

NOTE: In the chart on page 5 of Reconstruction Supplement No. 2 (*Chemicals in the Limelight*), the figures given for the industry in 1939 are actually those for 1940. The correct figures for 1939, reading down the chart, are: 808; \$172,000,000; 23,000; \$32,000,000; \$89,000,000. It is suggested that these corrections be made in copies of the Supplement being kept for reference in future discussion periods.

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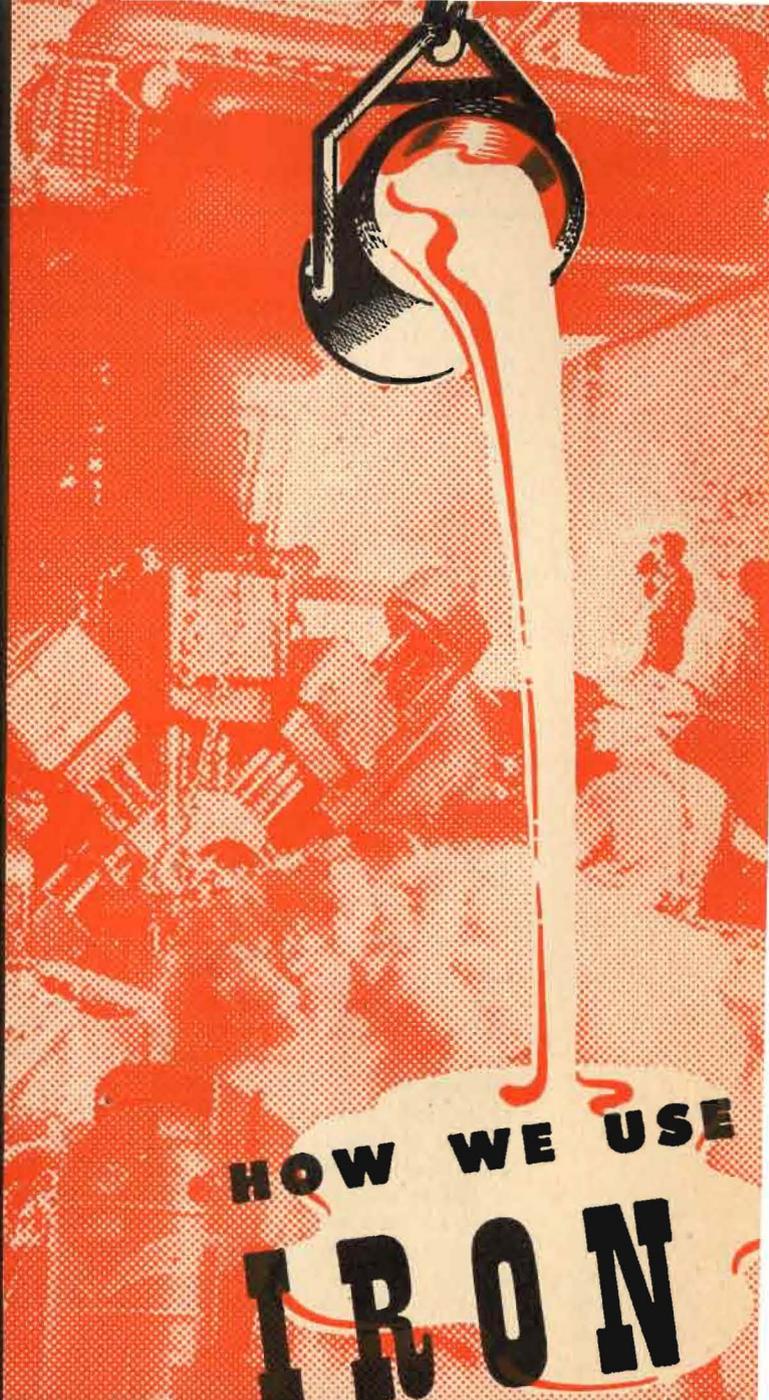


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CANADIAN AFFAIRS

RECONSTRUCTION SUPPLEMENT NUMBER 5



IRON AND STEEL INDUSTRIES

This is the fifth in the series of *CANADIAN AFFAIRS Reconstruction Supplements* dealing with the major activities which, when fitted together, make up Canadian industry and commerce. These components do fit together in a hundred and one ways. Generally we shall follow the pattern adopted by the nation's statisticians, which begins with the materials used—fibre, salts, wood, and so on. We also pay attention to the end products made—clothes, food, shelter, paper, etc.

The *Reconstruction Supplements* are published, at the request of the Services, to help Servicemen in forming an up-to-date appreciation of the job picture in Canada. To do this requires facts on the development, working conditions and market prospects of the major industrial groups.

