until their completion, the shipments of the ore will be only of the higher standards. Fifty tons of ore varying from 18 per cent. to 20 per cent. have thus been shipped in the month of November, and it is expected will be followed by similar shipments monthly, as soon as the Company order the commencement of "stoping."

The above is from the report kindly furnished by Captain Rogan, Manager.

Sir Wm. Logan remarks, in that invaluable work, the *Geology of Canada* (1863):—"The copper deposits of the Eastern Townships are unlike those of Cornwall and of Lake Huron, in which the metal has been concentrated in well-defined lodes. They are, however, very similar in their structure and mode of occurrence to those of the same age in Norway and Sweden. The analogous copper ores in the Permian Slates of Mansfeld and Hesse, and those of both sides of the Ural Mountains, are in like manner disseminated in beds and not in veins. Copper-bearing beds similar to those of Canada are also wrought in schistose rocks of the Quebec group in Maryland, in Tennessee, and other parts of the United States."

It is therefore very probable that as settlement and examination proceed in this extensive copper-bearing region, which is still in great part covered with dense forest, that surface "pockets" like the Acton Mine, paying richly from the first, will from time to time be met with. At the same time the persistence and richness of the interstratified beds, over great extents and to great depths, have been proved by the valuable researches of ten years at the Harvey Hill Mines. When we remember the extent of this region, and the fact that copper is found at all points in it, the future of copper-mining in Quebec looks bright indeed.

**Iron.**—Iron ores of the best kind exist in many places in the Province of Quebec, and have been more or less a source of industry for a hundred and thirty years.

Bog ore in considerable quantities is spread along the north shore of the St. Lawrence, from the vicinity of Montreal nearly to Quebec. A furnace for smelting this ore was established in St. Maurice County in 1737, where the manufacture of iron was continued until 1858, when it ceased, owing to the growing scarcity of ore and charcoal in the neighborhood.

The Radnor forges were some years ago erected at Batiscan. About 2,000 tons of cast iron are here produced annually. The chief manufacture carried on hitherto has been that of wheels for railway cars. Wrought iron is also made, and a rolling mill has been erected.

In 1854 work was commenced on a bed of magnetite in Hull, for the purpose of supplying the furnaces of Messrs. Forsyth & Co., of Pittsburgh. Up to 1858 about 8,000 tons had been exported, when operations ceased.

In 1866, the Canada Iron Mining and Manufacturing Company purchased the Hull Iron Mines, and erected a furnace on the banks of the Gatineau, about 3½ miles from Ottawa. They are at present turning out about 24 tons of pig iron a day. Large kilns for charcoal burning have been erected, capable of making, we are informed, 20,000 bushels at once. There are also steam engines, boilers, crusher, and workmen's dwellings. The bed of ore is 90 feet thick, and practically inexhaustible. The iron produced from it is of very superior quality. About 200 men are employed.

The Company likewise possesses 10,000 acres of timberlands, and 1,200 acres of peat land.

The Moisie Company are working a vast deposit of magnetite at the mouth of the Moisie River, about 300 miles below Quebec. The bed contains, it is computed, about twenty million tons of ore, perfectly free from sulphur and phosphorus, which interfere so much with the working of most iron ores. The ore lies on the surface, in the form of a black sand, and can be placed on board vessels at a cost of about 25 cents per ton.

The iron manufactured from the Moisie ore is of very superior quality, as is shewn in the statement of the Fairbairn Engineering Company, Manchester, England:—

	Breaking Strain per square inch in tons.	Elongation per unit of inches.
Montreal (Moisie) Iron.....	26.40	.0598
Lowmoor Iron.....	25.79	....
Derbyshire do.....	21.68	....
Shropshire do.....	22.82	....
Staffordshire do.....	19.56	....

From this it will appear that the Moisie iron is 1-25 stronger than the Lowmoor, the best English brand. It is also to be observed that its elongation is very great, 7-10 of an inch to a foot. It is therefore very suitable to the manufacture of wire.

From experiments made at the West Point Foundry, it appears that the Moisie wrought iron bears a pressure of 80,221 lbs. to the square inch, or over 20,000 more than the best American brands. The Moisie sample tried in this instance was simply rolled from the bloom. Had it been refined to the extent of the competing specimens, it would doubtless have stood 100,000 lbs. to the square inch.