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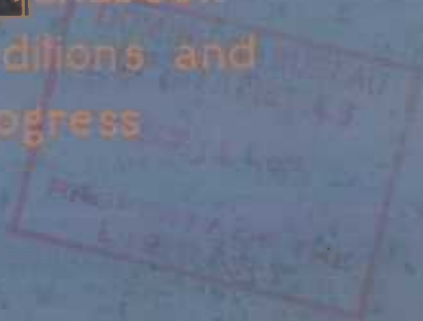
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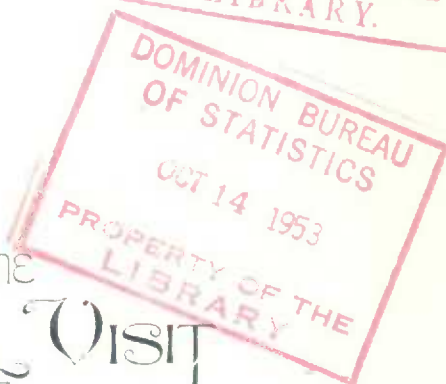
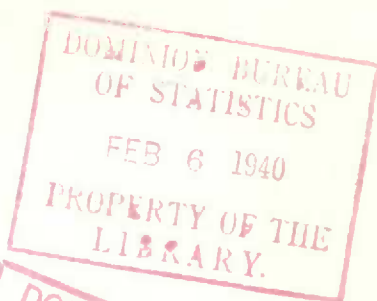
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CANADA 1940

The Official Handbook
of Present Conditions and
Recent Progress





The
ROYAL VISIT
To
CANADA
May 17 To June 15
1939

*For Itinerary and views of Royal Tour
across Canada, see end of book.*

His Majesty The King

WHEN HIS MAJESTY MADE HIS HISTORIC VISIT TO THE SENATE CHAMBER, OTTAWA, MAY 19, 1939, TO GIVE IN PERSON THE ROYAL ASSENT TO CERTAIN LEGISLATION OF THE 1939 SESSION OF HIS PARLIAMENT OF CANADA, HE WORE THE UNIFORM OF A FIELD MARSHAL. IT IS IN THIS DRESS THAT THE KING IS SHOWN.



Her Majesty The Queen

THIS PICTURE SHOWS THE QUEEN
AS SHE WILL BE REMEMBERED BY THOSE
WHO SAW HER MAJESTY WITH THE
KING IN THE SENATE CHAMBER,
OTTAWA, ON MAY 19, 1939.





HIS MAJESTY KING GEORGE VI ACCOMPANIED BY THE PRIME MINISTER, THE RIGHT HON. W. L. MACKENZIE KING, THE MINISTER OF NATIONAL DEFENCE, AND, THE CHIEF OF STAFF, ENTERING THE GATE OF PARLIAMENT HILL TO REVIEW THE CEREMONY OF THE TROOPING OF THE COLOUR BY THE BRIGADE OF CANADIAN GUARDS ON MAY 20, 1939.

Courtesy, Canadian Government Motion Picture Bureau.



THE ROYAL VISIT TO PARLIAMENT, MAY 19, 1939.—THEIR MAJESTIES
TAKING THE SALUTE OF THE GUARD OF HONOUR BEFORE THE PARLIAMENT
BUILDINGS, MAY 19, 1939.

Courtesy, Canadian Government Motion Picture Bureau



THEIR MAJESTIES ENTHRONED IN THE SENATE CHAMBER.—THE KING ADDRESSED PARLIAMENT ON MAY 19TH,
AND GAVE THE ROYAL ASSENT TO CERTAIN LEGISLATION PASSED DURING THE 1939 SESSION.

Courtesy, Canadian Government Motion Picture Bureau.

Canada 1940



The Official Handbook of Present Conditions and Recent Progress

Published by Authority of the Hon. W. D. Euler, M.P.
Minister of Trade and Commerce



DOMINION BUREAU OF STATISTICS
DEPARTMENT OF TRADE AND COMMERCE
OTTAWA, CANADA

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FOREWORD



THE very substantial increase in the sales of this handbook since the series was placed on an annual basis in 1930, its extensive use by official and semi-official bodies in regular and special editions, its distribution in large numbers at international exhibitions and in different parts of the world where Canada is officially represented, and its use, by special permission, in financial and commercial houses for distribution to their clients, all attest to the need which exists for a publication giving in brief and readable form the statistical record of the recent progress and present economic condition of the Dominion.

The current reports of the Dominion Bureau of Statistics deal in great detail with the subjects of population, production, external and internal trade, transportation, education, etc., but these detailed publications are intended mainly for those who are specially interested in particular phases of our national life. Again, the *Canada Year Book*, which summarizes these and other official publications, is of too detailed and expensive a character for wide distribution. The present publication is the result of an effort to survey the current Canadian situation—comprehensively but at the same time succinctly—in a popular and attractive form, and at a cost which makes possible its use on a general scale.

The handbook is designed to serve two purposes. To those outside of Canada, it will give a well-rounded picture of the Canadian situation from Atlantic to Pacific. In Canada itself, it will help to provide a better basis of information for dealing with current problems.

Minister of Trade and Commerce

OTTAWA, January 1, 1940.

PREFATORY NOTE

This handbook has been prepared in the Dominion Bureau of Statistics from material which has, in the main, been obtained from the different Branches of the Bureau. In certain special fields information has been kindly contributed by other branches of the Government Service.

The handbook is planned to cover, in nineteen chapters, the current economic situation in Canada, the weight of emphasis being placed from year to year on those aspects which are currently of most importance, since there is not space to deal adequately with all. The Introduction is a short review of current developments at the close of 1939, with special reference to Canada's War program as described by the Prime Minister in his recent addresses to the Canadian people over the air. The material has been prepared in the Bureau of Statistics in co-operation with the Department of Finance and the Department of National Defence. The Special Article following this Introduction deals with the Western Oil Situation—Its Possibilities and Its Problems. This material has been specially prepared for the handbook under the direction of Dr. Charles Camsell, Deputy Minister of the Department of Mines and Resources, by T. G. Madgwick, Technical Assistant to John McLeish, Esq., Director of the Bureau of Mines, Ottawa. Chapter I on the Constitution and Government of Canada has been prepared from material supplied by the Department of External Affairs, Ottawa; it has been revised and checked in that Department, and, as regards the section on the Judiciary, in the Department of Justice.

R. H. COATS,
Dominion Statistician.

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INTRODUCTION

CANADA'S WAR PROGRAM AND ECONOMIC CONDITIONS AT THE CLOSE OF 1939



The Rt. Hon. W. L. Mackenzie King.
P.C., M.P., Prime Minister of
Canada

The year 1939 closes with Canada, for the second time within a generation, at war. In spite of every effort to avert it, war was forced upon the United Kingdom and France. Canada has voluntarily gone to the assistance of the two Western European democracies. The struggle, which may test the resources of the Allies to the utmost, has now been under way only four months, but Canada has already organized her resources to see the task through to the end.

The visit of Their Majesties to Canada in May and June of last summer, at a time when the international situation was complicated but when hostilities did not appear to be imminent, served to bring to the surface a unity of feeling among Canadians regardless of race, creed, or class from one end of the country to the other. Through the symbol of the Crown and the actual persons of the Sovereigns, a tangible focal centre for the expression of a strong, if previously dormant, national sentiment was found. In the light of subsequent events, the wish of Her Majesty, expressed publicly at Ottawa on May 20, to see "two great races with their different legislations, beliefs and traditions uniting more and more closely. . . by ties of affection, respect and a common ideal", seems to have been singularly prophetic. A spontaneous loyalty and warm affection was abundantly shown in welcoming Their Majesties to every part of the Dominion during the short, but memorable period of their visit.

On Sept. 1, when the German army invaded Poland and a general war seemed inevitable, the Prime Minister of Canada announced that Parliament was being summoned to meet in Emergency Session on Sept. 7 and that, if the United Kingdom became involved in war, the Government would seek authority from Parliament for effective co-operation by the side of the United Kingdom. On Sept. 3, as soon as it was learned that the United Kingdom and Germany were at war, the Prime Minister,

in a broadcast to the people of Canada, reiterated this announcement and outlined the steps that had already been taken by the Government to meet the emergency. As soon as there was valid reason for apprehending the outbreak of hostilities, steps had been taken under the War Measures Act of 1914 to meet the emergency and ensure the proper defence of Canada until Parliament could be convoked. By the War Measures Act, all necessary power is given to the Government to meet any circumstances that might arise out of such an emergency. It enabled the Government to act quickly to meet urgent and necessary problems, while leaving to Parliament the essential decisions as soon as that body could be assembled. By Sept. 10, Parliament had assembled and acted, and a state of war between Canada and Germany was proclaimed by His Majesty The King in the following words:

"We do hereby declare and proclaim that a state of war with the German Reich exists and has existed in Our Dominion of Canada as and from the tenth day of September, 1939."

The issues at stake in the present conflict are sufficiently well known. Never in the history of mankind has the man-in-the-street been kept so informed of world events and the influences shaping them as during the past two decades. With the widespread popularity of the radio there has, indeed, been such a plethora of information and opinion available to the listener that the danger has been one rather of confusion than of ignorance. The issue was clarified for the Canadian people by the Prime Minister in a radio address broadcast on Oct. 27. After reviewing the series of events leading up to the War, he said:

"I have been compelled to believe that only by the destruction of Naziism and the resistance of ruthless aggression can the nations of the British Commonwealth hope to continue to enjoy the liberties which are theirs under the British Crown, and the world itself be spared a descent into a new and terrible age of barbarism."

He closed this, the first of two addresses, by describing the present War as, for the Allied Forces, a "Crusade" against a doctrine of Force, which is the very antithesis of what one finds in the Christian Gospel.

Four days later, on Oct. 31, the Prime Minister gave a second radio address dealing particularly with the action taken by Parliament and the Government to organize Canada's War effort. Around the substance of this address, including subsequent steps which the Government has taken, is built the following description of the actual accomplishment to date.

The Organization of Canada's War Effort

After adopting the Speech from the Throne and thereby voting for the declaration of war, Parliament in the Emergency Session debated and passed ten measures which immediately received Royal Assent. One of these met the immediate and urgent need for the financial sinews of war by appropriating \$100,000,000 to general war purposes, including emergency expenditures made by the Government under Special Warrants immediately preceding the summoning of Parliament. This appropriation was for the current fiscal year in addition to the \$63,000,000 defence appropriation made in the previous session. The War Budget,

and the Acts to which it gave rise, dealt with the means by which the cost of the War was to be met. The general policy set forth in the Budget was to meet as much of the cost by taxation as was possible without interfering with the volume and efficiency of production, and to meet the balance of the cost by borrowing the savings of the people at interest rates that would not be materially different from those of peace time. In line with this policy, substantial increases were made in income taxes and in excise taxes and duties upon certain luxuries or semi-luxuries. An excess profits tax was enacted to divert to the Treasury a large part of any profit arising from War-time conditions.

Aside from these financial arrangements, provision was made for the creation, when deemed necessary, of a new Department of Munitions and Supply and it was announced that this work would be handled initially by a War Supply Board. Provision was also made for the regulation of war charities and the Canadian Patriotic Fund. In addition to and supplementing the legislative program itself, action was taken along many lines under the wide powers conferred by the War Measures Act. Shipping, for example, passed directly under the control of the Government. Boards were set up to organize and to direct various aspects of economic activity, as will be noted later in this article.

The War must be won, and Canadians must do their utmost to help win it. Three principles for most effective help were laid down by the Minister of Finance in his address on "Canada's War Effort on the Economic Front" broadcast on Nov. 24: First, the job of doing things that will count most; secondly, Canada's effort should be, not the minimum but the maximum within her capacity; thirdly, consultation with her partners or Allies, since the United Kingdom and France are in a far better position than Canada to know the needs demanded by strategy and tactics.

The Allies were consulted and their views learned: in less than two weeks after the Canadian Parliament had authorized a declaration of war, the Government had announced Canada's program. This program, on its military, naval, and air force sides, is outlined on pp. 7 and 8.

Financially and economically it has been recognized that we must plan, not for one year but three. The most competent military authorities believe this is not likely to be a short war. Canada's participation must be on an increasing scale and include assistance to the United Kingdom and France in obtaining essential munitions and supplies, and foodstuffs from Canadian producers. The tremendous quantities of supplies necessary must be available at the right time and in the right place and to accomplish this the economic life of Canada will have to be reorganized, but not disorganized, with the co-operation of provincial and municipal authorities, business, labour, farmers and other primary producers, and of voluntary organizations of all kinds.

The actual steps that have been taken are detailed in the respective sections following.

The Financial Effort.—Since the War of 1914-18 Canada has become much stronger financially and, indeed, has now a well-developed and relatively mature financial system, both private and public. The keystone of this structure was placed in 1935 by the establishment of the Bank of

Canada. In entering this War the Dominion has, therefore, sufficient financial machinery to carry out the heavy tasks which war will demand. Canadians have learned not only to save but to invest their savings both through her strong financial institutions, such as banks, insurance and trust companies, and also directly in bonds and shares. They will be more able now than in 1914 to understand readily and to respond to what is needed of them financially. Moreover, far more is known about the country's financial capacities nowadays, due to the valuable statistics that are collected and published. The statistics show, among other things, that in recent years Canada has been able to export substantial amounts of capital which has been used, in the main, to reduce indebtedness abroad.

The financial operations for war purposes will be of two general kinds. The primary arrangements will, of course, be those necessary to finance Canada's own War program. This will be taken care of, in part, by the proceeds of taxation, but substantial sums will also have to be raised by loans. It is expected that all Canadians who can possibly do so will wish to subscribe to these loans. Part of these loans will be used for the second general kind of financial operation that will be necessary. This will be the provision of Canadian dollars to the Government of the United Kingdom, in order that it can make purchases in Canada of essential foodstuffs, supplies, and munitions. The Canadian dollars will be turned over to the British Government, in return for Canadian securities which have previously been owned in Great Britain.

This will mean, in effect, that Canada is paying her old debts to Great Britain, who, in turn, is using the money to purchase supplies in Canada. In fact, this sort of operation has been going on extensively in the normal course of peace-time finance, and it is now being organized to serve war purposes. The short-term loan, so successfully arranged in October and announced by the Minister of Finance on Oct. 12, offers a concrete example of all these financial operations. The Government borrowed \$200,000,000 for two years at 2 p.c. interest. Almost \$28,000,000 of this was used to pay off loans maturing in Canada; about \$80,000,000 was put to Canada's account to be used in meeting her expenditures. The remaining \$92,000,000 was used to redeem an issue of Dominion 3½ p.c. bonds which was held by the British Government who had bought it from the investors in England for sterling. By this operation the British Government spent sterling in England to obtain indirectly Canadian dollars, which it will use to pay for its purchases in Canada.

Another financial war measure of paramount importance has been the establishment of the Foreign Exchange Control Board to regulate all transactions between Canadians and those in other countries. The Government took this step resolutely but reluctantly because the commercial and financial ties between Canada and other countries—particularly the United States—are very close indeed, and there has always been the greatest freedom in financial intercourse between Canada and the outside world. The supreme necessity of conserving Canada's capital and receipts of foreign exchange for war purposes made control essential. The Board was given power to license exports and imports of goods, currency, and capital (as for example in the form of securities). All

transactions with residents of other countries are subject to its regulations. It has in general adopted the policy of interfering as little as possible with normal commercial business and travel, but of keeping outward movements of capital to the reasonable minimum made necessary by various considerations. Ordinary small transactions have usually been exempted from regulation, and particular care is taken to see that tourists are not restricted in any way.

The Economic Effort.—The financial effort is simply one aspect of the more fundamental economic tasks which the War involves for Canada. The urgent necessity to supply foodstuffs, munitions, and equipment to Britain and France, as well as to provide the men and material for her own fighting forces, will require the effective use and co-ordination of Canadian industry and agriculture.

The Dominion is much better able to aid in these directions than she was in 1914 because her industrial structure, as well as her agriculture, is much more fully developed. The true measure of a country's ability to wage war must always be the power to adapt, expand, and adjust its production to meet the ever-changing requirements of war. The intricacies of finance call for skill and ingenuity of a high order but when all is said and done they are but the surface reflection of the basic economic state of things. The available margin of production above what is needed for consumption, and the ability to mobilize it quickly are the *real* things that determine what can be done. Canada has ample resources of labour, capital, and material, some of which have been unemployed, and it should be possible for her to divert a great deal of production to war purposes without too serious a temporary reduction in the standard of living.

Taken as a whole the nation's equipment for production has never been worked to capacity. When account is taken of this and the reserve of labour available it seems clear that under the stimulus of war-time demands production can be substantially increased even without longer working hours or the employment of those not normally seeking work. A vast emergency reserve exists beyond this in the increased production that would be made possible by sacrificing our leisure and working more intensively. The margin of this production that can be spared for war will depend upon the extent to which we can reduce our consumption and postpone capital outlays and replacements. It should be realized that these emergency measures are not necessary until available and unemployed resources are brought into production and until production generally can be usefully and effectively diverted to war-time purposes.

Study had been made of our possible war-time requirements before hostilities broke out, and consequently it was possible quickly to set up the emergency organizations needed. The Defence Purchasing Board had been set up in July and had begun to function actively before war was declared. Under war-time conditions it was realized that a Board with wider powers, which would include not only purchasing but, when necessary, the organizing and directing of supply, would be needed. As a result the Government proceeded at once to set up the War Supply Board with these broader powers, which took over the work of the Defence Purchasing Board. Since Sept. 1 contracts have been made or are in process of being

made for probably twenty-five million dollars worth of supplies and defence projects in addition to twenty-five million dollars worth of railway equipment. A War Purchasing Mission arrived in Canada in September from the United Kingdom and, after careful study of the supply field, it requested the War Supply Board to act as its purchasing agent in Canada. A prominent Canadian industrialist was appointed Director General of British (and French) Purchasing in United States, and it has been arranged that he should also direct purchases for the Canadian Government in that country. Whenever the problem of supply in Canada demands a more elaborate organization, the Government will be able to draw upon the authority obtained from Parliament to set up a separate Department of Munitions and Supply.

Within a few hours of the outbreak of war in Europe, the Government took steps to protect consumers in this country from shortages and profiteering by setting up the War-time Prices and Trade Board. This important body, composed of senior civil servants, is charged with responsibility for arranging supplies of necessities where shortages appear likely, for controlling prices in such a way as to prevent profiteering and, when and where necessary, for instituting systems of rationing and control. Special administrative organizations have been appointed by the Board to deal with sugar, wool, hides and leather, and coal, which are the commodities that have chiefly needed the Board's attention. The Board was given wide powers to make and enforce regulations and it has already instituted criminal proceedings against several flagrant offenders, but in general it has secured the widespread co-operation of producers and traders alike.

Because agricultural supplies will be an important Canadian contribution to the support of the Allied Powers in the War, and because war poses special problems for agriculture, the Government appointed a special Agricultural Supplies Committee to deal with problems of agricultural supplies and marketing under war-time conditions. The Committee has been active in arranging that exports of essential foods and fibres to the United Kingdom be stimulated and also in meeting the difficulties arising from the dislocation of Canada's normal export trades.

Among other economic organizations that have been set up should be mentioned the Voluntary Service Registration Bureau, which keeps a record of all the men and women who have indicated their willingness to take part in war-time activities of all kinds. There have been controllers or control boards established to deal with transport questions, including a Licensing Board for Shipping and a Director-General of Transport.

Being aware that it is essential to have an understanding of economic problems as a whole, as well as in particular, and that proper co-ordination of all economic activities and controls was necessary to produce the maximum war effort, the Government appointed an Advisory Committee on Economic Policy to advise the Cabinet directly on these broad questions. This Committee is made up almost entirely of senior civil servants who are thoroughly familiar with both the principles and the practice of economic affairs, and it has already played an active role in assisting the Cabinet by reporting to it on many questions of economic and financial policy.

The Problems of Defence and Military Co-operation.—Canadians have far greater responsibilities to-day than in 1914-18 for the defence of the Dominion. In 1914 Canada was assisted by ships of the Royal Navy and the Imperial Japanese Navy in performing the task of naval patrol in the Pacific; to-day Canada must make her own arrangements to defend the Western Coast. In the present War, moreover, submarine warfare has had to be faced from the outset and the problem of naval defence of the Atlantic Coast and the St. Lawrence Gulf and River has assumed far more serious proportions than ever before.

It has already been pointed out that, because of the changed character of modern warfare, the most effective contribution Canada can make in support of the Allies differs greatly from that in the last war when efforts were centred on an expeditionary force. The most helpful lines of present defence co-operation have been worked out after consultations between the Canadian Government and the British and French authorities. Early in October it was announced that the Governments of this and other Dominions were to be asked to send representatives to participate in discussions concerning the whole Allied War program and thereby to secure a better co-ordination of the work of all the countries concerned. The Hon. T. A. Crerar, Minister of Mines and Resources, was appointed by the Government to represent Canada; he arrived in London on Oct. 29 for these consultations with the British War Cabinet and the Supreme War Council.

The Army.—As soon as the emergency requirements for home and coastal defence and the protection of vulnerable points had been met, attention was directed to the establishment of a Reserve Force of two divisions and ancillary troops to serve as a nucleus of an Expeditionary Force to send overseas "when required". Units of all arms were selected from the eleven Military Districts in a proportion based roughly upon the distribution of population; to the end of November 60,000 men were enlisted and were being equipped and trained as rapidly as possible. The selected units were mobilized and recruited up to war strength. The First Division of this Reserve Force will, it is expected, be sent overseas in a comparatively short time.

The Navy.—Provision has been made for the increase of naval personnel to meet requirements; many members of the Royal Canadian Naval Volunteer Reserve have been transferred to service afloat or to coastal points from their inland places of residence and training, while members of the Royal Canadian Naval Reserve have assumed their place in the Royal Canadian Navy. The ships of the R.C.N., augmented since the outbreak of war by the addition of a flotilla-leader (which is, in effect, a super-destroyer), were immediately placed upon a war basis and proceeded to their war stations. Other ships were taken over, armed, and used as mine-sweepers and anti-submarine patrols.

Another phase of coast defence by the Navy is the provision of defences against submarines and armed raiders at harbour entrances and the installation of anti-submarine nets for harbour defence. As might be expected, the fighting ships of Canada's Navy have also taken part in the duty of convoying merchant ships.



A Canadian Naval Examination Vessel.—Small vessels of this type, supported by shore batteries, intercept and examine all ships approaching Canadian harbours.



'Action Stations' on a Canadian Minesweeper.—These useful little vessels play an important part in the defence of Canada's coast.

Courtesy, Montreal Standard

Canada's Defence Services

The layout on the reverse side of this insert reading downwards and from left to right shows:—

The Army

A Gun Crew of the 1st (Halifax) Coast Brigade manning one of the Guns defending the Nova Scotia Coast.

Part of the 4th Anti-Aircraft Battery, R.C.A. under training at Petawawa Military Camp. The Armament of this Unit consists of 3-inch, 20 cwt. Anti-Aircraft Guns.

An 18-pr. Gun in Action from a Concealed Position at Petawawa Military Camp.

Royal Canadian Engineers finishing a Light Box Girder Bridge.

A 2-pr. Anti-Tank Gun of the Type being used by Canadian Divisional Anti-Tank Regiments.

A 3-inch Mortar as used by Canadian Infantry for close support.

The Navy

H.M.C.S. Destroyer Flotilla Leader *Assiniboine*.

H.M.C.S. *Fraser* leaving Vancouver Harbour and passing under the First Narrows Bridge.

H.M.C.S. *Comox*, a Minesweeper built in Vancouver, taking the water, 9th Aug. 1938.

Two Canadian Destroyers, H.M.C.S. *Fraser* (in foreground) and H.M.C.S. *St. Laurent*, berthed in Vancouver Harbour.

The Air Force

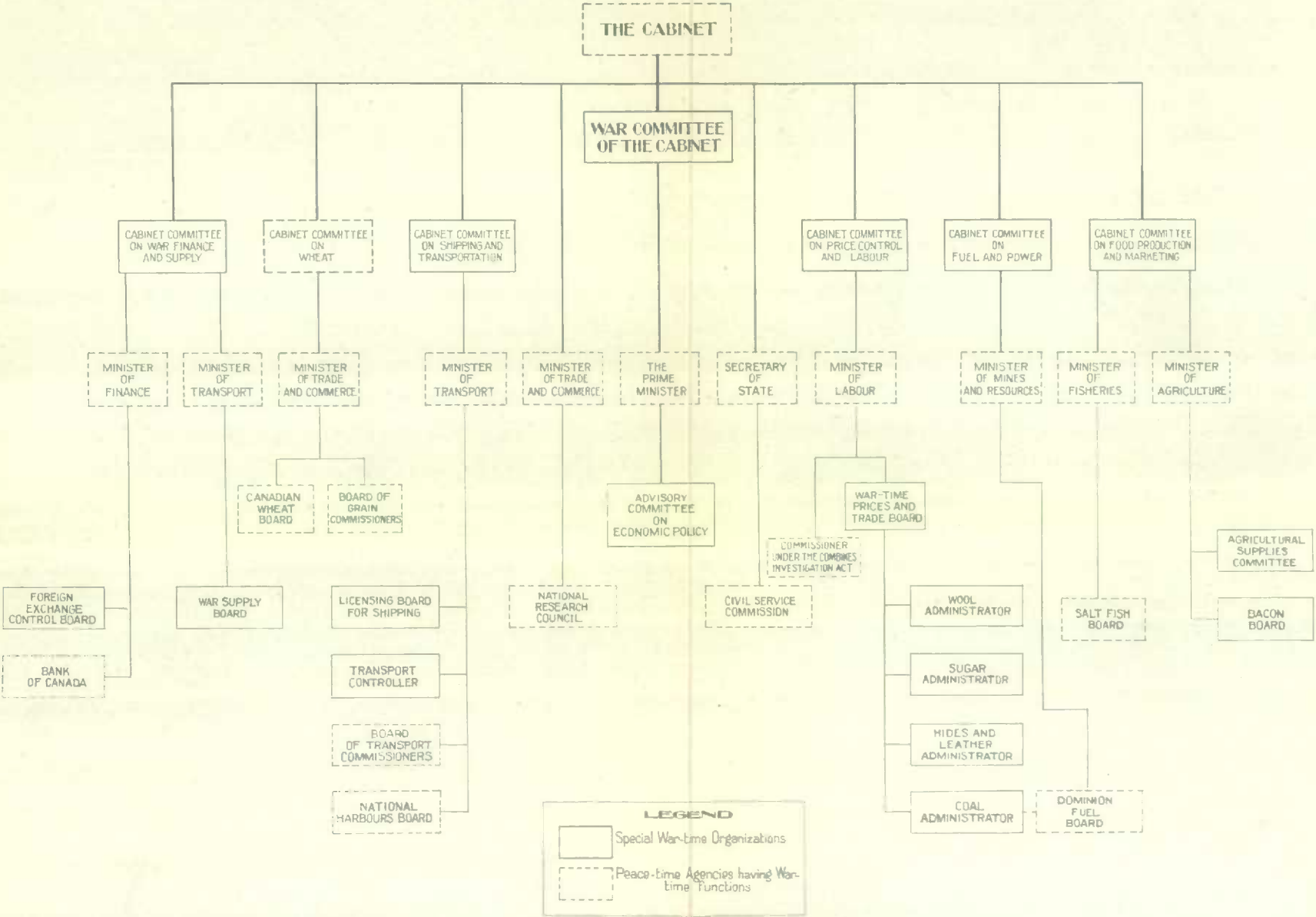
The "Bolingbroke"—a Bomber—Reconnaissance Type of Aircraft built in Montreal for the R.C.A.F.

A "Fairey Battle" Aeroplane. Though designed as a Bomber, this type is being used by the R.C.A.F. for advanced training.

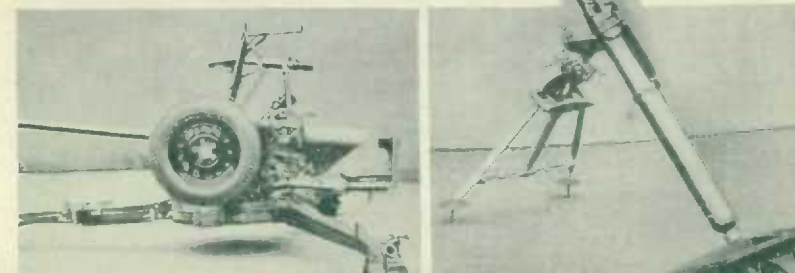
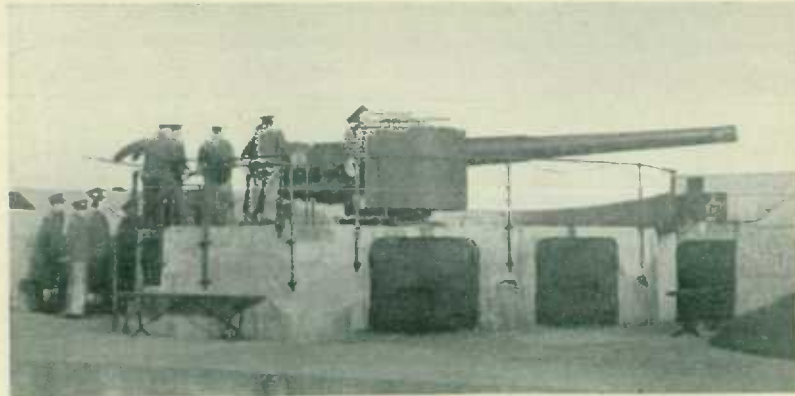
A United States Type—the "Harvard". Canadian orders for these machines, which are being used for training, have already been filled.

A "Stranraer" Flying Boat.—A number of these have been built in Montreal for the R.C.A.F. They are used for patrolling coastal waters.

CHART SHOWING WAR ECONOMIC ORGANIZATIONS AS AT DEC. 15, 1939

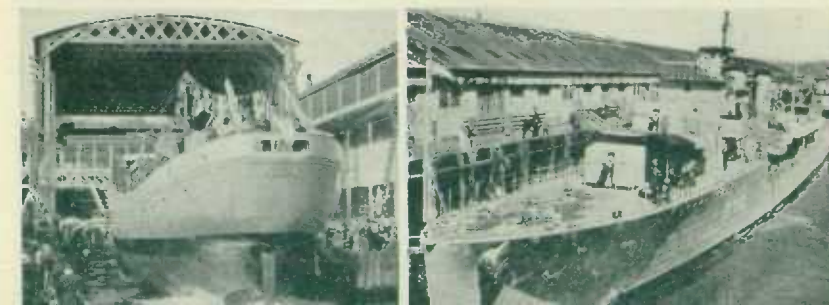


ARMY



CANADA'S DEFENCE FORCES

NAVY



AIR FORCE



The Royal Canadian Air Force.—With regard to the Royal Canadian Air Force, the crisis found many units stationed in the interior of the country. These were quickly transferred to the coastal areas, where their duties are in many cases similar to those carried out by the Navy. An aeroplane can carry out coastal reconnaissance or launch an attack much more quickly than can a ship, and range and speed is invaluable to the commander of a coastal defence area. Anti-submarine patrols have fallen quite naturally into the field of the air arm. The duty of convoying merchant ships is also shared with the Navy and assistance is given to the Army by the maintenance of Coast Artillery Co-operation Squadrons in connection with fixed defences.

