

market for its little cars in the U. S. and Canada. Last week much of its assembly-line machinery was on the way to Hamilton, where the company will sink \$4,000,000. At first the plant will assemble cars from parts made in England; later it will build 500 a week, and half the parts will be made in Canada.

Another big automaker now making a sea change is Leyland Motors, Ltd., which will put millions into a plant at Malton to build

trucks and buses. Leyland will work alongside A. V. Roe & Co., Ltd., another immigrant enterprise, with contracts to make jet engines and build jet planes.

Some other immigrants:

Pye Ltd., maker of radios and television sets.

Peek, Frean & Co., Ltd., biscuit bakers.

Spratt's Patent Ltd., maker of foods and medicines for dogs.

Steel: The Key to Industrial Expansion

By MARTIN HOLLINGER

STEEL has become one of the world's scarcest commodities. The new importance of steel in the world economy is the result of unprecedented demands for industrial plant, equipment and consumer goods. Already in short supply on the North American continent, the heavy commitments for European aid together with rapidly growing military requirements have now made the steel shortage even more acute. Canada, heavily dependent as she is on United States supplies, has been compelled to reduce imports sharply. Thus, the question of the expansion of Canada's steel capacity has become one of prime importance.

Canada to-day is one of the leading industrial nations of the world. Compared with pre-war, industry has about doubled the volume of its production and is working at practical capacity. This year, gross national production is expected to exceed \$15 billion. Pressed by the urgent needs of war, industries were expanded and new ones were created. After the war these gains were consolidated and for the most part have been integrated into the Canadian econ-

omy. On the other hand in Europe and Japan industry was destroyed and disorganized. Thus, Canada's importance as a modern industrial power has been established.

Now, a further period of intensive industrialization in Canada is in process. Each year investment in plant and equipment has exceeded its previous peak and surpasses by far the levels attained during the war. In 1948, total private and public investment is expected to reach the spectacular level of \$3 billion, about 10% greater in volume than last year. Forced into industrial maturity in less than a decade, the tempo of Canada's industrial development has increased.

New industrial goals have been imposed on the Canadian economy because of our exchange problem and continued inflation. Production must be expanded to increase total domestic supply. Imports are being reduced to save United States dollars and exports increased to add to our dollar earnings. Much of the increase in production and accompanying expansion facilities will have to occur in steel using industries. Moreover, military requirements from Canadian production may also be expected to increase.

Although our steel capacity has been increased by about 60% since pre-war

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and production has almost doubled, Canadian steel requirements are far from being filled and our heavy dependence on imports remains. Thus, the structure of our steel industry, an examination of its capacity in relation to Canadian requirements and the extent and duration of the world steel shortage are of special interest at present.

The Canadian Iron and Steel Industry

The Canadian industry may perhaps best be described by tracing first the flow of materials through the steel-making ing process. To begin with, iron ore, coke and limestone (a flux) are reduced to iron in blast furnaces. The iron, apart from about 20% of which is sold principally to foundries as pig iron, is then made into carbon steel. This is done in open-hearth furnaces into which are charged the molten iron, scrap (now about 55% of the total) and sometimes ferro-alloys. Electric furnaces, mainly used for making special quality carbon steels, account for about 15% of total steel output. Alloy steel production which accounts for about 5% of the total is made in both types of furnace. Nearly all the steel ingot is used in the steel mills; only small amounts are made directly into castings. The primary industry ends with the rolling and drawing mills in which steel is reduced to standard shapes and forms, depending on the needs of secondary manufacturing industries, e.g. structurals for construction and plates for ships.

The structure of the industry is largely determined by the degree of integration from raw materials to rolling mills. In all there are about 15 basic iron and steel producers in Canada. The "big three," the Steel Company of Canada, Dominion Steel and Coal Corporation and Algoma Steel Corporation, which account for over 80% of steel ingot output, combine all processing stages from coke and iron to finished rolling mill

products. Vertical integration is a characteristic of all North American steel production. The next largest company, Dominion Foundries and Steel Company, makes its steel for rolling from scrap, and iron when available; it has no blast furnace. Another five, but much smaller companies, do the same. Canadian Furnace at Port Colborne produces pig iron only. Three other companies produce rolling or drawing mill products; they have neither blast nor steel furnaces.

