

nation's civilization and progress is directly proportionate to the development of its mineral resources, especially those of coal and iron. Cities, towns and even villages, often have their location determined by the presence of some mineral of economic importance; while others, again, owe much of their importance to such proximity. The great centres of industrial activity are directly dependent for their growth on an adequate supply of the raw minerals or mineral products. The might and power of England, as well as the extension of the Empire of Greater Britain to all parts of the habitable globe, are primarily traceable to the occurrence within this tight little island of mineral resources that are unique for their abundance and variety. The rise to eminence and wealth of the United States of America has accompanied the development and utilization of the mineral resources. In addition, each individual State included in the republic owes much of its importance to the possession of minerals whose exploitation has added to the comfort and wealth of its inhabitants. Thus, Alabama has coal and iron; California, gold, quicksilver and petroleum; Indiana, natural gas, building stone and coal; Maine, granite; Michigan, copper and iron; Minnesota, iron; Missouri, lead, zinc and iron; New Jersey, zinc, marble and clays; Ohio, coal, building stone, natural gas and petroleum; Pennsylvania; coal, iron and petroleum; and Tennessee and Vermont, marble.

There are four principal industries based upon the development and utilization of our natural resources. In the value of their production, agriculture is pre-eminently first in rank, representing in 1911 a total of \$565,711,600. The mineral industry is easily second, with a production in 1910 valued at \$106,823,623. In 1910, it was nearly equal in value to the production from the fisheries and forests combined. The value of these two latter in 1910 was \$113,954,433. (Forestry \$83,989,000; fisheries, \$29,965,433).

The relation of the mineral industry to the existing railways also brings out forcibly the importance of mining. This connection is ably illustrated in a paper submitted by Dr. James Douglas to the Institution of Mining and Metallurgy at its nineteen session (1909-1910) entitled "The Influence of the Railroads of the United States and Canada on the Mineral Industry." (Vol. XIX, pp. 2-56). One of the tables quoted shows that the freight supplied to the railways by the mines is far in excess of that contributed by any other branch of national activity. Thus in the United States in 1900, the products of the mine, according to the Interstate Commerce Commission, contributed 52.59 per cent. of the total freight carried by the railways, manufacturers ranking second with 13.41 per cent. In 1906 the products of the mines had increased to 53.09 per cent. of the total freight carried, while manufacturers were again second with 14.81 per cent. In Canada, in 1908, of the total freight hauled by the various railroads in operation, the products of the mines accounted for 35.92 per cent. of the total, while forestry products ranked second in importance, with 20.49 per cent., and agriculture third, with 14.91 per cent.

In order to obtain a true perspective of the national importance of mining to Canada, a brief historical outline seems necessary:

The first recorded mining excitement relating to Canada, was that occasioned by the discovery of some mica reported to contain a considerable proportion of gold, brought back to England by Sir Martin Frobisher

in 1576. The great expectations aroused by this find inspired a second and even a third voyage, and the captain was specially directed by commission to search for this gold ore rather than for the discovery of the (Northwest) passage. On the second voyage, in 1577, it is related that they took 200 tons of glittering ore on the southern side of Frobisher's Strait, "but upon tryall made, it proved no better than blacklead and verified the proverb—All is not gold that glistereth." The third voyage, undertaken in 1578, for the purpose of founding a colony and collecting ores, was barren of results.

The limonite or bog iron ore deposits, in the district of Three Rivers, were described as far back as the latter part of the seventeenth century, and in 1737 a blast furnace was erected and smelting operations undertaken which have been carried on more or less continuously to the present time. The existence of workable deposits of copper in the vicinity of the Great Lakes, had long been known, but in 1767 a trader named Henry who had passed the winter at Michipicoten, reported the existence of lead at Maminse and of grey copper ore at that and various other places. In 1770, a company was formed in England, but the narrowing of the vein to 4 inches at a depth of thirty feet, the difficulty of procuring and maintaining mines at so great a distance from any centre of civilization, the remoteness of any market for the ore, as well as the absence of facilities for transportation, rendered these first attempts abortive.

The first mention of the occurrence of coal in Canada, as also in America, is contained in a small book published in Paris in 1672; but mining was not undertaken until 1720, when an opening was made on the north side of Cow Bay, from which coal was obtained for the men working on the fortifications of Louisburg. During the next sixty years the mining of coal was carried on in a desultory fashion, but from 1784 to 1788 the Government itself carried on systematic mining operation on the northwest shore of Sydney Harbour. From 1788 to 1826 these mines were either leased to individuals or worked by the Government, the output varying from 200 to 1,200 tons per year. In 1826 and 1827 the General Mining Association acquired all the ungranted mines and minerals of Cape Breton, and in 1830 the first shaft in the province was sunk on the main seam on the west side of Sydney Harbour.

Douglas, the celebrated botanist, discovered the Blue Bell (silver-lead) mine on Kootenay Lake, British Columbia, in the early twenties. Coal was discovered at Fort Rupert, Vancouver Island, in 1835, and some development work was done by the Hudson Bay Company; but these workings were abandoned in 1851 for those at Nanaimo, where coal mining has ever since been carried on. In 1850 gold was found on Vancouver and Queen Charlotte Islands, and a miniature mining boom took place at the Queen Charlotte Islands in 1851-52. In the interior of British Columbia, gold was found in the Natchey Pass and the Similkameen as early as 1852. In 1852 and 1854, Colville Indians were known to have gold nuggets in their possession, and Chief Trader McLean procured gold dust from Indians near Kamloops in 1852. Between 1855 to 1857 gold discoveries were made on the Thomson, Fraser and Columbia Rivers, and the news soon attracted attention to British Columbia as a possible gold field and first opened it up for settlement.

(To be continued.)