Air force training is to be expanded as rapidly as possible. Canada is in an admirable position to assist in this direction. The work done in planning and laying out airports and equipment for the Trans-Canada Airway in recent years is a substantial contribution in itself. Indeed, the excellent advantages possessed by the Dominion for air training have been quickly recognized and on Oct. 12 a large centralized Empire scheme of air training was announced.

Early in November, Air Missions representing the United Kingdom, Australia, and New Zealand met in Ottawa, and on Dec. 17 an Agreement, which provides for the establishment of sixty-seven schools in Canada for the training of pilots, air observers, and wireless operator-air gunners, was signed. The Agreement will remain in force until Mar. 31, 1943, but may be terminated or extended by mutual agreement. The discussions included elaborate trade talks and understandings as to what Britain can send to Canada 'in kind' to help meet her share of the bill, and so economize in the transfer of dollars. Britain will help to bear the initial cost by contributing about 3,000 aeroplanes, some of which will be ordered and purchased in the United States. The cost of the program is estimated at \$600,000,000, of which Canada's share will amount to \$350,000,000.

Administration is in the hands of the Royal Canadian Air Force, with a Supervisory Board in charge of finance and inspection. The Board will consist of three Cabinet Ministers, representatives of the participating Governments, the Deputy Minister for Air, and the Chief of the Air Staff.

The plan calls for the construction of sixty new air fields and the enlargement of twenty existing fields, and it is estimated that 40,000 men will be required to carry out the plan in addition to the students under instruction.

Details of the Agreement and Canada's obligations thereunder were given by the Prime Minister in a radio address delivered over the national network from Ottawa on the evening of Dec. 17.

The high reputation of Canadians as fliers is recognized and Canada will supply more airmen for training in the scheme than either Australia or New Zealand, or even Britain. Industry in Canada will receive an immense stimulus and a very important point is that the benefits will continue long after the War, since nearly all the facilities that will be provided may be expected to be available for peace-time aviation developments.

Economic Conditions in Canada at the Close of 1939



H.E. Wilbur D. Butler, M.P.
Minister of Trade and Commerce

In Canada the economic year 1939 has consisted of two main divisions, the first comprising the eight months of peace, when the economic trend as from the beginning of spring was moderately upward, and the second being the first four months of war effort, featured by large crop production and movement and by the expansion of the industries producing the food products and minerals, and manufactured products (in particular iron and steel products and textiles) required in time of war. At the end of 1939 the economic effort of Canada had been harnessed to a great extent to provide the food supplies and the various other commodities needed by Great Britain and France, the chief participants in the struggle in which they are at present engaged. Canada, indeed, is likely to become, in 1940, a leading provider of foods and munitions of war to the Allies

because of its strategic position and relatively short distance from the theatre of actual warfare.

In war time food supplies are a primary consideration, since a belligerent nation may conceivably be starved out. In this connection it is important to recall that the world production of wheat in 1938, exclusive of Russia and China, for which no statistics are available, reached an all-time high record of 4,563 million bushels, resulting in a heavy carryover into the present crop year. To this large carryover has been added this year a world crop of 4,298 million bushels, exclusive of Russia and China. Supplies of wheat, therefore, are in most countries ample for the current crop year, but what is of most interest to Canadians at the present time is the increase of almost 130 million bushels in their own wheat crop of 1939 as compared with 1938.

Agriculture.—Canada's wheat crop is estimated this year at 479 million bushels as compared with 350 million bushels in 1938. Of these 479 million bushels, about 350 million bushels, in addition to the carryover of 95 million bushels from the last crop year, are considered to be available for export during the present crop year.

Crops other than wheat were also generally larger in 1939 than in 1938, the important oat crop being estimated at 386 million bushels against 371 million bushels and barley at 103 million bushels against 102 million bushels. Mixed grains are estimated at 44 million bushels as compared with 39 million bushels and rye at 15 million bushels against 11 million bushels. On the other hand, the estimated crops of peas and buckwheat are each

somewhat lower than last year. On the whole, however, the field crops are estimated as being 18 p.c. greater in volume in 1939 than in 1938 and the first estimate of their total value is \$635,764,000 as compared with \$544,443,000 in 1938, an increase of \$91,321,000 or 17 p.c. The wheat crop was valued at \$251,371,000, an increase of \$45,876,000.

As regards animal husbandry, it may be noted that the meat trade has been distinctly more active in the first ten months of 1939 than in the same period of 1938. Cattle slaughterings in this period increased by nearly 1 p.c. over last year and hog slaughterings by 8 p.c. Recently the British Government has contracted for a weekly supply of Canadian bacon, assuring a good market for that important commodity at fair prices.

Mines and Minerals.—The mining industry of Canada will undoubtedly establish a new high record in volume and value of production in 1939. In the first half year, indeed, the value of production of the mines was \$9 million more than in the same period of 1938. Upon the outbreak of war in early September the price of gold rose about 10 p.c. in Canadian funds, while the demand for the base metals bids fair to show further expansion. In particular, gold production, for the first ten months of the year at \$151,105,711* in Canadian funds has been the highest ever recorded for a like period. Nickel and zinc also reached new high levels although lead production was somewhat lower than in 1938. As a result of the development of the Turner Valley oil field in Alberta the production of crude petroleum reached an all-time high of 6,603,374* barrels for the ten months ended Oct. 31, although the output was pro-rated among approximately 90 producing wells in order not to overload the refineries or glut the available market. Employment in the mines of Canada reached an all-time high record at Nov. 1, 1939, while the average employment for the first eleven months was 5 p.c. higher than in the same period of the preceding year.

Forestry.—Industries depending on the forest for their raw material, quiet in the early part of the year, showed an improvement during the crisis which preceded the declaration of war. Production increased and prices improved, although overseas trade was hampered to a considerable extent by lack of transportation facilities. Logging operations toward the close of the year indicated considerable activity, especially in British Columbia, the Maritimes, and eastern Quebec, the index number of employment in logging being 206.4 at Nov. 1, 1939, as compared with 130.8 at the same date of 1938. Exports of planks and boards in the first 11 months were 1,963 million board feet, an increase of 30 p.c. over the corresponding figure of 1938, while newsprint production at 2,629,000 tons, was nearly 9 p.c. more than in the same period of 1938.

The Fisheries.—In the fishery industry, which exports the bulk of its production, 1939 has been a rather more prosperous year than 1938, on the basis of value of exports. In the first eleven months of the year the exports of products of the fisheries were \$26,095,000 or 7.3 p.c. more than in the same period of 1938, both the United Kingdom and the United States taking more than in the previous year.

Furs.—The fur industry, as judged on the basis of exports, which account for the bulk of the production, was also more prosperous in 1939 than in the previous year. Exports in the first eleven months recorded a gain of \$603,000, or 5 p.c., over the same period of 1938.

* At the time of going to press the gold production for the 12 months of 1939 was estimated at \$181,274,000, and that of crude petroleum at 7,743,000 bbl.

Central Electric Stations.—Electric power production is now one of the leading industries of Canada. It is also one of the most rapidly expanding industries, output of electric power being now five times as large as in 1919, the earliest year for which this figure of output is available. In the first ten months of 1939 the output of electric power was 23,209 million kilowatt hours, the highest figure on record for this period and an increase of 9 p.c. over the corresponding period of 1938. About 98 p.c. of Canada's electric power is produced from her falling waters. Indeed, in the production of hydro-electricity she is second only to the United States, while in aggregate production of electricity she stood fifth among the nations of the world in 1938. The output of electricity in October, 1939, at 2,590 million kilowatt hours, was the largest for any month in the history of Canada. The consumption of firm power, computed by deducting exports to the United States and deliveries of secondary or surplus and off-peak power to electric boilers from the total production, showed an increase of 7 p.c. over both 1938 and 1937. This increased consumption was due largely to the revival of the pulp and paper and other power-using industries.

Manufactures.—The manufacturing industries in Canada are of such infinite variety that it is impracticable to sum up their collective achievements until the annual Census of Manufactures is completed. The most significant information that is now available regarding 1939 is based upon the record of employment supplied monthly by some 6,000 of the larger manufacturing firms, which indicates that employment in 1939 has been slightly better than in 1938. The latest available monthly figure, however, that for Nov. 1, shows that at that date employment in Canadian manufactures was at an all-time high, the aggregate number of employees of reporting firms being 626,000, and the index number of employment being 122.1 as compared with the previous high of 121.7 at Oct. 1, 1937. As regards physical volume of production in certain manufacturing industries, it may be observed that, in the first ten months, flour production, cattle and hog slaughterings, releases of cigarettes, leather boots and shoes production, raw cotton consumed in production, newsprint production, exports of planks and boards, steel ingot production, and imports of crude rubber were at higher levels than in the same period of 1938. On the other hand, sugar manufacturing, releases of cigars, pig-iron production, and production of automobiles were at lower levels.

Construction.—Construction contracts awarded in Canada in the first eleven months, according to the MacLean Building Review, had an estimated aggregate value of \$177,749,000, being a slight increase over the corresponding period of 1938. It may be expected, however, that the necessities of financing the War will, in the future, act as a check upon new construction for other than war purposes.

External Trade.—The external trade of Canada has shown definite expansion in spite of the recent difficulties in making shipments overseas. Leaving out of account the increasing exports of new gold which are so important a factor in maintaining our balance of international payments, Canada's total exports of merchandise in the first eleven months totalled \$833,949,000, or an increase of 8½ p.c. over the corresponding 1938 figure of \$768,696,000. This increase was entirely accounted for by the rise in Canada's exports to the United States, which took Canadian merchandise

to the value of \$334,919,000 as compared with \$253,225,000 in the same period of 1938. On the other hand, exports to the United Kingdom declined to \$299,506,000 in the first eleven months of 1939 as compared with \$315,830,000 in the same period of 1938, the falling off being, in part, due to the disturbed conditions of transatlantic commerce in recent months.

Import figures are available at the time of writing only for the first ten months, in which period Canada's total imports of merchandise, at \$594,985,000, showed an increase of 4.4 p.c. over the figure of \$569,862,000 recorded for the same period of 1938. Imports from the United States rose considerably at \$390,905,000 as compared with \$357,892,000, or an increase of \$33,013,000. Imports from the United Kingdom, however, were lower at \$92,066,000 as compared with \$101,233,000, the difficulties of ocean transport since Sept. 1 being largely responsible for the decline.

Merchandise exports in the first ten months of 1939 exceeded merchandise imports by \$140,474,000, while the corresponding figure for the same period of 1938 was only \$122,129,000. In addition to this 'favourable' balance of merchandise trade, Canada exported in the first ten months of 1939 new gold to the value of approximately \$154,500,000, a total which was 15.6 p.c. larger than the corresponding figure for 1938.

The Tourist Trade.—The tourist trade of Canada, which is an important factor in her balance of international payments, will probably result in a rather smaller net balance in her favour in 1939 than in 1938, owing in part to the outbreak of the War towards the end of the tourist season. The number of automobiles entering Canada for touring purposes in the first ten months of 1939 declined by approximately 5 p.c. from the same period of 1938, while the number of travellers entering Canada by rail increased moderately. The average expenditure per tourist has probably declined slightly, while a similar decline has probably occurred in expenditures of Canadian tourists in the United States.

Carloadings.—Railway carloadings and revenue freight in the first 48 weeks of 1939 were 2,367,000 cars, as compared with 2,278,000 cars in the same period of 1938, an increase of 89,000 cars. Carloadings of grain and grain products, coal, lumber, pulp and paper and other forest products were mainly responsible for the increase, while carloadings of pulpwood declined. As a result of more active business, the gross operating revenues of the two great railway systems improved. The available figures for the first eleven months showed gross operating revenues of approximately \$329,000,000 as compared with \$305,573,000 and \$322,373,000 for the same periods of 1938 and 1937, respectively.

Despite the larger western grain harvest, shipments of grain down the Welland and St. Lawrence Canals were considerably below those of 1938 and the total traffic for these canals to the end of November was reduced from 12,448,401 tons in 1938 to 11,323,945 tons for the Welland Ship Canal and from 9,231,435 tons to 8,307,404 tons for the St. Lawrence Canals. There was a very large decrease on both canals in shipments of United States corn, which dropped from 2,194,522 tons in 1938 through the Welland Ship Canal to 249,349 tons in 1939. Wood-pulp and pulpwood shipments continued light but bituminous coal showed an increase of 95 p.c. on the St. Lawrence Canals and 17 p.c. on the Welland Ship Canal.

Employment.—The employment situation is one of the best and most accurate measures of the economic activity of a nation, while unemployment was certainly the chief curse of Canada in the days of the depression. The trend of employment in Canada, hesitant throughout last winter, became definitely favourable in the spring and has so continued over the six months from May 1 to Nov. 1, during which period nearly 182,000 workers were added to the staffs of the firms making monthly reports to the Dominion Bureau of Statistics. At the latter date those staffs aggregated 1,206,000 workers, and the general index number of employment, based on this figure of Nov. 1, 1939, was 123.6, which was higher than in any other November on record except 1929 and 1937, while on Nov. 1, 1938, the corresponding index number was only 114.6. This improvement in the employment situation in November, 1939, as compared with November, 1938, has been experienced in all of the five economic areas of Canada and in 7 of the 8 leading industries for which the statistics are compiled, viz., manufactures, logging, mining, transportation, communications, services, and trade, the construction industry being the only exception. As a natural consequence there was a decline of 38 p.c. in the estimated number of unemployed wage-earners between January and September; this decline was in part attributable to the seasonal factor.

Prices.—Wholesale prices in Canada, which had shown a fairly steady decline over the greater part of 1938, were generally almost stationary in the first eight months of 1939. They rose rapidly in September and more slowly in October and November, the latest weekly index number for the week ended Dec. 8 being 80.8 p.c. of the 1926 base, an increase of rather more than 10 p.c. from the level prevailing in the first eight months of the year. Prices of thirteen commodities specially sensitive to changes in economic conditions used as industrial materials in manufacturing industries were 28.5 p.c. higher in the week of Dec. 8 than the average for the pre-war month of August. The index number of the cost of living rose moderately from 83.0 p.c. of the 1926 base in August to 85.0 p.c. (preliminary figure) in November.

Finance.—The revenues of the Dominion have been well maintained in the current fiscal year beginning Apr. 1, 1939, except for income tax collections, which are mainly received in April and May and were lower on 1938 incomes than on 1937 incomes because of the business recession in 1938. Total revenue receipts in the first eight months from April to November, inclusive, were \$354,713,180 as compared with \$358,408,250 in the same period of last year or a decline of \$3,695,070. Since the income tax collections in this period have shown a decline of \$9,538,523 from last year, it is evident that other receipts have increased by \$5,843,453. In recent months revenues are showing expansion as a result of the war taxes imposed in September and of generally improving business conditions. Thus in the three months September to November, inclusive, revenues totalled \$120,940,571 or \$14,935,749 more than in the same months of last year and it is probable that by the end of December the aggregate revenues for the first nine months of the current fiscal year will have equalled or exceeded those of the same period of last year. Total ordinary expenditures in the eight-month period were slightly lower at \$262,556,225 as compared with \$263,120,852, but capital expenditures were \$10,567,217 as compared with \$3,643,702. Grand total expenditures, inclusive in the current year of expenditures on war appropriations, were \$374,449,128, as

compared with \$335,496,039 in the corresponding period of last year, the increase of nearly \$39 million being predominantly accounted for by spendings on account of war appropriations.

Banking assets and liabilities are decidedly significant of financial strength. Among the liabilities, the savings deposits of the people in the chartered banks reached an all-time high of \$1,709,157,000 at the end of October, when they were nearly \$50 million more than at the beginning of the year. Demand deposits in Canada have shown particularly rapid expansion in the last three months from July to October and amounted to \$821,717,000 at this, the latest available date. On the assets side, current loans and discounts in Canada, representing money lent for business purposes, reached \$952,297,000 at the end of October as compared with \$813,947,000 at the end of July, while total assets at the end of October stood at \$3,852,468,000 as against \$3,519,914,000 at the end of July. Thus, Canada has great financial strength which may be used in carrying on the struggle to which she is committed. Further, in consequence of the operations of the Foreign Exchange Control Board, Canada is now placed in a better position to build up money markets of her own in Montreal and Toronto, which are tending to become independent financial centres instead of being dependent, as formerly, upon New York.

Bank debits, i.e., the aggregate amount of all cheques charged to account at the thirty-two clearing house centres of Canada totalled \$25,630,139,000 in the first ten months of 1939, as compared with \$25,010,198,000 in the same period of 1938, an increase of \$619,941,000 or 2.5 p.c.

In the first nine months of 1939 there was an unusually large inflow of capital into Canada, total sales of securities to all other countries being \$270,126,000 as against total purchases of \$211,316,000 or a net inflow of \$58,810,000. This increase in external investments in Canada was, in the main, of United States origin.

Conclusion.—At the time of writing it appears that the present war, like the War of 1914-18, is certain to stimulate further the already accelerating industrialization of the Dominion. The manufacturers of Canada, operating for the most part in an area which is well supplied with hydro-power and exempt from the risks of destruction by enemy operations, will be in a position greatly to expand their production along many lines and particularly in the output of munitions of war. The agriculturists will have an assured market for the immense crop of 1939 on terms considerably more favourable than were expected a few months ago. The mining industry is also being stimulated by the premium on gold and by the greatly enhanced demand for nickel, copper, lead, and zinc and for other minerals of lesser importance. The output of hydro-electric power is likely to exceed all previous records. Again, the railways and the inland and oceanic water carriers of the country are already finding that the outbreak of war is bringing about an increasing demand for their facilities. Finally, the financial necessities of war time, together with the establishment of a national central bank, the Bank of Canada, are freeing the financial institutions from their previous dependence on New York. On the whole, apart from the expense and other losses which will be entailed by the War, 1940 bids fair to be one of the most prosperous years in the economic history of Canada.

SPECIAL ARTICLE

THE WESTERN OIL SITUATION—ITS POSSIBILITIES AND ITS PROBLEMS

Introduction

Historical.—The phenomena associated with the appearance of petroleum and natural gas at the earth's surface were well known to the American Indians before the coming of the white man. The aborigines were acquainted with the use of petroleum as fuel, lubricant, and illuminant, and the burning springs, common at vents of natural gas, appealed strongly to the superstitious side of their natures.

Early settlers, too, soon learned the value of these resources, but the abundance of wood fuel rendered of little value the small quantities of liquid fuel lying ready to hand in seepages. The manifestation of oil at McMurray in northern Alberta, the greatest 'oil seepage' in the world, first described in 1789 by Alexander Mackenzie, was then too remote to have value.

The design of lamps burning vegetable or animal oils or fats had changed little from that of classical times; in 1784 Argand produced the first burner to give a steady light, but the supply of whale oil, the use of which was just becoming general, soon dwindled and substitutes proved indifferent. Only in the 'forties and early 'fifties was a commercial source of lamp oil made available by distillation from coal and oil shale. Similar products, obtained more readily from the crude oil of Ontario and Pennsylvania, followed quickly, and their successful use led to a search for more abundant supplies of this hitherto neglected material. The problem of supply was solved in 1859 by the drill, and the modern oil industry then began, drilling soon replacing or supplementing the sinking of hand-dug wells in the Old World as well as the New. Coal oil or kerosene rapidly became the popular illuminant.

By the end of the 19th century, big production was still restricted to the Appalachian field in America and to Russia. Very minor production came from Burma, Roumania, and Poland. Production in Ontario was dwindling and Canada had become largely dependent on the larger and well-organized oil industry of its neighbour to the south, although attempts had already been made to find oil in the West, where seepages had been reported along the 49th parallel early in the century.

Gas was struck when drilling a water well at Alderson on the C.P.R. main line in Alberta in 1883 and other small gas wells followed. About the same time an oil seepage was attracting considerable attention near Waterton Lake. The exploration of the North West, then in progress, was revealing wide-spread signs of oil in the Devonian rocks, underlying the bituminous sands of McMurray. The Geological Survey of Canada in 1894 started drilling at Athabaska Landing and later at the mouth of the Pelican River where gas in quantity was struck, but the oil in the bituminous sands, penetrated at 750 feet, was found too heavy to produce. The gas burned for 15 years before being 'mudded off'.

By the turn of the century the oil industry was undergoing a fundamental change. In 1901, the Lucas Gusher at Spindle Top in Texas opened big production outside the Appalachian field, the crude being heavy and suitable for fuel. It is true fuel oil on a big scale had been a primary product in Russia for years, but it was not exported. Now, abundant supplies were becoming available close to the Gulf Coast in Texas and Louisiana, and these were soon supplemented by equally large and strategically-placed supplies in California and Mexico. The general introduction of fuel oil for power, notably for bunkering ships, began. Slowly, but surely, the use of the light internal-combustion engine, particularly in the motor-car, was spreading, although it was well into the first decade of the century before this trend became fully defined.

Early in the kerosene period the foundation had been laid of that peculiar feature of the oil industry arising from the liquid character of the commodity, viz., its ready centralization. It remained for modern days to make of oil one of the world's biggest industries, to raise it from a purely commercial business to one of prime military and political importance, characterized by the complete integration of production, refining, transport, storage, and marketing.

Developments in the Canadian West

Individual Efforts to Explore the Field.—The big development of natural gas at Medicine Hat took place in 1900, when wells were first drilled to 1,000 feet, after shallower wells, from 1890 onwards, had shown the possibilities of the field. The gas industry of the city expanded rapidly and lent encouragement to the search for similar structures where the Medicine Hat sand, 300 feet below the Milk River sandstone, might have possibilities. In 1907-08 the C.P.R. drilled on the Saskatchewan River south of Suffield, where a supply of gas was obtained from the upper sands but the main sand yielded little. The drilling in northern Alberta had drawn attention to gas in what was erroneously termed the "Dakota", a deeper-lying, Lower Cretaceous formation and, after the Medicine Hat sand was tested without success at Bow Island to the southwest of the Suffield well, it was decided to drill deeper. This led to the discovery of another prolific gas sand 1,200 feet below the Medicine Hat sand in the Benton shale, but still above the Dakota. This sand has since been found productive elsewhere in southern Alberta.

A short-lived boom over the seepages near Waterton Lake in 1890 had been followed by more serious attempts on Cameron Creek and oil was struck in 1901. Other wells were drilled and a small topping plant was operated for a time but no large production resulted. This activity drew attention to the foothills as potential oil territory and the search was again stimulated by the Dominion Government's grant in 1904 of a bounty of $1\frac{1}{2}$ cents a gallon on all crude oil produced in Canada.

As the Medicine Hat sand was believed to lie at workable depth in many parts, a search began for a supply of natural gas for Calgary. In 1906 a well was drilled north of the Sarcee Reserve to what was then the considerable depth of 3,365 feet but only short-lived flows were struck; two years later another well in East Calgary obtained a small production of gas. The discovery of abundant gas at Bow Island in 1909 having

The Derrick of a
Modern Well.



Calgary Petroleum Products Co., Ltd., Wells Nos. 1 and 2 (now Royalite 1 and 2)—
the Pioneer Wells in Turner Valley

Copyright, H. Pollard, Calgary, Alta.

furnished Calgary with a good supply, local interest was transferred to a gas seepage in the bed of the Sheep River, in the foothills some 28 miles southwest of Calgary, where the search for the elusive Dakota began in earnest. Towards the close of 1912, a well was started 8 miles northwest of the seepage, and, early in 1913, another was begun close to the seepage. In this southern well, drilled by Calgary Petroleum Products Co., Ltd., a show of very high-grade oil was struck in 1913, at 1,557 feet. A better supply at 2,718 feet in 1914, started the Calgary oil boom of 1914-15. Development of Turner Valley was crippled by the War of 1914-18 and the consequent difficulty in obtaining supplies or finance; however, the owners of several wells produced and marketed their oil, three topping plants being in operation. At the end of the War an absorption plant was built by Calgary Petroleum Products Co., Ltd., to recover the naphtha from the gas of its first two wells.

The Viking gas field had been discovered in 1914 but it was not till 1923 that the gas was piped to Edmonton, the same year that heavy oil was struck in commercial quantity at Wainwright, about 45 miles farther east along the C.N.R. main line. Shortly before the War of 1914-18 geological work had been revived to the north and a well was located near a seepage 50 miles north of Fort Norman on the Mackenzie River, north of latitude 65°. At Norman, oil was struck in two wells, but lack of a market hindered development. Since 1932, however, production each summer has provided fuel for the mining camps at Great Bear Lake and neighbouring areas. Good oil shows were noted in wells drilled on the Peace River in 1916 and 1917, and when, in 1919, it was again possible to introduce proper equipment, substantial test drilling was resumed at numerous localities in Alberta, as well as at Norman and Great Slave Lake in the Northwest Territories.

The close of the War also witnessed a revival of activity in Turner Valley, where a third well, started late in 1919 by the Calgary Petroleum Products Co., Ltd., was completed in 1923. The absorption plant of that company was destroyed by fire in 1920 and at the beginning of 1921 the company, which had been acquired by Imperial Oil Ltd., was reconstituted as the Royalite Oil Company. A new absorption plant was built together with a compressor station, and in 1922 the gas from the first two wells was piped to Calgary to augment the dwindling supplies from Bow Island.

The Tapping of the Limestone by Royalite 4.—In March, 1922, crude oil was struck not far south of the International Boundary at Kevin-Sunburst in Montana. This field was soon producing large quantities of oil from the so-called Ellis sand at the top of the Madison (Palæozoic) limestone, whereas all Alberta gas and oil production, with the exception of the oil at Waterton Lakes, had hitherto come from the younger Mesozoic rocks. The formations overlying the Madison being similar to those already explored in Alberta, it was natural that efforts should be made to reach this prolific horizon, the oil of which had a gravity ranging from 31° to 34° API and yielded 25 p.c. of straight-run gasoline and 14 p.c. of kerosene.

A fourth well was accordingly 'spudded-in' by the Royalite Oil Co. in 1922, a short distance north of the little group of the three earlier wells. It failed to find production on top of the Palæozoic limestone, as at Kevin-Sunburst, but after drilling 290 feet into the limestone, a sensational strike of gas was made in 1924. The flow was measured at 21,500,000 cu. ft. per day, although two strings of tools and 5,000 feet of line were in the hole. When the well was 'closed in' the casing parted, the well took fire, and was extinguished only with difficulty.

Although not particularly rich in heavier hydrocarbons in comparison with some gases, Royalite 4 contained about a gallon of them per 1,000 cu. ft. of gas, and owing to the high pressure (over 2,000 lb. per square inch) the expansion of the gas on escaping from the formation caused these hydrocarbons to condense and form what was termed 'naphtha', a clear liquid having a gravity of 73° API. Collected first in simple drips, this was eventually recovered by passing the gas through separators. The recovery was very good at first; large quantities of such hydrocarbons as propane and butane were included.

As the pressure in the vicinity of a well declined, the extraction became less perfect and much gasoline passed out with the tail gas. To recover this, absorption plants were re-introduced, the first built in 1933 having a capacity of 100,000,000 cu. ft. of gas per day. A 4-inch line for the naphtha and a 10-inch gas line were laid to Calgary. The gas from Royalite 4 contained 640 grains of hydrogen sulphide per 100 cu. ft. and to render it suitable for domestic use a scrubbing plant was built by means of which the content was reduced to 5 grains.

Royalite 4 had a depth of 3,740 feet and proved to be one of the shallowest wells to reach the limestone. Other wells went from 4,000 to 5,000 feet before striking the limestone and some of over 6,000 feet failed to reach it at all. It became evident that the east side of the structure was missing and that the westerly flank alone was productive. The limestone in parts was 'tight' and even shooting a well with nitroglycerine did not always free the gas. Development took on a north and south trend, avoiding both the barren east and the great depths that seemed likely to be called for on the west, judging by the steep dips of the rocks exposed on the surface. More recently this conception has been modified.

Conservation of Gas Resources.—The waste of gas from Turner Valley has been a problem since the completion of Royalite 4. To obtain a small quantity of naphtha it has been necessary to dispose of large quantities of gas—much more than could be marketed in Calgary and nearby centres. What could not be used was burned. The relatively low permeability of much of the limestone was one reason for not returning the tail gas to the formation after it had yielded its naphtha; another was that 'shutting in' of such high-pressure wells was comparatively unknown in the early days. Restriction of wells, moreover, meant loss of revenue to the operator from the sale of his naphtha.

The seriousness of such waste did not have to wait to be brought home by the decline of pressure. From the start it was fully appreciated, and the Petroleum and Natural Gas Regulations of the Department of the Interior provided for proper control of wells, but these regulations applied only to certain wells. When, in 1929, the waste grew enormously owing to the completion of prolific wells in the Home and Okalta areas, and even the winter load could no longer cope with the production, a joint Dominion and Provincial Committee was appointed to study conservation and specific legislation was recommended.

In 1930, after some preliminary testing, reconditioning of wells, and the provision of the proper plant, scrubbed gas from Turner Valley was introduced into the depleted and water-logged sand of the Bow Island gas field, where it remained to act as a reserve for the Calgary pipe-line. This process continued steadily until February, 1939, by which time over 11,000,000,000 cu. ft. of gas had been stored; such storage ceased because of the shutting in of gas wells in Turner Valley by the Conservation Board.

The transfer of control of natural resources from the Dominion to the Prairie Provinces in 1930 unified to some extent the supervision of the oil and gas fields in Alberta and, as the waste of gas continued unabated, a body, known as the Turner Valley Gas Conservation Board, was created by the Provincial Government. In 1932, a general order was made reducing the production of gas to 200,000,000 cu. ft. a day and a schedule of gas

allowables was drawn up, in the computation of which both naphtha production and acreage entered. Under subsequent orders measurements of pressures of wells were taken but, owing to the wording of the Act transferring the resources to Alberta, it was found impossible to enforce proration against the refusal of a few operators to accept it. The gas ratio in 1926 had been 52,900 cu. ft. per barrel of naphtha; in 1932 it had risen to 130,000. By 1933 a field some 13 miles in length had been delineated, the width being about one mile. In April restriction of the gas flow to 40 p.c. of the open flow was enforced on the recommendation of the Board, and uneconomical wells belonging to, or controlled by, the Royalite Oil Co. were shut in.