Canadian iron ore and coal resources are abundant but the major deposits lie far to east and west of the industrialized areas of central Canada. On the other hand American iron and coal resources are centrally located and with easy access to the Lakes have been more economic to use. Thus, of about 4.2 million tons of iron ore used by the Canadian industry in 1947, 3.1 million tons were from the United States (Minnesota and Michigan), 800,000 tons were from the Wabana fields in Newfoundland and about 300,000 tons were produced in Canada. Another 1.7 million tons of Canadian production were exported to the United States. A large part of this was mined at Steep Rock where the ore is of a relatively high grade and advantageous to export for economic and technological reasons. About 70% of the bituminous coal used by the industry is imported from the United States, mainly Virginia and Pennsylvania.

Canada's iron ore and coal resources are now to be developed more fully. The most important program for iron is being carried out in the lower Quebec-Labrador area, where there are extensive ore bodies. These deposits, which give added importance to the development of the St. Lawrence waterways, may prove to be of world importance as an abundant source of high grade ore. Nevertheless, Canada cannot expect to reduce her dependence on raw materials from the United States for many years. This

also applies to her hydro power potential which, to some extent, offers an alternative to the use of coal in the production of steel.

In general, the conflux of the Canadian iron and steel industry is around the Great Lakes, which provide cheap water transportation for bulky raw materials from the United States and relatively easy access to industrial markets in Ontario and Quebec. Stelco and Dofasco in Hamilton are in the heart of the most industrialized regions in Canada—south-eastern Ontario. In addition to closeness to markets, they have the advantages of a large local supply of scrap and a diverse demand for steel products which can be produced and shipped to nearby markets. These companies are able to compete best with United States producers in the Canadian market.

Algoma at Sault Ste. Marie and Dosco in Sydney, N. S., however, pose serious problems of location, especially since they account for about 75% of total employment in their respective areas. Algoma, originally situated to take advantage of the large rail market provided by the Canadian railway boom in central and in eastern Canada, was in difficulty when this demand dropped. Dosco was established with an eye to export markets and an abundant local supply of raw materials. But the markets did not fully materialize and the raw materials involve many mining and metallurgical problems. Both companies have therefore been at some disadvantage in relation to central Canadian markets. In an attempt—which has brought a certain measure of success—to overcome this handicap Dosco acquired a number of secondary manufacturing subsidiaries—shipbuilding, lumberyards, bridge-building and railway rolling stock, etc.

In 1939 there were 10 blast furnaces in Canada with an annual rated capacity of about 1.5 million gross tons of iron. At present there are 14 furnaces

with an annual rated capacity of about 2.5 million gross tons. Steel furnace capacity has been increased from a rated capacity of over 2 million net tons of ingots pre-war to about 3.2 million tons. Rolling mill capacity was also increased and is now about 2.7 million net tons. This figure does not allow for the cold sheet and strip rolling mill recently completed in Hamilton. Effective capacity of the furnaces and rolling mills is somewhat less.

War-time expansion of steel facilities was such that the relationship between capacities at various stages in the steel making process was improved. However, some important problems appear to remain. For example, since there is a material loss of about 27% in converting steel ingots into rolling mill products, the figures given above suggest that steel ingot capacity is about 400,000 tons too small in relation to rolling mill capacity. The result has been that the rolling mills are not fully used despite substantial imports of United States shapes for rolling in Canada. In fact, the new cold sheet and strip mill can use a substantial tonnage of steel which at present is not available. Further, difficulties also arise because the steel ingot capacity of individual producers is not in proportion to their rolling mill capacity. Thus, it has been necessary for the Federal Government to arrange and aid inter-company shipments of steel for rolling. Effective blast furnace capacity also may be considered insufficient in relation to steel furnace capacity.