There is no attempt to deal with industrial groups in the order of their importance, although each group to which we devote a pamphlet is of first-class importance to all Canadians. Most of the facts we publish are taken from carefully prepared public reports. Those facts are presented in *CANADIAN AFFAIRS* so as to be useful in armed forces discussion groups.

This particular issue is dedicated to the Canadians who have organized and toiled in the fashioning of iron and steel products, for war and peace... and to the Canadians who will do so hereafter. We said at the outset of the series that this is the time to take advantage of the facilities offered in the Service to qualify for a job; that having qualified, there will still be a variety of jobs to choose from; and that 'we shall continue for the rest of our days to be affected by the products and policies of each of Canada's major industries no matter where we happen to work'. This is more than ever true of the group of industries producing iron and steel, and putting them to our use. This is by all odds the largest group we shall deal with.

KEY MATERIAL

Fighting men appreciate steel. We have both dished it out and dodged it; with steel some of us crossed the ocean, invaded enemy beaches, clanked into liberated towns. In war it was vital to our lives. In peace it is also vital to our lives—although it becomes bathtubs instead of bombs, mowing machines instead of mortars, hospital beds instead of howitzers.

Without exaggerating we may say that around the development of steel our whole modern civilization was founded. A thousand years from now school children may be taught of our time as the Steel Age. They will learn how steel made possible the development of massive machinery to do the work of man, how it set people free from the drudgery of hand work and provided them with plentiful goods at low prices, how it gave them leisure to go to ball games or enter into community activities, how it changed their whole way of life.

And so, returning to the civilian world, servicemen recognize that steel will play a part in their future. If a man is thinking of a job in any of the steel industries, he will want to know a lot of things about it. How can the industry use his abilities? Where are its works? How many jobs does it offer? What are the industry's prospects?

Whether we are thinking of working in some branch of the iron and steel business or not, we are entitled to ask a few questions about the contributions this industry has made—and will make—to our living standards in Canada. How much does its work affect us all?

Like many other industries, the iron and steel group is divided into two parts—the primary, concerned with the preparation of raw materials; and the secondary, concerned with the fabrication of the metal into finished articles for use.

When most people think of steel they think of the more publicized primary industry with its streams of

white-hot metal and flying sparks. And yet, of the 2,000 iron and iron-products plants in Canada in 1943, only 63 plants, involving eight per cent of the industry's total number of employees, were engaged in the production of iron from ore, and steel from iron. The other 1,800 establishments are busy turning out some 12,000 lines of steel wares—as various as buses and bobby pins, as prosaic as paper clips or potato mashers.

Making all these things involves a variety of methods and processes which cannot be very neatly classified into a few groups. Broadly speaking, steel is converted from *bar stock* for machinery, agricultural implements, concrete reinforcing, railway equipment, etc.; from *plate* for shipbuilding, boilers, tanks and some building components; from *wire stock* for rails and fencing, etc.; from *sheets* for everything from bottle caps to car bodies; and from various shapes for tools, cutlery and many other products.

How old is Mass Production?

The use of iron by man dates back to ancient times when it was gathered on the surface of the ground and crudely worked by hand into spearheads and rough tools. Down the succeeding ages our forefathers, by trial and error, added new discoveries to the treatment of iron, developed better methods of smelting and hardening it. By the Middle Ages many kinds of good handwrought iron were being produced, and fine steel swords and chain mail were being fashioned by very special craftsmen for important people. Theirs were slow methods, however, with small output.

About the middle of the eighteenth century, Abraham Darby in England found how to smelt iron in great quantities. His discovery changed the face of the world—and made mass production possible. Britishers proceeded to use the material for machinery, buildings, and vehicles—and to get a head start in the Industrial Revolution. Such men as Bessemer, Thomas and Gilchrist, the Siemens and the Martin Brothers solved the problems of mass-producing iron's tougher offspring, steel. Their various methods are used with modifications to this day.

How is Iron Extracted?

Iron is never found in its pure form; in the ore it is always combined with oxygen and mixed with silica (a sort of glass-like stone) and other impurities, such as sulphur and phosphorus.

At the smelter the concentrated ore is heated with coke and limestone in a gigantic blast furnace. The carbon in the coke removes from the iron ore its oxygen part, combines with it to form carbon dioxide, and departs up the smoke stack. The limestone in the mixture mops up after the main action, absorbing the impurities into itself, and becoming 'slag'. The molten minerals find their own levels by weight; the iron, because it is heavy, sinks and forms a layer on the bottom where it is periodically drained off. It will contain small amounts of sulphur and phosphorus.

At this stage the iron may be cast into molds as 'pig iron' or it may be taken to the steel furnaces, in liquid form.

What Changes Iron to Steel?