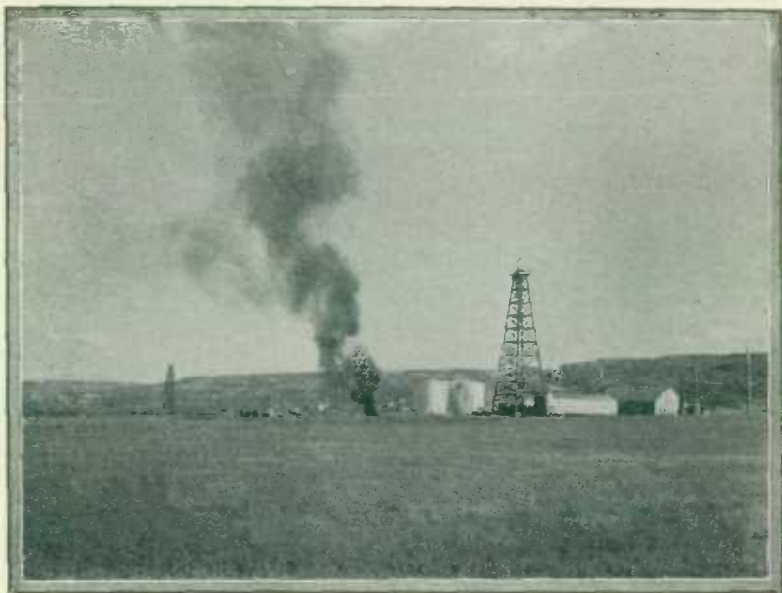
The Petroleum and Natural Gas Conservation Board of the Province of Alberta, created in 1938, has been successful in enforcing the conservation of gas. A gas well has been defined by them as one in which the gas/oil ratio is 31,000 cu. ft. or more per barrel. An oil well near the gas-cap becomes a gas well when its gas/oil ratio reaches that figure, as some have already done. In November, 1938, it became necessary to amend the Act to strengthen the powers of the Board and, since January, the waste of gas has been effectually checked, even the repressuring of Bow Island field having ceased.

The Trend Towards Drilling for Oil Only.—After 1933 only the southern end of the field remained available for the acquisition of leases and many independants turned their attention thither. A well, Century 1, completed in 1934, produced crude oil instead of naphtha-laden gas and the oil became gradually heavier. This phenomenon had already happened in other wells in the north and central parts of the field, all of which lay close to a line on the western slope and were suggestive of a boundary between the gas-cap and a deeper-lying oil zone. A well, Turner Valley Royalties 1, in a strategical position to the dip of Century 1, about half a mile to the southwest, was accordingly completed and brought in as the first big crude-oil producer of Turner Valley in 1936.

Royalite 4 reaches a depth of 3,740 feet; Turner Valley Royalties 6,828 feet. The impetus given by the latter to the drilling of wells essentially for oil has been remarkable. By the end of 1939 about 100 wells had been drilled and only about 3 p.c. failed to prove productive. Of the total over 90 are in the southern part of the field opened up by Turner Valley Royalties 1, where an area extending roughly from Bull Creek to Tongue Creek has been developed. Five wells are producing south of Quirke Creek in the area in which Model 1 was the pioneer. Between Tongue Creek and these northern wells, a stretch of some 7 or 8 miles awaits the drill, and, judging from the distribution of gas along the gas-cap to the east, much of it is likely to yield oil. The southern boundary of the Turner Valley field has probably been delimited; the northern is still unknown.

At the south end, on the left bank of the Highwood River, edge-water has been found, indicating a width of the productive oil zone of about a mile and a half at that place. As so much of the 17 miles of the structure already recognized as potentially oil-bearing has yet to be drilled in the central and northern parts, it is not yet possible to assign precise widths to different parts of the field. Grounds exist, however, for regarding the

dip of the formations as greater at the north end and, assuming the water level to be constant, this may narrow the field there somewhat.



Turner Valley Royalties Well.—This was the first big crude-oil producer in South Turner Valley and was completed at a depth of 6,828 feet in June, 1936.

*Courtesy, Bureau of Geology and Topography,
Department of Mines and Resources, Ottawa*

Porosity of the Strata and 'Acidization'.—Three porous zones have been recognized, one less than 10 feet thick at the top and rarely noted, the second about 200 feet below the top—from 30 to 150 feet and averaging 95 feet thick—the third above the so-called 'black lime' about 450 feet down and 75 feet thick. The last two are usually named the upper and lower porous zones, respectively. The upper zone is the main producer along the crest of the fold, although it is probable that Royalite 4 produced from both, owing to the shattered condition of the limestone. The upper zone is sometimes spoken of as producing more gas; the lower, more oil. The lower zone is well developed in the south end of the field where it is the main oil producer. In several wells to the north, little porosity has been found but the condition is well developed in Home Millarville 2, the big producing well at the north end of the field.

The porous zones are generally treated with acid after the well is brought in. At subsequent dates further acidization may be given. It is usual for a well to be treated at least twice, although the method of treatment varies, especially in the amount of acid given. Up to 12,000 gallons of hydrochloric acid is used and, upon occasion, considerably more has been tried. More generally the amount ranges from 3,000 to 8,000 gallons. Sometimes each porous zone is treated in turn. The effect is

to open up the pore structure and establish channels for oil to flow more readily to the well. Where secondary calcite has been deposited and sealed the channels, the immediate result may be very marked. Whether the ultimate production of a well is increased has not yet been determined. The acid is introduced through tubing and when spent is flushed out by oil pumped in for that purpose.

The oil from the limestone in the crude-oil area of Turner Valley ranges in gravity from 46° API, close to the gas-cap, to about 40° towards the contact with the edge-water. It yields 50 p.c. of straight-run gasoline, differing from most crudes, which yield 30 to 35 p.c. The oil produced in some wells in the gas-cap since 1914 from sands above the limestone had gravities of from 45° to 54° API.

Variability in the yield of different wells, such a noticeable feature of wells in the gas-cap, has also been found in the oil area, and there is a wide difference between estimates of the oil recoverable from the field. These range roughly from 100,000,000 to 300,000,000 bbl., and are probably much less than the actual amount of oil in the formation. One thing is certain: Turner Valley may be placed in the category of major oil fields. At the end of 1939 Alberta has already produced 27,800,000 bbl.

The Complex Geology of the Western Field and Its Effect on Production.—To many it may seem strange that in a region like the foothills of Alberta, where oil and gas indications are fairly common, other fields of magnitude have not been discovered, since many test-wells have been drilled. To the east, on the plains, heavier oil has been found at numerous localities, such as Wainwright, Ribstone, Lloydminster, Taber, Skiff, Red Coulee, and Spring Coulee, some of which have shown fair yields, and, no doubt, with energetic development and right methods of production, eastern Alberta and perhaps adjacent areas in Saskatchewan will be brought to yield large supplies of lower-grade oil that will supplement in refining value the higher grades of Turner Valley. Yet, to the time of writing, this remains the only important producing area in the foothills. Oil has been struck in Devonian limestone farther in the foothills at the Elbow and North Saskatchewan Rivers, but large scale production has not yet been attained.

The reason for this seeming anomaly lies largely in the complex geology of the foothills, the key to which can only be found, if at all, by expensive and prolonged drilling. Turner Valley may be regarded as a limestone mountain that never came to birth; beneath its deeply-buried western slope, gas, oil, and water occupy, respectively, deeper-lying parts of the porous zones. The limestone is now judged to be relatively simple in its structure but this has been completely hidden by the much more distorted overlying beds of shale and sandstone. Not one hole but hundreds were needed to reveal the facts and much has still to be learned. It has been found that structures bearing superficial resemblance to Turner Valley may differ much in depth, and the hoped-for 'limestone' may prove as elusive as the proverbial needle in the haystack. From the close study given to the results of the better-directed drilling efforts of recent years, it is not too much to predict that the riddle of foothills oil is well on the way to being solved.

Conclusion

The Problems of Marketing Western Oil.—The rapid growth of crude-oil production in Turner Valley did not solve the problem of conserving the gas but added another, the finding of a market for the crude oil itself. The two 4-inch naphtha lines, laid originally from Turner Valley to Calgary, had proved inadequate by early 1937. Each had a capacity of 5,000 bbl. a day. In 1937 the Royalite Oil Co. laid a 6-inch loop that joined the old Regal line about 30 miles from Calgary and raised the combined capacity to 13,000 bbl. a day. Early in 1938 the 6-inch line was made continuous to Calgary, giving a combined capacity in excess of 24,000 bbl. daily. Tank storage in the field and at Calgary has been increased so that the pipe-line can handle the demands from the Prairie Provinces and eastern British Columbia. Some oil is also moved from the field by truck.

But transportation was only one of the problems to be met. Oil refining in Calgary has been built up on the basis of using the naphtha from the separators at the gas wells and the natural gasoline from the absorption plants for blending with the cracked products of heavier oil imported from Montana or Wyoming to make gasoline and tractor distillate suitable for the markets of the Prairie Provinces. The comparatively high-priced products of Turner Valley in those days went as far East as Moose Jaw. A very different situation arose, however, when crude oil began to be produced in large quantities in Turner Valley and was forced to compete over a wide area with the imported cheap crude, for much of which contracts had still some time to run. Refining equipment, moreover, is designed for a particular grade of crude or crudes and the Turner Valley crude differs considerably from the Montana or Wyoming crude hitherto used.

Production in Turner Valley had fluctuated little for several years and after a slight rise remained steady around 120,000 bbl. a month from the time Turner Valley Royalties well came in in June, 1936, until the end of the year. The increase was rapid in 1937. A cut in the posted price was made by Imperial and British American on Sept. 1, after they had first obtained a reduction in the freight rates from Calgary to Moose Jaw and Regina. The price was cut from \$1.55 to \$1.46 per bbl. for 40° to 40-9° API oil, with an increase of 2 cents per degree up to 65° API, as against a previous differential of 3 cents per degree. The reason given for this was that the competition of crude from Cut Bank, Montana, made it necessary. On Sept. 11, a meeting was called at which the producers were told storage tanks were full and that 'proration' would come into immediate effect on a 65 p.c. basis. This was reduced to 45 p.c. on Nov. 1, and to 35 p.c. on Nov. 11, but was increased to 42 p.c. on Jan. 1, 1938.

Prorating.—'Prorate' signifies to distribute *pro rata*. This had been done for a number of years in oil fields when production exceeded demand and had to be curtailed. This is the real justification for it, although no doubt preservation of price may be an underlying motive. Prorating may be based either on the open-flow (potential production) or on esti-

How Oil and Gas Are Produced in Turner Valley

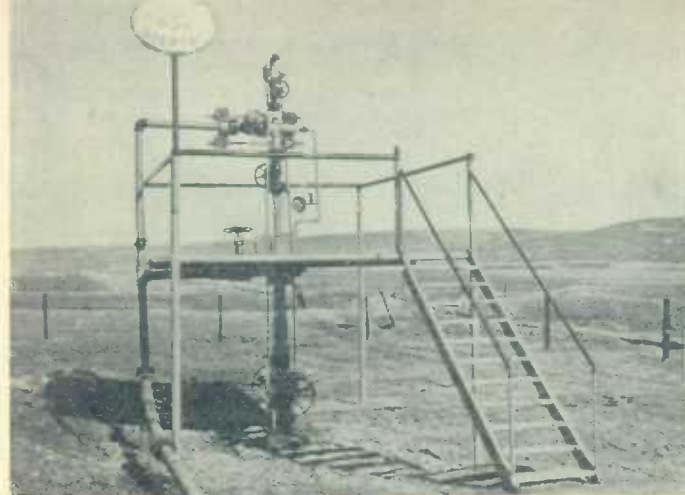
The system of drilling oil wells used nowadays in Turner Valley is known as the 'Rotary'. It is expeditious and effects economy in labour—a serious item in the heavy cost of drilling these wells—and a deep hole can be drilled with only two strings of casing. The section of the well on the reverse of this page shows 13½-inch casing 'set' at 1,000 feet and 6½-inch at the top of the limestone. Several horizons above the limestone sometimes carry oil; production has been obtained from the Home and Dalhousie sands.

At present, production in Turner Valley is usually by natural flow through the tubing (which is shown in the diagram extending from the bottom of the well through the casing head) to the assemblage of fittings at the surface of the well; the oil and gas are allowed to flow through either the casing or the tubing, usually the latter. When a successful well is completed, the drilling equipment including the derrick is removed and the only prominent feature remaining is this arrangement of pipes and valves (see Illustration 1 below). The connection leading to the separator, where the gas is separated from the oil, includes a special valve that permits regulation of the flow to within the 'allowable', i.e., the amount of oil fixed for the well by the Conservation Board.

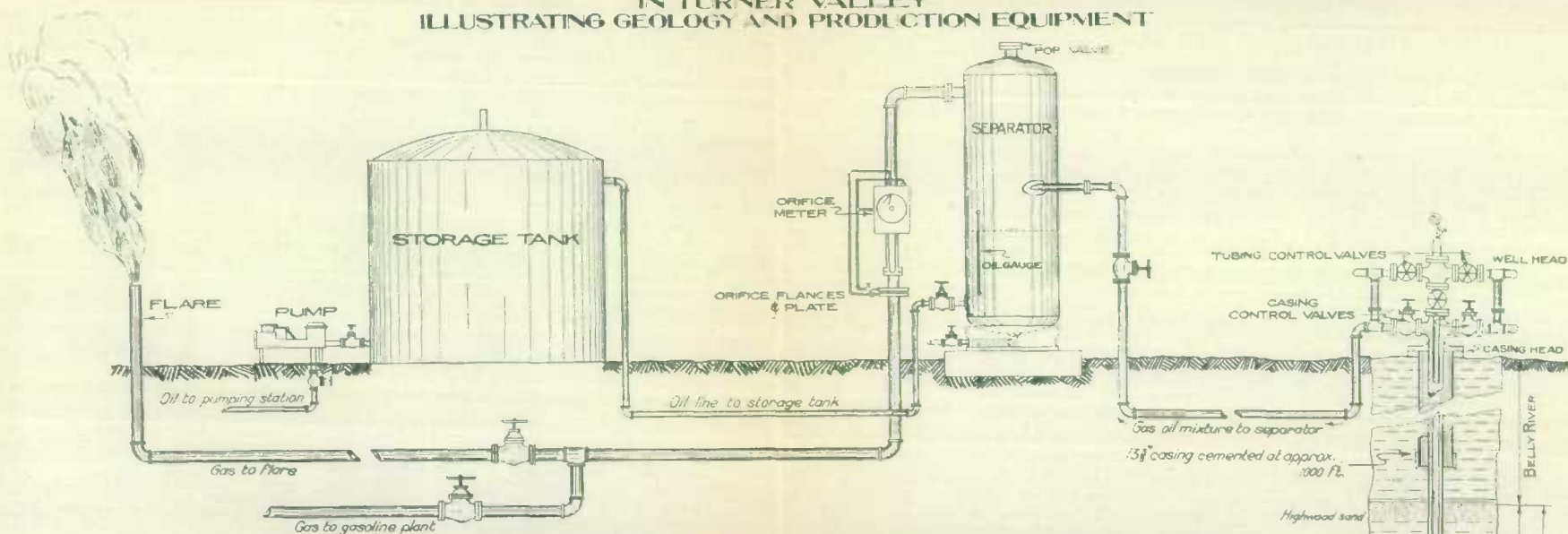
Both the gas and the oil are metered and arrangements enable the pressures in the tubing, the casing, and at the bottom of the well to be taken with a minimum of disruption of the flow.

Although each well forms a unit (as shown diagrammatically), three or more are usually connected to one production farm where the separators, tanks, and pumps are collected. From here the oil is pumped to the gathering station of the pipe-line and the gas to an absorption plant for stripping of its natural gasoline, or it may pass direct to a flare.

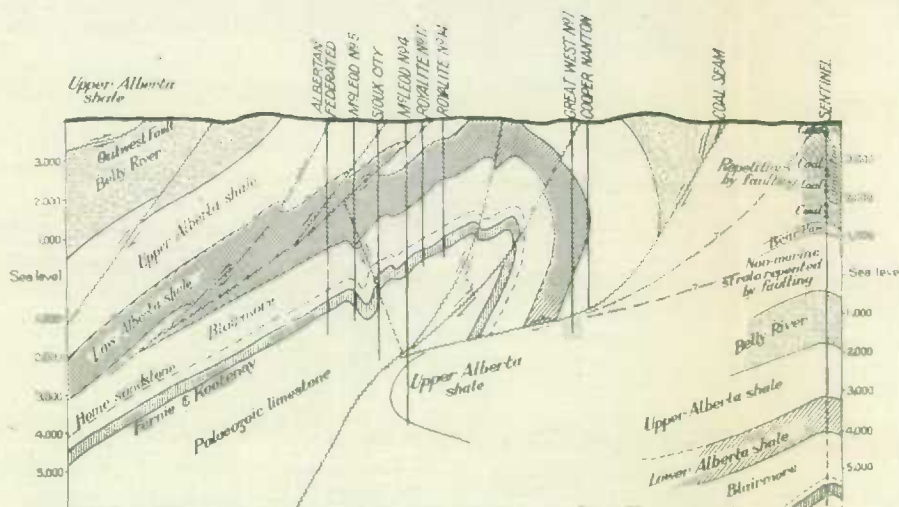
The illustrations facing p. 24, reading downward, show: (1) The Production Stage.—After the well is completed, the derrick and all equipment are removed and an assemblage of fittings, as shown, links up the well-casing and -tubing with the separators. (2) An Absorption Plant.—This equipment separates the gasoline remaining in the gas after the naphtha has been removed by the separators at the well. (3) Flare at a Crude Oil Well in Western Canada.—After 'acidization', the spent acid is removed from the well by oil pumped down under pressure. The mixture is then consumed at the surface, since it has no commercial value. (4) A General View of a Plant for Treating Wet Gas in the Turner Valley.—The equipment includes: scrubbing apparatus, absorption plant and compressor, and storage tanks.



SKETCH OF TYPICAL CRUDE OIL WELL IN TURNER VALLEY ILLUSTRATING GEOLOGY AND PRODUCTION EQUIPMENT

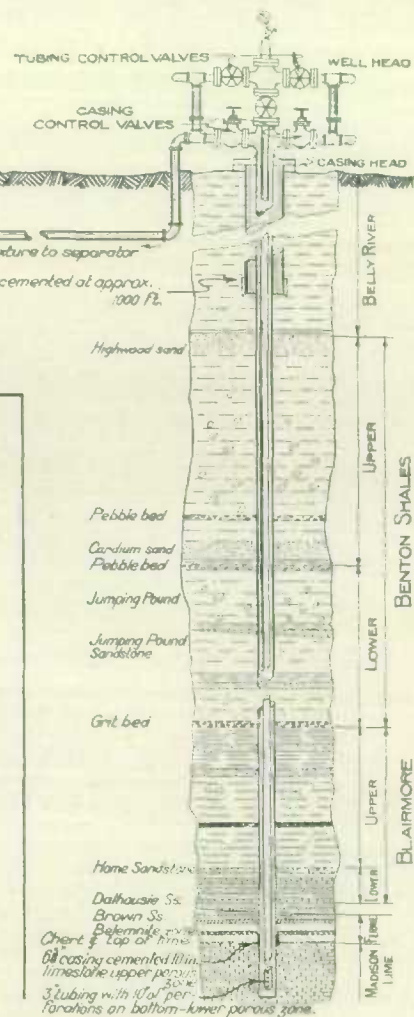


GEOLOGICAL CROSS SECTION OF CENTRAL PART OF TURNER VALLEY



Note
This cross section illustrates the extreme difficulty of interpreting the geological structure before drilling has disclosed the actual lie of the strata.

Geological Section.
Courtesy, Dr. G.S. Home
Bureau of Geology and
Topography, Ottawa



For description, see under

mated total recoverable oil. Both factors usually enter into the problem. The system of prorationing has been used in Alberta since September, 1937.

Until the creation of the Petroleum and Natural Gas Conservation Board by the Province of Alberta in April, 1938, open-flow or potential production was measured by the provincial Department of Lands and Mines. The market-demand fluctuates considerably with the seasons and in 1938, before the first order of the new Board, dated Aug. 8, 1938, the prorated allowances were changed four times. Beginning Sept. 2, 1938, they have been determined by means of a formula, in which, besides the well potential, acreage, gas/oil ratio, and bottom-hole pressure each plays its part. The acreage factor has been simplified by allowing only one well to 40 acres.

By careful production, it would seem that the wells will have a relatively long life, even if initial productions are not particularly big. Wells cost too much for much closer spacing to be economical. It is, however, abundantly clear that, if a bigger market could be found for the oil, production could be 'stepped up' considerably by drilling more wells. Schemes have been considered for the construction of trunk pipe-lines from Calgary to Vancouver and to Regina and Winnipeg. It has even been proposed to lay one to the Great Lakes and to transport the oil thence by tanker to Sarnia and Toronto.

Future Prospects.—It is reasonable to expect that, once adequate markets are opened, Turner Valley will not be the only big producer of crude oil in Alberta. Apart from the heavier crude that has already been demonstrated in this area of eastern Alberta, the foothills are known to contain numerous structures that offer attractive prospects for oil both in the Carboniferous rocks, as in the Turner Valley, and in deeper-lying Devonian limestones. Some extensive areas of the latter have already attracted attention and porous zones have been found saturated with high-grade oil. Nowhere yet has sufficient development been done to define what may be expected, but wells on the Elbow River and the Clearwater, a right-bank tributary of the North Saskatchewan River, have proved oil to be there in quantity. The region open to prospecting is enormous, extending into British Columbia and the Northwest Territories.

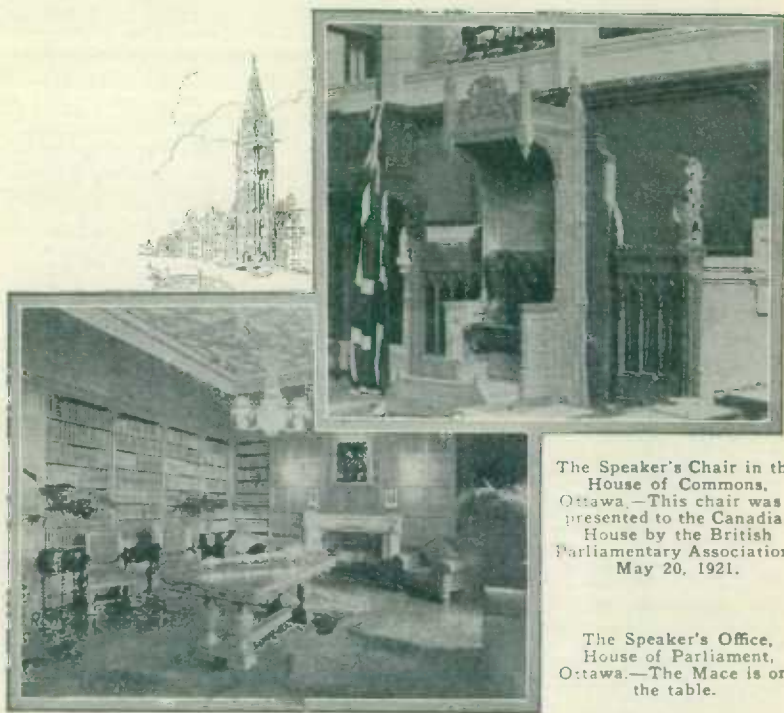
The bituminous sands of McMurray have been for years a source of bitumen for road making and roofing material. The bitumen separates readily from the sand as a heavy oil, from which gasoline and various fuel oils can be made. The mining industry to the north now offers a market for these products. The bitumen here available may easily amount to 100,000,000,000 bbl. There need be no fear that Canada will be short of oil when this vast reserve is fully developed.

The situation in regard to western oil is pretty much the same as that of coal. If there were no Pennsylvanian fields near Ontario, Canadian coal would dominate its markets and were it not for the close proximity of the huge oil industry of the United States, the development of western oil would present a very different picture. Even so, when the present state of potential over-production passes and the curve of consumption approaches that of potential supply, development in the West will proceed apace. Present developments in Turner Valley are but an earnest of far bigger things to come.

CHAPTER I

THE CONSTITUTION AND GOVERNMENT OF CANADA

Historical Development.—The political status of Canada has evolved from that of a British colony with self-government in domestic matters to that of a member-state of the British Commonwealth of Nations, theoretically equal in status to the United Kingdom and to each of the other member-states, and possessed of the attributes of sovereignty in respect of external as well as domestic affairs. Since 1867, when the Provinces of Canada (Ontario and Quebec), Nova Scotia, and New Brunswick were federally united into one Dominion under the Crown of the United Kingdom of Great Britain and Ireland, constitutional development has been matched by territorial expansion. There are now nine provinces—Quebec, Ontario, Nova Scotia, and New Brunswick (the original four); Manitoba (1870); British Columbia (1871); Prince Edward Island (1873); Alberta (1905); and Saskatchewan (1905). Besides the provinces,



The Speaker's Chair in the House of Commons, Ottawa.—This chair was presented to the Canadian House by the British Parliamentary Association, May 20, 1921.

The Speaker's Office, House of Parliament, Ottawa.—The Mace is on the table.

The Office of Speaker Dates Back in British History to the Fourteenth Century and has been Inherited by Canada and the Provinces.—The presiding officers both of the Canadian House of Commons and Senate and of the legislatures of the nine provinces, including the Legislative Council of Quebec, are all designated "Speakers", and perform the same functions as at Westminster.

Courtesy, Canadian Government Motion Picture Bureau.

there are vast northern territories which are administered directly by the Federal Government.

To understand Canada's status in the British Commonwealth of Nations and in the so-called family of nations, it is necessary to examine the history of her constitutional development.

Internal Affairs.—At the time of Confederation, as has been noted, Canada was self-governing in respect of her domestic affairs. Autonomy was not actually complete even in this field, for the Parliament of the United Kingdom retained the power to enact laws extending to Canada, and the Crown in Council (i.e., the British Government) retained the right to disallow Canadian legislation or withhold the Royal Assent to bills on certain subjects passed by the Parliament of Canada. These rights gradually fell into desuetude. The rights of disallowance and the withholding of assent were formally renounced by the Government of the United Kingdom at the Imperial Conference of 1930; and by the Statute of Westminster, 1931, the Parliament of the United Kingdom renounced its right to legislate for Canada except at the request and with the consent of the Canadian Parliament. The Statute of Westminster also authorized the Parliament of Canada and the provincial legislatures to enact laws amending or repealing British laws in so far as they applied to Canada; and it further declared and enacted that the Parliament of Canada had full power to make laws having extra-territorial effect. The method of amendment or repeal of the British North America Act—the written part of the Canadian constitution—was specifically excepted from the operation of the Statute of Westminster, mainly because there was no general agreement in Canada on an alternative method of constitutional amendment more in keeping with Canada's political status.

External Affairs.—The evolution of self-government in external affairs has been a slow process. It began with the association of Canadian representatives with British plenipotentiaries in the negotiation of treaties affecting Canada, and the attendance of Canadian representatives at international technical conferences. Participation in the Great War, 1914-18, earned for Canada separate representation at the Peace Conference, the right to have her representatives sign the treaties of peace, and separate membership in the League of Nations. At the Imperial Conference of 1926 it was agreed that the United Kingdom and Canada and the other Dominions were "autonomous Communities within the British Empire, equal in status, in no way subordinate one to another in any aspect of their domestic or external affairs". This was not an exact statement in 1926, nor is it exact in 1940; but it is a statement of the theory of the Commonwealth association, and facts that are out of harmony with it are regarded as anomalies.

The Constitution.—The written constitution of Canada is the British North America Act, 1867, and its amendments. This Act is an Act of the Parliament of the United Kingdom, and it is one of the anomalies of Canada's "equal status" that it can be amended only by that Parliament. In practice, however, the Parliament of the United Kingdom enacts such amendments as may be requested by joint addresses from the two Houses of the Parliament of Canada. Supplementing the written constitution is an unwritten constitution comprising ancient prerogatives of the Crown.

British constitutional conventions (sometimes adapted to fit Canadian conditions), and conventions and usages that have been evolved in Canada to conform with Canadian requirements.

Division of Powers as Laid Down by the British North America Act.—Following the federal principle, legislative powers in Canada are divided between the Parliament of Canada and the provincial legislatures. Under Section 91 of the British North America Act, the Parliament of Canada is authorized to make laws "for the peace, order and good government of Canada, in relation to matters not coming within the classes of



An Oblique Aerial View of Government House, Ottawa, the Official Residence of the Governors General of Canada.

subjects" assigned exclusively to the provincial legislatures under Section 92 of the Act. Among the classes of subjects in which the Federal Parliament has exclusive jurisdiction are the following: public debt and property; regulation of trade and commerce; raising of money by any mode of taxation; borrowing of money on the public credit; postal service; census and statistics; militia, military and naval service, and defence; fixing and providing for salaries and allowances of the officers of the Government; beacons, buoys, and lighthouses; navigation and shipping; quarantine, and the establishment and maintenance of marine hospitals; sea-coast and inland fisheries; interprovincial and international ferries; currency and coinage; banking, incorporation of banks, and issue of paper money; savings banks; weights and measures; bills of exchange and promissory notes; interest; legal tender; bankruptcy and insolvency; patents of invention and discovery; copyrights; Indians, and lands reserved for Indians; naturalization and aliens; marriage and divorce; the criminal

law, except the constitution of courts of criminal jurisdiction, but including the procedure in criminal matters; the establishment, maintenance, and management of penitentiaries; and such classes of subjects as are expressly excepted in the enumeration of the classes of subjects exclusively assigned to the legislatures of the provinces.

Under Section 92 of the British North America Act, the provincial legislatures have exclusive legislative authority in respect of the following classes of subjects: amendment of the constitution of the province, except as regards the Lieutenant-Governor; direct taxation within the province; borrowing of money on the credit of the province; establishment and tenure of provincial offices, and appointment and payment of provincial officers; the management and sale of public lands belonging to the province, and the timber and wood thereon; the establishment, maintenance, and management of hospitals, asylums, charities, and eleemosynary institutions in and for the province, other than marine hospitals; municipal institutions in the province; shop, saloon, tavern, auctioneer, and other licences issued for the raising of provincial or municipal revenue; local works and undertakings other than interprovincial or international lines of ships, railways, canals, telegraphs, etc., or works that, though wholly situated within one province, are declared by the Federal Parliament to be for the general advantage either of Canada or of two or more provinces; the incorporation of companies with provincial objects; the solemnization of marriage in the province; property and civil rights in the province; the administration of justice in the province, including the constitution, maintenance, and organization of provincial courts, both of civil and criminal jurisdiction, and including procedure in civil matters in those courts; the imposition of punishment by fine, penalty, or imprisonment for breach of any law of the province relating to any of the aforesaid subjects; generally all matters of a merely local or private nature in the province.

The Federal Parliament and the provincial legislatures have concurrent powers in respect of agriculture and immigration, but federal laws in relation to these matters override provincial laws. The provincial legislatures have exclusive authority with regard to education, subject to certain safeguards for the rights of religious minorities.

Organization of Government.—Government in Canada operates through three main branches, viz., the Federal Parliament and provincial legislatures, federal and provincial executives, and the judicial system.

The Legislatures.—The Parliament of Canada consists of the King (who is represented by the Governor General); the Senate; and the House of Commons. The provincial legislatures comprise the King (who is represented in each case by the Lieutenant-Governor of the province); an elected Legislative Assembly; and, in the Province of Quebec only, an upper House known as the Legislative Council.

The Senate has 96 members — 24 from each of the Provinces of Ontario and Quebec, 24 from the Maritime Provinces (Nova Scotia 10, New Brunswick 10, and Prince Edward Island 4), and 24 — 6 each — from the four western provinces (Manitoba, Saskatchewan, Alberta, and British Columbia). Senators are nominated by the Governor General on the advice of the Cabinet, and normally hold office for life. The Legislative Council of the Province of Quebec consists of 24 members, nominated for life by the Lieutenant-Governor in Council.

