

STEEL-MAKING FACILITIES

The raw materials situation of the Canadian steel industry is unusual. Most of the coal consumed by the industry is imported. The Dominion Steel and Coal Corporation at Sydney, N.S., is the only producer using Canadian coal; the others make their coke from coal mined in United States coalfields which are adjacent to their steel-making facilities in Canada. A considerable quantity of iron ore is also imported from the United States, where Canadian producers have important holdings, but major iron-ore discoveries in Canada in recent years have led to a greater consumption of Canadian iron ore in this country. Canadian capacity to produce pig iron is now approximately 4,100,000 tons annually compared with 2,700,000 tons in 1946. Not only has steel production become more integrated in total but a better balance has been achieved in the individual mills between their basic steel-making facilities and their rolling-mill capacities.

Nearly all of the carbon steel made in Canada is a product of open-hearth furnaces, although Canada now has a number of basic oxygen furnaces in operation. These oxygen facilities have all been introduced since 1954 and are based on the LD-steel-making* technique originally developed in Austria. Almost all the high-quality alloy steels made in Canada are electric furnace products. Most of the major producers have such facilities and also a small number of producers specialize in the production of quality steels. All the smaller bar producers use electric furnaces to make molten metal from scrap. An interesting postwar development at one Canadian mill has been the introduction of a continuous casting machine, which pours molten steel directly into a workable slab. This installation is part of a mill which produces stainless steel sheet, strip, tube, bar and rod.

ROLLING-MILL CAPACITY

Perhaps the most important advances that have occurred in the postwar years have been in the field of rolling-mill capacity. For instance, three new blooming mills were put in operation, without which there would have been little expansion in other fields of the steel industry. For it is in the blooming mill that steel ingots are rolled into blooms and slabs and it is from these forms that all the other rolling-mill products are made—blooms are the primary form of bars, wire and other products of this type, while sheet and other flat-rolled products are made from slabs. Blooms are sent to a billet mill and slabs to a plate mill. In 1945 Canada had capacity to produce 198,000 tons of structural steel a year; today structural capacity is about 374,000 tons and the number of types and sizes have increased notably. However, Canada's capacity to produce structurals is still considerably short of meeting domestic requirements in years of peak demand, a situation attributable to the occurrence of wide fluctuations in demand and to the existence of a relatively low tariff. Another factor is the low value of structurals per ton of steel and the shortness of runs in a high-volume operation. Canadian mills therefore have preferred to invest in those sectors of the industry where there is a greater return per dollar invested.

After the end of the War in 1945, it was necessary to make adjustments in connection with the additions to Canadian plate mill capacity made to meet wartime requirements. Thus by 1948 plate mill capacity was lower than it was in 1945. Since 1948, plate capacity, through the expansion and conversion of existing facilities, increased from 220,000 tons in 1948 to 472,000 tons in 1957. The first new addition to facilities was a large plate mill completed early in 1959. The great resource-development program of recent years has probably been the most important factor leading to this expansion, in addition to the heavy demand for large-size pipe for the transportation of oil and gas across the country.

Bar and rod capacity has also expanded and, though perhaps overshadowed by developments in other types of steel, it should be remembered that many of the present-day mills began their operations with the output of these products. New trends in building construction have necessitated an increase in the production capacity for reinforcing bars. There has also been an increase in the capacity to produce cold rolled bars, though the

* Linz-Donowitz steel-making technique.