Steel is made for uses calling for greater strength and flexibility than grey iron. It is made by mixing and combining carbon with iron. In the molten state the iron dissolves the carbon and unites with it to make steel. This performance is done by several different methods, depending on the type of steel desired.

The oldest method is the cementation process in which the iron and plenty of carbon were heated together in an airless chamber. The carbon was unevenly absorbed into the iron in the chamber, so the whole mass was passed to a small crucible to be heated until it was of the same composition throughout. The method produced small amounts of tool steel, but has been superseded for this purpose by the electric furnace, which will make five or ten tons at a time.

For the process which Bessemer developed, the iron and carbon are heated together in a deep tilting pot fitted with a tube through which compressed air is blown into the centre. The high pressure draught burns out all impurities and the ashes are carried to the sur-

GLAMOROUS

VERSATILE

IRON THE KEY TO INDUSTRIAL GROWTH

SMELTING

HARDENING

CEMENTATION PROCESS

BESSEMER

STEEL IN CANADA

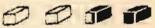
LEADING INDUSTRY

FOUR BOOMS FOR STEEL

Taken as a whole, to include both primary production and fabrication, the industry is the biggest in the country; it employs one twelfth of all people gainfully employed, produces nearly one third by value of all products, owns almost a third of the productive facilities of the country. At the peak of war production (1943) it employed 435,000 persons out of the total 1,241,000 working in factories. The accompanying chart compares the steel industry in some respects with other major industries in typical wartime and peacetime years.

Four epochs mark the growth of the iron and steel industries in Canada. These are the big industrial developments surrounding the building of the railways, production for the First World War, the establishment of the automotive industry and production for the Second World War.

WARTIME GROWTH OF INDUSTRIES 1939 TO 1943

INDUSTRIAL GROUP	EMPLOYEES	GROSS PRODUCT
IRON & ITS PRODUCTS		
WOOD & PAPER PRODUCTS		
CHEMICAL PRODUCTS		
TEXTILE PRODUCTS		
 = 50,000 PRE-WAR EMPLOYEES		 = 50,000 EMPLOYEES ADDED DURING WAR
		 = \$250,000,000 OF PRE-WAR PRODUCT  = \$250,000,000 WARTIME INCREASE

face by the bubbles. This process has almost entirely been replaced since the turn of the century by the open hearth process, except for softer steels for welded pipe and bolts.

In the open hearth process the metal is heated and mixed in a shallow gas furnace. (The gas is a by-product of the company's coke plant—coke being essential for smelting.) It is a slower method than bessemer, hence easier controlled, and also handles larger quantities—up to 150 tons at a time. From the open hearth furnace comes a mould which is unevenly hot in its interior. It is put into a 'soaking pit' and heated further until the temperature is even throughout.

For making special steels, prepared ferro-alloys are added. They are metallic mixtures which have little importance as such, but make all the difference between iron and fine steels. Manganese, chromium, tungsten, nickel, and molybdenum are common ingredients.

Drawn, Wrought, Rolled or Forged

Steel is worked into the shape of the finished product by either rolling and squeezing it into shape, or casting it into a mould. The squeezing process takes different forms depending on the type of the finished product, and may be done hot or cold. Steel may be rolled through shaped rolls to make rails, drawn through small holes to make wire, battered by giant hammers on anvils to make gun barrels (this is forging), or stamped from sheets into shape to make car bodies.



CANADIAN AFFAIRS *Reconstruction Supplements* are intended for those in the Services who want to discuss realistically the Canada in which they will work after the war. The *Supplements* are prepared by the Canadian Information Service and will appear fortnightly, alternating with the regular issue of CANADIAN AFFAIRS.

OPEN HEARTH

SHAPING

THE
BEGINNINGS
IN CANADA

Although the first iron smelter in Canada was set up near Trois-Rivières in 1735, the industry did not really become a going concern until the latter part of the nineteenth century when the well-tried processes of bessemer, and the open-hearth method of steel-making were installed. At that time only six furnaces were producing pig iron in Canada and turning out less than 500 tons a day. By 1911 the output of the Canadian industry had been boosted to 3,000 tons a day.

The hey-day of Canadian steel and iron, from the point of view of capital expansion and organization, was in the first twenty years of this century. In that period the steel companies rapidly developed and joined forces to form huge corporations. The reason behind all this growth was the big building program of the Canadian railways. Between 1900 and 1915 Canada doubled its mileage of railway track.

The 1920's saw the steel industries tooling up for the manufacture of automobiles, refrigerators, electric stoves, washing machines, and the other goods by which North Americans were measuring their living standards. This activity reached its highest point in 1929. The steel industry has experienced the same ups and downs as all industry.

