

Base-metal ores treated at domestic and foreign smelters are Canada's chief source of silver. Most of the silver from these ores is recovered by The Consolidated Mining and Smelting Company of Canada Limited in smelting lead-zinc ores at Trail, B.C. That company produced 9,367,029 oz.t. of refined silver in 1959, about 29 p.c. of total Canadian production. Important amounts were recovered from blister copper by Canadian Copper Refiners Limited at Montreal East, Que.; from silver-cobalt ores at the refinery of Deloro Smelting and Refining Company Limited, Deloro, Ont.; from nickel-copper ores treated at Copper Cliff, Ont., by The International Nickel Company of Canada, Limited; and from gold bullion refined at Timmins and Ottawa, Ont., by Hollinger Consolidated Gold Mines Limited and the Royal Canadian Mint, respectively. United Keno Hill Mines Limited, Canada's largest mine producer of silver, produced 7,248,800 oz.t. during the year ended Sept. 30, 1960, compared with 7,307,815 oz.t. in the previous fiscal year. Other leading primary producers were Highland-Bell Limited in British Columbia, Agnico Mines Limited and Langis Silver and Cobalt Mining Company Limited near Cobalt, Ont., McIntyre Porcupine Mines Limited and Siscoe Metals of Ontario Limited near Gowganda, Ont. These five companies together produced 6,668,396 oz.t. in 1959.

The average Canadian price of silver in 1960 was 88.86 cents an oz.t. compared with 87.78 cents in 1959.

**Platinum Metals.**—The platinum metals include the two triads of platinum-iridium-osmium and palladium-rhodium-ruthenium. All occur in the nickel-copper ores of the Sudbury district of Ontario, although osmium is not recovered. The amount present in the Sudbury ores averages about 0.02 oz.t. of platinum metals per ton of ore but this becomes appreciable when the large tonnages of ore treated are considered. Production in 1960 was 221,832 oz.t. of platinum valued at \$18,134,766 and 238,489 oz.t. of palladium, rhodium, ruthenium and iridium valued at \$9,538,921. The 1960 production was 40 p.c. greater than that of 1959 and was the second highest on record. Canadian producers of the platinum metals are Falconbridge Nickel Mines Limited and The International Nickel Company of Canada, Limited.

The Union of South Africa and the Union of Soviet Socialist Republics are other major producers but neither country has published production figures in recent years. Platinum metals production in South Africa comes from sulphide ore in the Merensky Reef horizon of the Bushveld Complex. Annual production capacity is rated at 625,000 oz.t. although this has not as yet been attained. Russian production comes from the old native platinum placers in the Ural mountains and as by-products from nickel-copper mines at Norilsk, Petsamo and Monchegorsk.

Major uses of the platinum metals are as catalysts in the chemical industry and as electrical contacts in the electrical industry. Minor uses are in jewellery and dental-medical equipment.

**Cobalt.**—Cobalt occurs in the copper-nickel ores of The International Nickel Company of Canada, Limited and Falconbridge Nickel Mines Limited in the Sudbury area of Ontario. International Nickel recovers cobalt from its nickel-refining operations at Port Colborne, Ont., and Clydach, Wales. Falconbridge recovers it in the refining of nickel-copper matte at its refinery at Kristiansand, Norway. Cobalt contained in the silver ores from the Cobalt and Gowganda areas of Ontario is recovered by Deloro Smelting and Refining Company Limited at its smelter at Deloro, Ont.; because of lack of feed, this smelter is expected to close early in 1961. Sherritt Gordon Mines Limited produces refined cobalt and nickel powders and briquettes in its refinery at Fort Saskatchewan, Alta., from nickel-copper concentrates shipped from its mine at Lynn Lake in northern Manitoba. No cobalt ore has been produced in Canada since 1957. In 1960, Canadian cobalt production amounted to 3,330,914 lb. valued at \$5,669,560 compared with 3,150,027 lb. valued at \$5,954,916 in 1959.