

**Columbium.**—In 1960 St. Lawrence Columbium and Metals Corporation started construction of a mill at Oka, Que., 32 miles west of Montreal, for the production of columbium concentrate assaying from 50 to 55 p.c.  $\text{Cb}_2\text{O}_5$ . This will be the first commercial production of columbium concentrates in Canada. Two other companies—Quebec Columbium Mines Limited and Columbium Mining Products, Limited—have carried out extensive research and exploration programs in the same area. The main world source of columbium has been Nigeria, which produces about 60 p.c. of the world supply.

**Molybdenum.**—Molybdenite Corporation of Canada Limited continued to be the sole Canadian producer of molybdenite and molybdic oxide in 1960. Shipments during the year from the company's mine at Lacorne, Que., amounted to 758,507 lb. of contained molybdenum valued at \$1,000,265, compared with 748,566 lb. valued at \$940,596 in 1959. Preissac Molybdenite Mines Limited, in which Molybdenite Corporation holds a substantial interest, erected a headframe for a new three-compartment shaft, started sinking operations and brought hydro-electric power to its property during the year.

**Titanium.**—Ilmenite, an iron-titanium oxide, is mined in the Allard Lake and St. Urbain areas of Quebec. Ilmenite from St. Urbain is sold as heavy aggregate. Most of the Allard Lake ore is smelted at Sorel, Que., in electric furnaces by Quebec Iron and Titanium Corporation, to produce a high titania slag, most of which is exported to pigment producers in the United States, Japan and the United Kingdom. Some goes to a Canadian pigment manufacturer. In 1960, the value of titanium shipped as ore, heavy aggregate or titanium-bearing slag was \$14,269,292. This was \$5,632,578 above the 1959 value and represented an all-time high for Canadian production.

**Selenium and Tellurium.**—These metals are derived from the refining of blister copper by Canadian Copper Refiners Limited at Montreal East, Que., where the company operates one of the largest selenium and tellurium metal-and-salts plant in the world. International Nickel also produces selenium and tellurium at Copper Cliff, Ont. Selenium production in 1960 totalled 562,272 lb. valued at \$3,487,804 compared with 368,107 lb. in 1959 valued at \$2,576,749. Tellurium production in 1960 rose to 56,352 lb. valued at \$197,232 from the 13,023 lb. worth \$27,999 produced in 1959.

**Magnesium.**—Dominion Magnesium Limited was the only producer of magnesium in 1960. Its thermal reduction plant and adjacent dolomite quarry are located at Haley, Ont. Production of magnesium in 1960 amounted to 14,746,427 lb. valued at \$4,280,232 compared with 12,204,448 lb. valued at \$3,179,515 in 1959.

**Other Metals.**—Canada also produces antimony, bismuth, cadmium, calcium, thorium and tin, mainly as by-products in the refining of base metals. Of these metals, the most important were cadmium, with a 1960 production of 2,244,783 lb. valued at \$3,187,591, bismuth with 464,440 lb. valued at \$832,342, tin valued at \$541,065, and antimony at \$496,400.

## CANADIAN METALLURGICAL DEVELOPMENT\*

In 1940, Canada's mineral industry produced metallics, non-metallics, mineral fuels and structural materials valued at \$530,000,000; in 1960 the value of mineral output reached almost \$2,410,000,000. The growth during this period reflects expansion resulting from the needs of World War II and subsequent postwar industrialization in this country.

Although a portion of the increase in value resulted from higher prices for mine products, there has been a steady and significant increase in physical volume in all but a few minerals. The steady rise in mineral production has been accompanied by increased cost of operation so that the industry has been faced with many complex problems

\* A review of the past twenty years, prepared under the direction of Dr. John Convey, Director of the Mines Branch, Department of Mines and Technical Surveys, Ottawa.