

settled areas has taken place elsewhere as well. In fact, projects of this type span the country, from the Bridge River development in southern British Columbia to the smaller Beechwood installation on the St. John River in New Brunswick.

This type of development has been accompanied in recent years by the exploitation of water-power resources in remote areas, the outstanding example being the Kitimat-Kemano project on the northern British Columbia coast. Like Knob Lake on the other side of the continent, it involves the large-scale development of a long-known resource in response to a strong demand for the end-product - in this case aluminum, which is sometimes referred to as "packaged power". The enormous electricity requirements of aluminum smelting, which tend to push the industry toward the frontier away from the competing demands for power, influenced the location of the project; and its remoteness, together with the tremendous cost of developing power at Kemano and transmitting it 50 miles across the mountains to Kitimat, determined the scale. If present plans are realized, the initial smelter capacity of 1954 will have tripled by 1960, to reach 300,000 tons of aluminum annually; installed hydro-electric capacity will have doubled to 900,000 horsepower; and the total cost will approximate \$500 millions.

Like Knob Lake, Kitimat-Kemano has opened up a new region. It is hoped that the town of Kitimat, which already has a population of 13,000, will eventually form the nucleus of an industrialized area. The degree of diversification will, however, depend to some extent on the availability of surplus power, lack of which has been one factor holding back plans for a pulp mill in the district. The success of the Kitimat-Kemano project has inspired proposals for other power and metallurgical developments farther up the Pacific Coast on the Nass River and Taku Inlet.

Rising aluminum demand has also led to a sharp expansion in Quebec of both smelting capacity and the requisite power facilities. The long-established industry in the Saguenay Valley is pushing farther into the north with the building of a million-horsepower hydro plant on the upper Peribonca River (a tributary of the Saguenay) at a site about 100 miles from the Arvida smelters. Another river on the north shore of the St. Lawrence, the Manicouagan, will provide power for a smelter at Baie Comeau being built by a newcomer to the Canadian aluminum industry. This development may be expected to have a sizeable impact on the port of Baie Comeau, until now largely dependent on the operations of a newsprint mill.

In the wilds between Baie Comeau and the Peribonca lies the huge Bersimis River power development, undertaken to meet the growing requirements of Quebec's industry generally rather than to supply electricity for aluminum

smelting. Power from the first of the two plants now under construction, which will have a combined capacity of two million horsepower, is already flowing to Quebec City and Montreal via a 450-mile transmission line, and also to the Gaspé Peninsula by means of 32-mile cables under the St. Lawrence River.

#### CANADA'S TWO LEADING METALS

A major new nickel-producing area is at last being opened in Canada outside the Sudbury Basin, and new mines to produce copper are strung out across the country. The recently launched Mystery-Moak Lakes nickel project in northern Manitoba involves the development of a newly-found resource - a discovery which resulted, however, from an intensive and lengthy exploration programme. Located 400 miles north of Winnipeg in virgin territory, this \$175-million undertaking will be outranked in nickel output only by the Sudbury Basin. The ore is somewhat higher in nickel content than that at Sudbury, but the copper content is so small as to be almost a metallurgical disadvantage. Two mines are being developed, a smelter and a refinery are to be built, a townsite to accommodate an expected initial population of 8,000 is to be established, railway spurs connecting the mines and linking them to the Hudson Bay line are being constructed, and hydro-electric power is being developed on the Nelson River. The surplus power that will be available may lead to the establishment of a pulp mill, and activity at Churchill on Hudson Bay, now largely confined to grain shipping, may well be stimulated and broadened.

Farther to the northwest near the Saskatchewan border is a smaller nickel (and copper) development, Lynn Lake, completed in 1954, and replacing a copper-zinc mine to the south, which had been worked out. The mining equipment, concentrator and town buildings were hauled 145 miles over the frozen muskeg from the old mining area at Sherridon to the new townsite, and the railway was extended north. In addition, a nickel refinery was built near Edmonton, virtually on top of a natural gas field. The refinery utilizes ammonia extracted from gas, in a revolutionary leaching process, an important by-product being ammonium sulphate, a fertilizer material.

The other major new copper producers are all in eastern Canada. The finding in 1953 of a rich copper-zinc orebody at Manitouwadge, north of Lake Superior, was quickly followed by development. Spur lines from both transcontinental railways were built, a townsite was established and the new mine will begin production shortly. In contrast to the dramatic Manitouwadge discovery, the occurrence of copper (together with some gold) in the Chibougamau area, 300 miles north of Montreal, has long been known. However, the extent of the deposits was not realized until exploration was accelerated following the completion in