

A FIELD FOR ENTERPRISE

I call attention to the fields which exist in Canada for the employment of capital, enterprise and labour is both useful and interesting; and no better or more reliable means can be found for this purpose than in the geological survey of Sir W. E. Logan and in the descriptive catalogue of "economic minerals and crystalline rocks" of Canada, specimens of which were sent to the London International Exhibition for 1882.

GOLD.

The gold bearing region, especially of the Chaudière Valley, seems to present inducements of an unusual character to capitalists willing to undertake the gold mining business upon a systematic and extensive scale. In the Geological Survey we find with reference to native gold:—

"It has long been ascertained that the drift clay and gravel on the south side of the St. Lawrence, in Canada, from Lake Champlain to the Etchemin, and probably to the extremity of the Province, in Gaspé, is auriferous; the area being about 16,000 square miles. Gold has been washed from this gravel on the St. Francis in Melbourn, at Sherbrooke, in Westbury, Weedon and Dudswell, and on Lake St. Francis; as well as on the Chaudière and the Etchemin, and their tributaries, from the sources of these rivers nearly to their mouths. Various companies have made trials of this drift in several places, one of the most important having been on the Rivière des Plantes, in the seignior of Vaudreuil (Beauce), but of this it is not easy to procure authentic details. In 1851, the Canada Gold Mining Company commenced a trial of the drift along the Rivière du Loup, near its junction with the Chaudière, in the seignior of Aubert de l'Isle, which continued three years. The following are the results of the workings of this Company for the years 1851 and 1852:—

Area washed.	Gold col.	Value.	Wages.	Profit.
Sq. acre	dwt. grs.	\$	\$	\$
1851.....	2107 11	1826 46	1644 33	182 13
1852.....	2880 19	2496 63	1853 35	508 34
	4987 30	4323 15	3532 68	690 47

"The chief part of the gold was obtained in the bed of the river, but some of it on the bank, and the average thickness of the drift was about two feet. The average daily wages were sixty cents a man. The system adopted for dressing was that used in Cornwall for obtaining tin from alluvial deposits."

As far as this account goes it is correct, yet it is not a fair experiment. It is well known the mining business on the Chaudière has, on the one hand, been confined to pan washing and individual explorations by parties having no knowledge of the business, and on the other, to those who have bought lots for speculative purposes more than with the determination of making gold mining the reality of their business.

In the rapids of the Chaudière, Parish of St. Francis, a vein of two or three feet thick has been discovered, consisting principally of quartz containing native gold. In many other places on the Chaudière, gold has been found in grains and nuggets, and disseminated in crystalline bitter spar, mixed with talc copper, glance and specular iron. Native platinum has also been found among the drift gold of the Chaudière, and iridosmine, an alloy of iridium and osmium, which is very hard, and is used for pointing gold pens. A nugget of eighty dwts. of stream gold, with quartz, found in the Seignior of Vaudreuil, was sent to the International Exhibition of 1862. In the specimen the proportion of gold was sixty-four per cent. It was obtained from the drift of the Rivière des Plantes, a tributary of the Chaudière. In the descriptive catalogue it is remarked with regard to this specimen, that many of the small masses of gold which have been obtained from the drift of the Chaudière Valley, being of a character somewhat similar, there cannot be much doubt that the drift gold of the region has been derived from quartz veins, situated probably somewhere not far distant. No quartz so rich in gold as the specimen, has, as yet, been met with in any place in Canada, but the precious metal has been observed in a quartz vein of between two and three feet thick, which cuts bluish-black slate, and crosses the Chaudière at the St. Francis Rapids, about half a mile from their foot, and about three-quarters of a mile above St. Francis (Beauce) Church.

IRON.