The House of Commons has 245 members. The representation of the Province of Quebec is fixed at 65, and that of the other provinces is adjusted according to the ratio of their population to the population of Quebec after each decennial census. Representation at present is as follows: Prince Edward Island, 4; Nova Scotia, 12; New Brunswick, 10; Quebec, 65; Ontario, 82; Manitoba, 17; Saskatchewan, 21; Alberta, 17; British Columbia, 16; and Yukon, 1. Members are elected for a maximum term of five years, but the House may be dissolved before the term has expired.

Memberships of the Provincial Legislative Assemblies are as follows: Prince Edward Island, 30; Nova Scotia, 30; New Brunswick, 48; Quebec, 86; Ontario, 90; Manitoba, 55; Saskatchewan, 52; Alberta, 63; and British Columbia, 48. The maximum life of the Legislative Assemblies is five years.

Members of the House of Commons and of the Legislative Assemblies are elected by popular vote. The franchise varies from province to province; but in general men and women over twenty-one years of age who are British subjects and who satisfy residential qualifications are entitled to vote. The principal exceptions are women in the Province of Quebec, who do not vote in provincial elections, although they may vote in Dominion elections, and persons of Oriental race in British Columbia.

The Executive.—Executive authority is vested in His Majesty the King of Great Britain, Ireland, and the British dominions beyond the Seas, Emperor of India. Certain executive powers, mainly in connection with the conduct of foreign affairs, are from time to time exercised by the King himself, acting upon the advice of his Canadian Ministers; but for the most part executive powers corresponding to legislative powers are exercised by the Governor General for Canada, and by the Lieutenant-Governors for the provinces.

The Governor General is appointed by the King on the advice of his Canadian Ministers, usually for a term of five years. In accordance with what is the most important of the unwritten rules of the constitution, the Governor General acts only on the advice of the Cabinet, the members of which are jointly and severally responsible to the elected representatives of the people in the House of Commons for the whole conduct of government. The provisions of the British North America Act, whereby the Governor General may at his discretion disallow, or reserve for the signification of the King's pleasure, bills that have been passed by both Houses of Parliament, have become a dead letter.

The powers of a Lieutenant-Governor in relation to his Ministers are ordinarily the same as those of the Governor General *vis-à-vis* the Federal Cabinet; but in certain circumstances he may disallow bills or reserve them for the signification of the Governor General's pleasure. Lieutenant-Governors are appointed by the Governor General in Council. They hold office during pleasure, but usually for a five-year term, and may be removed for cause. In practice a Lieutenant-Governor may exercise powers of disallowance or reservation under instructions from the Federal Government.

The Governor General (or Lieutenant-Governor in the case of a province) appoints as Prime Minister (or Premier) the leader of the

political party or group that has a majority in the House of Commons (or Legislative Assembly).

The Cabinet, whether federal or provincial, is an executive committee of the legislature. Members of the Cabinet are chosen by the Prime Minister (or Premier of a province) and are appointed by the Governor General (or Lieutenant-Governor) on the advice of the Prime Minister (or Premier). Members of the Federal Cabinet are also members of the King's Privy Council for Canada. The Cabinet is the real executive authority, though its acts are, in form, acts of the Governor General on its advice. The Cabinet formulates policy; it sponsors most of the important legislation, the adoption of which it can usually obtain through its control of the majority in the legislature. Each member of the Cabinet is usually responsible for the administration of a Department of the Civil Service, although in the Cabinet there may be included Ministers without portfolio whose experience and counsel may be drawn upon but who ordinarily have no administrative duties. Thus the Cabinet not only formulates policy and sponsors legislation in line with its program, but controls the administrative machinery that gives it effect. The doctrine of Cabinet responsibility, whereby the Cabinet as a whole is held responsible for the official acts and policies of individual Ministers, has become well established and the Cabinet must resign as a body if the legislature gives formal expression to lack of confidence in its policies or its personnel. The conventions of Cabinet government also apply in the provinces.

Over the major part of Canada, as pointed out, there is a division of powers between the Federal and Provincial Governments. These are defined in the written constitution. There are, however, the vast northern areas of the Northwest Territories and Yukon, the widely-spread National Parks and historic sites, Indian reserves, and a few scattered parcels of Ordnance and Admiralty lands, which remain under the jurisdiction of the Federal Government and are administered under Cabinet Ministers by Federal Departments. These comprise between 42 and 45 p.c. of the land surface of Canada, but their total population is little more than 1 p.c. of that of the country as a whole.

The government of the Northwest Territories is vested in a Commissioner, a Deputy Commissioner, and a Council of five members appointed by the Governor General in Council from members of the Federal Civil Service. Ottawa is the seat of government.

In Yukon there is a local Government. The chief executive is the controller appointed under instruction from the Governor General in Council or the Minister of Mines and Resources. There is an elective Legislative Council with jurisdiction over local matters. The seat of government is Dawson.

The Judicial System.—The judiciary, the third element or branch of government, interprets the law and administers justice. Under the British North America Act (Sect. 92, s-s. 14) the legislature of a province has exclusive legislative competence in relation to "the administration of justice in the province, including the constitution, maintenance and organization of provincial courts, both of civil and of criminal jurisdiction and including procedure in civil matters in those courts". In Section 91 of

the Act it is provided that "the criminal law, except the constitution of courts of criminal jurisdiction, but including the procedure in criminal matters" is a subject within the exclusive legislative competence of the Dominion Parliament.

Although legislative authority over the judicial system is divided, the system itself is in fact closely integrated. A provincial legislature is free to set up various courts of first instance, such as the ordinary courts presided over by stipendiary magistrates or justices of the peace, juvenile courts, domestic-relations courts, traffic courts, as well as county courts and superior courts, etc. The system owes its cohesion to the facts that appeals are possible, as a rule, to higher courts and that judges of county courts and superior courts in the provinces, as well as of the Supreme Court of Canada and the Exchequer Court, are all appointed by the Governor General in Council and are paid from moneys appropriated by the Dominion Parliament. The judges are drawn invariably from the legal profession. Judges of the Supreme Court of Canada, the Exchequer Court and county or district courts hold office until the appointee reaches the age of seventy-five years. Superior-court judges hold office for life. Judicial independence is safeguarded by the requirement that judges of the Supreme Court of Canada, the Exchequer Court, and the superior courts of the provinces hold office during good behaviour and are only removable by the Governor General on an Address of the Senate and House of Commons. County- and district-court judges are removable from office by the Governor General in Council for misbehaviour or for incapacity or inability to perform their duties, after an inquiry has first been held. In addition, pensions are provided on retirement in certain circumstances.

The Dominion Parliament possesses authority to establish a general court of appeal for Canada and any additional courts for the better administration of the laws of Canada, but so far has used its power only to set up the Supreme Court of Canada as a Court of Appeal and the Exchequer Court, which were constituted in 1875 under the Supreme and Exchequer Court Act (38 Vic., c. 11).

The Supreme Court has jurisdiction as a High Court of Appeal in both civil and criminal cases throughout Canada. It is also a court of appeal from the Exchequer Court, from the Board of Transport Commissioners, as provided in the Railway Act, and in certain other cases expressly provided under Dominion legislation. The Governor General in Council may refer to the Supreme Court for an opinion upon any matter deemed advisable. The Supreme Court sits in Ottawa, where the judges reside and where three sessions annually are held.

The Exchequer Court of Canada possesses exclusive original jurisdiction in all cases in which demand is made or relief sought against the Crown or any of its officers. It also has jurisdiction in controversies between the provinces and the Dominion under certain conditions. The Exchequer Court sits from time to time, and in such places as the business of the court requires.

In criminal cases the Supreme Court of Canada is the final court of appeal. In civil cases appeals may be brought from the superior courts of the provinces to the Supreme Court of Canada and thence to the Judicial Committee of the Privy Council by special leave of the latter

body. There is also an appeal as of right direct from the superior courts of the provinces to the Judicial Committee of the Privy Council in cases involving property of a minimum value that varies from province to province; in other cases the Judicial Committee may grant special leave to appeal. In practice, if a litigant brings an appeal to the Supreme Court of Canada, an appeal therefrom to the Judicial Committee of the Privy Council is seldom taken. There is an appeal as of right to the Judicial Committee from the Exchequer Court sitting as a Court of Admiralty.

Municipal Government.—Under the British North America Act, the municipalities are the creations of the Provincial Governments. Their bases of organization and their powers differ in different provinces, but almost everywhere they have very considerable powers of local self-government. If the local government districts of Saskatchewan and Alberta are included there are over 4,100 municipal governments in Canada. These 4,100 municipal governments have together probably 20,000 members described as mayors, reeves, controllers, councillors, etc.

Diplomatic Representation

Representation of Canada in Other Countries.—The Government of Canada has been represented in London since 1879 by a High Commissioner whose duties are to care for the many interests of Canada in the United Kingdom, to supplement the direct means of communication between the Canadian and British Governments, and in some cases to communicate direct with His Majesty the King.

Canada's first diplomatic representative abroad was the Canadian Minister to the United States, whose office was created in 1926. In 1928 a Canadian Minister to France was appointed, replacing a Commissioner-General whose office had been established in 1882. The first Canadian Minister to Japan was appointed in 1929, and in 1939 a Canadian Minister was accredited to the Netherlands and Belgium. Since 1925 Canada has had a permanent representative in Geneva accredited to the League of Nations. A High Commissioner to Australia was appointed in November, 1939, and the Government has announced its intention of sending High Commissioners to the Union of South Africa, Ireland, and New Zealand.

Representation of Other Countries in Canada.—The United States of America has had a Legation in Ottawa since 1927. The first High Commissioner for the United Kingdom in Canada took up his appointment in 1928, and in the same year the first French Minister to Canada was named. Japan established a Legation in 1929, and Belgium and the Netherlands accredited Ministers to Canada in 1937 and 1939, respectively. The office of Accredited Representative of the Union of South Africa was established in 1938, and a High Commissioner for Ireland was appointed in 1939. In September, 1939, the Governments of Australia and New Zealand announced their intention of appointing High Commissioners to Canada.

CHAPTER II

POPULATION—VITAL STATISTICS—PUBLIC HEALTH AND WELFARE

Population

The population of the earth is estimated at approximately 2,000,000,000.* The British Empire, which covers slightly less than one-quarter of the land area of the earth, has slightly less than one-quarter of the



Moose Factory,
Northern
Ontario,
on the South
Shore of
James Bay.



York Factory at the
Mouth of the Hayes
River, in Northern
Manitoba, on the
Western Coast of
Hudson Bay.

Typical Outposts of Northern Canada.

Courtesy, Canadian Government Motion Picture Bureau

world's population. Canada, which occupies over one-quarter of the area of the British Empire, has only about one forty-fifth of the Empire population. While there is no absolute standard for population density, so much depending on extent of resources, the rate of increase in productivity of land as a result of invention, etc., a certain minimum density is desirable.

* The Statistical Year Book of the League of Nations, 1938-39, gives the population of the world as 2,125,600,000 not including estimates of certain populations, chiefly in Asia and Africa, where censuses are incomplete or do not exist.

Areas and Populations of the British Empire

Country	Area in Sq. Miles	Population circa 1931	Officially Estimated Population 1936 ¹
British Empire	13,318,000	492,621,046	500,870,000 ²
United Kingdom of Great Britain and N. Ireland	93,991	46,042,000	47,485,000
Ireland (Eire)	26,601	2,957,000	2,937,000
Canada	3,694,900	10,375,786	11,209,000
Union of South Africa	471,917	8,132,600	9,979,900
Australia	2,974,581	6,629,839	6,929,691
New Zealand	103,415	1,442,746	1,607,826
Newfoundland and Labrador	275,134	281,549	294,000 ³
India	1,805,252	351,399,850	374,200,000 ⁴

¹ Official estimates from various sources. ² Estimate for 1939 taken from Whitaker's Almanac. ³ 1937 official estimate. ⁴ Official estimate as at Dec. 31, 1936.

Growth of the Canadian Population.—The first census after Confederation (1871) saw the Dominion launched with a population of 3,689,257. After 1873, and until the end of the century, economic conditions within the Dominion were anything but buoyant. The Censuses of 1881, 1891, and 1901 reflected this state of affairs. That of 1881 showed a gain of 635,553 or 17·23 p.c., but in neither of the next two decades was this record equalled, the gains in each being under 550,000 or 12 p.c. At the end of the century the population of Canada had reached but 5,371,315 though expectation had set a figure very much higher.

Populations of Canada, Census Years 1871-1931

Province or Territory	1871	1881	1891	1901	1911	1921	1931	1936 ¹
P.E.I.	94,021	108,891	109,078	103,259	93,728	88,615	88,038	—
N.S.	387,800	440,572	450,396	459,574	492,338	523,837	512,846	—
N.B.	285,594	321,233	321,263	331,120	351,889	387,876	408,219	—
Que.	1,191,516	1,359,027	1,488,535	1,618,898	2,005,776	2,360,665 ²	2,874,255	—
Ont.	1,620,851	1,926,922	2,114,321	2,182,947	2,527,292	2,933,662	3,431,683	—
Man.	25,228	62,260	152,506	255,211	461,394	610,118	700,139	711,216
Sask.	—	—	—	91,279	492,432	757,510	921,785	931,547
Alta.	—	—	—	73,022	374,295	588,454	731,605	772,782
B.C.	36,247	49,459	98,173	178,657	392,480	524,582	694,263	—
Yukon	—	—	—	27,219	8,512	4,157	4,230	—
N.W.T. ³ ..	48,000	56,446	98,967	20,129	6,507	7,988	9,723	—
Canada	3,689,257	4,324,810	4,833,239	5,371,315	7,206,643	8,787,949⁴	10,376,786	—

¹ Quinquennial census figures. ² Revised in accordance with the Labrador Award of the Privy Council, Mar. 1, 1927. ³ The decreases shown in the population of the Northwest Territories since 1891 are due to the separation therefrom of vast areas to form Alberta, Saskatchewan, and Yukon and to extend the boundaries of Quebec, Ontario, and Manitoba. ⁴ Includes 485 members of the Royal Canadian Navy.

The general rate of population increase in Canada in the opening decade of the present century was 34 p.c., the greatest for that decade of any country in the world. In the second decade the rate was 22 p.c., again the greatest, with the one exception of Australia where growth was greater by a fraction of 1 p.c. A century earlier the United States grew 35 p.c. decade by decade until 1860, but with this exception there has been no

recorded example of more rapid population growth than that of Canada in the early decades of the twentieth century. In 1871, only 2.97 p.c. of the population dwelt west of Lake of the Woods. In 1921 the proportion was 28.37 p.c. and in 1931, 29.51 p.c.—3,061,745 compared with 110,000 at Confederation.

Rural and Urban Population.—As regards rural and urban distribution, though Canada is still largely agricultural, town dwellers in 1931, for the first time, exceeded the numbers living upon the land (5,572,058 urban and 4,804,728 rural). Sixty years ago the towns and cities of Canada accounted for only 19.58 p.c. of the people (722,343 urban and 2,966,914 rural), and at the beginning of the present century the percentage was but 37.

Populations of Cities and Towns having over 25,000 Inhabitants, 1931

NOTE.—In all cases the populations for previous censuses have been re-arranged as far as possible to compare with those of the same areas in 1931.

City or Town	Province	Populations					
		1891	1901	1911	1921	1931	1936 ¹
Montreal.....	Quebec.....	256,723	328,172	490,504	618,606	818,577	-
Toronto.....	Ontario.....	181,215	208,892	381,833	521,893	631,207	-
Vancouver.....	British Columbia.....	13,709	29,432	120,847	163,220	246,593	-
Winnipeg.....	Manitoba.....	25,639	42,340	136,035	179,087	278,785	215,814
Hamilton.....	Ontario.....	48,959	52,634	81,969	114,151	155,547	-
Quebec.....	Quebec.....	63,090	68,840	78,710	95,193	130,594	-
Ottawa.....	Ontario.....	44,154	59,928	87,062	107,843	126,872	-
Calgary.....	Alberta.....	3,876	4,392	43,704	63,305	83,761	83,407
Edmonton.....	Alberta.....	-	4,176	31,064	58,821	79,197	85,774
London.....	Ontario.....	31,977	37,976	46,300	60,959	71,148	-
Windsor.....	Ontario.....	10,322	12,153	17,829	38,591	63,108	-
Verdun.....	Quebec.....	296	1,898	11,629	25,001	60,745	-
Halifax.....	Nova Scotia.....	38,437	40,832	46,619	58,372	59,275	-
Regina.....	Saskatchewan.....	-	2,249	30,213	34,432	53,209	53,354
Saint John.....	New Brunswick.....	39,179	40,711	42,511	47,166	47,514	-
Saskatoon.....	Saskatchewan.....	-	113	12,004	25,739	43,291	41,734
Victoria.....	British Columbia.....	16,841	20,919	31,660	38,727	39,082	-
Three Rivers.....	Quebec.....	8,334	9,981	13,691	22,367	35,450	-
Kitchener.....	Ontario.....	7,425	9,747	15,196	21,763	30,793	-
Brantford.....	Ontario.....	12,753	16,619	23,132	29,440	30,107	-
Hull.....	Quebec.....	11,264	13,993	18,222	24,117	29,433	-
Sherbrooke.....	Quebec.....	10,097	11,765	18,405	23,515	28,933	-
Outremont.....	Quebec.....	795	1,148	4,820	13,249	26,641	-
Fort William.....	Ontario.....	2,176	3,633	16,499	20,541	26,277	-

¹Quinquennial census figures.

Sex Distribution.—The population of Canada in 1931 was made up of 5,374,541 males and 5,002,245 females. Thus there were 518 males and 482 females per thousand. The masculinity of the population has increased in the eastern provinces and decreased in the western ones, where it was formerly greatest. A preponderance of males is common in all new countries where immigration has played an important part in building up the population.

Estimated Populations.—Annual figures of population are required for many purposes such as the calculation of birth, death, and marriage rates and of per capita figures of production, trade, and finance. The Dominion Bureau of Statistics estimates such figures for intercensal years and the following table gives such estimates for years since 1931.

Estimated Populations of Canada for Intercensal Years since 1931

Province	1932	1933	1934	1935	1936	1937	1938	1939
	'000	'000	'000	'000	'000	'000	'000	'000
Prince Edward Island.....	89	89	89	89	92	93	94	95
Nova Scotia.....	519	522	525	527	537	542	548	554
New Brunswick.....	413	420	425	429	435	440	445	451
Quebec.....	2,910	2,970	3,018	3,062	3,096	3,135	3,172	3,210
Ontario.....	3,475	3,564	3,629	3,673	3,689	3,711	3,731	3,752
Manitoba.....	709	710	711	711	711	717	720	727
Saskatchewan.....	933	932	932	931	931	939	941	949
Alberta.....	740	748	756	764	773	778	783	789
British Columbia.....	704	712	725	735	750	751	761	774
Yukon.....	4	4	4	4	4	4	4	4
Northwest Territories.....	10	10	10	10	10	10	10	10
Canada.....	10,506	10,681	10,824	10,935	11,028	11,120	11,209	11,315

Aboriginal Races.—The 1931 figures of population given above include small numbers of the aboriginal races which amount in all to little more than 1 p.c. of the total population.



Boys of the
Squamish Indian
Residential
School, North
Vancouver,
British
Columbia.—
Totem poles and
other articles
made by them.

*Courtesy, National
Director, Junior
Red Cross*

Indians.—Indians are minors under the law and their affairs are now administered by the Indian Affairs Branch of the Department of Mines and Resources under the authority of the Indian Act. The system of reserves, whereby particular areas of land have been set apart solely for the use of Indians, has been established in Canada from the earliest times. It was designed to protect the Indians from encroachment, and to provide a sort of sanctuary where they could develop unmolested until advancing civilization had made possible their absorption into the general body of the citizens. Reserves have been set aside for the various bands of Indians throughout the Dominion, and the Indians located thereon are under the supervision of the local agents of the Branch. The activities of the Branch, as guardian of the Indians, include the control of Indian education, the care of health, etc., the development of agriculture and other pursuits among them, the administration of their funds and legal transactions, and the general supervision of their welfare.

The Indian Act provides for the enfranchisement of Indians. When an Indian is enfranchised he ceases to be an Indian under the law. In the older provinces, where the Indians have been longer in contact with civilization, many are becoming enfranchised. Great discretion, however, is exercised by the Government in dealing with this problem. Indians who become enfranchised lose the special protection attached to their wardship, so that premature enfranchisement must be avoided.

According to the 1931 Dominion Census, the total number of Indians was 122,911 (62,943 males and 59,968 females) made up by provinces as follows: P.E.I., 233; N.S., 2,191; N.B., 1,685; Que., 12,312; Ont., 30,368; Man., 15,417; Sask., 15,268; Alta., 15,249; B.C., 24,599; Yukon, 1,543; N.W.T., 4,046. The Department of Indian Affairs made a later count of Indians in 1934 and the figure given at that date was 112,510, made up by provinces as follows: P.E.I., 224; N.S., 2,093; N.B., 1,734; Que., 13,281; Ont., 30,631; Man., 12,958; Sask., 11,878; Alta., 10,900; B.C., 23,598; Yukon, 1,359; N.W.T., 3,854.

Eskimos.—The Eskimos of Canada are found principally on the northern fringe of the mainland and on islands in the Arctic Archipelago and in Hudson Bay, although in the Baker Lake-Chesterfield Inlet area on the west side of Hudson Bay there are bands of Eskimos who are essentially an inland people, and subsist chiefly on caribou. The diet of the coast Eskimos is largely marine mammals and fish, varied at times by caribou obtained from the interior during the seasonal migrations of these animals. The skins of the caribou are used for winter clothing.

The administrative care of Eskimos outside of the organized provinces devolves upon the Lands, Parks and Forests Branch of the Department of Mines and Resources, which, by regulative measures (including the setting aside of game preserves where only natives may hunt), conserves the natural resources necessary to their subsistence. To augment these resources the Branch imported in 1935 a substantial herd of reindeer. Contact with the Eskimos is maintained through permanent stations in the eastern, central, and western Arctic, at a number of which medical officers are located, and by means of the annual Canadian Eastern Arctic Patrol by steamship. Law and order in all regions in Canada inhabited by Eskimos is maintained by the Royal Canadian Mounted Police.

According to the Dominion Census of 1931, there were 5,979 Eskimos in Canada, nearly 80 p.c. of these being in the Northwest Territories. The distribution by provinces was: N.W.T., 4,670; Que., 1,159; Yukon, 85; Man., 62; and Alta., 3.

Immigration.—Total immigrants into Canada during the fiscal year 1939 numbered 17,128 as compared with 15,645 in 1938 and 12,023 in 1937.

English, Scottish, Irish, and Welsh from overseas numbered 3,373 as compared with 2,972 and 2,264 in 1938 and 1937, respectively; immigrants from the United States totalled 5,663 in 1939 as compared with 5,643 and 5,113, respectively, for the two previous years; from other countries the number was 8,092 as compared with 7,030 and 4,646.

A movement not included in the immigration statistics is that of 'returned Canadians'. Such departmental figures were first tabulated in the fiscal year 1924-25 and concern Canadian citizens who left Canada to reside in the United States and subsequently returned to Canada declaring

their intention of resuming permanent residence in the Dominion. These Canadian citizens are divided into three groups: (a) Canadian born; (b) British born (outside of Canada); (c) persons naturalized in Canada. The total for 1938-39 was 4,571 as compared with 5,209 in 1937-38.

Although tourists entering Canada are not immigrants, their admission calls for an immigration examination on the International Boundary and at ocean ports. The number of entries in this class increased from 20,898,000 for 1933-34 to 29,153,000 for 1938-39—a total much more than twice the population of the whole Dominion.

Vital Statistics

Canada has a national system of vital statistics, organized under the Bureau of Statistics and the Registrars-General of the several provinces, dating from 1920. The figures of births, deaths, and marriages for 1938 with rates for 1926 and 1938 are given, by provinces, in the following table.

Births, Deaths, and Marriages in Canada, by Provinces

Province	Births			Deaths			Marriages		
	1938 ¹		1926	1938 ¹		1926	1938 ¹		1926
	No.	Rate per M	Rate per M	No.	Rate per M	Rate per M	No.	Rate per M	Rate per M
Prince Edward Island.....	1,971	21.0	20.1	1,029	10.9	10.3	591	6.3	5.3
Nova Scotia.....	12,189	22.2	21.3	6,063	11.1	12.4	4,084	7.6	5.6
New Brunswick.....	11,418	25.7	26.1	4,882	11.0	12.6	3,368	7.6	7.4
Quebec.....	78,145	24.6	31.6	32,609	10.3	14.3	25,044	7.9	6.8
Ontario.....	65,501	17.6	21.4	36,879	9.9	11.3	30,080	8.1	7.5
Manitoba.....	13,478	18.7	22.9	5,893	8.2	8.3	6,262	8.7	7.1
Saskatchewan.....	18,162	19.3	25.2	6,060	6.4	7.4	5,857	6.2	6.7
Alberta.....	15,881	20.3	23.8	5,570	7.5	8.5	6,973	8.9	7.4
British Columbia.....	12,438	16.3	16.6	7,458	9.8	9.0	6,139	8.1	7.3
Canada².....	229,183	20.5	24.7	106,743	9.5	11.4	88,398	7.9	7.1

¹ Preliminary figures.

² Exclusive of Yukon and the Northwest Territories.

Births.—Vital statistics for the whole of Canada on a uniform basis have been made available only since 1926 when the Province of Quebec came into the Registration Area. From 1926 to 1930 the number of births, though not the rate, showed an upward trend, rising from 232,750 in the former year to 243,495 in the latter.

After 1930, however, the movement was reversed until 1938 when the number of births was 229,183 compared with 220,235 in 1937. Indeed the figure was higher in 1938 than it has been since 1932. Because of the growing population, the rate showed a still greater drop between 1930 and 1937 but for 1938 stood at 20.5—the highest point since 1934. The extension of rural depopulation affected the decline in births during the depression. This decline was partly offset, however, by a fall in the number of deaths.

Deaths.—The number of deaths which occurred in 1938 and the rates for 1926 and 1938 are given in the above table.

Main Causes of Death.—The six chief causes of death accounted in 1938 for well over one-half of the total deaths in Canada. Diseases of the heart considered as a group was the most important cause in this year. Cancer was second—incidentally, the death rate from this cause has

advanced for almost every year from 1926 to 1938, but this trend is in a considerable measure accounted for by the ageing of the Canadian population. Third in importance as a cause of death was the group "diseases of the arteries", which has also shown an apparent upward trend since 1926. Pneumonia was in fourth place, although up to and including 1932 this cause took precedence over diseases of the arteries. Diseases of early infancy was next and nephritis, accidental deaths, and tuberculosis sixth, seventh, and eighth, respectively.

Infant Mortality.—A good indication of the efficiency of the health services of a country is provided by its infant mortality. In Canada during recent years this rate has shown a substantial reduction, falling from 102 per thousand live births in 1926 to 63 in 1938. The Canadian rate, however, ranks fairly high as compared with those of other countries, and room for improvement is still great, especially as regards gastrointestinal diseases and diseases of the respiratory tract.

Infant Deaths and Death Rates in Canada

Province	Infants under One Year				Rates per 1,000 Live Births			
	1926	1936	1937	1938 ¹	1926	1936	1937	1938 ²
Prince Edward Island.....	123	137	152	113	70	69	73	57
Nova Scotia.....	882	781	812	748	80	66	70	61
New Brunswick.....	1,095	806	1,072	854	106	77	101	75
Quebec.....	11,666	6,220	7,580	6,486	142	83	100	83
Ontario.....	5,302	3,416	3,382	3,245	78	55	55	50
Manitoba.....	1,122	779	826	750	77	61	64	56
Saskatchewan.....	1,681	1,030	1,245	933	81	54	67	51
Alberta.....	1,233	940	994	813	85	60	63	51
British Columbia.....	588	465	630	555	58	44	56	45
Canada².....	23,692	14,574	16,693	14,497	102	66	76	63

¹ Preliminary figures.

² Exclusive of Yukon and the Northwest Territories.

Natural Increase.—Natural increase results from the difference between births and deaths. The birth rate (as indicated in the table on p. 40) is, in general, declining in Canada, although an increase is shown for 1938. The death rate, however, is also declining (though at a slightly lower rate) with the result that the rate of natural increase has been downward on the whole since 1930. The rate for 1926 was 13.3 per thousand population; for 1929 it was 12.2; for 1933, 11.3; and for 1938, 11.0.

Marriages.—The recent depression exercised a marked influence on marriages and the marriage rate in Canada. The year 1937, however, showed a very marked recovery and 1938 showed a slight increase over 1937. In 1929 marriages in Canada numbered 77,288. They declined to 71,657 in 1930, 66,591 in 1931, and 62,531 in 1932. The corresponding rates were 7.7 per thousand in 1929, 7.0 in 1930, 6.4 in 1931, and 6.0 in 1932. The year 1933 showed a slight upturn in the number of marriages, viz., 63,865, though the rate remained unchanged at 6.0 per thousand. In 1934 they increased by more than 9,000, reaching 73,092, with a rate of 6.8; in 1935 the number was 76,893 and the rate 7.0; in 1936 the number was 80,904 and the rate 7.3; 1937 showed an increase in number to 87,800 and the rate to 7.9; while for 1938 the number increased again to 88,398 and the rate remained the same at 7.9.

Public Health, Hospitals, and Charitable Institutions

The rapidly widening interest in the fields of public health and public welfare in Canada is evidenced by the fairly steady expansion in the assumption, as a public liability, of the welfare needs of the people, by both the Dominion and Provincial Governments. This development seems part of a world-wide tendency following upon the fundamental changes in the community and social life of the people in recent decades.



Canada is Up to Date in Modern Hospital Developments.—Up-to-date general hospitals are to be found in all of the larger centres of population. Reading downwards, the illustration shows: A private room, an operating room, and the main kitchen of a modern Toronto hospital. In the upper and lower left corners, the artist has shown X-Ray apparatus and the handling of radium tubes as features of hospital facilities and equipment.

Courtesy, Canadian Hospital Council, Toronto

In Canada, this development has meant a rapid growth in public expenditures for social services, particularly in the fields of public health and public welfare. At the same time voluntary organizations have been active in most Canadian communities, especially in connection with hospitals, charitable and benevolent institutions, and child welfare needs.

The social changes contributing to these developments have been accompanied by equally significant changes in the nature of the services provided. Public welfare administration originated as the care of the needy and distressed by municipalities, but modern trends have greatly increased the scope of governmental public welfare activities. Mothers' allowances operating in seven of the nine provinces and the granting of aid to needy mothers and children in their own homes is gradually superseding care in children's homes, orphanages, and almshouses; old age pensions, towards which the Dominion Government and the provinces contribute, are now operative in all provinces in Canada. Detailed treatment of unemployment relief and old age pensions is given in Chapter XII.

Speaking generally, the administration and supervision of public health and public welfare services is in the hands of provincial authorities. Each province has its own department of public health presided over by a minister and his deputy. The department has supervision over general sanitation, control of communicable diseases including tuberculosis and venereal disease, medical inspection of schools, public health nursing and child welfare, hospitals for the care of the sick and those mentally ill, and, in general, the carrying out of general health services in the province.

