

Consolidated Gold Mines Limited at Timmins, Ont.; from gold bullion by the Royal Canadian Mint at Ottawa; and from arsenical-silver-cobalt concentrates by Cobalt Refinery Limited at Cobalt, Ont.

Canada's largest sources of silver are the Calumet, Elsa and Hector silver-lead-zinc mines in the Yukon Territory about 200 miles north of Whitehorse, operated by United Keno Hill Mines Limited, and the Sullivan lead-zinc-silver mine at Kimberley, B.C., operated by Consolidated Mining and Smelting. In its fiscal year, ended Sept. 30, 1963, United Keno produced concentrates containing 5,978,075 oz.t. and in 1962 the Consolidated Mining and Smelting Company produced concentrates at the Sullivan mine containing 4,070,666 oz.t. Other important producers of byproduct silver included Mastodon-Highland Bell Mines Limited at Beaverdell in southern British Columbia; Hudson Bay Mining and Smelting Co., Limited at Flin Flon, Man.; Geco Mines Limited and International Nickel at Manitouwadge and Sudbury, Ont.; and American Smelting and Refining Company in Newfoundland. In the old Cobalt and Gowganda areas of Ontario, where exploration was reactivated as a result of the increased price, a number of firms mined silver-cobalt ores from which 5,193,298 oz.t. of silver were recovered in 1963.

Platinum Metals.—Canadian production of the platinum metals in 1963 amounted to 344,736 oz.t. valued at \$21,848,696. This reduction from the previous year resulted from decreased 1963 nickel production; platinum metals are recovered as a byproduct of nickel mining. World markets for platinum metals were fairly strong in 1963. The group consists of platinum, palladium, rhodium, ruthenium, iridium and osmium; all except osmium are produced in Canada.

During 1963, Canada, the Republic of South Africa and the Union of Soviet Socialist Republics continued to supply the bulk of the world's production of the platinum metals. Estimated world production in 1962 was 1,190,000 oz.t., of which Canadian production was 470,787 oz.t., that of South Africa an estimated 306,180 oz.t. and that of the U.S.S.R. an estimated 375,000 oz.t.

Platinum metals occur in Canadian nickel ores to the extent of about 0.025 oz. per ton of ore. In the treatment of these ores for nickel, the platinum metals follow nickel and are eventually removed as sludges from the electrolytic tanks in which nickel anodes have been formed. The sludge is purified and sent to precious metal refineries in Britain and the United States for recovery of the platinum metals. All of Canada's platinum metals production results from the treatment of nickel ores of the Sudbury district of Ontario and those of the Thompson mine in Manitoba.

Cobalt.—Cobalt is derived as a byproduct from smelting and refining of nickel-copper ores of Sudbury, Ont., and Lynn Lake, Man.; from nickel ores of Thompson, Man.; and from silver ores of Cobalt, Ont. International Nickel recovers cobalt from its refinery operations at Port Colborne, Ont., Thompson, Man., and Clydach, Wales, based on its Sudbury and Thompson ores. Falconbridge Nickel produces electrolytic cobalt in the refining of nickel-copper matte exported to its refinery at Kristiansand, Norway. Sherritt Gordon recovers cobalt as a byproduct at its nickel refinery at Fort Saskatchewan, Alta., from its Lynn Lake nickel-copper ores. Cobalt Refinery Limited at Cobalt, Ont., recovers black cobalt oxide, and mixed cobalt and nickel oxide from silver concentrates.

Columbium.—St. Lawrence Columbium and Metals Corporation, the only Canadian producer of columbium concentrates, in 1963 shipped pyrochlore concentrates containing 1,270,000 lb. of columbium pentoxide from its mine and plant at Oka, Que., about 20 miles west of Montreal. Geo-Met Reactors Limited, Ottawa, Ont., is the only Canadian producer of ferrocolumbium, which it sells in Canada and the United States.

Molybdenum.—Molybdenite Corporation of Canada Limited is the principal Canadian producer of molybdenite. Most of its production is converted to molybdic oxide at its mine-site plant at Lacorne, 23 miles north of Val d'Or, Que. In 1963, Gaspé