

Canadian sulphur is obtained from three sources: sour natural gas and petroleum, which produce elemental sulphur, smelter gases which produce sulphuric acid, and from pyrite concentrates which are used in the manufacture of sulphuric acid. Small amounts of elemental sulphur are recovered as a by-product of electrolytic refining of nickel sulphide matte and a small quantity of liquid sulphur dioxide is produced from pyrites and smelter gases. Eighty-two percent of Canadian sulphur shipments in 1972 were in elemental form, nearly all from sour natural gas in western Canada.

Dramatic growth over the last 10 years in the Canadian sulphur industry is due almost entirely to expanded exploitation and treatment of sour natural gas, principally in Alberta. Canadian production of sulphur in all forms in 1960 was 1 million long tons, with elemental sulphur making up only one quarter of the total. In 1972 total sulphur production is estimated at 7.34 million long tons, 6.76 million tons in elemental form. Since 1968, Canada has been the world's largest supplier of elemental sulphur.

Gypsum. In 1972 Canadian production of crude gypsum increased to 8.1 million tons (Table 12.21), 70% of which was exported to the eastern United States. Exports were mainly from Nova Scotia and Newfoundland quarries although some tonnage was shipped into the north-western United States from British Columbia.

Nine companies produced crude gypsum in Canada in 1972 at 15 locations, while five companies manufactured gypsum products at 17 locations. Production of gypsum in Canada is closely related to the building construction industry, particularly in the residential building sector, in both Canada and the eastern United States.

Nepheline syenite. Nepheline syenite was produced from two operations on Blue Mountain, 25 miles northeast of Peterborough, Ont. In 1972 shipments were 559,483 tons, an increase of 8.2% over 1971 (Table 12.22). The value of shipments in 1972 decreased 4.9% to \$5.9 million from \$6.2 million in 1971. Exports accounted for 78% of the total shipments. Sales to the United States, which accounted for 95% of Canada's total exports, increased 8%. Nepheline syenite is preferred to feldspar as a source of essential alumina and alkalis in glass manufacture. Other uses include the manufacture of ceramics, enamels and as a filler in paints, papers, plastics and foam rubber.

Structural materials. The value of all construction undertaken in Canada in 1972 was roughly \$16.3 billion. Shipments of structural materials, including cement, sand and gravel, stone, clay and clay products and lime, were roughly \$569.7 million or 8.9% of Canada's total value of mineral production.

Canadian production of cement in 1972 was 10 million tons, an increase of 10.0% over the previous year (Table 12.23). Current production capacity is 14.9 million tons a year of cement. Cement was produced in all provinces except Prince Edward Island with Ontario and Quebec accounting for 69.6% of the Canadian total. Independent Cement Inc. completed a 220,000 ton-a-year plant at Joliette, Que. in 1972. Late in 1973 Canada Cement Lafarge Ltd. opened a 1.1 million ton-a-year plant at Bath, Ont. and expanded its plant at Havelock, NB by 100,000 tons a year. In addition, Lake Ontario Cement Limited expanded its capacity at Picton, Ont. by adding two roller mills in 1973.

Production of sand and gravel in 1972 was 225.2 million tons valued at \$178.1 million (Table 12.24). Sand and gravel must be quarried, screened, washed, stockpiled and transported in large volumes to compensate for the low unit value received. Transportation and handling often double the plant cost, making it necessary to establish plants close to major consuming centres. Urban expansion has greatly increased the demand for sand and gravel, but many plants and quarries have been overrun by urban spread. Sand and gravel are used as fill, granular base course and finish course and fine aggregates for concrete manufacture; coarse aggregate in asphalt production and fine aggregate in mortar and concrete blocks.

Production of stone in 1972 was 80.2 million tons valued at \$103.3 million (Table 12.25). There are three types of stone products: dimension stone for use as building and ornamental stone; crushed stone for use as building blocks and monuments, limestone for cement, lime and metallurgical use, building panels, riprap, cut stone, aggregate in concrete and asphalt, railroad ballast and road metal; and pulverized stone for use as an asphalt filler and in agriculture. Dimension stone accounts for roughly 1% of total production, crushed stone as a construction material for about 80% and the remainder is mainly used in the iron and steel, chemical and allied industries.