The Dominion Government deals only with such public health matters as are either exclusively national or are such as cannot be controlled effectively by the provinces. Its chief functions are: to protect the country against the entrance of infectious disease; to administer the immigration laws; to treat sick and injured mariners; to set standards for and to control the quality of food and drugs, proprietary medicines, etc.; to care for lepers; and to co-operate with the provinces in measures for preserving and improving the public health.

The growth of the hospital movement in Canada parallels closely the distribution of the general population, the larger hospitals being found in the large urban centres of population. Tremendous assistance is given by an increasing number of small but efficient public hospitals and medical outposts to the communities served by them. These small hospitals and outposts have been instrumental in saving many lives and in ameliorating the hardships of the sick. In the more isolated communities and frontier districts the Red Cross outpost hospitals are continuing to be an important factor not only in caring for the sick but in promoting settlement. These services are further supplemented by the work of the Victorian Order of Nurses, a national visiting nursing association with over 90 branches in Canada. In the Prairie Provinces, the municipal system of hospitals has proved quite successful in extending hospital facilities to districts that could not by themselves support a hospital.

By far the largest group of hospitals is the public hospital which accepts various classes of patient regardless of ability to pay. The total number of these hospitals in 1938 was 609, divided as shown in the table on p. 44.

In addition to the above hospitals, it will be seen that there are a number of special hospitals, such as mental hospitals, tuberculosis hospitals, and Dominion or Federal hospitals. The 33 Dominion hospitals are divided as follows: 4 quarantine and immigration, 1 marine, 2 leper, 9 military, 8 war veteran, and 9 for the care of Indians.

Private hospitals numbered 274, 266 of which reported a total bed capacity of 2,666.

The number of charitable and benevolent institutions and allied agencies in Canada on June 1, 1938, was 459 (454 reported). Of the 459 institutions, 137 were for adults, 88 for adults and children, 118 were orphanages, 95 were children's aid societies, 6 juvenile immigration societies, and 15 day nurseries.

Numbers and Bed Capacities of Hospitals and Charitable Institutions in Canada, by Provinces, 1938¹

Type of Institution	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada.
Population ('000's omitted).....	94	548	445	3,172	3,731	720	941	783	761	11,209
HOSPITALS										
Public— ²										
General.....No.	4	26	16	54	111	35	78	82	78 ⁴	484 ⁴
Beds	254	1,871	1,353	8,593	12,364	2,775	3,326	3,835	5,202 ⁴	39,473 ⁴
Women's (only).....No.	Nil	1	1	3	3	Nil	Nil	1	1	10
Beds	"	64	20	292	248	"	"	33	70	725
Pædiatric.....No.	"	1	Nil	3	2	1	1	1	2	11
Beds	"	80	"	477	487	135	28	50	106	1,363
Isolation.....No.	"	1	"	4	5	2	1	3	Nil	16
Beds	"	60	"	639	553	336	5	102	"	1,695
Convalescent.....No.	"	Nil	"	3	7	1	Nil	Nil	"	11
Beds	"	"	"	500	247	50	"	"	"	797
Red Cross.....No.	"	"	"	Nil	29	Nil	7	"	3	39
Beds	"	"	"	"	316	"	70	"	18	404
Incurables.....No.	"	"	1	3	8	1	2	4	1	20
Beds	"	"	33	977	1,066	375	187	172	170	2,980
Other.....No.	"	"	Nil	8	4	Nil	3	2	Nil	17
Beds	"	"	"	2,178	88	"	79	156	"	2,501
Totals, Public.....No.	4	29	18	78	169	40	92	93	85 ⁴	608 ⁴
Beds	254	2,075	1,406	13,656	15,267	3,671	3,695	4,348	5,566 ⁴	49,938 ⁴
Private ³No.	Nil	5	6	39	61	6	78	48	33	260 ⁴
Beds	"	57	105	718	675	41	408	243	419	2,666 ⁴
Totals, Public and Private. ³ No.	4	34	24	117	220	46 ³	170	141	118	874
Beds	254	2,132	1,511	14,374	15,942	3,712	4,103	4,591	5,985	52,604
Special—										
Dominion.....No.	Nil	4	3	5	7	4	1	5	4	33
Beds	"	388	148	722	1,246	323	71	259	242	3,399
Mental.....No.	1	16	1	9	16	4	2	4	4	57
Beds	275	2,215	1,150	12,011	13,237	2,348	2,659	2,328	2,457	38,871
Tuberculosis.....No.	1	3	3	10	14	4	4	1	1	41
Beds	60	386	466	1,613	3,503	764	730	210	332	8,064
T.B. Annexes In General Public Hospitals.....No.	Nil	5	Nil	11	5	Nil	4	3	4	90
Beds	"	130	"	768	48	"	69	187	286	1,461
Totals, All Hospitals.....No.	6	57	31	141	257	58	177	151	127 ⁴	1,005 ⁴
Beds	589	5,121	3,275	28,729	33,928	7,147	7,534	7,388	9,016 ⁴	102,738 ⁴
CHARITABLE AND BENEVOLENT INSTITUTIONS.										
No.	4	35	28	126	156	28	8	11	19	415 ⁴
Beds	411	2,897	1,715	19,890	10,585	1,570	430	431	1,136	39,071 ⁴

¹ Except as indicated in other footnotes.

² Other than mental and tuberculosis.

³ Figures for Manitoba hospitals are for 1937. ⁴ Includes 9 in Yukon and N.W.T. with 276 beds, but does not include 1 which did not report. ⁵ Does not include 1 private hospital in Que., 1 in Ont., 2 in Man., 1 in Sask., and 3 in B.C. which did not report. ⁶ Does not include 5 institutions which did not report.

CHAPTER III

WEALTH — PRODUCTION — INCOME

National Wealth

The economic concept of national wealth is concrete since economics is not able to take cognizance of the immense field of intangible wealth created by churches, schools, and other institutions, nor of such things as climate, location, health, etc., which are often referred to as wealth, but in a different sense from that meant here. The definition includes all our farms, factories, equipment, merchandise in stock, real estate, roads, highways, developed resources, and the thousand and one material things which we as a nation possess.

Great difficulty arises when we try to reduce all the things which go to make up this wealth to a common denominator for statistical purposes. National wealth must always be expressed in terms of the national currency. Yet the purchasing power of the currency unit is always fluctuating and, since 1929, had at one point increased by more than 50 p.c. (February, 1933—the lowest point of the depression) in terms of wholesale prices, though there has been definite improvement since then.

The effect of such drastic reductions in prices is first felt by the commodities which are being currently produced. Ultimately a persistent decline affects capital values of real estate, buildings, machinery, etc., and its influence is felt in a reduction in the money value of national wealth.

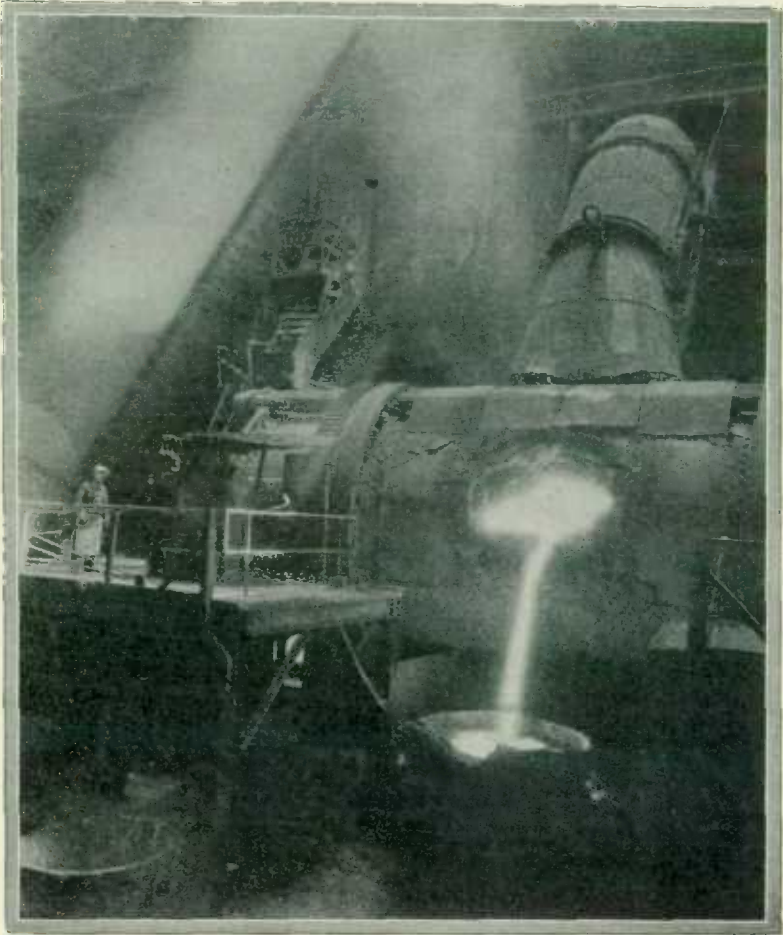
The first official estimate issued by the Dominion Bureau of Statistics was for 1921, being based on the census data collected in that year. It placed the national wealth at \$22,195,000,000. Later estimates were \$25,673,000,000 for 1925 and \$27,668,000,000 for 1927. The estimate for 1929 was \$31,276,000,000, and the 1933 estimate \$25,768,000,000. The former presents a picture at the peak of domestic prosperity, whereas that of 1933 reflects the writing down of values resulting from the depression. Until values have become stabilized on a post-depression basis, it is not expected that another estimate will be made.

Aggregate and Per Capita Wealth by Individual Provinces, 1933.—

As regards the provincial distribution of wealth in 1933, Ontario ranked first with an estimated aggregate wealth of \$8,796,000,000 or 34.14 p.c. of the total; Quebec second with \$6,738,000,000 or 26.15 p.c.; Saskatchewan third with \$2,527,000,000 or 9.81 p.c.; and British Columbia fourth with \$2,431,000,000 or 9.43 p.c. of the whole. While Ontario and Quebec led in absolute wealth, the western provinces came first in per capita wealth. British Columbia held first rank with a per capita wealth of \$3,414; Alberta second with \$2,689; and Saskatchewan third with \$2,657.

General Survey of Production

Under the term 'production' as here used are included activities of agriculture, fishing, mining, forestry, trapping, power development, manufactures, and construction. This does not imply that many other activities



Nickel-Copper Furnace 'Matte' being Poured from Converters.—A single worker controls the fiery orange spill of furnace matte to the waiting ladle. Each ladle weighs 10½ tons and holds 18 tons of matte.

Courtesy, International Nickel Company of Canada

such as transportation, merchandising, personal and professional services, are not also 'productive' in a broad economic sense. It is customary, however, to regard the processes involved in the creation of materials or their making over into new forms as constituting production in a special sense. Of this a bird's-eye view is given in the table on p. 48, which shows the gross and net value of production in each of the divisions of industry above mentioned. In a second table on p. 49, a summary of the value of total production in Canada is given by provinces.

A distinction is made between *gross* and *net* production. By net production is meant the value left in producers' hands after the elimination

of the value of the materials, fuel and purchased electricity, and supplies consumed in the process of production. This net figure is therefore a much better criterion of the value of an industry to the community in which it operates than the gross.

After recording successive declines for five years, the net value of production turned upward in 1934 to register a substantial gain over the preceding year. This advance was continued in 1935, 1936, and 1937. The net value of commodities produced in the latter year, as estimated by the Dominion Bureau of Statistics on the basis of data compiled by its various branches, was \$2,970,617,510, compared with a revised estimate of \$2,628,419,977 for 1936. The gain of 13.0 p.c. represents the marked betterment in productive operations over the preceding year.



Unloading Peas at a Canning Factory, Simcoe, Ontario.

Courtesy, Travel and Publicity Bureau, Toronto

Eight of the nine divisions of industry showed appreciable advances over 1936. The only exception to the general expansion in net value was agriculture which showed a decline of 0.1 p.c. The rise in prices of farm products during the year was greater than in any other important commodity group, as a result of which farm-product prices compared favourably with those of other groups for the first time in eight years. However, the loss occasioned by the Saskatchewan drought was more than sufficient to counterbalance gains in value made in the production of other provinces, notably Manitoba, Alberta, and Ontario.

The greatest absolute gains were recorded in manufactures and mining, and the largest percentage increases in construction and mining. Primary production registered a net advance of 10.3 p.c. in 1937 over 1936 compared with an increase of 17.7 p.c. for secondary production.

Mining again gave evidence of its dynamic leadership by establishing a new record for the third consecutive year in the net value of its output.

It should be noted that since the beginning of the post-war period the mining industry has nearly tripled its annual contribution to the net value of Canada's production. In 1937 there was an added net value, after all deductions, of \$373,000,000, a gain of nearly 28 p.c. over the preceding year. The development of base-metal mining deserves special mention, while the volume of gold production was more than double that of eight years ago.

Manufacturing operations gathered momentum during the year, the volume of output having been equal to that of 1929. The net value of manufacturing was \$1,506,624,867 in 1937, a gain of nearly 17 p.c. over the preceding year. A considerable part of the expansion occurred in the production of durable goods and industrial equipment, particularly in the iron and steel and automobile industries.

The net value of construction completed in 1937 showed a gain of 29.6 p.c. over 1936. This was the largest percentage increase registered in any main industrial group. Building material prices also showed an advance of over 11 p.c.

Value of Production in Canada, by Industries, 1936 and 1937

Industry	1936 ¹		1937	
	Gross	Net	Gross	Net
	\$	\$	\$	\$
Agriculture.....	1,065,966,000	679,341,000	1,039,492,000	678,953,000
Forestry.....	400,292,122	231,937,561	494,355,587	284,504,031
Fisheries.....	51,081,135	34,234,063	51,155,513	34,439,481
Trapping.....	9,214,325	9,214,325	10,477,096	10,477,096
Mining.....	497,332,721	291,972,359	662,630,976	372,796,027
Electric power.....	135,865,173	133,561,387	143,546,643	140,963,914
Totals, Primary Production	2,159,751,476	1,380,260,695	2,401,657,815	1,522,133,549
Construction.....	258,040,400	135,851,162	351,674,114	176,029,679
Custom and repair.....	100,549,000	70,930,000	113,067,000	79,055,000
Manufactures.....	3,002,403,814	1,289,592,672	3,623,159,500	1,506,624,867
Totals, Secondary Production	3,360,993,214	1,496,373,834	4,088,100,614	1,761,709,546
Grand Totals ²	4,862,126,049	2,628,419,977	5,658,977,071	2,970,617,516

¹Revised since the publication of *Canada 1939*. ²Excludes duplication in "Manufactures" of items included under primary production.

Relative Production by Provinces.—During 1937 Ontario maintained by a wide margin her pre-eminence in the creation of commodities, producing 41.4 p.c. of the Dominion total compared with a revised figure of 44.1 p.c. in 1936. Quebec increased her contribution to the national economy with a share of 25.6 p.c. compared with 24.7 p.c. in the preceding year. British Columbia and Alberta retained third and fourth positions, contributing 8.5 p.c. and 6.9 p.c. of the grand total. Saskatchewan, due to drought, was displaced by Manitoba in fifth place, the latter province increasing its contribution from 4.7 p.c. of the net total to 5.9 p.c. Nova Scotia also exceeded Saskatchewan's total to take sixth position with

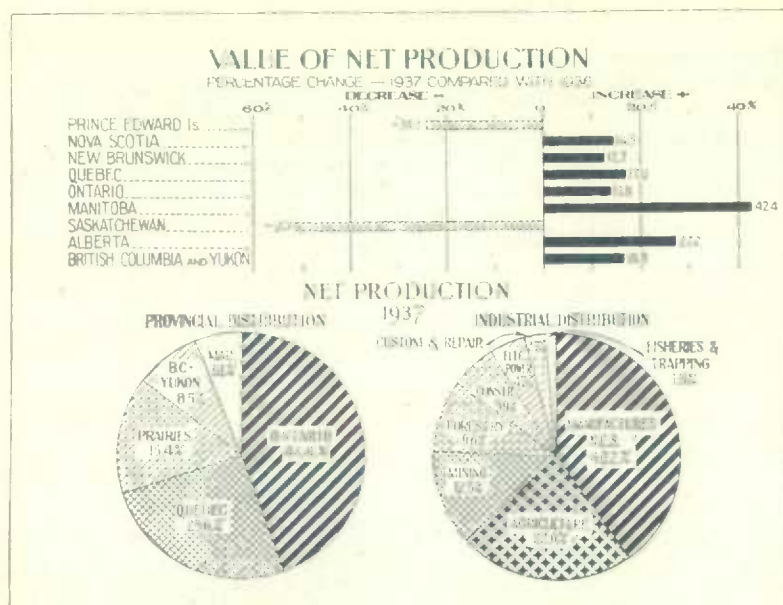
3.4 p.c. of the national output. Saskatchewan, with the lowest net in its post-war history, was seventh. New Brunswick and Prince Edward Island followed in the order named.

The per capita net commodity production of Ontario was nearly \$356 in 1937 compared with \$315 in 1936. British Columbia produced about \$330 for every citizen, while Alberta ranked third with a per capita figure of \$265. Manitoba averaged \$244; Quebec, \$242; Nova Scotia, \$189; New Brunswick, \$161; Prince Edward Island, \$101; and Saskatchewan, \$79.

Value of Production in Canada, by Provinces, 1936 and 1937

Province	1936 ¹		1937	
	Gross	Net	Gross	Net
	\$	\$	\$	\$
Prince Edward Island.....	21,166,389	12,372,654	18,366,455	9,361,792
Nova Scotia.....	154,815,695	89,318,776	181,261,518	102,321,783
New Brunswick.....	116,170,230	62,758,002	135,930,088	70,738,543
Quebec.....	1,247,023,268	648,790,860	1,498,939,161	759,264,651
Ontario.....	2,191,559,179	1,158,885,508	2,580,553,917	1,319,991,840
Manitoba.....	232,926,071	123,128,621	301,631,357	175,355,562
Saskatchewan.....	255,200,863	154,936,876	176,834,009	74,894,069
Alberta.....	260,635,137	161,864,956	309,276,957	205,891,931
British Columbia ²	382,629,217	216,363,724	456,083,609	252,797,339
Grand Totals	4,862,126,049	2,628,419,977	5,658,877,071	2,970,617,510

¹ Revised since the publication of *Canada 1939*. ² Includes Yukon.



National Income

The statistical measurement of the national income is necessarily a matter of great difficulty, and the most detailed research into the relevant statistics must always leave an appreciable margin of error. The General Statistics Branch of the Bureau of Statistics has made approximate estimates of national income from production data, after deducting depreciation for equipment and net balance of interest payments payable outside Canada; it is now engaged in an extensive study of the national income covering some thirty industrial groups. The groups are being carefully analysed by taking gross receipts and deducting payments to other industries for raw materials, fuel and purchased electricity, depreciation, and miscellaneous expenses. The results of this study are not yet available for publication.

Incomes Assessed for Income War Tax in Canada.—In those countries of the world where an income tax has been established for a considerable time, the figures of the assessed income have been generally accepted as furnishing a guide both to the amount and to the distribution of the total national income by classes. Estimates of the national income, based upon income tax statistics, have been published, for example, in the United Kingdom and in the United States.

In Canada the income tax is a more recent innovation than in either of the above-mentioned countries; also, in a newer country, incomes are to a greater extent received in kind. Nevertheless, the data collected by the Income Tax Branch of the Department of National Revenue are significant both with regard to the total income assessed and with regard to the distribution of that income among various classes of the population.

In the fiscal year ended 1938, individuals and corporations paid Dominion income tax on 1936 incomes aggregating \$1,066,034,544. About one-third of the national income appears to be subject to income tax by Dominion authorities.

As regards the amount of income tax paid by various income groups, it is noteworthy that, in 1938, about 34 p.c. of the amount collected from individuals with classified incomes (\$41,249,636) was from those with incomes of \$50,000 or over (such individuals might be considered as in the millionaire class and numbered only 382 out of a total of 237,064 individual taxpayers). The percentage of the gross total receipts contributed by this class in 1937 was 33. On the other hand, individuals with incomes under \$10,000, who numbered 228,979, or about 97 p.c. of the total individual taxpayers in 1938, contributed 24 p.c. of the total for that year. In the case of corporations, those with incomes of \$50,000 or over contributed by far the major part (over 87 p.c.) of the total gross receipts (\$70,607,523) from all corporations, but the number of such companies was a very much higher proportion of the total than in the case of individuals.

CHAPTER IV

AGRICULTURE

The soil and climate of Canada are such as to permit a great diversity of farming enterprise within the country. This will be evident from a brief consideration of the regional types of farming in the Dominion.

The Maritime Provinces show considerable regional difference in crop production. In certain areas, especially adapted to their production, potatoes and apples are important cash crops. Hay and clover occupy the greatest proportion of the general field-crop area, while on large acreages of dykelands adjacent to tide water, hay raising is a specialty. Dairy products supply a large proportion of the farm income.



A Country Road in Saskatchewan.

The Province of Quebec is adapted essentially to mixed farming, with large regions specializing in dairying. The forage and coarse grain crops comprise over 90 p.c. of the total field-crop area, while among the strictly cash crops, potatoes occupy the greatest area. This province accounts for the bulk of the maple syrup and sugar made in Canada and is an important producer of honey. Vegetable crops provide a substantial revenue, while certain types of tobacco thrive in the province.

While mixed farming predominates in the Province of Ontario, considerable attention has been given to the development of specialized farming enterprises such as the growing of fruits, truck crops, and tobacco. As in Quebec, the major part of the cultivated area is planted to forage crops and coarse grains but the acreages of cereals are much larger than in Quebec. In some counties the fall wheat crop contributes a fair proportion of the cash income. Sugar beets are an important crop in the southwestern part of the province. Dairy farming is carried on throughout the whole province with considerable specialization in the areas surrounding the larger centres of population, in Oxford County, and eastern Ontario.

Fruit and vegetables are grown extensively in the Niagara and Essex Peninsulas and in other districts bordering the Great Lakes and Georgian Bay, while in the Counties of Essex, Kent, Elgin, and Norfolk, tobacco is an important crop.

Over two-thirds of the field-crop acreage of Canada is concentrated in the three Prairie Provinces and most of this area is seeded to grain crops with wheat predominant. Generally speaking, the specialized wheat areas cover the southern short-grass plains from the Red River Valley of Manitoba to the foothills of Alberta and attain their greatest width in central Saskatchewan. In the park belt lying mostly north of this region, mixed farming is practised, with large areas of coarse grains and natural hay used for live-stock feeding. In southwestern Saskatchewan and southern Alberta, cattle and sheep ranching is an important industry.

In British Columbia agriculture exhibits possibly a greater degree of diversity than in any other province, ranging from the highly-specialized fruit and vegetable farms to the ranches of the interior. Fruit and truck crops are most important in the Okanagan and Kootenay Valleys. Dairying and poultry raising are specialties on Vancouver Island and in the lower Fraser Valley.

Values of Agricultural Capital and Production

The current value of farm capital in Canada in 1938 was estimated at \$4,654,580,000 compared with \$4,720,751,000 in 1937 and \$4,626,161,000 in 1936. The drop in 1938 was due largely to a decline in farm real estate values. In 1938, Ontario had 29 p.c. of the total value of farm capital, Saskatchewan 21 p.c., and Quebec 19 p.c.

Current Value of Agricultural Capital, by Provinces, 1938

Province	Land and Buildings	Implements and Machinery	Live Stock	Total
	\$'000	\$'000	\$'000	\$'000
Prince Edward Island	45,380	6,140	8,031	59,551
Nova Scotia	82,514	7,930	14,899	105,343
New Brunswick	80,025	9,830	15,971	105,826
Quebec	684,131	72,350	115,243	871,724
Ontario	1,049,526	119,000	198,714	1,367,240
Manitoba	224,818	43,600	51,568	320,016
Saskatchewan	797,795	119,800	80,408	998,003
Alberta	503,540	86,300	86,745	676,614
British Columbia	117,089	10,700	22,474	150,263
Totals	1938 3,581,877	475,650	594,053	4,651,580
	1937 3,634,981	478,154	607,316	4,720,751
	1936 3,554,474	491,197	577,490	4,626,161

The gross value of agricultural production includes the value of all crops, live stock and animal products produced on farms in Canada. In 1938 the gross value of agricultural production was estimated at \$1,020,217,000, which was \$253,423,000 higher than the depression low established in 1932. The gross value of agricultural production in 1938 was \$19,275,000 below that of 1937.

The cash income from the sale of principal farm products for the calendar year 1938 was about 2½ p.c. lower than in 1937. This decrease in income was the result of smaller sales and lower prices for live stock. In

the fall of 1937 live-stock income, particularly in Saskatchewan and Alberta, was boosted by the forced liquidation of many animals. As a result, in 1938 sales of live stock were down appreciably in these provinces. Although total cash income was below that of 1937, incomes from sales of crops showed a gain of 7½ p.c. Most of this gain occurred in Saskatchewan and Alberta where larger crops were harvested in 1938 than in 1937. The cash income from the sale of live stock and animal products showed a decline of 10 p.c. in 1938 as compared with 1937.



A Flax Puller
and Binder.



A Flax
De-seeder.

Types of Implements Used in the Growing of Flax for Fibre.—The acreage devoted to this crop has shown steady increase from 1933 and increased by 29.3 p.c. from 1937 to 1938.

Courtesy. Economic Fibre Division, Central Experimental Farm, Ottawa

Higher cash receipts from the sale of products in 1938 were obtained in Alberta, Saskatchewan, Quebec, and Nova Scotia. Gains in all these provinces were principally due to increased income from the sale of crops. For 1938 the distribution of income was more even than in 1937 and in this respect some improvement in agricultural conditions was effected. Cash income, however, remained considerably below pre-depression levels and for 1938 amounted to about 63 p.c. of the 1926-29 average.

Gross Value of Agricultural Production in Canada, 1934-38

Item	1934	1935	1936	1937	1938
	\$'000	\$'000	\$'000	\$'000	\$'000
Field crops.....	549,080	511,873	612,300	556,222	528,860
Farm animals.....	99,438	120,078	130,979	140,989	136,846
Wool.....	1,255	1,493	1,861	2,040	1,498
Dairy products.....	172,864	180,756	198,672	215,623	220,164
Fruits and vegetables.....	43,424	49,964	44,015	41,816	42,952
Poultry products.....	45,515	50,434	53,244	51,766	53,748
Fur farming.....	4,534	5,516	6,532	6,802	6,200
Maple products.....	3,041	3,522	3,714	2,245	3,850
Tobacco.....	7,215	10,870	9,374	17,140	19,563
Flax fibre.....	250	321	298	332	519
Clover and grass seed.....	2,010	1,818	2,154	2,344	2,990
Honey and wax.....	2,575	2,338	2,823	2,164	3,027
Totals	\$31,244	\$38,983	1,065,966	1,039,492	1,029,217

Field Crops

Acres.—During the past half century there has been a tremendous increase in the area sown to field crops. The opening up of the Prairie Provinces and the stimulus to production induced by the War of 1914-18 were the principal factors responsible for the increase of nearly 272 p.c. in field-crop area between 1890 and 1939.

Wheat.—Production and trade for the years 1928 to 1939 are shown below.

Production, Imports, and Exports of Wheat for Canada, 1928-39

NOTE.—Wheat flour has been converted into bushels of wheat at the uniform average rate of 4½ bu. to the barrel of 196 lb. of flour.

Year	Production	Imports of Wheat and Flour ¹	Exports of Wheat and Flour ¹	Year	Production	Imports of Wheat and Flour ¹	Exports of Wheat and Flour ¹
	'000 bu.	bu.	bu.		'000 bu.	bu.	bu.
1928.....	566,726	1,345,881	407,564,186	1934.....	275,849	896,674	165,751,305
1929.....	304,520	1,374,726	186,267,210	1935.....	281,935	291,510	254,424,775
1930.....	420,672	244,220	258,637,886	1936.....	219,218	403,396	195,223,653
1931.....	321,325	216,328	207,029,555	1937.....	180,210	6,138,819	92,957,047
1932.....	443,061	173,014	264,304,327	1938.....	350,010	1,891,177	166,959,447
1933.....	281,892	413,165	194,779,875	1939.....	449,058 ²		

¹ Imports and exports are for the years ended July 31, 1929 to 1939.

² Subject to revision.

³ Not available at time of going to press.

Prior to 1905 the amount of wheat produced was less than 100 million bushels. For six years it remained steadily over this figure until 231 million bushels was reached in 1911. In only three of the next twenty years was wheat production less than 200 million bushels, viz., 1914, 1918, and 1919. At that time the abnormally high 1915 crop of 393 million bushels set a record for a number of years until 1922, when nearly 400 million bushels was produced. New high records were attained in 1923 (474 million bushels), in 1927 (480 million bushels), and in 1928 (567 million bushels). Except for the years 1930 and 1932 when production exceeded 400 million bushels, the years from 1929 to 1937 were marked by unfavourable climatic conditions and yields were correspondingly low.

Rust in 1935 caused serious damage, whereas in 1937 the worst drought ever experienced on the prairies reduced the crop to 180.2 million bushels,



**HARVESTING IN
WESTERN CANADA**

Courtesy, Edmonton Journal



the smallest yield since 1914. The 1938 Canadian crop of 350 million bushels exceeded any in the past five years, because of greatly improved rainfall, and despite considerable grasshopper and rust damage in that year. The 1939 crop estimated at 478,965,000 bushels is approximately equal to the crop of 1927. Very generous rains and an absence of rust were experienced in the Prairies in the 1939 season.

Other Grains.—These grains consist of oats, barley, flaxseed, rye, buckwheat, peas, mixed grain, and corn. The first two have assumed real importance among the field crops of Canada. The volume of oat production has attained considerable dimensions, reaching the record total of close upon 564,000,000 bushels in 1923. The area under crop has expanded from 3,961,356 acres in 1890 to 13,009,700 acres in 1938, when the production was estimated at 371,382,000 bushels. Barley, with a production of 17,223,000 bushels in 1890, yielded a record total of 136,391,400 bushels in 1928, while the yield for 1938 is now estimated at 102,242,000 bushels. Rye production amounted to 1,341,000 bushels in 1890, increased to 32,373,400 bushels in 1922, and receded to 10,988,000 bushels in 1938.

The Field Crops of Canada, 1938

Field Crop	Area	Total Yield ¹	Total Value	Field Crop	Area	Total Yield ¹	Total Value
	acres	bu.	\$		acres	cwt.	\$
Wheat.....	25,930,500	350,010,000	235,351,000	Potatoes.....	521,900	35,938,000	27,079,000
Oats.....	13,009,700	371,382,000	89,600,000	Turnips, mangolds, etc.	189,500	38,160,000	12,133,000
Barley.....	4,453,900	102,242,000	28,383,000			tons	
Rye.....	741,400	10,988,000	3,044,000	Hay and clover.....	8,819,800	13,798,000	95,993,000
Peas.....	80,200	1,365,000	2,113,000	Alfalfa.....	859,000	2,061,000	16,036,000
Beans.....	70,600	1,557,000	1,725,000	Fodder corn.....	460,200	4,412,800	12,422,000
Buckwheat.....	375,600	7,079,000	4,171,000	Grain hay.....	949,500	1,674,000	7,315,000
Mixed grains.....	1,159,500	39,161,000	15,120,000	Sugar beets.....	47,900	527,000	3,124,000
Flaxseed.....	221,200	1,389,000	1,581,000				
Corn for husking.....	180,100	7,690,000	3,614,000				

¹Yields of the most important crops, according to second estimates for 1939, as published on Nov. 10, 1939, are: wheat 478,965,000 bu.; oats 385,930,000 bu.; barley 103,226,000 bu.; mixed grains 44,350,000 bu.; potatoes 35,320,000 cwt.; turnips, mangolds, etc. 38,430,000 cwt.; hay and clover 14,330,000 tons.

