

**Copper.** Canadian mine production of recoverable copper amounted to 798,132 tons (724 052 t) valued at \$1,016.8 million in 1975 (Table 12.9). Canada produced 9.7% of the world's copper and ranks as the fourth largest producer. World mine production of copper decreased 5% from the previous year. Canadian exports of copper concentrates decreased 9% while exports of refined copper increased by 12%. Domestic consumption of copper fell by 25% to the lowest level since 1964.

Copper and nickel-copper ores were smelted at five locations in Canada at the end of 1975. The International Nickel Company of Canada, Limited (INCO) continued to operate an oxygen flash smelter at Copper Cliff, Ont. Falconbridge Nickel Mines Limited operated a smelter at Falconbridge, Ont., treating nickel-copper concentrates. Ores and concentrates from most mines in the Atlantic provinces, Quebec and Ontario were processed at the Noranda smelter of Noranda Mines, Limited or at the Murdochville smelter of Gaspé Copper Mines, Limited, both in Quebec. Major expansion programs have been completed at both the Noranda and Murdochville smelters. At Murdochville, smelter capacity has been raised by 27,000 tons (24 000 t) of anode copper a year. A 300,000 tons-a-year (270 000 t/yr) sulphuric acid plant has been constructed and some of the acid produced will be used to leach copper from low-grade oxide ores from the Copper Mountain mine. The expanded facilities encountered serious and lengthy start-up problems in 1974 and 1975. At Noranda the smelter was expanded by the construction of a Noranda continuous smelting process reactor capable of producing 55,000 tons (50 000 t) a year of blister copper in one furnace directly from concentrates. Operation of the reactor began early in 1973. A shortage of concentrates was experienced in 1975 and production fell by 38,000 tons (34 000 t) relative to 1974. Hudson Bay Mining and Smelting Co., Limited operates a smelter at Flin Flon, Man. and produces anode copper which is refined at the Montreal refinery of Canadian Copper Refiners Limited. A new flue system was completed in 1975, including the erection of an 825-ft (251 m) smokestack to improve the dispersion of sulphur gases.

Electrolytic copper refineries were operated by INCO at Copper Cliff and by Canadian Copper Refiners Limited, (CCR) a subsidiary of Noranda Mines, Limited, at Montreal East, Que. INCO's copper refining capacity at Copper Cliff was 212,000 tons (192 000 t) a year. Copper is recovered in part as a by-product from the refining of nickel. Canadian Copper Refiners Limited has a capacity of 480,000 tons (435 000 t) of refined copper a year, making CCR the world's largest copper refinery.

As a result of the need to cut shipments to Japan, and the higher treatment charges sought by Japanese smelters, a significant shift of Canadian concentrate sales away from Japan took place in 1975. The displaced concentrates were processed at smelters in North America.

In 1975 a significant erosion of mine production capacity occurred, particularly in eastern Canada, with the closure of a number of small mines — six in Quebec, one in Ontario and two in British Columbia — due to depletion of ore reserves. These mines had produced a total of 28,000 tons (25 000 t) of copper in their last full year of operation.

In 1975, production increased 14% in the Atlantic provinces, declined 18% in Quebec and 7% in Ontario. Production also declined substantially in western Canada, with British Columbia down 16%, Manitoba down 10% and Saskatchewan down 3%.

No new mines began production in 1975, because of low copper prices of 1974-75, excess production capacity in the world, temporary saturation of the Japanese market for copper concentrates, and a slowdown in exploration in Canada.

Copper production in Newfoundland in 1975 totalled 8,190 tons (7 430 t) valued at \$10.4 million from two mines. In New Brunswick copper production was 13,139 tons (11 920 t) valued at \$16.7 million from four mines; two of these