The most important and useful of all the metals is found in abundance in Canada. Deposits of bog iron ore, in greater or less abundance, says the Geological Survey, are spread out in patches on the north side of the St. Lawrence, and between it, and the foot of the Laurentide Hills, all the way from Ste. Anne des Plantes to Portneuf, a distance exceeding a hundred miles. In this area, the ore seems to be most concentrated in the neighbourhood of the St. Maurice and Bateaux Rivers, and iron has been smelted in the neighborhood of Three Rivers. The ore with which the Radnor furnaces are supplied, is derived from the Seignior of Cap de la Madelaine and Clamplain,

where it occurs close to the surface, in a multitude of patches distributed over the country, with a thickness of from three to twenty-four inches. It is brought to the furnaces, partly by the workmen of the Company, and partly by the various farmers on whose lands the ore occurs. The chief manufacture of the Company consists of cast-iron car wheels, the price of which at the forges is 2½ cents per lb. A rolling-mill has recently been erected at the establishment for the rolling of malleable iron of superior quality, such as scythe iron, the price of which is 3½ cents per lb., and nail-rod iron, the selling price being 5½ cents per lb. Limestone, as a flux for smelting the ore, is obtained from the Trenton group, at the works, and sandstone for furnace hearths at the Grés Rapids, on the St. Maurice, where it used formerly to be obtained by the St. Maurice Company. The ore is washed at the smelting works, to free it from soil, and it then contains between forty and fifty per cent. of iron. The quantity used annually is between 4,000 and 5,000 tons, producing about 2,000 tons of pig iron, and the number of workmen employed varies from 200 to 400; a great many hands being required at certain periods, to excavate and bring in the ore, and to prepare and transport the charcoal.

A bed of iron ore exists, extending over several lots, on the Lot St. Charles, in the Seignior of Vaudreuil, at the confluence of the rivers Ottawa and St. Lawrence. The bed is in many places from four to eight feet thick, and there lies beneath it, in some parts, a thin stratum of blue phosphate of iron. This bog iron ore contains about fifty per cent. of iron, but it has never been worked.

An unworked bed of red hematite or oligist ore, thirty feet thick, containing by analysis about eighty per cent. of iron exists in St. Valher, County of Bellechasse.

A bed of twelve feet thick, consisting of dolomite abounding in small crystals of magnetic oxide of iron, equaling about fifty per cent. of the mass is found on the Sutton, lot six, range nine, Geological Survey.

"The Marmora Iron Mine," says the Catalogue, "is a mine commonly known as the *Big Iron Ore Bed of Marmora*. It appears, however, not to be a single bed, but a succession of them (one measuring 100 feet in thickness), interstratified with thin bands of crystalline limestone and talcose slate, associated with diallage rock, serpentine, and epidote. The total breadth of the mass is eight chains, and it is interstratified between gneiss and crystalline limestone, with a dip N. W. $\angle 25^{\circ}$ — 50° . The ore contains between sixty and seventy per cent. of iron. Many years ago a furnace was erected at Marmora to smelt it, and iron of superior quality was manufactured. More recently different companies have, for short periods, renewed smelting operations, with very satisfactory results in respect to the quality of the iron produced; but the distance of the place from a shipping port has proved a serious obstacle to success. At present the furnace is not in blast.

"A bed of 200 feet thick in gneiss. It is situated on Mud Lake, a part of the Rideau Canal, and is the property of Messrs. G. Chaffey and Brothers, who mine the ore, and supply it at Kingston for 2½ dollars the ton, to vessels which carry it as back freight to Cleveland, on Lake Erie; whence it finds its way to the smelting furnaces at Pittsburg on the Ohio, in the State of Pennsylvania. About 4000 tons of the ore were thus exported in 1859.

"A bed of about ninety feet in thickness. It is surrounded by gneiss, and appears to present the form of a dome, through the summit of which there protrudes an underlying mass of crystalline limestone. Messrs. Forsyth & Company, smelters, of Pittsburg, commenced mining this ore in 1854, for the supply of their own furnaces at Pittsburg, exporting the ore by the way of Kingston, on Lake Ontario, to which it was conveyed by the Rideau Canal. Up to 1853 they had exported about 8000 tons of ore, but the opening of the Newborough mine, more favourably situated in regard to the shipping port, induced them to obtain their supply from the latter, and no ore is now exported from Hull. The ore contains between sixty and seventy per cent. of iron. In some parts of the bed it is mingled with a little graphite."