Prices of field crops were at an unusually high level during the War and until 1919, then slumped steeply, falling to a low level in 1923. Recovery followed in the years up to 1930, when sharp declines commenced, bringing the prices of many crops to the lowest recorded levels. The value of the field crops of Canada, which in 1910 was \$384,514,000, had increased by 1914 to \$638,580,000. As the effects of the War came to be felt, the maximum was reached in 1919 with a total of \$1,537,170,000. This value receded to \$899,266,200 in 1923 but the recovery of prices combined with excellent harvests brought the value up to \$1,173,133,600 in 1927 and \$1,125,003,000 in 1928. Since then it declined to \$948,981,000 in 1929, \$662,040,000 in 1930 and \$432,199,400 in 1931. With the exception of 1935, there was a gradual gain in value until the 1936 season when it stood at the highest level since 1930. Comparative figures for the past six years are: 1933, \$453,958,000; 1934, \$549,079,600; 1935, \$511,873,000; 1936, \$612,300,400; 1937, \$556,220,000; and 1938, \$528,860,000.

Due to reduced yields of many field crops in 1937, and to reduced prices in 1938, the value of field-crop production declined during these two years in comparison with the 1936 level.

The Canadian Grain Trade.—The natural advantage which the Prairie Provinces enjoy in the production of high-quality grains is to some extent offset by the long distances which have to be covered to bring these products to seaboard outlets. Toward overcoming this handicap, an elaborate yet economical system of handling, storing, and transporting grain has been developed within the past half century. Included in this system are extensive inspection and grading facilities which ensure a high degree of uniformity in the quality of the various grades and thus perpetuate the reputation Canadian grains have achieved.

Unlike the handling systems of most countries, Canadian grain is handled in bulk, rather than in bags, and is sold abroad by export grades, rather than by sample. The bulk handling of grain has been facilitated by the system of country and terminal elevators which has grown with the increase in wheat production. In 1900-01, there were already in operation 518 country elevators with a total capacity of 12,759,352 bushels. By 1938-39 these had increased to 5,679 with a capacity of 189,707,100 bushels, although some of these elevators have not been operating during the recent years of light production.

From these country elevators the grain is moved by rail through any one of a number of inspection centres, such as Winnipeg, Calgary, or Edmonton, to the terminal elevators located at Fort William-Port Arthur or on the Pacific Coast. The number of licensed elevators at the Head of the Lakes has grown from 5 in 1900-01 with a capacity of 5,570,000 bushels to 31 with a capacity of 92,862,210 bushels in 1938-39. Pacific Coast terminal elevators are located at Vancouver, Victoria, New Westminster and Prince Rupert and have a capacity of 22,116,110 bushels. A new route to overseas ports has been developed through Churchill with the erection of a terminal elevator in 1931 having a capacity of 2,500,000 bushels. The movement of grain through the Head of the Lakes has always been the heaviest. Total receipts of wheat, oats, barley, rye, and flaxseed at Fort William-Port Arthur in 1938-39 were 226,194,518 bushels, compared with receipts at Pacific elevators of 53,436,643 bushels.

From the Head of the Lakes, grain is shipped by water to eastern elevators located on the Lower Lakes and along the St. Lawrence River. Lower Lake elevators supply grain for eastern consumption and for trans-shipment to the St. Lawrence. Grain also moves from the Head of the Lakes to United States lake ports for United States consumption, milling-in-bond, or shipment by canal or rail to Atlantic seaboard ports. In winter months, small amounts of grain are moved by rail from Georgian Bay and Lower Lake elevators to the ports of Saint John, West Saint John, N.B., and Halifax, N.S., which are open to navigation the year round. Within the past two years a few small ocean-going vessels have gone directly to the Head of the Lakes, and have cleared with grain cargoes for overseas ports.

Clearances of Canadian wheat in 1938-39 from Canadian and United States ports amounted to 129,088,530 bushels. United States imports for consumption and milling-in-bond during 1938-39 amounted to 10,226,550 bushels. The total export movement of Canadian wheat in 1938-39 amounted to 166,959,447 bushels, including wheat flour expressed as wheat. Exports of oats and oat products in 1938-39 amounted to 14,222,826 bushels.

Barley exports totalled 16,499,228 bushels, while rye exports amounted to 1,757,841 bushels. Flaxseed exports amounted to 14,280 bushels while, on the other hand, flaxseed imports into Canada totalled 878,115 bushels.

The Flour-Milling Industry.—This most important manufacture connected with the field crops dates back to the first settlement made by the French in 1605. The milling of flour on a large commercial scale began with the competition between the two processes, stone and roller milling. About 50 years ago, the roller process secured a virtual monopoly of the industry and local country mills gave way to large mills served by elevators at central points. The high quality of Canadian wheat soon became recognized throughout the world and Canada's huge export trade in wheat and its products developed rapidly. Statistics of the milling industry will be found in Chapter XV—Manufactures.

Live Stock

The live-stock industry of Canada provides the means by which coarse grains and fodder crops are converted into income in the form of cash and products consumed in farm households. Probably the most important branch of the industry is that of cattle raising. In the production of beef cattle, the ranges of southwestern Saskatchewan, southern Alberta, and parts of British Columbia provide the foundation for the industry. In these areas, large-scale ranching is carried on, with the cattle moving out to feeding areas in other parts of Western Canada, to Ontario, and to the United States. Total numbers of cattle on farms have been declining since 1934, when they were 8,952,000 head. At June 1, 1939, there were 8,474,000 cattle on farms. While numbers on farms have been declining, cattle output has remained high, partly as a result of liquidation of stock because of drought. Severe feed shortages in 1934, 1935, and 1936 forced many farmers to reduce their herds. The drought period coincided with the downward swing in the cattle number cycle.



A Flock of Sheep at Lloydminster, Saskatchewan.

Courtesy, Canadian National Railways

The production of bacon hogs is now an important phase of Canada's live-stock industry. The hog industry depends chiefly upon supplies of feed grains, and to a lesser extent upon a provision of supplemental feeds such as skim milk and buttermilk. The greatest concentration of the hog industry is, therefore, found in central and southwestern Ontario, throughout the central and northern parts of Manitoba, across the park belt of Saskatchewan, and in the north central and central areas of Alberta. In late years the Prairie Provinces have become relatively more important as hog-producing regions. The loss of the export market for feed grains resulted in an increase in feeding of hogs to utilize the surplus grain supplies. One of the severe handicaps, however, is the great variability of feed production which causes severe liquidation of foundation stock. Numbers of hogs on farms declined sharply in 1937 and in the early part of 1938 due to the severe droughts in 1936 and 1937. With the return of larger grain production in 1938, hog production has since been increasing, with the greatest gains being made in the Prairie Provinces. At June 1, 1939, there were 4.3 million hogs on farms compared with 3.5 million at June 1, 1938. While increases were recorded in Ontario and Quebec, the greatest gains occurred in Saskatchewan and Alberta. As hog production has expanded in the Prairie Provinces, the packing companies have enlarged their facilities for slaughtering near the production areas.



A Group of Clydesdale Brood Mares.—Foundation mare on the right followed by three generations of her progeny showing improvement in size, type, and quality. Bred and developed by the Animal Husbandry Division, Central Experimental Farm, Ottawa.

The raising of sheep for production of mutton and wool is carried on both under general farm live-stock raising and as a specialized business in the sheep-ranching areas of southwestern Saskatchewan, southern Alberta, and parts of British Columbia. In recent years there has been a

tendency for the numbers of sheep on farms to remain fairly steady and at June 1, 1939 there were 3,366,000 on farms compared with 3,415,000 in 1938 and 3,340,000 in 1937.

The raising of horses for sale was at one time an important industry in the southern range areas of Saskatchewan and Alberta. With the increase in the use of mechanical power during recent years, the production of horses has declined considerably. At June 1, 1939, the number of horses on farms showed an increase for the first time in 17 years. Higher prices of horses resulting from a shortage of horses for farm work during recent years stimulated greater interest in production and reports indicate an increase in the numbers of horses for the years ahead.

Marketings.—Commercial marketings of cattle in 1938 amounted to 1,074,000 head, of which 756,000 head were sold through the stockyards, 259,000 head were sold direct to packing plants, and 59,000 head were sold direct for export. Total commercial marketings in 1937 were 1,381,000 cattle. The largest yards are located at Toronto and Winnipeg and over 70 p.c. of the cattle marketed through stockyards in 1937 were shipped to these two points. Movement of cattle to stockyards by truck has become increasingly important. In 1938, 50 p.c. of the cattle and 71 p.c. of the calves were transported to stockyards by truck. Calf marketings were 748,000 head as compared with 859,000 head in 1937.

Hog marketings in 1938 amounted to 3,240,000, compared with 3,926,000 head in 1937. The public stockyards handled 747,000 head. Of considerable interest in Canadian hog marketing is the trend toward carcass grading. The 1938 carcass gradings numbered 1,305,000 as compared with only 115,000 in 1935.

Total sheep and lamb marketings were reported at 759,000 head in 1938 and 798,000 head in 1937. About one-half the sheep and lambs are sold through the public stockyards.

The greater proportion of horses marketed are transferred from one farm to another and thus do not appear on the stockyard records. There has been a very considerable increase in recent years in the number of horses shipped eastward through the St. Boniface yards at Winnipeg.

Slaughtering and Meat Packing.—This is the most important manufacturing development connected with the live-stock industry. For statistics of slaughtering and meat packing, see Chapter XV. Exports of this industry are covered in Chapter XIII.

Special Crops

A feature of Canadian agriculture is the number of special crops that are grown in localities particularly suited for their production. Some of the more important of these are tobacco, sugar beets, maple syrup and sugar, and vegetable crops.

Commercial production of tobacco is centred in Ontario and Quebec, with a few hundred acres of flue-cured tobacco in British Columbia. The major development in the industry has taken place during the years since 1926 and has been due almost entirely to the phenomenal increase in the production of flue-cured tobacco, particularly in Ontario. Total plantings of the flue-cured type showed an uninterrupted expansion from 7,570 acres with a production of 6,239,800 pounds in 1927 to 28,063 acres with produc-



The Production of Leaf Tobacco in Canada.—The commercial crop of leaf tobacco has increased from 37 million pounds in 1930 to 98 million pounds in 1938, when the largest crop in the history of the industry was harvested. The illustration, reading downward, shows: A tobacco field along the Yamaska River, Quebec; Connecticut Havana No. 38, a cigar variety; right centre—hanging flue-cured tobacco in kilns for curing; a typical scene in Ontario or Quebec during harvest—stringing leaves on the lath before placing them in the curing kiln.

Courtesy, Tobacco Division, Central Experimental Farm, Ottawa

tion totalling 27,847,000 pounds in 1932. Following the sharp break in prices in 1931 and 1932, when the average price of flue-cured dropped from 32.0 cents in 1930 to 16.4 cents in 1932, a system of voluntary acreage control was introduced in Ontario in 1933 and has been in effect since that date. Marketing of the crop is now controlled by the Flue-Cured Marketing Association of Ontario and, under the stimulus of a minimum price fixed annually by the Association, cultivation of this crop has expanded rapidly. The 1938 crop of flue-cured totalled 75,145,200 pounds from 63,130 acres, as compared with 55,374,000 pounds from 53,347 acres in 1937 and 24,596,500 pounds from 35,878 acres in 1936.

The total commercial tobacco crop of 1938 was estimated at 98,340,700 pounds with a gross farm value of \$19,106,800, as compared with 72,093,400 pounds valued at \$17,140,200 in 1937, the first year in which the value of the crop exceeded the previous record value of \$15,548,000 established in 1919. A preliminary estimate of the 1939 crop shows a total production of 95,000,000 pounds from 89,567 acres.

The home market for flue-cured leaf has shown the most rapid expansion in recent years. About 85 p.c. of raw leaf going into domestic consumption in 1938 was grown locally, as compared with only 54 p.c. in 1930. The increased use of domestic leaf has coincided with a drop in imports of foreign leaf from 17,400,000 pounds in 1930 to less than 5,000,000 in 1938.

Exports in commercial quantities began in 1920, reached a peak of 13,900,000 pounds in 1933 and totalled 16,341,000 pounds in 1938. The United Kingdom, which has always been the chief buyer, takes about 90 p.c. of the total leaf exports which are largely flue-cured.



An Apiary at Trenton, Ont.—The building in the background is the storage quarters.

Courtesy, Ontario Department of Agriculture

Quebec leads in the output of maple products. With production in 1938 at the highest point since 1929, and amounting to 3,300,700 gallons in terms of syrup, the value of sugar and syrup produced in all Canada was \$3,849,900, as compared with \$2,245,000 in 1937. The 1939 crop amounted to 2,592,200 gallons in terms of syrup, with a farm value of \$3,443,900.

Sugar-beet production is centred in southwestern Ontario and near Raymond, Alta., although there are other areas sown to this crop in Quebec and Manitoba. In 1938, the latest year for which factory statistics are available, the output of refined beetroot sugar amounted to 143,013,847 pounds valued at \$6,001,380 as compared with 120,440,235 pounds valued at \$5,230,971 in 1937.

The growing of fresh vegetables for market is an important occupation in many parts of Canada, particularly in suburban areas. Truck farms located in specially-favoured regions provide raw materials for the vegetable-canning industry and cater to the demands of the fresh vegetable market. Other special crops of lesser importance are clover and grass seed, hops, and flax for fibre.

The production of honey is common to all provinces, with Ontario, Manitoba, and Quebec the leaders. The 1938 crop was the highest on record, being estimated at 37,268,700 pounds as compared with 23,196,600 pounds in 1937. The 1938 crop of honey and wax was valued at \$3,027,400.

Dairying

Dairying has long occupied an important place in Canadian agriculture. It had its beginning in the pioneer days when dairy cattle were first imported into Canada by the Acadians and the early settlers of the St. Lawrence Valley. Black-and-white cattle numbered in thousands were reported in the fertile Annapolis Valley in 1715, although the subsequent



Milking by Machines on a Model Farm at Brandon, Manitoba.

Courtesy, Canadian Government Motion Picture Bureau

war and the expulsion of the Acadians caused the number to diminish for a time. Butter was made on farms by the settlers and what they did not require for their own use was bartered for clothing and groceries in the nearby towns and villages. Cheese was made in small quantities, but as early as 1764 a six-ton export shipment of cheese was made from Nova Scotia. As the country developed, the production of these products became specialized undertakings, and with the erection of creameries and cheese factories the dairy industry was rapidly expanded, giving it a position of leadership among revenue-producing farm enterprises. Between 1930 and 1932 revenues were sharply reduced, but the reductions were not as great as those of other farm products. In 1930 dairy products represented 18 p.c. of the total farm revenue, while wheat represented 17 p.c. Even with higher wheat prices during subsequent years, the value of dairy products in 1938 was nearly \$15,000,000 above that of the principal field crop.

The Cheese and Butter Industries.—Cheese production was the leading dairy factory industry in the late 'nineties and the early part of this century. In 1900 the production of cheese amounted to approximately 221,000,000 lb. as compared with 36,000,000 lb. of creamery butter. Fifteen years later (a year after the outbreak of the War of 1914-18) the creamery butter make had advanced to 83,991,000 lb. while the cheese output had fallen to 183,888,000 lb. The change from cheese making to butter making was gradual but continuous and by 1922 the creamery butter output overtook cheese production for the first time with an increase of 18.5 p.c. in the former and a decrease of 16.2 p.c. in the latter as compared with the output for the previous year. It held the lead until 1925 when the cheese industry again recovered first place. But recovery was temporary, for in 1926 the tide again turned in favour of butter production, and in 1927 a sharp drop in the cheese factory output from 172,000,000 lb. to 138,000,000 lb. gave butter a lead of nearly 39,000,000 lb. over its competitor. The cheese industry regained some lost ground in 1928 and again in 1932, but otherwise the decline was continuous; between 1925 and 1934 the factory cheese output fell from 177,000,000 lb. in the former year to 99,000,000 lb. in the latter, while that of butter increased from 169,000,000 lb. to 235,000,000 lb. In 1938, 1,344 creameries, 988 cheese factories, and 196 factories manufacturing both butter and cheese were operated in Canada. The output of these factories reached a total of 266,886,900 lb. of butter and 121,314,600 lb. of cheese, valued at \$66,080,700 and \$16,597,500, respectively. Due to higher butter prices in the winter and early spring of 1938, the annual production of creamery butter increased 8 p.c. over the 1937 make, while cheddar cheese production declined 7 p.c. A reverse development took place in 1939. During the first nine months of the year there was a decline of nearly 2,000,000 lb. in the creamery butter output and an increase of 4,000,000 lb. in the make of cheddar cheese as compared with the same period of 1938. The average summer price of 21½ cents for butter advanced with the outbreak of war, and in the month of September averaged 26½ cents. Cheese prices also increased late in September averaging 12½ cents for the month compared with 11½ cents in the three summer months. The production of dairy butter has increased approximately 15,000,000 lb. in the past ten years and the 1938 production of

105,076,000 lb. represents 28.2 p.c. of the total butter output. Farm-made cheese, on the other hand, constitutes only 1 p.c. of the total cheese production.

After the War 1914-18 butter exports were relatively high amounting in 1925 to 26,600,000 lb., or 16 p.c. of the annual production, but, with the development of the home market, exports declined, and at times they have been reduced to quite insignificant quantities. In 1935, 7,700,000 lb. were exported from Canada; in 1936 exports were reduced to 5,100,000 lb., in 1937 to 4,100,000 lb., and during 1938 only 3,893,000 lb. were shipped from Canadian ports. The heavy stock holdings that accumulated as the result of high prices and a consequent increase in production in 1938 made it necessary to dispose of larger quantities than usual. Hence, the overseas movement during the first nine months of 1939 advanced to 11,786,000 lb., the highest since 1925 and represented 5.5 p.c. of the creamery butter production during that period. Nearly one-half of this total was shipped out of Canada during the period January to March.

In contrast to butter, cheese is mainly marketed abroad. In Ontario, where a large proportion of this product is manufactured, primary sales are made through local cheese boards, and after being inspected by Dominion Government inspectors the cheese is shipped to Great Britain and other countries by dealers in the larger distributing centres. At the turn of the century exports approximated 200,000,000 lb., and for the year ended June 30, 1904, 234,000,000 lb. As production declined exports also dropped to lower levels, and in 1935 amounted to only 55,700,000 lb. The 1938 exports were 81,000,000 lb., 66.7 p.c. of the total make for that year. During the first nine months of 1939 exports amounted to 50,600,000 lb., an increase of nearly 4 p.c. as compared with the same period of 1938. The 1938 exports represented 23.1 p.c. of the total cheese entering the British market where the Canadian product commands a price preference which places it next in rank to the finest English cheddar.

Milk and Milk Products.—Milk and cream for fluid consumption are generally sold by producers to distributors; the demand for pasteurized products has tended to bring this about, although in many of the smaller centres producers still deliver these products direct to householders. In the larger centres of population the distributors usually own plants where milk and cream is pasteurized, and butter, cheese, and other products are manufactured from the surplus. With the growth of urban centres, more and more milk is being used in the fluid form, a fact which has significance in connection with the decline in the cheese industry. It is estimated that, in 1938, 3,342,000,000 pints of milk (including cream) were consumed in Canada, representing a per capita consumption of 0.82 pints daily. Concentrated milk (included under "Miscellaneous Factory Products" in the following tables) is another branch of dairy manufacturing that has developed at the expense of cheese production. During the period 1933 to 1938 whole milk products increased 89.1 p.c. while milk by-products advanced 88.6 p.c. In 1938, 19.8 p.c. of the total output of all concentrated milk products amounting to approximately 161,000,000 lb. was shipped to British and Empire markets. Another important product in the miscellaneous group is ice cream. From 1933 to 1938 the total output for the Dominion has increased approximately 3,000,000 gal.

Production of Dairy Products in Canada, by Provinces, 1938

Province	Butter		Cheese		Miscellaneous Factory Products	Milk Other- wise Used	All Products Expressed as Milk
	Creamery	Dairy	Factory	Farm- made			
	lb.	lb.	lb.	lb.	'000 lb.	'000 lb.	'000 lb.
P.E.I.	2,500,500	1,559,000	449,400	300	628	47,890	148,587
N.S.	6,716,400	6,520,000	Nil	30,000	14,787	175,914	500,902
N.B.	4,519,100	6,554,000	539,500	5,000	3,720	150,962	420,002
Que.	79,214,400	13,045,000	27,554,100	225,000	25,530	1,478,539	3,974,987
Ont.	87,893,100	24,783,000	85,959,900	128,000	305,966	1,780,508	5,694,385
Man.	25,703,700	10,710,000	3,344,200	165,000	9,785	344,298	1,245,833
Sask.	23,524,300	23,305,000	421,000	210,000	6,284	509,928	1,619,552
Alta.	31,239,300	15,600,000	2,451,800	250,000	19,506	516,048	1,662,322
B.C.	5,576,100	3,000,000	594,700	90,000	59,510	235,721	503,666
Totals, 1938	266,886,900	105,676,000	121,314,600	1,101,300	445,716	5,245,808	15,770,236
1937	247,056,716	108,081,000	130,625,838	1,232,300	463,963	5,122,111	15,326,728

Value of Dairy Products in Canada, by Provinces, 1938

Province	Butter		Cheese		Miscellaneous Factory Products	Milk Other- wise Used	All Products ¹
	Creamery	Dairy	Factory	Farm- made			
	\$	\$	\$	\$	\$	\$	\$
P.E.I.	687,600	359,000	62,900	27	52,000	571,000	1,878,527
N.S.	1,873,900	1,695,000	Nil	4,000	748,000	3,123,000	7,889,900
N.B.	1,165,900	1,639,000	75,000	1,000	301,000	2,245,000	5,799,900
Que.	19,407,500	2,740,000	3,719,800	31,000	2,634,000	24,889,000	55,702,300
Ont.	23,028,000	5,328,000	11,776,500	16,000	16,021,000	30,199,000	89,153,500
Man.	6,168,900	2,088,000	448,100	21,000	1,039,000	4,370,000	15,303,000
Sask.	4,940,100	3,729,000	56,800	26,000	566,000	5,193,000	15,668,900
Alta.	7,247,500	2,839,000	355,500	30,000	989,000	6,068,000	18,792,000
B.C.	1,561,300	540,000	102,900	22,000	2,675,000	4,624,000	9,915,200
Totals, 1938	66,080,700	20,957,000	16,597,500	151,027	25,025,000	81,287,000	226,163,227
1937	64,217,332	22,622,000	17,965,123	174,027	22,743,790	78,087,000	215,623,262

¹ Includes the value of skim milk and buttermilk.

Poultry and Eggs

Poultry farming has expanded considerably in the past ten years. The specialized production of eggs and poultry has shown the most noticeable development, but poultry is also being given a more important place in general farming. Selective breeding and the improvement in the quality of eggs and poultry are matters that have received more attention in recent years.

The population of hens and chickens at June 1, 1938, was estimated at 53,775,000. Turkeys numbered approximately 2,000,000, geese 807,000, and ducks 616,000. During the year 1938, the production of eggs amounted to 213,400,000 doz., valued at \$40,700,000 or 19 cents per dozen. The production per hen increased from 109 in 1935 to 111 in 1938. Exports of poultry in 1938 amounted to 3,512,800 lb. compared with 11,104,000 lb. in 1937. The shipments of eggs increased slightly, advancing from 1,602,000 doz. in 1937 to 1,843,000 doz. in 1938. During the first nine months of 1939, 703,000 doz. of eggs were exported from the Dominion as compared with 757,000 doz. in the January to September period of 1938. Egg consumption is comparatively high, amounting in 1938 to 20.83 doz. per capita. The consumption of poultry in the same year was 17.91 lb. per capita.

Fruit Growing

Certain sections of Canada, by reason of favourable soil and climatic conditions, are particularly well suited to fruit growing. The Annapolis Valley of Nova Scotia, the Niagara Peninsula in Ontario, and the Okanagan Valley of British Columbia are world-famous centres of production. Experimental shipments of Nova Scotia apples were first made in 1861 but not until 20 years later did the trade develop into a successful commercial venture. Up to 1890, the annual production of apples in Nova Scotia rarely exceeded 100,000 barrels, but after that date there was a pronounced increase in acreage and in production which later reached 1,000,000 barrels in 1909 and 1,900,000 barrels in 1911. The all-time high record for commercial production was established by the crop of 1933 which reached the total of 2,762,700 barrels. The great bulk of the Nova Scotia crop is normally exported to Britain.



An Apple Orchard in Elsom,
Okanagan Valley, British Columbia.
Inset: Loading Apples for Market.

Courtesy, Canadian National Railways

In Ontario, where the commercial production of all varieties of fruits has reached its highest development, apples have been grown from the middle of the 18th century but commercial orcharding has developed only during the past 60 or 70 years, following the improvement in transportation facilities. In addition to apples, practically all other temperate-zone fruits are grown in Ontario but the strawberry, peach, and grape are the most important from the revenue-producing standpoint. Some Ontario fruit is exported to British and continental European ports but most of it is marketed in the province and in other parts of Canada.

In British Columbia, commercial fruit growing is of comparatively recent origin, growth in production having been particularly rapid since 1910. The high point was reached in 1938 with a crop of 6,048,600 boxes of apples. Other tree fruits such as pears, plums and prunes, cherries, peaches and apricots are all grown in commercial quantities while all the berry crops are grown extensively in the province. The Prairie Provinces and Eastern Canada absorb a large part of the production while considerable quantities of apples are exported to British and foreign markets.

In New Brunswick and Quebec, fruit growing is increasing and fairly important. Apples and strawberries are the principal crops.

In 1938, the total value of commercial fruit production in Canada was \$19,319,900, including: apples, \$12,569,100; pears, \$688,100; plums and prunes, \$342,700; peaches, \$992,200; cherries, \$653,600; strawberries, \$1,996,300; raspberries, \$996,600; loganberries, \$143,300; and grapes, \$782,600.

Marketings.—Although much of the apple crop is consumed in Canada, the average of the exports for the years 1934-38 amounted to 46.1 p.c. of the crop. Of the 2,853,000 bbl. shipped out of the country during the 1938-39 season, 2,502,000 bbl. went to the United Kingdom and 140,000 bbl. were exported to Germany.

In addition to the heavy export shipments, the producing provinces sell considerable quantities of apples in Canada. The large consuming populations in Quebec and Ontario take much of the crop of these provinces by direct sales on farmers' markets and to dealer-truckers. In the cases of British Columbia, Nova Scotia, New Brunswick, and also Ontario, outlets in outside provinces have to be found. For this reason much of the crop is sold through co-operative agencies or through individual shippers. During the 1938-39 season, Nova Scotia shipped 147 cars; New Brunswick, 59 cars; Quebec, 1 car; Ontario, 497 cars; and British Columbia, 1,734 cars to consuming centres throughout the Dominion.

Provincial Assistance to Agriculture

Each of the nine provinces, under Sect. 95 of the B.N.A. Act, has its Department of Agriculture, through which is carried on educational and extension work to assist farmers. Agricultural colleges maintained by the provinces are: the Nova Scotia Agricultural College at Truro, the Ontario Agricultural and the Ontario Veterinary Colleges at Guelph, and the Manitoba Agricultural College at Winnipeg. Three agricultural colleges in Quebec are assisted by the Provincial Government, while faculties of agriculture are found in the provincial universities of Saskatchewan, Alberta, and British Columbia.

During 1937 about 3,000,000,000 cubic feet of the standing timber was cut for use. About 564,000,000 cubic feet is destroyed annually by fire and another 700,000,000 feet by insects, fungi, windfall, and other agencies so that the inroads made in our forest capital in 1937 amounted to about 4,264,000,000 cubic feet.



Forest Fire Protection.—Portable pump and hose in action from a reserve water supply in a dry area, Snow Peak Avenue, Yoho National Park, British Columbia.

Courtesy, National Parks Bureau of Canada

Forest resources, however, are capable of replacement under forest management and can be made self-sustaining. New trees can be grown to take the place of those cut or destroyed. Destruction can be reduced, growth can be encouraged and increased, and with an annual increment of only 10 cubic feet per acre—quite possible under forest management—this valuable resource can be maintained in perpetuity. It can be managed so as to supply all needs at the present rate of consumption even if the population were to increase to over 26 millions.

Over 160 different tree species grow to commercial sizes in Canada and while only 31 of these are conifers their wood forms 80 p.c. of the standing timber and 95 p.c. of the sawn lumber.

Operations in the Woods

During 1937 the forests of Canada yielded \$163,000,000 worth of forest products. Logs and bolts were valued at \$58,000,000, pulpwood at \$63,000,000, firewood at \$32,000,000, hewn railway ties at \$3,100,000, poles at \$2,400,000, together with square timber, fencing materials, wood for distillation and the manufacture of charcoal, and many other valuable

CHAPTER V

THE FOREST WEALTH OF CANADA—LUMBERING— PULP AND PAPER

Among the industries engaged in utilizing the natural resources of Canada, forestry ranks third after agriculture and mining.

The forests of Canada supply so much more in the way of forest products than is consumed by the population that the exportable surplus is large and the imports relatively small. In the fiscal year 1939, the exports of wood and paper products exceeded the imports by \$182,950,126.

The total land area of Canada is 3,466,566 square miles. Of this about 1,944,956 square miles is either waste land, such as open muskeg, bare rock, barrens, etc., or land occupied by municipalities, factories, mines, roads, etc. The remainder is either forest or agricultural land. Some of this is fit only for forest production and some is unquestionably more valuable for field crops or pasture than for any other purpose. There is also a large area of border land which may be more valuable either for forest production or for agricultural purposes depending on its nature, its location, and many other variable conditions.

The potential agricultural area of Canada has been estimated at 450,000 square miles. This land is capable of supporting continuous, successful agriculture. It includes land at present cleared and used for field crops or pasture and land at present forested which will eventually be cleared for these purposes.

The potential forest area is estimated at 968,600 square miles consisting of land capable of producing valuable forest growth but not capable of economic agricultural use. Some of this, owing to ignorance of its possibilities, has been occupied by farms. It should be abandoned as farm land and devoted to forest growth.

In between these two classes are scattered farmer's woodlots with a total area of 103,000 square miles. Much of this land may be capable of producing field crops and pasture, but it is more valuable for the production of wood for farm use and will probably remain in a wooded state.

The area in Canada at present covered with forest growth is about 1,223,552 square miles, estimated to contain 273,650,000,000 cubic feet of wood, of which 81 p.c. is of coniferous species and 19 p.c. broad-leaved.