The Steel Shortage

In 1947 Canadian industry consumed about 3.1 million net tons of steel rolling mill products, compared with about 1.9 million tons in 1937. Of this, Canadian steel mills shipped about 2.4 million net tons, but this includes forms milled from imported shapes. Production from Canadian steel probably amounted to about 2.2 million net tons. The remain-

der, 900,000 tons, was imported and represented about 30% of Canadian consumption. This was nearly 10% lower than in 1937.

Whereas before the war Canada imported substantial amounts from the United Kingdom, last year nearly all imports were from the United States. Canadian imports of United States steel last year were slightly over 1% of their production and roughly 17% of their exports.

Canadian steel requirements for 1948 have been estimated at about 3.6 million net tons of rolling mill products. Some estimates are above this figure. Due to increased production, supply during 1948 is expected to be about 100,000 tons greater than last year. Thus, the steel shortage would seem to amount to at least 400,000 net tons, or about 15% of current domestic production.

Domestic production of steel ingots this year is at an annual rate of over 3 million net tons and may be expected to provide about 200,000 net tons of rolling mill products more than last year. Ingot production at this rate is near practical capacity, the main limiting factors being the shortage of iron and especially of scrap. Canadian steel mills (aided by subsidiaries) have been tapping all available sources of scrap, including points as far away as Hong-Kong and Australia.

On the other hand, Canada's steel imports in the first eight months of this year were about 20,000 tons below last year. In the last three months of 1948, Canada has voluntarily agreed to limit imports from the United States to a level approximately 70,000 tons below that in the same period of 1947. The largest reductions in imports are to be of structurals, plate, sheet, pipe, tubes, skelp and wire. This agreement, which is to extend into 1949, results directly from the growing demands for rearmament

added to the existing world shortage of steel.

World steel ingot production in 1947 amounted to about 157 million net tons. Although this was above immediate pre-war rates, it was still well below the peak production during the thirties, about 165 million net tons in 1937. The reasons for this were the sharp drop in the output of two major pre-war steel producers, Germany and Japan, and the inability of the United Kingdom, France, Belgium and Luxembourg to exceed peak pre-war rates of production.

The main impact of the present world shortage has been on the United States. Although United States steel ingot production has increased from 57 million net tons in 1937 to about 85 million net tons last year, it has not filled the yawning gap in world steel demand. At the same time a number of major United States industries are operating considerably below capacity. The result has been domestic pressure to reduce exports of steel mill products. Especial impetus has been given to these demands with the passage of the Economic Cooperation Act, since American industry will seek to make greater use of domestic steel in supplying European needs for manufactured steel products. In fact, this year the United States expects to reduce its steel exports by over 10%. Further pressure on United States exports is now developing quickly because of growing military demands. United States civilian production has already been seriously affected.

Thus, it cannot be expected that there will be any significant improvement in Canada's steel position this year or next. In fact, judging by present trends, the steel shortage in Canada may be greater next year and perhaps for several years to come. Canadian industry will therefore have to rely more and more on domestic steel capacity.

Effects of the Steel Shortage

In Canada the steel shortage has limited industrial production in general, and many industries have been operating below capacity. In some plants production has at times been stopped entirely. Productivity has been adversely affected and production costs greatly increased. The pressure on prices has been maintained by the resulting shortages of manufactured goods. At the same time rising steel prices, though restrained by controls and subsidies, have been a powerful lever in the general increase in prices.

Limits have also been imposed on industrial development. Expansion, replacement and modernization of industry have at many points been delayed or deferred particularly in the hydro power, petroleum, and pulp and paper industries. Consequently our progress toward a more diversified and stable industrial structure and eventual solution of our balance-of-payments difficulties has been retarded.

The impact of the steel shortage on production and exports is best seen in the experience of three of our more important industries: motor vehicles, railway rolling stock and agricultural implements.