The biggest production boom in the industry took place during World War II, when Canada rose to fourth place among the nations of the world as a steel producer. The expansion was chiefly in the primary industry in Canada. When the finishing mills and fabricators stepped up from their pre-war eight hour day to a twenty-four hour day, the smelting units (which run continuously in any case) had to be enlarged to meet the swelling demands for their product. A notable increase in the finishing mills has been the addition of plate mills at Hamilton and Sydney to fill the orders for ship plate.

Canada's really creditable steel production for the last war, which included ordnance, vehicles, ships and aircraft, was left far behind both in quantity and diversity by that of World War II. In the latter, the steel group swelled their repertoire with such huge items as

RAILWAYS WERE
BIG CUSTOMERS

BETWEEN
THE WARS

WORLD WAR II

CANADIAN IRON & STEEL IN TWO WARS

PERIOD	PIG IRON PRODUCTION	FERRO-ALLOY PRODUCTION	STEEL INGOTS & CASTINGS
1913-18			
1938-43			
	 = 500,000 LONG TONS  = 500,000 LONG TONS OF WARTIME INCREASE	 = 20,000 LONG TONS  = 20,000 LONG TONS WARTIME INCREASE	 = 500,000 LONG TONS  = 500,000 LONG TONS WARTIME INCREASE

combat vehicles, wholly Canadian-built ships, aircraft ten times the size of any ever built in the country before. During World War II the know-how of gun boring and armour-plate rolling was mastered. In another chapter we shall consider the significance of this wartime expansion.

The output of the industry in the wars is shown in the above pictograph. The 1918 output of steel was not beaten until 1940.

It should be pointed out that in steel, the secondary industry is more stable than the primary. The manufacture of some steel products (low priced cars for instance) is less affected by depression than is the production of pig iron. A lot of iron goes into new construction, which has been a most uneven activity in the past. (See *What About the Builders?* Reconstruction Supplement No. 3.)

PRIMARY
LESS STABLE

Where are our Steel Mills?

The bulk of Canada's iron and steel industry is in the east, although there is some ore elsewhere. The primary steel industry is concentrated in Ontario and Nova Scotia partly because the sources of both iron ore and coal are close by. It is so concentrated also because steel mills must have big markets. Iron mines on the American side of the Great Lakes, and coal from the lower lakes, supply Ontario's principal steel regions—

CANADA'S STEEL
REGIONS

Hamilton and Sault Ste. Marie. In good pre-war years the Great Lakes region produced 40 per cent of the world's steel. The Maritimes have coal in Cape Breton Island, but lately most of their iron ore and limestone have come from Belle Island, Newfoundland. In peacetime, the Maritime industry got much ore from Brazil.

Because of plentiful sources of hydro-electric power, and denser populations which provide both labour and markets, Ontario and Quebec lead in the manufacture of iron and steel goods. Within easy reach of these fabrication centres are the newly developed ore deposits in the Lake Superior region, lately opened up by the war, as well as by Ontario Government bounties. More remote from manufacturing centres are the recently discovered high grade ore bodies in Labrador, reputed to be the largest in the continent. As long as the sources and markets remain there, we shall have a concentration of Canadian steel production at strategic points on the Great Lakes and to a lesser degree in the Maritimes.

NOTE

Beginning with this issue, CANADIAN AFFAIRS (including the Reconstruction Supplements) will be distributed in a somewhat different way than heretofore.

Members of the Canadian Armed Forces whether in or out of Canada, will continue to receive it in the usual way.

Others outside Canada who have asked that the publication be sent to them, will also remain on our mailing lists.

Distribution from C.I.S. to civilian groups and individuals in Canada, who formerly received CANADIAN AFFAIRS, will not be continued.

This distribution is in accordance with the Order-in-Council establishing the Canadian Information Service.



No. 22

November, 1945

"SUITABLE EMPLOYMENT"

"HIGH employment, as promised by the Government, does not necessarily solve the question of suitable employment for the veteran." These are the words of the six-man Royal Commission on Veterans' Qualifications set up last April under Col. Wilfrid Bovey to find out to what extent experience gained in the Service can be of value to the vet upon his return to civilian life. After much questioning of people in veterans', government, labour, employers' and educational circles this Commission made 82 recommendations for improving the chances of returned men and women for getting decent jobs. They add, "It is most essential that veterans may be placed where they may enjoy just and equitable wages and working conditions in all parts of Canada. Unless economic conditions in Canada are maintained so as to make possible the full use of such instruction and experience (gained while in the Services), training and experience will be valueless and the work of this

Commission will result in nothing."

No Time Should be Lost

Educational facilities for veterans received special attention from the Commission. They recommended strongly that ex-service personnel be given every opportunity to complete their matriculation standing through C.L.E.S. courses, correspondence courses, or in classes.