About 769,463 square miles of our existing forest area is at present productive and contains about 170,144,000,000 cubic feet of standing timber. The remaining 454,059 square miles is at present unproductive through inaccessibility or other causes and is estimated to contain 105,512,000,000 cubic feet. Much of this forest land will eventually become productive. The largest part of the productive area, about 66 p.c., is located in the eastern provinces, 22 p.c. is in the Prairie Provinces and the remaining 12 p.c. in British Columbia. The total volume of standing timber is distributed with 67 p.c. in the East, 15 p.c. in the Prairie Provinces, and 18 p.c. on the Pacific slope. The inaccessible area is divided more evenly, with 31 p.c. in the East, 31 on the prairies and 38 in the West.

forest products. The total value of these primary products increased in 1937 over the previous year with increases in all the principal items except hewn ties and fencing material. (See table on p. 72).



Pulpwood Logs being Loaded
on a Sleigh in the Gatineau
Valley, Quebec.
Inset: Sawing Big
Timber into Logs.

Courtesy, Canadian Government Motion Picture Bureau.

Logging operations in Canada are largely of a seasonal nature. The work is carried on by labour that is usually engaged at other seasons in some other gainful occupation. On this account it is practically impossible to estimate accurately the amount of labour provided by bush work. In most cases the work is done in the winter months when employment in other fields is at its lowest point so that lumbering has a valuable levelling effect on the employment situation. It also provides new settlers in bush country with their first cash crop of pulpwood logs, etc., removed in clearing the land. Where farming communities are in or near the forest, the camps, drives, and mills provide the farmer and his sons with work during the slack season on the farm. This, together with the ready sale

of farm products to the lumber companies, has always been of great assistance to the farmer establishing himself in a pioneering region.

The following table gives the total value of the products of operations in the woods from 1933 to 1937.

Value of the Products of Woods Operations, by Products, 1933-37

Product	1933	1934	1935	1936	1937
	\$	\$	\$	\$	\$
Logs and bolts.....	23,158,381	29,115,515	34,077,938	44,927,957	58,004,070
Pulpwood.....	31,141,104	38,302,807	41,195,871	48,680,200	63,057,205
Firewood.....	33,213,973	31,489,524	31,864,500	32,167,410	32,457,629
Hewn railway ties.....	1,370,750	1,541,901	3,188,051	3,190,052	3,129,207
Poles.....	963,951	1,091,046	1,359,736	1,563,681	2,455,345
Round mining timber.....	841,982	954,059	997,357	1,102,255	1,262,658
Fence posts.....	969,291	988,884	976,402	1,008,178	992,610
Wood for distillation.....	342,107	286,847	274,797	274,077	309,892
Fence rails.....	215,521	262,519	266,253	273,282	262,160
Miscellaneous products.....	1,556,082	1,506,630	1,260,274	1,717,136	1,319,111
Totals.....	93,773,142	105,539,732	115,461,779	134,804,228	163,249,887

The Lumber Industry

Except in the Maritime Provinces, 90 p.c. of the forest land is still the property of the Crown, the lumbermen having been granted cutting rights only. This land is administered by the various provincial departments.

Canada's sawmills produced, in 1937, 4,005,601 M feet board measure of sawn lumber, valued at \$82,776,822. The greater part of this lumber is coniferous softwood, as the supply of the more valuable hardwoods such as hickory, oak, and walnut (once plentiful in southern Ontario and Quebec) has been almost exhausted. The mills also produced 3,048,395 thousand shingles, valued at \$7,631,691, 392,922 thousand lath, valued at \$1,231,965, as well as numerous other products, bringing the total value of the products of the industry up to \$104,849,785, an increase of 30.5 p.c. over the value of production for the previous year.

Production of Sawn Lumber and All Sawmill Products, 1937

Province	Sawn Lumber Production		Total Sawmill Products
	M ft. b.m.	\$	\$
Prince Edward Island.....	6,312	118,405	152,818
Nova Scotia.....	178,160	2,833,055	3,238,037
New Brunswick.....	306,823	6,331,308	7,565,133
Quebec.....	700,530	14,061,735	18,800,636
Ontario.....	539,828	14,353,214	17,644,737
Manitoba.....	58,114	1,124,589	1,284,939
Saskatchewan.....	41,739	747,735	781,417
Alberta.....	101,420	1,478,214	1,714,467
British Columbia.....	2,072,675	41,128,567	53,647,601
Totals.....	4,005,601	82,776,822	104,849,785

British Columbia produced 50 p.c. of the total value of sawn lumber and sawmill products, Quebec 18 p.c., Ontario 17 p.c., followed by New Brunswick, Nova Scotia, Alberta, Manitoba, Saskatchewan, and Prince Edward Island in the order named.

Markets for Canadian lumber now include practically all the more important countries of the world. Canadian wood enjoys a preference in the British market and the value of Canada's exports of unmanufactured or partially manufactured wood to Great Britain has increased from \$4,848,157 in the calendar year 1932 to \$22,669,304 in 1938. Canadian timbers are well regarded in that market.



Hauling Timber in Winter to the Sawmill near Wolf Creek, Alberta.

Courtesy, International Harvester Company of Canada Limited

The Pulp and Paper Industry

The pulp and paper industry ranks first among Canadian manufacturing industries in capital, employment, wage and salary distribution, and net value of production. It is second to the non-ferrous smelting and refining group with respect to gross production.

The manufacture of paper was a relatively unimportant industry in Canada until the last two decades of the past century when wood-pulp superseded rags as a raw material. Canada's extensive pulpwood resources and her dependable and widely-distributed water powers have been largely responsible for the remarkable development of the industry.

The pulp and paper industry has headed the lists in net value of production since 1920, and in wage and salary distribution since 1922, replacing the sawmills in both cases. It was first in gross value of production from 1925, when it replaced the flour mills, until 1935, when it was overtaken by the non-ferrous metal group. In these comparisons only the manufacturing stages of the pulp and paper industry are considered.

no allowance being made for the capital invested, employment furnished, payroll, or production of those operations in the woods which form such an essential part of the industry as a whole.



The Pulp and Paper Industry.—The upper picture shows a cylinder board machine, 'jordans' and beaters. Cylinder boards are used mainly for paper boxes. They are composed of several liners and fillers of various or the same 'furnish' pressed together before being dried. The furnishes are refined in jordans and beaters; the sizing and dyeing are also done in

the latter. Below is a sulphite pulper. This machine prepares the pulp for shipment to converters.

Courtesy, Pulp and Paper Magazine, Gardenvale, Que.

The gross value of output of the industry increased rapidly and steadily until the boom years following the War of 1914-18 when it jumped to a peak of over \$232,000,000 in 1920. This was followed, in 1921, by a drop which was general throughout the industrial field. From that year on there was a steady recovery resulting in a total for 1929 of \$243,970,761 followed by successive decreases to \$123,415,492 in 1933. The large decreases of these four years were due to both lower price levels and diminished production; however, for 1933, production was substantially greater than for the previous year although the total value was nearly 10 p.c. less. In 1934, 1935, 1936, and 1937 quantity and value production both increased. In 1938 the gross value of production decreased by 18.7 p.c. to a total of \$183,897,503, as shown in the following statement:—

	Gross Production	Net Production		Gross Production	Net Production
1933	\$123,415,492	\$ 56,880,641	1936	\$183,632,995	\$ 85,739,406
1934	152,647,756	77,243,309	1937	226,244,711	106,002,017
1935	159,325,546	78,647,626	1938	183,897,503	89,034,186

There are three classes of mills in the industry. These, in 1938, comprised 27 mills making pulp only, 48 combined pulp and paper mills, and 24 mills making paper only.

In 1938 the 75 mills making pulp produced 3,667,789 tons valued at \$87,897,148, representing a decrease of 28.7 p.c. in quantity and a decrease of 24.7 p.c. in value from 1937; about 81 p.c. by quantity was made in combined mills and used by them in papermaking. About 4 p.c. was made for sale in Canada and 15 p.c. was made for export.

Of the total pulp production in Canada in 1938, 67 p.c. was ground wood, 16 p.c. unbleached sulphite, 8 p.c. bleached sulphite, 6 p.c. sulphate, and the remaining 3 p.c. screenings, etc.

The total production of paper in 1938 was 3,249,358 tons, which was valued at \$151,650,065. Newsprint and similar paper made up 2,668,913 tons, or 82 p.c. of the total, valued at \$107,051,202; paper boards made up 11 p.c.; wrapping paper 3 p.c.; book and writing paper 2 p.c.; and tissue and miscellaneous papers the remainder.

Many Canadian pulp and paper mills not only manufacture basic paper and paper-board stock but also convert this stock into more highly manufactured products such as napkins, towels, packaged toilet papers, coated and treated papers, boxes, envelopes, stationery, and other cut paper and boards. Figures covering this conversion are not included here.

Production of Newsprint and Other Paper in Canada, 1929-38

Year	Newsprint Paper		Total Paper	
	Quantity	Value	Quantity	Value
	tons	\$	tons	\$
1929.....	2,725,331	150,800,157	3,197,149	192,989,252
1930.....	2,497,952	130,181,883	2,926,787	173,305,874
1931.....	2,227,052	114,419,637	2,611,225	146,629,889
1932.....	1,919,205	85,539,852	2,290,767	113,873,123
1933.....	2,021,965	66,959,501	2,419,420	96,689,875
1934.....	2,604,973	86,811,460	3,069,516	120,892,225
1935.....	2,765,444	91,762,201	3,280,896	129,078,386
1936.....	3,225,386	105,214,533	3,807,329	146,431,934
1937.....	3,673,886	126,424,303	4,345,361	175,885,423
1938.....	2,668,913	107,051,212	3,249,358	151,650,065

The Canadian production of paper is still almost four times that of 1917, in spite of the decreases in 1921, 1930, 1931, 1932, and 1938. Practically all the different kinds of paper used in Canada at the present time can be produced in Canadian mills.

Canada's newsprint production in 1938 was nearly three times that of the United States, a few years ago the world's chief producer.

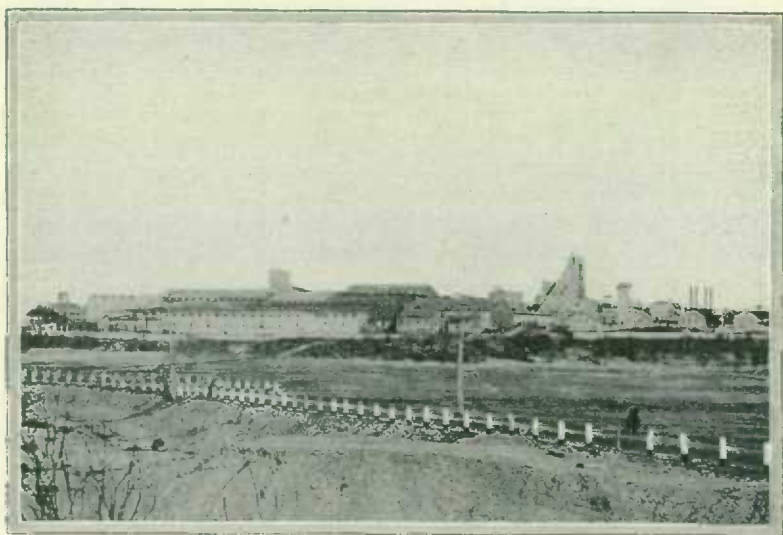
The latest monthly figures of Canadian newsprint production are:—

1938—	tons	1939—	tons	1939—	tons
January.....	208,382	May.....	250,015	September.....	253,230
February.....	200,631	June.....	240,545	October.....	280,985
March.....	220,648	July.....	227,630	November.....	—
April.....	220,843	August.....	236,975	December.....	—

CHAPTER VI

MINES AND MINERALS

Historical.—Canada is one of the outstanding mineral-producing countries of the world. The products of her mines are many and varied and the gradual increase in output over a long period of time corresponds closely with the general development of the country and with the gain in scientific knowledge in the treatment of complex ores.



Hollinger, the Pioneer Mine of the Porcupine Gold Camp of Northern Ontario.— One of the world's great gold mines, discovered in 1909, this gold-quarry property entered commercial production in 1912, and up to the end of 1938 had produced a total of 11,249,308 fine ounces of gold and 2,179,249 fine ounces of silver.

Courtesy, Department of Mines and Resources, Ottawa

In early days mining was confined to bare necessities. Coal was mined in Nova Scotia as early as 1720 in order to secure a supply of fuel for the men who came from France to lay the foundations of the fortress of Louisburg. Iron ore was mined in Quebec and the iron was made into sugar- and soap-kettles, and tools of various kinds. The mining of gold and silver and its recovery from ores was at that time too advanced a science for those men whose minds were bent on the settlement of the land and on the taking of furs. But gold in the streams was there for the taking. The first great gold rush in Canada followed the discovery of the metal on the Fraser River in British Columbia in 1857, and in the rich gravels of the creeks and rivers of the Cariboo district in the same province. Some years later (1889) the discovery of the rich copper-gold deposits of the Rossland camp, and further finds along the International Boundary introduced in a large way hard-rock mining in southern British Columbia. The famous silver-lead-zinc mines in east and west Kootenay,

several of which are still in operation, including the famous Sullivan mine situated at Kimberley, B.C., placed Canada on the map as a source of lead and zinc. Indeed, Sullivan mine to-day contributes over 98 p.c. of the lead production of Canada, 36 p.c. of the silver, and 80 p.c. of the zinc.

The discovery of gold in the Yukon Territory in 1896 caused a rush of prospectors and miners to that part of the country, and, during the decade following 1898, \$120,000,000 in gold was taken out. As is the case with all placer mining, output gradually fell off, but to-day the gold dredge is working its way successfully in the same district through ground that could not be touched by the individual miner.

The Modern Period—Metallies.—While British Columbia and Yukon may have held the spotlight in mining before the turn of the century, the discovery of the rich silver-ore deposits at Cobalt in 1903, along with the opening up of the Sudbury nickel mines, which had been located in 1883 when the C.P.R. was under construction, resulted in Ontario assuming an important place among the mineral-producing provinces of Canada, though sporadic attempts had been made in the earlier years to produce gold, silver, and copper. Since that time there has been built up in Ontario a vast mining, smelting, and refining industry.

The discovery of the silver camps at Gowganda and South Lorrain followed, and Ontario became the leading silver-producing province as well as the main source of the world's cobalt—a position she retained for many years. Ontario's prospectors worked far afield and soon discovered other valuable ores. This time it was gold. Larder Lake was found in 1906, but the gold was too low grade and after several years of difficult operation the camp was closed down. Larder Lake camp has assumed new importance (since the price of gold has been raised to \$35 an ounce). Porcupine camp was found in 1909 and it still holds the premier position among the gold-producing areas of the country. Kirkland Lake, discovered two years later, has an output second only to Porcupine. These two camps produced nearly half of the total output of gold in 1938.

Other gold mines discovered in Ontario are now operating in Long Lac, Red Lake, and Patricia areas. Prosperous towns have grown around these mines and the large payroll stimulates agricultural and manufacturing production in all parts of the province.

Prospecting fell to a low ebb during the War of 1914-18, but in 1921 the famous northwestern Québec copper-gold areas were opened up with the discovery of the Noranda. This wonderful mine is not only one of Canada's principal copper producers but also is the third largest gold producer in the country.

The Prairie Provinces, long thought of as being valuable only as grain-growing areas, have also become prominent as a source of minerals. In 1915 the Flin Flon copper-gold-zinc mine, situated on the Manitoba-Saskatchewan boundary, was discovered. The ore was complex and hard to treat and it was several years before this large deposit was brought to successful production but to-day a large mine, smelter, and zinc refinery add annually to Canada's wealth.

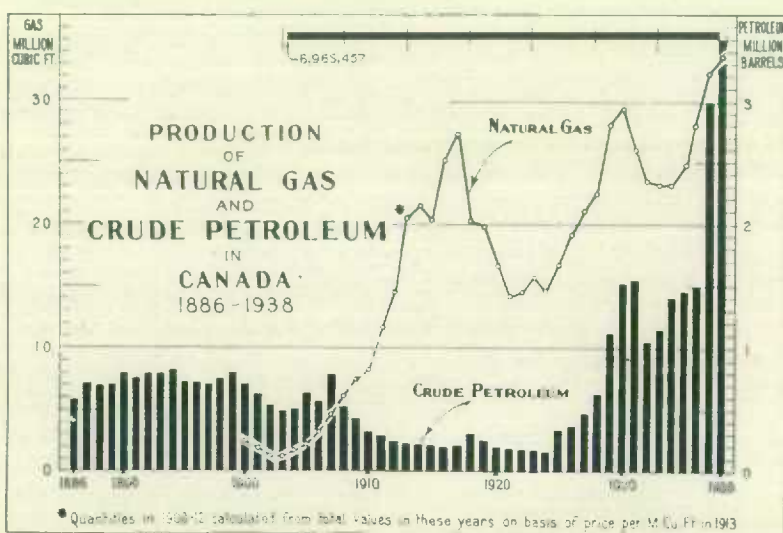
During the past two years several gold mines have come into production in the Northwest Territories and in Lake Athabaska in northern Saskatchewan. One of the most recent developments is in the Zeballos country, on the west coast of Vancouver Island. The veins in this latter

area appear to be very rich and success for some of the properties was assured with a minimum of expenditure.

The discovery of pitchblende in 1936 by Gilbert Labine at Great Bear Lake in the Northwest Territories placed Canada on the map as one of the world's important sources of radium. The ore is brought to Port Hope, Ont., for the recovery of radium and uranium salts.

Among the countries of the world, Canada is to-day first in the production of nickel and platinum metals, third in gold and copper, and fourth in lead and zinc.

Fuels.—Canada is in a somewhat anomalous position with regard to coal. She has large supplies of bituminous coal in the Maritimes, on the prairies, and on the Pacific Coast, but in the Provinces of Quebec and Ontario, where the population is most dense, no coal is mined.



She must therefore either bring her coal to these "acute fuel areas" from the United States or, if from Canadian mines, with the assistance of the Dominion Government by means of subventions. Canada's anthracite requirements are supplied by the United States, Great Britain, and other European sources, and some comes from as far away as French Indo-China. Western Canada's petroleum and natural gas industry is dealt with in detail in the special article on pp. 16 to 25. Production from the Turner Valley and other Alberta fields has risen from 1,312,368 bbl. in 1936 to 6,751,312 bbl. in 1938. Some production is also derived from the Stoney Creek field in New Brunswick and from southwestern Ontario. The New Brunswick gas supplies Moncton and Hillsborough and Ontario's gas serves over 119,000 industrial and domestic users.

Other Non-Metallics.—Canada produces a great variety of non-metallic minerals of economic value. The principal non-metallic is asbestos. Indeed, Canada leads the world in the output of this mineral. Approximately all of the output comes from the Eastern Townships of Quebec,



Asbestos Veins in Rock Face of an Asbestos Mine in the Eastern Townships of Quebec.

Courtesy, Department of Mines and Resources, Ottawa

though during the past year development work has been undertaken on a property in Ontario which should shortly be in the production class. The fibre of this mineral is of good quality and well adapted for spinning. Production in 1938 totalled 289,793 tons with a value of \$12,890,195.

Next in importance is common salt. The greater part of the Canadian production of salt comes from wells located in southwestern Ontario.

There is a salt mine at Malagash, Nova Scotia, and production from this property is increasing. The first production of commercial importance in Manitoba was recorded in 1932, and for Saskatchewan in 1933. Some shipments have also been

made from deposits near McMurray in Alberta. Between 40 and 50 p.c. of the Canadian salt production is used in the form of brine in chemical industries for the manufacture of caustic soda, liquid chlorine, soda ash, and other chemicals.

Third in importance among the Canadian non-metallics is gypsum, and output in 1938 was valued at \$1,502,265. Many large deposits of gypsum occur throughout Canada, but production is chiefly from Hants, Inverness, and Victoria Counties, N.S.; Hillsborough, N.B.; Paris, Ont.; Gypsumville and Amaranth, Man.; and Falkland, B.C. Nearly 50 p.c. of Canada's production is exported in the crude form from Nova Scotia deposits, though a substantial trade has been built up in Canada from the manufacture of plaster of paris, gypsum wallboard, acoustical materials, and insulating products. Other important non-metallic minerals produced in Canada are listed in the table on p. 81.

Clay Products and Other Structural Materials.—Canada has long been a producer of brick and tile, cement, lime, stone, and sand and gravel. Production in 1938 totalled approximately \$34,000,000. As only a small part of these items is exported, the value of output is an excellent barometer of, or guide to, conditions in the construction industry.

Production During the First Six Months of 1939.—Canada's mineral production during the first six months of 1939 aggregated \$217,728,702, an increase of 4.3 p.c. over the corresponding period of 1938 when the total reached \$208,779,921.

Continued expansion in the gold-mining industry was largely responsible for the increase. Several of the base metals and non-metallic minerals were produced in smaller volume than during the first six months of 1938 and prices for lead and zinc were slightly under those of last year; copper prices averaged higher.

Metals as a group were valued at \$164,959,577 compared with \$157,124,764 during the first half of 1938, an increase of 5 p.c.; fuels, including coal, natural gas, and crude petroleum totalled \$32,663,723 as against \$31,985,676, an increase of 2 p.c.; non-metallic minerals rose 6.7 p.c. to \$9,525,977 from \$8,925,393, and the structural materials group decreased 1.5 p.c. to \$10,579,425 from \$10,744,088.

Metals.—Among the metals, gold advanced to 2,492,572 fine ounces as compared with 2,219,309 fine ounces during the first six months of 1938. Output of lead, zinc, and copper was less, and nickel showed a slight gain. Metals of the platinum group totalled 165,403 fine ounces valued at \$4,901,548 compared with 130,077 fine ounces worth \$3,978,828.

Non-Metals.—Coal production during the period totalled 6,808,422 tons as compared with 6,907,209 tons. Production from New Brunswick and Saskatchewan mines showed an increase, but output from coal mines in other provinces was less. Natural gas production during the first six months of 1939 increased 7 p.c. over the same period a year ago. Production of crude petroleum gained 16 p.c. Increased output from the Turner Valley field of Alberta was responsible for the sharp advance.

Among the non-metals other than fuels, asbestos production showed a substantial increase over the first six months in 1938. Gypsum output was slightly less in quantity and value. Salt, including salt in brine, decreased from 197,240 tons to 181,519 tons. Improvement in several of the other non-metallic minerals was noted.

The value of structural materials was estimated at \$10,579,425 for the half of the year, a decrease of 1.5 p.c.

Mineral Production of Canada, by Provinces, 1936, 1937, and 1938

Province or Territory	1936		1937		1938	
	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total
	\$		\$		\$	
Nova Scotia.....	26,672,278	7.4	30,314,188	6.6	26,253,645	5.9
New Brunswick....	2,587,891	0.7	2,763,643	0.6	3,802,565	0.9
Quebec.....	49,736,919	13.8	65,160,215	14.3	68,965,594	15.6
Ontario.....	184,532,892	51.0	230,042,517	50.3	219,801,994	49.7
Manitoba.....	11,315,527	3.1	15,751,645	3.4	17,173,002	3.9
Saskatchewan.....	6,970,397	1.9	10,271,463	2.2	7,782,847	1.8
Alberta.....	23,305,726	6.4	25,597,117	5.6	28,966,272	6.6
British Columbia...	54,407,036	15.0	73,555,798	16.1	64,549,130	14.6
Yukon.....	2,220,372		3,784,528		3,959,570	
Northwest Territories ¹	170,334	0.7	117,978	0.9	568,618	1.0
Totals¹	361,919,372	100.0	457,359,092	100.0	441,823,237	100.0

¹ Production of radium-bearing ores not included. Figures not available for publication.

Mineral Production, Calendar Year 1938, and Official Estimate
January to June, 1939

Item	1938		Six months January to June, 1939	
	Quantity	Value	Quantity	Value
METALLICS				
		\$		\$
Gold..... fine oz.	4,725,117	97,676,834	2,492,572	51,526,034
Estimated exchange on gold produced	-	68,529,156	-	36,120,275
Silver..... fine oz.	22,219,195	9,660,239	10,586,950	4,531,426
Nickel..... lb.	210,572,738	53,914,494	110,465,309	27,748,574
Copper..... "	571,249,664	56,554,034	286,242,241	28,404,985
Lead..... "	418,927,660	14,008,941	185,755,363	5,619,100
Zinc..... "	381,506,588	11,723,698	178,752,177	5,110,525
Platinum metals..... fine oz.	292,219	8,874,136	165,403	4,901,548
Other metals.....	-	2,133,622	-	997,110
Totals ¹	-	323,075,154	-	164,959,577
NON-METALLICS				
<i>Fuels</i>				
Coal..... ton	14,294,718	43,982,171	6,808,422	20,905,548
Natural gas..... M cu. ft.	33,444,791	11,587,450	19,333,196	7,029,490
Petroleum, crude..... bbl.	6,966,084	9,230,173	3,370,425	4,728,686
Peat..... ton	620	3,500	-	-
Totals.....	-	64,803,294	-	32,663,723
<i>Other Non-Metallics</i>				
Asbestos..... ton	289,793	12,890,195	144,582	6,049,652
Feldspar..... "	14,058	129,293	4,477	42,716
Gypsum..... "	1,008,799	1,502,265	310,434	553,552
Magnesian dolomite.....	-	420,261	-	152,680
Quartz ² ton	1,380,011	961,617	756,579	455,903
Salt..... "	440,045	1,912,913	181,519	989,713
Sodium sulphate..... "	63,009	553,307	36,222	336,882
Sulphur ³ "	112,395	1,044,817	71,747	652,070
Talc and soapstone.....	10,853	144,848	5,355	66,715
Other non-metallics.....	-	506,607	-	226,094
Totals.....	-	20,066,123	-	9,525,977
CLAY PRODUCTS AND OTHER STRUCTURAL MATERIALS				
Clay products (brick, tile, sewer pipe, pottery, etc.).....	-	4,536,084	-	1,589,425
Cement..... bbl.	5,519,102	8,241,350	1,995,618	2,980,000
Lime..... ton	486,922	3,542,652	234,365	1,710,000
Stone, sand, gravel, and slate.....	37,339,604	17,558,560	-	4,300,000 ⁴
Totals.....	-	33,878,666	-	10,579,425 ⁴
Grand Totals¹.....	-	441,823,237	-	217,728,792

¹ Production of radium-bearing ores not included. Figures not available for publication.

² Includes silica sand used for smelter flux.

³ In sulphuric acid made and in pyrites shipped.

⁴ Estimated.

Nine-Month Production of Principal Metals.—Gold production has continued its upward trend. Output during the first nine months totalled 3,803,203 fine ounces compared with 3,464,698 fine ounces during the corresponding period of 1938.

Copper production at 451,410,179 pounds marked an increase of 5 p.c. over the first nine months of 1938. Prices during the third quarter of the year were slightly higher than the average for the first six months. Nickel production at 170,361,711 pounds during the same period increased 6 p.c. Lead output at 283,981,561 pounds decreased by 11 p.c. and zinc at 301,930,559 pounds was 5 p.c. higher.

Silver production was higher than during the same period of 1938; the totals were 17,637,398 fine ounces and 17,071,815 fine ounces, respectively.

CHAPTER VII

THE FISHERIES OF CANADA

Fishing is one of the earliest and most historic industries in Canada. In 1497 John Cabot discovered the cod banks of Newfoundland when he first sighted the mainland of North America, and Fernandez de Navarrete mentioned in his records the French, the Spaniards and the Portuguese as frequenters of the "Grand Banks" before 1502. Cape Breton, one of the earliest place names in America, took its name from early French fishermen. The fishing then was by hand lines over barrels attached to the bulwarks to prevent fouling, the vessels remaining during fine weather and then returning to France with their catches. Voyages along the coasts soon showed the cod as plentiful inshore as on the outer banks and it



Hoisting Dories
on a Fishing
Schooner after a
Day's Fishing on
One of Canada's
Atlantic "Banks",
200 Miles from
Halifax.

Dorymen Fishing
for Cod and
Haddock in the
North Atlantic,
Several Hundred
Miles off Nova
Scotia.—The dory-
men are fishermen
from Nova Scotia
"bank" schooners.
A number of dories
are carried by each
fishing schooner.



Courtesy, Department of Fisheries, Ottawa

became common for a crew to anchor in a bay, erect a hut on shore and make daily excursions to the fishing grounds, the product being salted and dried on land and at the end of the season shipped to France. Soon the fishermen began to remain all winter and thus permanent fishing settlements were established. Until the arrival of the United Empire Loyalists, the cod fishery was the only one systematically prosecuted, and attention had

been given to the shore fishery alone. No deep-sea fishing vessel put out from Lunenburg (now the chief centre of the deep-sea fishery) until 1873.

Canada has perhaps the largest fishing grounds in the world. On the Atlantic, from Grand Manan to Labrador, the coast line, not including the lesser bays and indentations, measures over 5,000 miles. The Bay of Fundy, 8,000 square miles in extent, the Gulf of St. Lawrence, fully ten times that size, and other ocean waters comprise not less than 200,000 square miles or over four-fifths of the area of the fishing grounds of the North Atlantic. In addition there are on the Atlantic seaboard 15,000 square miles of inshore waters controlled entirely by the Dominion. The Pacific Coast of the Dominion measures 7,180 miles in length. Inland lakes contain more than half of the fresh water on the planet; Canada's share of the Great Lakes alone has an area of over 34,000 square miles.

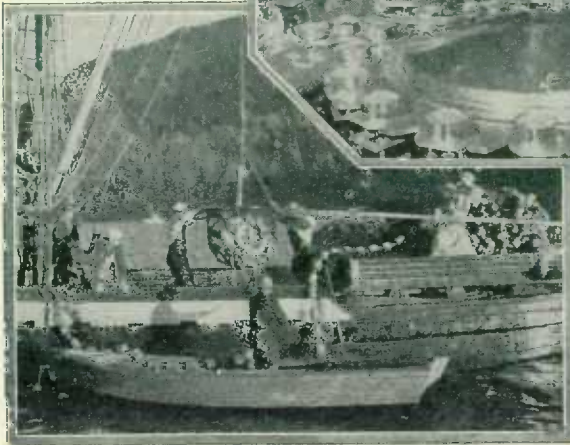
Canada's list of food fishes embraces nearly 60 different kinds, chief among which are the salmon, the lobster, the cod, the herring, the halibut, the whitefish, the haddock, the trout, and the pickerel.

