

SAXICULTURAL DISTRICT OF THE SUDBURY AREA<sup>1</sup>

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The most important cultural features of the Sudbury Area are those associated with the mining industry. Mines, smelters, and mining towns leave an indelible impression with the traveler. Tall smoke stacks with clouds of smoke and fumes; long freight trains of ore or glowing slag; huge blocky shaftheads near deep open pits; and large smelting and refining plants with their associated mining towns are dominant cultural scenes. Miners in their characteristic dress, increased traffic after the shift whistle blows, old dilapidated cars, unpainted unattractive houses on small lots along unpaved streets, these are the scenes which characterize this mining landscape and sets it distinctly apart from the others.

The mining industry does not occupy a large compact continuous area; rather, it consists of islands of concentrated development linked together by communication and transportation lines. This rough network of mining development is surrounded and enclosed on all sides by woods.<sup>2</sup>

The focal center of the mining development is Sudbury. Secondary railroads and highways connect the mining and smelting towns with Sudbury, the transportation and commercial "capital" of the area. Five miles west of Sudbury is Copper Cliff with its smelter and refinery. Eight miles east of Sudbury at Coniston is another smelter. Eleven miles to the northeast is the town and mine of Garson and four miles farther on is the mine and smelter at Falconbridge. Directly north is the Frood mine; and town; still farther north is the Stobie mine; northwest is the Levack mine and town and southwest is the Creighton mine and town.

Consequently, within a radius of twenty-two miles of Sudbury are found the six active mines, three active smelters and a refinery. These mines and smelters produce over four-fifths of the world's nickel, a large quantity of copper (Fig. 1). In addition to the six active mines, there are within this same area thirty-eight abandoned or inactive ones. (Fig. 2.)

This localization of mines is related to the ore bodies which outcrop in an oval shaped belt surrounding a structural basin. This is responsible for the pattern of active and non-producing mines. The only exception to the oval pattern are the mines located along mineralized dikes which appear as off shoots from the ore belt and the old lead-silver mine in the basin.

The greatest concentration of mines is in the south central part of the ore belt near Sudbury. Thirty-five mines are located here within an area thirty-six miles long and six miles wide. Two factors which aided in this mining concentration are: (1) this part of the area had the earliest and best transportation facilities and (2) smelters having been established in the southern part, it proved more efficient to use ores that were close at hand and needed only to be shipped a short distance.

**Types of Mines.**—Shaft and open pit are the two types found in the area. These may be further subdivided into classes according to their present development such as active, and non-producing. (Fig. 2.)

At the present time only six mines produce all of the nickel. Two of the shaft mines have associated open pits, while at the Stobie all ore is removed by the

<sup>1</sup>For practical purposes at present the writer uses the term "The Sudbury Area" when writing of that portion of Ontario included on the Sudbury Topographical Sheet which is published by the Department of Interior. The area is forty-eight miles long from east to west; thirty-four miles wide, and is named after its largest city Sudbury.

Information in this paper is based upon six weeks field work in the summer of 1939 and library research. The first article on the Sudbury Area, Ontario entitled "Agricultural Landscapes of the Sudbury Area, Ontario" appears in the Transactions of the Illinois Academy of Science, Volume 34, pp. 130-137.

<sup>2</sup>Refer to Figure 1 in article entitled "Agricultural Landscapes of the Sudbury Area, Ontario," Transaction of the Illinois Academy of Science, Volume 34, p. 131.

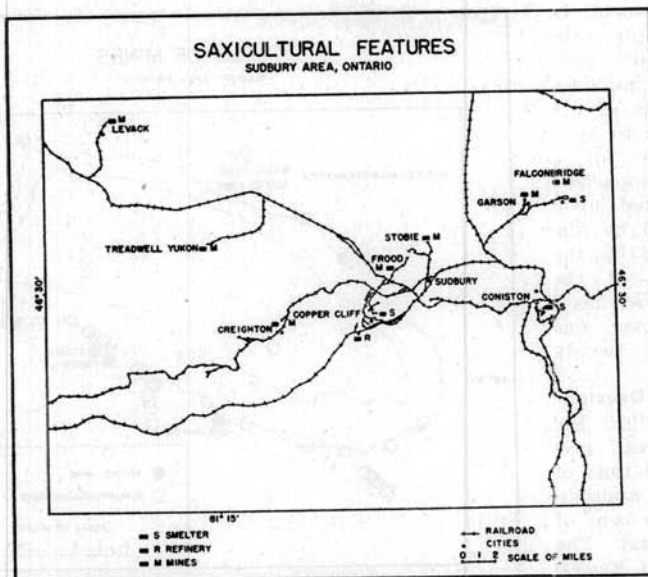


Fig. 1.

open pit method. The fact that thirty of the forty-three mines have open pits indicates that a high percentage went through the open pit stage.

The small number of active mines is not because of a paucity of ore or to the limited extent of the ore body. There are many mines that contain ore rich enough and pure enough to be mined but in peace time the world demand for nickel is limited. Consequently, only those mines are active where the ore is richest; where it can be most cheaply mined; where the least amount of undesirable impurities is found; where hauling costs to the smelter are low and where the desired ores for mixing may be obtained.