With regard to universities, refresher courses should be provided for all vets entering, whether for the first or second time; government assistance should be given in accommodation facilities, training and finance; and students should be given an increased living allowance. Committees in the various universities are giving careful consideration to evaluating credits for the training men and women received while in the Services.

What About the Job Situation?

The Commission found that there is an over-all lack of re-

STEEL CENTRES
LIKELY TO
STAY PUT

A MINISTRY OF HOUSING HEADED by a Cabinet Minister is being advocated by the National House Builders Association. They also back up the recommendation of a veterans' association to the effect that more priorities should be given to vets to obtain homes, either by rent or by purchase. (Veterans are already entitled to such priority for some houses built under the National Housing Act, and for dwellings now being built for rental by Wartime Housing Limited. V.L.A. houses are built solely for ex-service personnel.)

An alternate suggestion was made in the House of Commons—that control of housing be transferred from the Ministry of Finance to that of National Health and Welfare.

PEACETIME TRAINING FOR YOUNG men from 18 to 20 in the Canadian Army is being discussed in Parliament. The idea is that they would be given a year or more of training, both for improving health and physical fitness and for military purposes. A recent Gallup Poll shows that 71% of the voters approved the idea, 18% disapproved, and 11% were undecided or qualified their answers.

A JOINT ARMY-AIR FORCE OPERATION (known as "Musk-Ox") involving an 81-day trek over 3,100 miles of Canada's arctic region will start next February. The Army will travel in armoured snowmobiles with tracked trailers and will be supplied from the air by the RCAF. Valuable information on air and army warfare in arctic conditions will be gained, and technical research projects undertaken will benefit government departments and civilian research workers.

CANADIAN UNIVERSITIES NOW HAVE more than 10,000 ex-service students enrolled in their courses, according to the Minister of Veterans Affairs. Mr. Mackenzie adds that these vets "have made remarkable progress in their university studies", with only 45 discontinuing their courses because of inadequate progress up to the end of September. He predicts that by September, 1946, there will be some 30,000 men and women veterans attending universities.

CANADIANS IN IMPERIAL FORCES other than those raised in Canada will be paid the difference between the Canadian and the British war service gratuities. These servicemen must have been living in Canada on or before Sept. 10, 1939, and must return to live in Canada immediately following their discharge.

POSSIBILITIES OF EMPLOYMENT IN meat packing houses, woods operations, sawmills, coal and gold mining, foundries and other industries are being made known to servicemen through the Department of Labour. Working conditions and wages in these industries have improved, and servicemen are being encouraged through films and conducted tours to consider employment in these occupations after their discharge. If a serviceman in Canada wishes to take on work of this nature, and can be spared from his unit, he may obtain leave without pay and allowances and may work for civilian wages.

VETS WHO OWNED CARS WHICH were operated for business, who sold them on enlistment and now require a car for re-establishment in their former business, or who are incapacitated and need a car for rehabilitation, will qualify under Class "B" priority for new cars. Class "A" priority goes to doctors and health employees, government officials, public services and utilities systems.

HOUSING ENTERPRISES OF CANADA, Ltd. (see *Givvy Street News* No. 18) has plans calling for the spending of \$100 million across Canada. The type of house which they plan to build will cost about \$6,000, will not be for sale, but will rent at rates ranging from \$35 to \$50 a month, depending on cost of house and property. These houses, according to the National Housing Act, would be suitable for families with incomes of \$2,100 to \$3,000 a year.

FLASH: Canada is already almost 40% ahead of schedule in getting her fighting men and women home, with the result that by Nov. 15, there were 50,000 more back in Canada than were originally planned for by December 31.

Decent wages, a sense of doing something useful, working conditions as tolerable as they can be—these are things we consider when we begin to think about jobs in the iron and steel industries, or any others. There is a wide choice of jobs in these fields, from the smelting of the ore to the assembling of finished products—be they zippers or bank vaults. The census of Canada lists 18 distinct metal trades. Of these, one of the commonest in the primary iron and steel industry is that of furnaceman; in the secondary industries the groups with more than 12,000 each are: machinists, blacksmiths and forgemen; welders and flamecutters; moulders, coremakers and casters.

Giant machines characterize the iron and steel mills in which the most specialized types of work are involved. The metal is handled in ladles and cauldrons weighing tons—and of course it is white hot much of the time. Consequently, machines take over the job. The charges of ore, limestone and coke are fed into the furnace mechanically; trolley-cars and over-head cranes do the lifting and carrying of ingots, which may weigh from 5,000 to 20,000 pounds. It takes a healthy man to operate machinery connected with the smelting, milling and working of iron and steel.