We had just got this far in this very interesting subject, which it is our purpose to continue in each number, embracing copper mines, marble, slate, grindstone and burrstone quarries, when the prospectus of the Canada Iron Mining and Manufacturing Company was handed us. The introductory remarks in the prospectus of this Company are as follow:—

"The existence of vast deposits of Iron Ore of the

very finest description, occurring in the Laurentian rocks of Canada, has been long recognized; public attention having been in various ways directed to the fact by the officers of the Geological Commission since its first appointment in 1813.

With one exception, no attempt has been made upon an adequate scale to render these deposits available by smelting the ores, and in the instance referred to, although the quality of the manufactured iron is unexceptionable, the distance from the mines to the furnaces, and thence to the port of shipment, together with other circumstances unnecessary to be here detailed, have hitherto greatly obstructed the development of this branch of industry at that particular locality.

"Some of the Canadian Iron Mines have also been worked to a considerable extent for the purpose of exporting the ores to Ohio and Pennsylvania, where they are highly prized for improving the quality of the native ores. The best practical evidence of the superior quality of the Canadian iron ore is thus afforded from the fact of its bearing the expense of a long lake voyage and land carriage, and still yielding a good profit to the miner. According to Sir William Logan, the total amount of ore thus shipped from Kingston up to 1860 was about 15,000 tons.

"At the present time, a combination of favourable circumstances leads to the belief that the business of mining and smelting the iron ores in the Province on an extensive scale, and by means of a strong and well-organized Joint Stock Company, will be a most prosperous and lucrative one. The general financial prosperity of the country—the impetus which political events have recently given to native industry—the steadily increasing price of imported iron in all its forms—the labor-saving improvements which have of late years been introduced into its manufacture by the progress of invention—all point to this as a highly promising field of enterprise in Canada. Nor is the want of coal in the Province an objection, as may at first sight appear; for the materials for making charcoal exist in abundance near the mines; and it is well known that iron smelted with charcoal, commands a much higher price than that manufactured with mineral fuel.

"It is an established fact, that, in many of the States of the Union, an inferior description of ore has for many years been smelted with wood charcoal; and that in Norway, Sweden and Russia, the same kind of ores which Canada possesses in inexhaustible abundance, are manufactured with charcoal, and produce the finest iron in the world.

"In prosecution of the objects above stated, the present company has been established for the purpose of mining, smelting and manufacturing iron at the townships of Hull, near Ottawa in Canada East, and South Sherbrooke near Perth, in Canada West. As the basis of operations, certain lots of land situated in these townships have been secured. These locations, which are very favorably situated as regards supplies of fuel and facilities for transportation, have been proved by extensive explorations to contain unlimited supplies of the richest iron ore, lying immediately at the surface, and consequently capable of being worked in the most economical manner."

Many valuable beds of iron ore in Canada are found accessible to water navigation, and there is but one difficulty in the way of the iron mining business. The want of coal mines, in addition to iron, presents a great drawback to mining enterprise. It is the most formidable barrier to the progress which those in the business have to contend with. At present charcoal is used, and is rather an expensive material for smelting purposes. The chief value, and great prosperity of the iron mines of Scotland, is in their being situated adjoining coal fields. The native iron of Canada is of a superior quality, and the immense coal fields of Nova Scotia and New Brunswick, immediately accessible to water navigation, will, in time, supply this greatest want to the iron mining interest.

The subject of mines, mining, slate, marble, burrstone, and flag quarries, will be continued in our next.

National Bank Notes.

In reference to the redemption of these notes, in case of failure of the bank, U. S. Treasurer Spinner has published a letter, stating that the Government is responsible for the full nominal value of every note issued by the Comptroller of Currency to a bank, and put into circulation. If the securities deposited with the Government by a bank are inadequate, the Government has the first lien upon its assets. If a bank fails utterly and has no assets beyond deposited securities, the treasurer of the United States becomes its cashier, and will redeem the circulation in some way. The Treasurer goes on to say that the United States legal-tender notes afford no greater security to the holder than the notes of national banks. The only real difference between the two is, that while the latter are only a legal tender from and to the Government, the former are the legal tender from and to the parties, whether municipalities, corporations or individuals.