**Stages of Development.**—Six stages which may be recognized in the development of this mining industry are (Fig. 3).

1. Prospecting and Boom Period 1883-1905; during this period most of the mines were located and established.
2. Consolidation Period 1905-1920. This period was characterized by consolidation of small holdings until the International Nickel Company gained control of all the mines.
3. The Depression Period 1921-1922 followed the close of the First World War.
4. The peace time Production Period of 1923-1930.

5. The Depression Period of 1930-1933.
6. Second World War Boom Period which began in 1934 with an increased production of armaments throughout the world.

**Vigor of the District.**—When the entire mining district is considered, many factors indicate that the nickel industry will be permanent for at least the next fifty years. Some of the leading indications are (1) a steady increase in production, except for the short depression periods of 1921-1922 and 1930-1933; (2) the discovery and development of new mines; (3) a continued expansion of the railroad net; (4) a steady increase in the amount of hydro-electric power being used, and the enlargement of the power system, (5) the growth of such towns as Sudbury, Copper Cliff, Coniston, and others whose development is dependent upon the mining industry, and (6) the recent construction of larger and more substantial buildings as connected with the extraction of the ore and its treatment.

The vitality of the saxicultural district is expressed by the prosperous conditions of the cultural forms, such as new and well-constructed shaft-heads, processing plants, transmission lines and dams each of which has been built to last for decades to come.

The district has reserves of nickel ores larger than those found in any other

place in the world. In New Caledonia, the district's chief competitor, four hundred thousand tons of ore is considered to be a large reserve for a mine. In comparison it is estimated upon data obtained by diamond drilling that the Frood mine of the Sudbury district has a reserve of over one hundred and twenty million tons.

**Present Development.**— In 1939 the Sudbury Area produced 102,559 tons of nickel or approximately 83 per cent of the world's total. The second largest known nickel area is in New Caledonia with an estimated production of only 9,300 tons dur-

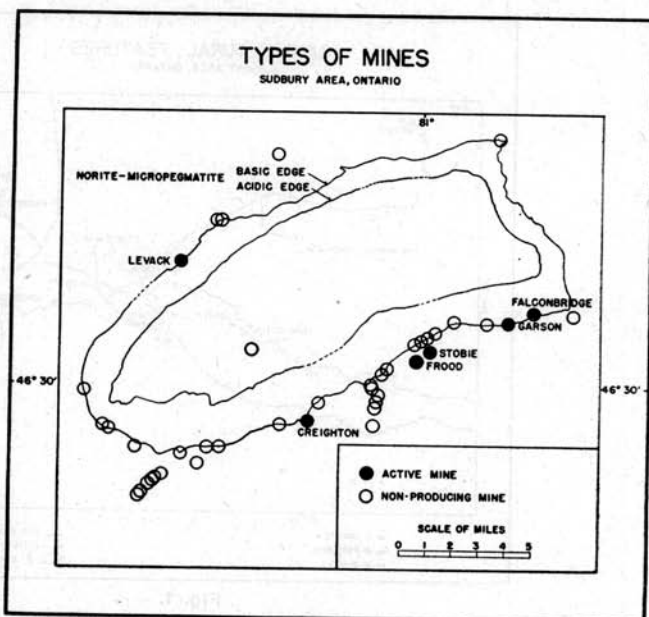


Fig. 2.

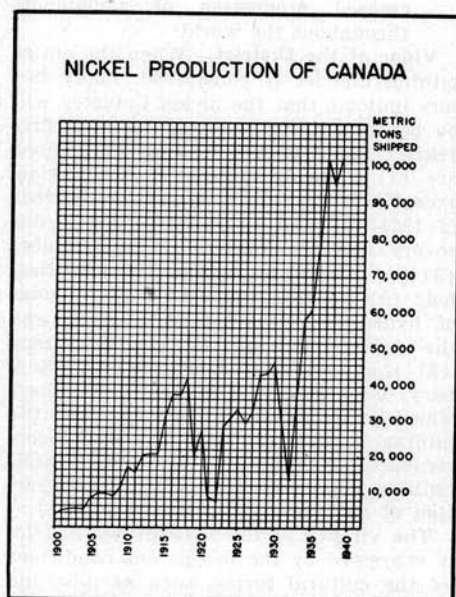


Fig. 3.

ing the same year. Although the Sudbury mines are now being expanded, production of nickel in the Sudbury Area is limited by smelter facilities. Formerly inactive, the Stobie, an open pit mine, began operation in 1939 in order to meet wartime demands. Although production facilities are now being increased, the production of nickel is insufficient to meet present demands.

**Summary.**—The pulsating heart of the Sudbury Area is located in the active mines and in the plants connected with the treatment of ore. These give employment to the miners who occupy the towns and cities. The roads and railroads are built to connect the mines, smelters, cities and the agricultural areas which help feed them. Thus the quality and quantity of the ore together with the type and distributions of the ore body have been the dominating factors in producing the type and amount of cultural forms in the Sudbury Area.