The working conditions in the steel industry vary with the processes involved. In the blast furnaces and mills, the atmosphere is likely to be hot, dusty and permeated with fumes and gases. Falling objects and splashing metal are threats. Working in the primary iron and steel industry can be dangerous. This is reflected in the higher insurance premiums and workmen's compensation rates prevailing for some of these occupations.

In general, the beginning of fabrication is the dieing or casting of the metal into the first rough shape. Many

GREAT VARIETY OF JOBS

MUSCULAR EFFORTS MANY TIMES MULTIPLIED

NOT THE HEALTHIEST OF OCCUPATIONS

manufacturing jobs are of the assembly line character. There is a great deal of machine shop work—you can read the details in *The Machine and Toolmaking Trades*, one of the Canadian Legion Educational Service's series.

What about the Wages?

Iron and steel workers, in both the primary and secondary parts of the industry, are the highest paid group of industrial workers in Canada. The unusually long working day put in by these employees during the wartime emergency helps to account for the relatively high yearly income.

It's unsafe to jump to conclusions, however, until we've had a look at what is behind the figures. It was pointed out two or three years ago that about half the workers—chiefly unskilled labour—in two of the leading iron and steel mills were receiving less than 55 cents an hour for their work, or \$1,375 a year.

How is the Industry Organized?

Steel production is not a business for small proprietors in dispersed locations. The primary industry of Canada is largely concentrated in the hands of three huge corporations, who by the way, are in Canada the only producers of iron and steel from the ore to the finished product. They are the Steel Company of Canada, Dominion Steel and Coal, and Algoma Steel. Some idea of their size may be obtained from the fact that one of them owns twenty-four or more large subsidiaries including a shipyard, rolling mills, shipping companies, wire products companies, collieries and a bridge company. Of the three million tons of Canadian steel production in 1943, these three corporations accounted for about two million tons. The largest of them was capable of producing over 1,000,000 tons of steel ingots a year.

Of the remaining primary steel producers, only three have capacities exceeding 100,000 tons a year. Most of them rely on supplies of scrap iron and steel.

Few of them operate rolling mills to turn out rolled steel rails and structural beams. The majority confine their output to bar stock and tubing for mechanical components, fence posts, etc.

The Canadian steel fashioning industries present a slightly different picture. Although essentially their growth has coincided with that of primary iron and steel, they have developed along many different lines—according to products, methods and markets. Concentration of control is understandably less pronounced. With the exception of the automotive industry, where three firms control most of the output, the fashioning of products is a less centralized activity than the extraction of the metal itself.

How is Labour Organized?

Most of the organized iron-products workers are members of Canada's three largest trade unions: the United Steel Workers of America (a Canadian Congress of Labour and C.I.O. affiliate) representing about 50,000; the International Association of Machinists (Trades and Labour Congress and A.F. of L. affiliate) representing over 33,000; and the United Automobile, Aircraft and Agricultural Implement Workers of America (a Canadian Congress of Labour and C.I.O. affiliate) representing about 51,000 members (1944 figures).

There were over 400,000 Canadian workers employed in the production of iron and steel and the fashioning of iron and steel products; so less than half of them were union members. Making allowance for those employees in many branches who were wartime workers, labour organization within the steel industries in Canada has gone further than in most important industries.



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FABRICATING

GENERALLY
WELL PAID

LARGE UNITS

THE BIG THREE

THE OTHER
PRIMARIES

THE SECONDARY
INDUSTRY

ONE THIRD OF
ORGANIZED
CANADIAN
LABOUR

4

OUTLOOK FOR THE INDUSTRIES

How fast can the Industry produce?

What the Canadian steel industry is capable of doing was proven when it mobilized for war. The table on page 7 shows that we undoubtedly possess the capacity for large production. From 1939 to 1943 iron production more than doubled, steel production almost doubled and alloy steel production jumped to five times its pre-war volume. The industry has emerged from the war more grown up and with more strings to its bow. For example, the automotive industry is now less an assembly industry and more a manufacturing industry; a machine tool industry has come into being. Whether we will keep on producing iron and steel at anything like the wartime rate will depend on what we can sell.

How much will the Industry sell in Canada?

During the civilian goods famine of the war years, the fine old custom of passing the baby carriage on to the next family was revived all across Canada. Now that the faithful item is worn out. It is symbolic of almost every kind of consumer's steel product you care to name. Canadians everywhere are eager for such commodities as toasters, irons, washing machines, refrigerators, stoves, bicycles and automobiles.

Industry also has its backlog of iron and steel products to catch up. During the war large numbers of worn-out railway cars, rails, industrial machines and implements were kept in use far beyond their normal lives. Their owners have been waiting for the change-back to peacetime production to install new equipment. In peak building years, Canada uses about 100,000 tons of nails; during the war nail-making almost stopped, and build-

ers drew on accumulated stocks. The amount of steel saved was about enough to achieve our gun program. But now the nail stocks must be replaced.

