

Ontario as a Mining Country.

By Dr. A. P. COLEMAN, Toronto.

How many hundreds of years have passed since the first mine was sunk in Ontario history does not record, for those mysterious ancient miners, mound builders or whoever they may have been, who dug their trenches and mined the native copper of Mamainse with tools of wood and stone, have left no traces either in history or tradition. The first recorded mining operations in the province were also for copper, and in the same region, and date back to 1770, a century and a quarter ago; so that Ontario is not so young a mining country as one is apt to think.

So far as I can discover, it was thirty years after this date before the next mining venture was inaugurated; this time at the opposite end of the province, and for iron. The Bureau of Mines' report for 1892 states that iron was smelted at the falls of Gananoque river about 1800.

Next followed the mining of bog iron ore in Charlotteville township, near Lake Erie, in 1823, the ore being smelted at Normandale in a romantic valley close to the lake. Some years later iron was mined and smelted near Madoc and in Essex county. With the exception of iron mining at one or two other points, no further attempts were made, so far as I am aware, to develop our mineral resources until the Bruce copper mines on Lake Huron began to attract attention about fifty years ago. Since then many mines have been opened and almost as many abandoned.

Gold, silver, copper, nickel, cobalt, iron and lead, among the metals have been obtained by mining at one time or another in our province; as well as a number of non-metallic substances, such as apatite, barite, graphite, gypsum and mica, not to mention liquids and gases obtained by boring, such as brine, petroleum and natural gas.

It must be admitted that several of these products have been mined on only a very small scale. All the cobalt obtained from the Sudbury nickel mines would amount probably to less than fifty tons; but, of course, this metal is a rare one in all parts of the world. The amount of lead mined and smelted in the province would probably amount to only a very few hundred tons if we had the full statistics.

At present I believe the metals mined in Ontario are gold, copper, nickel and cobalt: the last three in the neighborhood of Sudbury only. Of the non-metallic minerals, mica and gypsum among the solids, brine and petroleum among the liquids, and natural gas, which I believe has been declared in an American law court to be a mineral, exhaust the list of substances.

Our mines of silver, of copper, except as a by-product of nickel ores, of iron and of phosphate, are in a state of suspended animation, if not entirely dead.

The list is not a cheerful one for a patriotic son of Ontario to contemplate, yet it may be useful to consider why mining matters have gone as they have, and also to enquire into the prospects for the future.

Let us take up the chief products of our mines one by one, beginning with the non-metals and ending with the metals.

APATITE OR PHOSPHATE.

Apatite mining was attempted in 1870 or 1871, but apparently the first shipments of phosphate from Ontario took place seven years later. Most of our apatite was shipped *via* Montreal, a smaller portion going directly to the States, and on this account the statistics given by the Geological Survey reports greatly under estimate the production of Ontario, all that went to England or Germany being included in the statistics for Quebec.

In 1891 they report only 1,551 tons from this province, while the first report of the Bureau of Mines for Ontario places it in the same year at 4,900 tons, worth \$50,800. The prosperity of the phosphate mines ended in that year, however, falling to half the amount in 1892, and to

only twenty tons in 1893; and since that time there has been no mining of importance, the cheaply mined Carolina and Florida phosphates, though of lower grade, having crowded ours from the market.

Until the best of these southern deposits, which can sometimes be mined with dredges or steam shovels, are exhausted, we cannot expect any important revival of phosphate mining in Ontario; though our mines should find some demand from local manufacturers of fertilizers, as our intelligent farmers begin to make more use of phosphates.

BARITE.

Barite has been worked at only one mine in Ontario, McKellar Island in Lake Superior, where the body of mineral is described in the Geological Survey reports as sixty feet wide, and perhaps the largest on the continent. In 1890 the product is stated to have been 1,842 tons, valued at \$7,543; but no further reports have been made, so that mining operations appear to have ceased.

GRAPHITE.

When graphite was first mined in Ontario I have been unable to discover, but in 1877 we shipped 429 tons of plumbago, having a value of \$1,553; and in the following year about twice as much. Since then the amount has greatly diminished, though late explorations with the diamond drill show important deposits that should be worked at a profit. All the mining has been done in the Laurentian of the Ottawa Valley, near the Kingston and Pembroke railway.

GYPSUM.

Most of the gypsum of Ontario comes from the vicinity of Paris on the Grand river, Paris, Ontario, being in this respect at least like the greater Paris in France whose gypsum mines have provided "plaster of Paris" for many years. The amount mined in Ontario seems to vary greatly, 8,560 tons, valued at \$11,715, being reported in 1887; but since then the amount has greatly diminished, so far as one can judge from the reports. In 1894 3,253 tons were mined, the value being \$9,760.

MICA.

This mineral is mined in the Laurentian region of the Ottawa Valley, the deposits being very irregular and the output equally so. Mica mining in our province is first mentioned in the Geological Survey report for 1870-71, but no useful statistics can be obtained until 1891, when the Bureau of Mines began its work, since the output of Ontario is lumped together with that of Quebec.

In 1891 it is reported that 240 tons of mica, worth \$31,200, were mined. In the following year only seven tons; in 1893 seventy tons, but for 1894 none at all. The new use of mica as non-conducting packing for steam pipes should furnish an outlet for much material that formerly went to waste in cutting dimension mica, and thus help out this industry.

PETROLEUM.

All the petroleum produced in Canada comes from the Petrolia region in Ontario, where the industry seems well established and the value of its products steadily increasing. The first important production of petroleum was about 1861, when a few thousand barrels were obtained from wells at Enniskillen; but it is difficult to follow the rise of the industry statistically, since in the earlier years no distinction is made between the oil refined from American and Canadian crude petroleum. Apparently not more than 500,000 bbls. were obtained in any year up to 1887; but since then the amount has gradually increased, until in 1894, nearly 1,000,000 bbls. are reported, affording products valued at \$2,146,937.

NATURAL GAS.

The closely related fuel, natural gas, though long known to occur in the province, has not been put to use until quite recently. In 1892, gas to the value of \$160,000 is reported. In 1893, 2,342,000 cubic feet, valued at \$238,200; and in 1894, 1,653,500 valued at \$204,179. There