The automobile industry is of special interest because of its relative size and the effort being made to develop greater self-sufficiency. In 1947, the industry imported about \$190 millions of vehicles and parts from the United States. One of the largest consumers of steel, last year the automobile industry took about 12% of available supplies of which more than half came from the United States. If the production of vehicles and the degree of fabrication in Canada is to be increased significantly, substantial additional supplies of steel will have to be made available. But the industry is finding it difficult even to maintain present output, already well below capacity.

At present the rolling stock industry, which takes about 6% of total Canadian steel supply, is fully booked on domestic and export orders. The former are urgently needed by the railways and the latter are very desirable as they are to be paid for in hard currency. However, steel deliveries, and to a lesser extent a shortage of other components, have only permitted output at roughly only half of capacity. As a result, domestic deliveries are little more than sufficient to meet current replacement needs of the railways, and exports have taken even less advantage of the large foreign demand.

The agricultural implements industry is another large consumer of steel, using about 5% of the total supply. This industry is perhaps best able to increase its dollar earnings since the absence of tariffs permits the extension of the division of labour between Canada and the United States in the production of implements. Other export outlets appear to be equally favourable. However, production is now under capacity and cannot be expanded due mainly to the shortage of steel.

Other industries which are important consumers of steel (approximate percentage of total supply used is given in brackets) are railways (11%), containers (8%), machinery (7%), mining, petroleum and lumbering (3%), and shipbuilding (2%), as well as durable consumer goods. In all of these the demand for steel is pressing.

The Steel Outlook for Canada

At present, available steel supplies do not seem adequate to satisfy the most pressing Canadian demands, to say nothing of the large unsatisfied demands for industrial development and for export. What then is the steel outlook for Canada?

Targets for 1951, which it is hoped will meet world requirements, call for an annual output of 193 million net

tons, an increase of about 36 million net tons over 1947. About 4 or 5 million net tons is expected from the United States. Europe, including Russia, hopes to increase production by about 30 million net tons to an output of about 96 million tons. Elsewhere, additions to production are not likely to be large. The target of 61 millions tons for the Western European countries alone involves continued recovery at a rate of about 17% per year, the rate actually achieved in 1947. However, the United States House Committee on Foreign Aid is of the opinion that Western Europe will fail to reach its 1951 target by about 4 or 5 million tons. Thus, the European and world steel shortage is likely to persist for some time into the 1950's, with consequent continued pressure on North American production. Canada's prospects for importing steel must be viewed in this light.

What is the prospect for an expansion of Canadian steel capacity? This depends on the one hand, on the industry's judgment about future markets in relation to present high costs of new facilities, and on the other, on the national interest in expanding the production of this industry which is basic to Canada's growing economy.

Summary

This article has attempted to outline briefly the importance of steel in our industrial economy and to provide background against which the current discussion concerning the expansion of steel capacity may be considered. It has pointed to the accelerated pace of industrialization in Canada which has brought us into the first rank of world industrial powers and the consequent new importance of the primary iron and steel industry to our economy. It has outlined the results of war-time expansion of this industry, the great increase in capacity and improvement of our steel making facilities. Withal the shortage is still acute and there is an apparent lack of balance at various stages in our steel-making facilities. Our heavy dependence on imports still persists and these supplies are now to be curtailed. The favourable prospect for the development of our iron ore resources has been noted; also the increased integration of the steel industry itself into the most industrialized region of Canada. Finally, in reviewing the experience of Canadian industries, the steel shortage has been seen as one of the most restrictive factors in our industrial development, and also, because of that restrictive effect, one of the important inflationary factors now affecting the economy.

Trade Unions in an Expanding Economy

By EUGENE FORSEY

OF trade unions in an expanding economy one thing at least is certain: the part they will play will be far greater than it was before the war. In numbers, and still more in power, they have already grown almost out of recognition, and if the economy continues

to expand, there can be little doubt that the unions will expand with it.

It is hardly too much to say that the growth of unionism since 1939 has changed the face of industrial Canada. Before the war there were less than 360,000 union members; now there are over 900,000. Before the war, most of the members were in unions which were