Much of the expenditure for reconversion will provide work for the steel products industry. It should be noted, however, that much industrial steel, when worn out, can be dumped back into the pot and made over into new products. Consequently, reconversion expenditure will not create so great a market for the *primary* steel industry as a corresponding military outlay would provide. On the other hand, the new maturity and diversification of the fabrication industries implies larger demands for primary steel, wider range of use, possibly more stable markets.

It is clear that Canadian iron and steel makers will produce principally for the home market. How much can the home folks use? As we have seen, we now have a steel capacity of over three million tons a year—and in 1929, the prosperity year, less than *two* million tons of the metal were consumed in Canada. Population growth (over 10 per cent) and the growth of industrialization will increase that consumption somewhat. But it is obvious that to consume anything near our wartime production of steel we must have an economy of full employment.

How much will other Nations Buy?

To offset unevenness in the rate at which iron is used in Canada, foreign markets are desirable. Canada's export rate of iron and steel products jumped from 63 million dollars' worth before the war to 724 million dollars' worth in 1943. If we could hold our gains, the future of the industry would appear to be assured. However, a number of obstacles demand consideration.

Until such time as the war-blasted iron and steel industries of Europe are revived, there is a good chance that Canada will share in filling the lively European reconstruction demands. These orders will be for fabricated steel articles such as railway rolling stock, agricultural implements and machine tools as well as for steel ingots. In this connection it must not be forgotten

DEMAND IN
CANADIAN
FACTORIES

PLENTY OF
CAPACITY FOR
THE PRESENT

DEMANDS
ABROAD

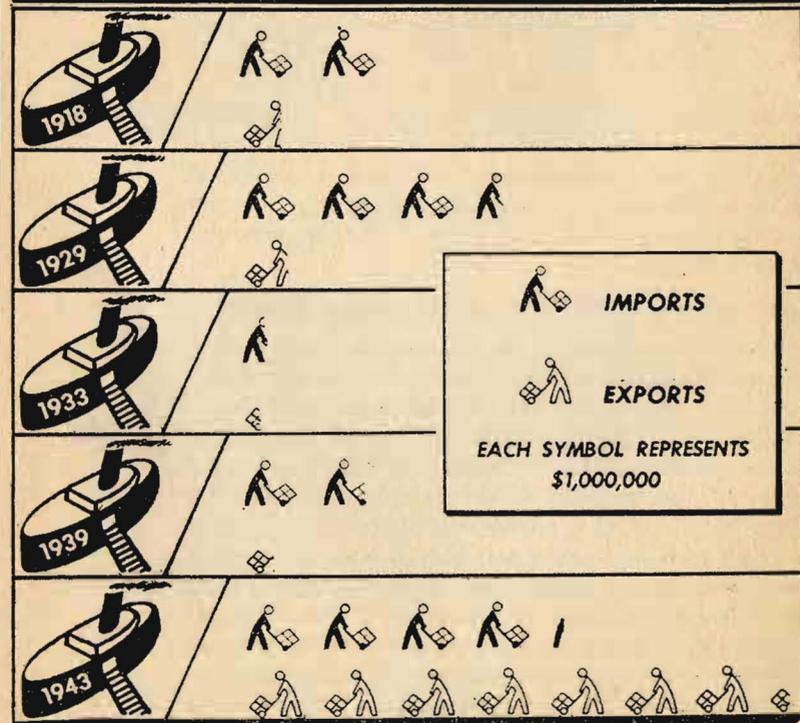
STEEL SPURTS
AHEAD IN WAR

PENT-UP
DEMANDS
AT HOME

that producers of iron and steel in other countries have also expanded during the war. Steel production in the United States jumped from 53 million tons in 1939, to 89 million tons in 1943. The American makers will also seek to sell their swollen surplus abroad. Canada during the war gained substantial new markets in the West Indies. But the United Kingdom desperately needs her former markets back again.

Another important consideration, as may be seen by the chart below, is the bald fact that despite large undeveloped deposits of iron ore in Canada, we usually import most of our ore and steel needs (from the United States and the United Kingdom). The Canadian output,

OUR TRADE IN IRON PRODUCTS



rather than spreading to other countries, was really being mixed in Canada with steel from outside our borders to make products some of which we exported.

**WE DO NOT
MAKE ALL WE
NEED AT HOME**

For instance, very little iron from Canadian soil finds its way into Canadian-made motor vehicles. Yet they were a highly important item in our steel-products exports. The finished steel goods we imported were mainly those not used in large enough quantities in Canada to make their fabrication here a sound venture. Very large structural girders are an example of this kind.

The war against the fascist powers altered our steel position appreciably. It is the practice in large 'integrated' steel-works to take the material from the raw ore, through a long series of processes, after each of which some of the material is withdrawn for various uses. One of the final products is 'full-finished sheet' the highly-polished, scale-free, tough material from which car bodies are stamped. Canada does not have a monster plant such as those in the United States or (formerly) in Germany. But the enormous demand for ship and armour plates was met by installing much larger plate mills. As a result our plants will soon be prepared to produce a finished sheet, such as is used in furniture and other fine surfaces.

**MORE STEELY
INDEPENDENCE
THAN BEFORE
THE WAR**

More and larger-sized structural shapes for large scale construction, and heavy plate can now be made in Canada. In addition, we are beginning to make greater use of our own iron ore. The extent to which the new Steep Rock mining development in Ontario will affect the ore import picture is not yet clear, but great things are expected of it. Because the deposits of highest grade U.S. ores are giving out, Canada will naturally develop more of her own resources. The industry is also offered some encouragement by the government: tariffs on certain steel products entering the country and a small subsidy on Canadian coal used in iron production. The movement of 5,000,000 tons of ore from Steep Rock is to be subsidized at the rate of 20 cents a ton.

There is one product of Canadian steel mills which is expected to become a great international traveller. It

is fine alloy steel. To produce a steel suitable for machine tools the electric furnace, by which the ingredients can be measured and the heat controlled with more than human precision, is ideal. In wartime, Canadians developed the production of these special alloy steels to such a high degree that our products have become known internationally. It is expected that they will find a ready sale abroad.

Will there be Jobs?

Making allowances for the fact that any predictions at this moment must leave wide margins for error, experts make the following estimates of employment chances in iron and steel for the next two years.

Production of war goods generally, of course, will evaporate; shipbuilding will decrease, although until world shortages of certain types of ships are made good, this industry is likely to employ substantially more workers than before the war; aircraft employment will shrink from wartime records of around 70,000, to between 10 and 15 thousand workers.

On the positive side, there will be an upsurge of steel production not only to fill backlog demands for producer goods—like machinery—and consumer durable goods—like refrigerators—but also to fill requirements for the building of new highways and for construction generally. Canada's air plans call for many new airports. It is estimated that, in the immediate future, the iron and steel and steel-using industries will employ between 300,000 and 350,000 workers. Taking into account the over-age workers and married women who with the end of the war are retiring from the industries, it is conceivable that this may not involve any great reduction in permanent employees.

These estimates are based on the assumption that our goal of full employment will be achieved and serve to emphasize the fact that the well-being of the iron and iron-products industries is closely linked with that of all other industries. Towards the future of Canada this group has much to give, not only in the way of jobs but also in the wherewithal of better living.

WHILE THE IRON IS HOT

Your group may wish to hammer away some at particular points raised in this Reconstruction Supplement. Here are a few passages that we think will need room to expand when the heat is turned on them.

1. Darby's discovery changed the face of the world (p. 4)

Some people will say this is old stuff—that we are now in the age of structural glass, resin-impregnated plywoods, plastics and atomic energy. Others will point out that glass-furnaces, plywood knives, plastic moulds, and the mining machinery at Eldorado are all made of steel . . . Could man have learned to harness energy in sufficient amounts to give structural lightness, aerodynamic moulding or atom-smashing any value, had he not first found out how steel machinery could multiply manual labour?

2. Sources and markets fix location of steel mills (p. 9)

Maritimers sometimes say their steel industry should be a lot bigger and more prosperous than it is. In convenience of sources they have advantages—although much of the rich Labrador ore appears likely to go by their furnace doors to end up in the Great Lakes area, south or north of the border. Is this a matter of markets? Both the Maritime and the Great Lakes groups in Canada enjoy certain kinds of public assistance—(p. 16). Does this impose on the industry some additional responsibilities to the public?

3. Foreign Markets are desirable (p. 15)

Traditionally, Canada has exported raw materials to Britain and elsewhere, and imported many finished products from the United States. But our steel-using industries, and many others, have grown up during the war. Will this make it harder for us to find buyers for our wares abroad? What happens to living standards—and purchasing power—in a country as it becomes more industrially developed? What will happen to world trade when most countries are highly industrialized? The Rt. Hon. C. R. Atlee, speaking to the Canadian Houses of Parliament on November 19, 1945, said:

"Past experience has shown that the greatest volume of trade has been built up between highly industrialized countries."

Why do you think this is so?

IN ALLOYS
WE EXCEL

DECREASES

INCREASES

JOBS IN STEEL
HINGE ON JOBS
ALL ROUND