The Government and the Fisheries

At the present time the Dominion Government controls the tidal fisheries of the Maritime Provinces and British Columbia and the fisheries of the Magdalen Islands in Quebec Province. The non-tidal fisheries of the Maritime Provinces, Ontario, and the Prairie Provinces and both the tidal and non-tidal fisheries of Quebec (except the Magdalen Islands) are controlled by the respective provinces, but the right of fisheries legislation for all provinces rests with the Dominion Government. The fisheries under the control of the Dominion Government are administered by the Department of Fisheries, which was created as a separate department in 1930. A large staff of inspectors, guardians, and supervisors is employed to enforce the fishery laws, and a fleet of vessels patrols the coastal and inland waters to prevent poaching and to assist in the carrying out of the regulations. The main object of legislation has been the prevention of depletion, the enforcement of close seasons, the forbidding of pollutions and obstructions and the regulation of fishing operations generally. Stations under the direction of the Fisheries Research Board of Canada (formerly the Biological Board) for the conduct of biological research are established at Halifax, N.S., St. Andrews, N.B., Nanaimo and Prince Rupert, B.C., and in Gaspé County, Que. A marine biological station, chiefly for oyster investigation work, is conducted at Ellerslie, P.E.I., and a substation for salmon investigation at Cultus Lake, B.C. The Fisheries Research Board employs a permanent staff of scientists. Other aids to the industry inaugurated by the Government may be mentioned. Most of the fishing vessels are equipped with radio receiving sets and a system is now in operation for broadcasting radio reports as to weather probabilities, bait and ice supplies and ice conditions along the coast. Educational work is carried on by permanent officers of the Department of Fisheries in instructing the fishermen in various areas as to the best methods of handling and processing their catches, and in bringing to the attention of the public the value of fish as a food. By an Act of 1882 (45 Vict., c. 18) for the development of the sea fisheries and the encouragement of boat building, provision was made for the distribution among fishermen and

the owners of fishing boats of \$150,000 annually in bounties, representing the interest on the amount of the Halifax Award. An Act of 1891 (54-55 Vict., c. 42) increased the amount to \$160,000, the details of the expenditure being settled each year by Order in Council.

'Patchers' Repacking
Overweight and Under-
weight Cans as they
come from an Automatic
Weighing Machine in a
British Columbia
Salmon Cannery.



Sockeye Salmon
in British Columbia
being removed
from a Purse Seine
to the Hold of a
Carrying Boat by
means of a 'Brailer.'

Courtesy, Department of Fisheries

By Parliamentary vote the sum of \$300,000 was made available for use by the Department of Fisheries during the fiscal year 1937-38 to aid, in co-operation with the provinces concerned, in the re-establishment of needy fishermen. Four provinces—Nova Scotia, New Brunswick, Prince Edward Island, and Quebec—entered into agreements with the Dominion authorities in carrying out the purpose of this vote. In each of the four the Department of Fisheries spent two dollars for each dollar spent by the Provincial Government in direct aid to fishermen who were in need of assistance and the total spendings from the departmental appropriation were \$218,004. In Quebec 8,930 grants were made to fishermen. In the Maritime Provinces and the Magdalen Islands the plan adopted was to make loans to fishermen and associations of fishermen; the total number of these loans to fishermen was 9,176 and to fishermen's associations, 28.

In a further effort to aid the fishermen, in this case by expanding the demand for their products, large-scale advertising was continued by the Department of Fisheries during the fiscal year. In the main, the advertising was carried on within the Dominion, but \$15,000 was used in the United

Kingdom, with the particular object of increasing sales of Canadian canned lobster and canned salmon. In Canada many publications of different classes were used in the campaign, which extended to all parts of the country and directed attention to the merits of Canadian fish foods.

The Modern Industry

The latter half of the nineteenth century saw the commencement of expansion in the commercial fishing industry of Canada. In 1844 the estimated value of the catch was only \$125,000. It doubled in the following decade and by 1860 had passed the million mark. Ten years later it was \$6,000,000 and this was again more than doubled in 1878. By 1900 it had reached a total of \$21,000,000 and the growth continued with little interruption until 1918, when it reached the high record of \$60,000,000. Due to lower prices, the values in later years have been less. In 1938 the value was \$40,492,976, which is the highest amount recorded since 1930. It will be understood that the figures given represent the total value of the fish marketed, whether in a fresh, dried, canned, or otherwise prepared state. The quantity of fish, including shell fish, caught and landed during the year 1938 was 10,741,150 cwt., compared with 10,918,048 cwt. in the preceding year.

The salmon fishery of British Columbia gives to that province first place in respect to value of production, the position which in earlier times belonged to Nova Scotia on account of her cod fishery. Nova Scotia is now second with regard to value of output, with New Brunswick third and Ontario fourth.

Salmon Pack of British Columbia, by Species, 1934-38

(Standard cases of 48 lb.)

Species	1934	1935	1936	1937	1938
	cases	cases	cases	cases	cases
Sockeye.....	377,952	350,444	415,024	325,774	447,453
Spring, red.....	1	10,187	16,493	10,903	10,276
Spring, pink.....	29,584	3,114	2,527	1,788	2,322
Spring, white.....	1	8,619	10,834	3,420	2,933
Blueback.....	29,556	15,319	33,718	19,236	27,417
Steelhead.....	1,282	596	1,068	844	1,035
Coho.....	195,874	216,173	212,343	113,972	273,706
Pink.....	435,364	514,966	591,532	585,576	400,876
Chum.....	513,184	410,604	597,487	447,602	541,812
Totals.....	1,582,796	1,530,022	1,881,026	1,569,175	1,767,830

¹Included with "Spring, pink."

Lobstering on the Atlantic Coast is second in value only to the salmon fishery of the Pacific. Lobstering commenced about the year 1870 with three canneries and has expanded until it is now the largest fishery of the kind in the world. In 1938 the lobster canneries numbered 215 and gave work to nearly 5,000 people; 30,000,000 lobsters is a normal catch. In New Brunswick the canning of sardines, which are young herring and not a distinct type of fish, exceeds in importance its lobster industry. There are only 3 sardine canneries in the province, but they are of large capacity, and gave work in 1938 to nearly 700 people. The salmon canneries of the Pacific numbered 38 and gave employment to nearly 5,000

persons. There are a few salmon canneries on the Atlantic Coast, but their output is comparatively small. The fish-canning and -curing industry is connected entirely with the sea fisheries, the plants being scattered along the coasts in locations of easy accessibility to the fishermen in delivering their catches.

Production of the Fisheries, by Provinces, 1914, 1937, and 1938

Province or Territory	Values of Production			Percentages of Total Values		
	1914	1937	1938	1914	1937	1938
	\$	\$	\$	p.c.	p.c.	p.c.
Prince Edward Island	1,261,666	870,299	930,874	4.1	2.2	2.3
Nova Scotia	7,730,191	9,229,834	8,804,231	24.7	23.7	21.7
New Brunswick	4,940,063	4,447,668	3,996,064	15.8	11.4	9.9
Quebec	1,924,430	1,892,036	1,957,279	6.2	4.9	4.8
Ontario	2,755,291	3,615,666	3,353,775	8.8	9.3	8.3
Manitoba	849,422	1,796,012	1,811,124	2.7	4.6	4.5
Saskatchewan	132,017	529,199	468,646	0.4	1.4	1.2
Alberta	86,720	433,354	492,943	0.3	1.1	1.2
British Columbia	11,515,086	16,155,439	18,672,750	36.8	41.4	46.1
Yukon	69,725	8,767	5,290	0.2	0.0	0.0
Totals	31,264,631	38,976,294	40,492,976	100.0	100.0	100.0

Fisheries Production, by Principal Kinds, 1937 and 1938

(Each over \$1,000,000 in value, and arranged by value in 1938.)

Kind	1937		1938	
	Quantity Caught	Value Marketed	Quantity Caught	Value Marketed
	cwt.	\$	cwt.	\$
Salmon	1,724,213	12,370,219	1,766,728	14,992,544
Lobster	309,950	4,633,429	314,385	3,793,219
Cod	1,523,626	3,140,230	1,702,023	3,335,231
Herring	3,057,503	2,556,883	2,533,677	2,487,231
Halibut	150,583	1,598,190	162,540	1,789,444
Whitefish	173,675	1,887,889	154,244	1,650,347
Sardine	159,481	1,526,505	184,450	1,393,129
Haddock	388,823	1,296,313	393,589	1,361,992
Trout	70,588	1,031,740	72,873	1,036,292
Pickarel	143,020	1,043,532	128,812	1,031,868

Capital Invested and Employees Engaged in the Fisheries, 1936-38

Item	1936	1937	1938
Capital	\$	\$	\$
Vessels, boats, nets, traps, etc.	27,258,550	26,796,379	26,596,944
Fish-canning and -curing establishments	18,614,692	18,130,365	21,962,498
Totals, Capital	45,873,142	44,926,744	48,559,442
Employees	No.	No.	No.
On vessels and boats, and in fishing without boats	71,735	69,981	71,510
In fish-canning and -curing establishments	15,238	14,044	14,484
Totals, Employees	86,973	84,025	85,994

Export Trade in Fish.—The domestic consumption of fish is relatively small in Canada, and the trade depends largely upon foreign markets. From 60 to 70 p.c. of the annual catch is an average export, of which the United States takes approximately one-half and the United Kingdom one-fourth. In the calendar year 1938, total exports amounted to \$27,543,680, of which \$12,713,819 went to the United States and \$6,880,661 to the United Kingdom: analysed in another way, \$11,457,680 went to British Empire countries and \$16,086,000 to foreign countries. The most important single export is canned salmon (to the United Kingdom and European markets), followed by fresh lobster, canned lobster, fresh salmon, fresh whitefish, and dried cod (to the West Indies, South America, etc.). For fresh fish the United States is the chief market, although the United Kingdom takes considerable quantities of salmon and halibut, classified as fresh and frozen.



Trout Fishing in the Nipigon District, Ontario.

Courtesy, Canadian Government Motion Picture Bureau

Game Fish.—The foregoing is a purely industrial and commercial survey. Fishing for sport, however, has its economic side in a country of such famous game fish as the salmon of the Restigouche and other rivers of the Maritime Provinces; the black bass and speckled trout of the Quebec and Ontario highlands; the red trout of the Nipigon; and the salmon and rainbow trout of British Columbia. A considerable public revenue is derived from the leasing of waters in sparsely settled districts to clubs and individuals for sporting purposes. Several hundreds of guides find employment in this field during the summer months.

CHAPTER VIII

THE FUR TRADE

The fur trade of Canada which, in the early days, dominated all other pursuits and led to the exploration and the eventual settlement of the country, is still of immense importance. The advance of agricultural settlement, lumbering, and mining has driven fur-bearing animals farther and farther afield, and this expulsion from their former range, combined with the improved methods now used in the capture of the animals, has caused serious depletion in the numbers of the various kinds. To deal with this loss the various Provincial Governments, in co-operation with



During the visit of Their Majesties the King and Queen to Winnipeg, on May 24, the Governor of the Hudson's Bay Company, paid King George "rent" with two black-beaver pelts and two elk heads. His Majesty is shown here as he received the two beaver skins, with Queen Elizabeth looking on.

Courtesy, Canadian Broadcasting Corporation

the Dominion authorities, have inaugurated a policy of conservation, and have passed laws under which provision is made for close seasons, for the licensing of trappers and traders, for the collection of royalties on pelts, and for the regulation of the methods to be employed in trapping the animals. The annual value of the raw-fur production of Canada shows no decline, but this is due to the fur-farming industry, which now supplies nearly all of the silver fox and about 40 p.c. of the mink pelts.

Commencing with the year 1881, records of the value of raw-fur production were obtained in the decennial censuses, but from 1920 the Dominion Bureau of Statistics has issued annual reports, these reports at first being based on returns supplied to the Bureau by the fur traders, but

more recently prepared from statements furnished by the provincial game departments, which are based on returns of royalties, export tax, etc. In 1881 the value of pelts taken was \$987,555; by 1910 it had become \$1,927,550; in the season 1920-21, \$10,151,594; and in 1930-31, \$11,803,217.

According to advance figures, the value of Canada's production of raw furs in the season 1937-38 (12 months ended June 30, 1938) is placed at \$12,527,497, compared with \$17,526,365 in the preceding season. These totals comprise the value of pelts of fur-bearing animals taken by trappers and pelts sold by fur farms, the value of the latter approximating 46 p.c. of the whole. Lower average prices of furs are chiefly responsible for the decrease in total value, as a decrease shown also in the total number of pelts is credited mainly to the less valuable kinds, viz., rabbit and squirrel. Average prices for the ten principal kinds, with 1936-37 averages in parentheses, were: silver fox, \$22.67 (\$29.46); mink, \$10.00 (\$16.24); muskrat, 76 cents (\$1.40); white fox, \$12.59 (\$13.71); beaver, \$10.47 (\$12.54); marten, \$23.28 (\$26.28); red fox, \$7.02 (\$8.16); ermine, 51 cents (88 cents); lynx, \$29.93 (\$34.52); and cross fox, \$20.93 (\$24.75). Silver fox showed a total of 249,982 pelts valued at \$5,666,209, an increase in number of 19,952, but a decrease in value of \$1,111,435. The value of the silver fox pelts represents 45 p.c. of the total for all kinds of furs. Second in importance is mink, with a total value of \$1,348,007.

Quebec is the leading province with respect to total value of raw-fur production. The relation which the value for each province bears to the total for Canada is as follows: Quebec, 17 p.c.; Ontario, 16 p.c.; Prince Edward Island, 14 p.c.; Northwest Territories, 10 p.c.; Alberta, 9 p.c.; Manitoba, 8 p.c.; Saskatchewan, 7 p.c.; British Columbia, 6 p.c.; Nova Scotia, 6 p.c.; New Brunswick, 5 p.c.; and Yukon, 2 p.c.

Numbers and Values of Pelts Taken, Seasons 1921-22 to 1937-38

Season	Pelts	Total Value	Season	Pelts	Total Value
	No.	\$		No.	\$
1921-22	4,368,790	17,438,867	1930-31	4,060,356	11,803,217
1922-23	4,963,996	16,761,567	1931-32	4,449,289	10,189,481
1923-24	4,207,593	15,643,817	1932-33	4,503,558	10,305,154
1924-25	3,820,326	15,441,564	1933-34	6,076,197	12,349,328
1925-26	3,686,148	15,072,244	1934-35	4,926,413	12,843,341
1926-27	4,289,233	18,864,126	1935-36	4,595,713	15,464,883
1927-28	3,601,153	18,758,177	1936-37	6,237,640	17,526,365
1928-29	5,150,328	18,745,473	1937-38 ¹	4,688,083	12,527,497
1929-30	3,798,444	12,158,376			

¹ Preliminary figures.

An important adjunct of the fur trade is the industry of fur dressing and fur dyeing. The work is chiefly on a custom basis; the furs are treated for owners at a certain charge per pelt. The number of plants engaged in the treatment of furs during the year 1937 was 14, the number of skins treated 4,004,620, and the amount received for the work \$1,397,767. The principal kinds of furs treated, with regard to number, were rabbit (1,522,623) and muskrat (987,713). There is also the fur goods industry, which supplies practically the entire quantity of fur goods—coats, scarves, muffs, caps, gauntlets, etc.—consumed in the Dominion. This industry in

1937 provided employment for 3,419 persons, paid in salaries and wages \$3,730,176, and produced goods to the value of \$16,261,100. There were establishments from coast to coast to the number of 351 although the industry was centred chiefly in Quebec and Ontario.

Litter of Fox Pups
on a Fox Farm near
Ottawa, Ontario



Fox Pens on a Fur Farm at
Kirkfield, Ontario. Lower inset:
Silver black fox; ranch scene in
Ontario during winter.

Courtesy, Canadian Government Motion Picture Bureau

Fur Farming.—Fur farming, which was commenced in Prince Edward Island towards the close of the past century, and has since spread throughout the Dominion, to-day occupies a position of large importance, whether regarded as a distinct industry or as a branch of agriculture.

In the early days of the fur trade it was the practice in Canada for trappers to keep foxes caught out of season alive until the fur was prime, and from this custom has arisen the modern industry of fur farming. For many years the term "fur farming" was synonymous with "fox

farming" attention being directed chiefly to the silver fox. The black or silver fox is a colour phase of the common red fox, and the beauty of its fur and the consequent high price to be realized from the sale of the pelt encouraged the carrying out of experiments in breeding to fix this silver strain. Success came in the year 1894, when a litter of silver foxes was raised to maturity on a farm near Alberton, Prince Edward Island. Further successes advanced the industry, and in 1913 an enumeration by the Commissioner of Agriculture for Prince Edward Island showed 277 fox farms in the province, with a total of 3,130 foxes, of which 650 were silver. Meanwhile attempts at rearing foxes in captivity were also being made in other provinces, the records showing that foxes were successfully bred in Quebec in 1898, in Ontario in 1905, and in Nova Scotia in 1906. In 1912 and 1913 the Dominion Commission of Conservation conducted an exhaustive inquiry into the history and possibilities of fur farming in Canada, and the resulting data, published in 1913, gave an impetus to the industry. The pioneers of the fox-farming industry raised the foxes chiefly for the sake of the pelts, as high as \$2,600 being received for a single pelt of exceptional quality, and it was not until 1912 that there was any general sale of live foxes. With increased interest in fur farming came a large demand for foxes to be used as foundation stock in newly-established ranches. Fabulous prices were now obtainable for the live animals, sales of proved breeders in 1912 being recorded at from \$18,000 to \$35,000 per pair. The number of fur farms from this time forward rapidly increased, companies as well as individuals engaging in the business, and as larger number of foxes became available for sale, prices naturally declined. In 1919 the Dominion Bureau of Statistics commenced the annual collection of returns of fur farms, and the records for that year show 424 fox farms and 5 miscellaneous kinds of fur farms in Canada. The number of silver foxes on the farms in the same year was 7,181, of which 5,401 were credited to Prince Edward Island. Meanwhile the average price for a pair of silver foxes had dropped to around \$650, although prices as high as \$1,100 for a single fox are recorded. By 1937, the latest year for which statistics are available, the number of fox farms had mounted to 7,601, with a total of 157,053 foxes, of which 153,822 were classified as "silver". The demand for live foxes is not as great as in the earlier years when fur farming was in course of establishment, but there is an ever-present market for furs and the industry is now engaged in meeting the requirements of this market. In 1937 the value of the pelts sold represented 85 p.c. of the total revenue in that year.

Second only to the silver fox in importance is the mink. In 1937 the number of mink on the farms at the end of the year was 71,410, or slightly more than one-half of the number of silver foxes recorded. Mink farms are reported in all provinces, with Ontario and Manitoba of first importance with regard to number of farms.

The Dominion Department of Agriculture conducts, at Summerside, Prince Edward Island, an experimental fur farm for the study of matters affecting the health of fur-bearing animals, especially the silver fox, in captivity, while in several provinces, also, government departments have branches whose activities are for the benefit of the fur-farming industry. Reports and pamphlets are issued from time to time, and the advice of the officers in charge of the work is always available to the fur farmer.

Statistics of Fur Farming.—The number of fur farms in operation in Canada in 1937, according to returns made to the Dominion Bureau of Statistics, was 9,179, an increase over the preceding year of 1,037, or 13 p.c. The total includes 7,601 fox farms, 1,426 mink farms, and 152 farms under various other classifications, as raccoon, marten, fisher, etc.

The value of fur-farm property was \$17,363,602, of which \$7,687,171 is credited to the land and buildings and \$9,676,431 to the fur-bearing animals. The number of fur-bearing animals (exclusive of muskrat and beaver, for which information is not available) born in captivity each year has been mounting steadily and for the year 1937 recorded a total of 354,075, an increase over the preceding year of 57,595. The principal kinds were silver fox, with a total of 238,936, and mink, with a total of 106,999. These two kinds, together, accounted for 98 p.c. of the total number of births. Compared with the preceding year the number of silver foxes born showed an increase of 17,031 or 8 p.c., and the number of mink an increase of 41,107 or 62 p.c. The value of the live fur-bearing animals sold from the farms during the year was \$1,030,888, an increase over the preceding year of \$200,116 or 24 p.c. The rapid advance of the mink-farming branch of the industry contributed largely to the increase, many mink being required to stock new farms. In 1937 the sale of pelts brought to the fur farmer the total amount of \$5,779,498, an increase over the preceding year of \$71,060.

Pelts Sold From Fur Farms.—The volume of silver fox pelt sales from the farm continues to advance, but the average price per pelt has receded steadily during the past few years. In 1937 the silver fox pelts sold numbered 196,436, compared with 162,999 in the preceding year, while the total value was \$5,019,487, compared with \$4,950,290, and the average price per pelt, \$26 compared with \$30. The number of mink pelts sold was 54,819, compared with 40,844, the value, \$681,475, compared with \$652,940, and the average price per pelt, \$12 compared with \$16. The value of silver fox and mink pelts, combined, represents 99 p.c. of the total for all kinds sold from the farms.

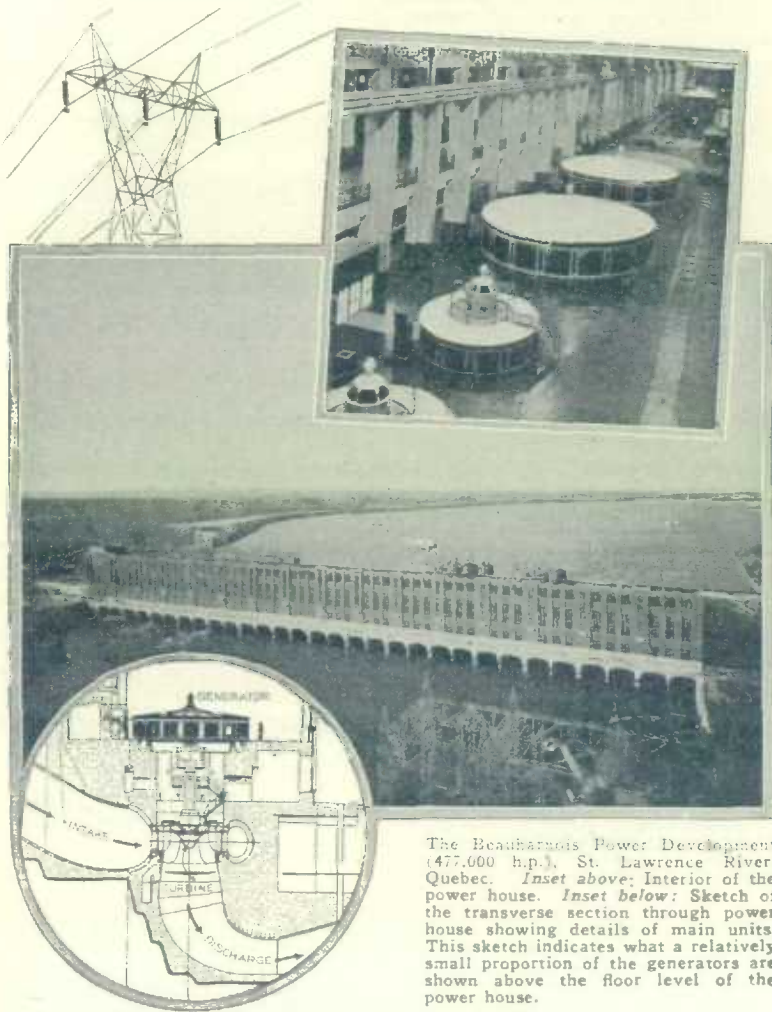
Export Trade in Furs.—The important markets for Canadian furs are London and New York; the trade tables for the 12 months ended June 30, 1938, show that of the value of raw furs exported, viz., \$12,653,355, the United Kingdom received \$8,363,604 and the United States \$3,610,520. At the close of the Great War, Montreal took a position as an international fur market, holding the first Canadian fur auction sale in 1920. At the sales held in Montreal during the season 1937-38 the pelts sold numbered 1,438,101, while the value amounted to \$4,992,956. Fur auction sales are held also at Winnipeg, Edmonton, and Vancouver.

In 1667 exports of furs to France and the West Indies were valued at 550,000 francs. In 1850, the first year for which trade tables of the Customs Department are available, the value of raw furs exported was £19,395 (\$93,872); for the year ended June 30, 1920, the value was \$20,417,329; for 1925, \$17,131,172; for 1930, \$17,187,399; and for 1937, \$18,529,254. As seen from the 1938 figures quoted in the previous paragraph, the value of raw furs exported in that year showed a decrease of 32 p.c. compared with 1937, the decrease being in line with the reduction in the total value of raw-fur production.

CHAPTER IX

THE WATER POWERS OF CANADA

Canada's water powers constitute one of her greatest natural resources. Their development has not only facilitated the growth of industry but has resulted in giving value to marginal products, which, without the low-cost power provided by water, would have remained unmarketable. This low-cost power has also resulted in the creation of entirely new centres of population for the processing of raw materials imported from abroad.



The Beauharnois Power Development (477,000 h.p.), St. Lawrence River, Quebec. *Inset above:* Interior of the power house. *Inset below:* Sketch of the transverse section through power house showing details of main units. This sketch indicates what a relatively small proportion of the generators are shown above the floor level of the power house.

Courtesy, Beauharnois Light, Heat and Power Company, Montreal

So general and widespread is its availability that all but the most isolated hamlets enjoy the amenities of electric lighting, radio, cooking and domestic appliances which in many countries are only associated with the larger urban centres.

Canada's water powers have an estimated capacity of almost 34,000,000 h.p. which, under average conditions of use, will provide for a turbine installation of about 43,700,000 h.p. of which the installation, as at Jan. 1, 1940, represents almost 19 p.c., notwithstanding that it provides 733 h.p. for each thousand of her population. These water powers, developed and undeveloped, are found from the Maritimes to British Columbia in proximity to all industrial centres, the largest mineral deposits and pulpwood supplies. Widespread transmission networks distribute the power from developed sites to consumers within radii of hundreds of miles.

Available and Developed Water Power, by Provinces, Jan. 1, 1940

Province or Territory	Available 24-hour Power at 80 p.c. Efficiency		Turbine Installation
	At Ordinary Minimum Flow	At Ordinary Six-Month Flow	
	h.p.	h.p.	h.p.
Prince Edward Island.....	3,000	5,300	2,617
Nova Scotia.....	20,800	128,300	131,717
New Brunswick.....	68,600	169,100	133,347
Quebec.....	8,459,000	13,064,000	4,044,763
Ontario.....	5,330,000	6,940,000	2,596,799
Manitoba.....	3,309,000	5,344,500	420,925
Saskatchewan.....	542,000	1,082,000	90,835
Alberta.....	390,000	1,049,500	71,997
British Columbia.....	1,931,000	5,103,500	739,013
Yukon and Northwest Territories.....	294,000	731,000	18,199
Canada.....	20,347,400	33,617,200	8,289,212

Provincial Distribution of Water Power.—The water powers of the *Maritime Provinces*, while small in comparison with the sites in the other provinces, are a valuable economic resource that is augmented by abundant local coal supplies. *Quebec* has the largest known resources of water power and the greatest development, her present installation representing almost 50 p.c. of Canada's total. Almost 90 p.c. of her total installation is operated by central electric station organizations distributing electricity for public use. *Ontario*, which, like *Quebec*, is without local coal supplies, is second in both power resources and development. Here the Hydro-Electric Power Commission operates plants aggregating more than 65 p.c. of the total installation of the province, while an additional 21 p.c. is operated by other central station organizations. Of the *Prairie Provinces*, *Manitoba* has the greatest power resources and the greatest development, 75 p.c. of the total hydraulic development of the three provinces being installed on the Winnipeg River to serve the City of Winnipeg and adjacent municipalities and, over the transmission network of the Manitoba Power Commission, some 135 cities, towns, and villages in southern Manitoba. In the section of the *Prairie Provinces* containing least water power, the southern portions of *Saskatchewan* and *Alberta*,

there are large fuel resources. *British Columbia*, traversed by three distinct mountain ranges, ranks fourth in available power resources and her hydraulic development is exceeded in Quebec and Ontario only. The water powers of *Yukon* and the *Northwest Territories*, while considerable, are so remote from markets as to limit their present development to local mining uses.

Hydro-Electric Construction During 1939.—Construction during 1939 added a further 97,040 h.p. to Canada's hydraulic development and brought

the total installation to 8,289,212 h.p. This total also includes a 1,400-h.p. plant which was not reported in time for inclusion in last year's review.

In *British Columbia* the *West Kootenay Power and Light Company* is installing two additional generating units in its *Upper Bonnington Falls Station*. These units are expected to be in operation in the spring of 1940 and are rated at 25,000 h.p. each, bringing the total capacity of the plant to 84,000 h.p. The Company also greatly improved flow-age conditions on the *Kootenay River* at *Grohman*, following an order of the *International Joint Commission* permitting storage of water in *Kootenay Lake*.



Eugenia Falls Development.—The highest head plant in Ontario; one of the power plants supplying the Ontario Hydro-Electric Power Commission's Georgian Bay system. The view shows the power house, pipe lines and surge towers. The head is 550 feet.

Courtesy, Hydro-Electric Power Commission of Ontario

In *Saskatchewan*, the *Churchill River Power Company* increased the installation of its plant at *Island Falls* on the *Churchill River* to 87,500 h.p. by the addition of a 19,000 h.p.-unit, the second of this rating, and by the rebuilding of the three original units from 14,000 h.p. to 16,500 h.p. each.

The *Consolidated Mining and Smelting Company* brought into operation on July 1, 1939, the initial installation of 3,300 h.p. in its hydro-electric development at *Wellington Lake* on *Charlot River*. The plant supplies power for gold mining at *Goldfields*, *Saskatchewan*.

In *Ontario*, the *Hydro-Electric Power Commission*, which operates the *Northern Ontario Properties* as trustee for the *Provincial Government*, installed a third unit of 7,500 h.p. in *Ear Falls* generating station on the

English River, thereby increasing the station's installation to 17,500 h.p. Extensive transmission-line construction was also carried out to connect the station with the Rat Rapids generating station at the easterly end of Lake St. Joseph and to transmit power to nearby mining properties. The line was also extended to the town of Sioux Lookout.

In the extreme northwestern part of Ontario, Berens River Mines Limited completed and brought into operation a 2,000-h.p. plant on Duck River, a tributary of the Severn. The plant is at the outlet of North Wind Lake and the power is transmitted 8½ miles to the company's mine.

At Black River Falls on Black River, about two miles northeast of Heron Bay on Lake Superior, the Ontario Paper Company completed a hydro-electric plant of 1,500 h.p. to serve Heron Bay pulpwood-barking mill.

The Gananoque Electric Light and Water Supply Company constructed a plant of 999 h.p. at Brewers Mills on the Cataraqui River and replaced a 225-h.p. turbine in its Gananoque plant by one of 666 h.p.

In the Province of Quebec the Beauharnois Light, Heat and Power Company brought its ninth unit of 53,000 h.p. into operation and resumed work on the installation of the tenth and eleventh units.

The St. Maurice Power Corporation proceeded with the construction of its 243,000-h.p. development at La Tuque on the St. Maurice River. The plant is scheduled for completion towards the close of 1940.

La Sarre Power Company completed a new plant of 700 h.p. on La Sarre River, 3 miles north of La Sarre. The plant is designed for a further installation of 700 h.p.

The Quebec National Electricity Syndicate proceeded with the construction of its plant on the Upper Ottawa River to augment the power supply of the mining fields of northwestern Quebec.

Central Electric Stations

Over 87 p.c. of all water power developed in Canada is developed by central electric stations and, although there are a large number of stations (279) which derive their power entirely from fuels and 38 hydraulic stations which also have thermal auxiliary equipment, 98 p.c. of all electricity generated for sale is produced by water power.

The production of electricity by central electric stations amounted to 5,500,000,000 kilowatt hours in 1919, the first year for which such data are available. Six years later it was almost doubled, by 1928 it had more than trebled and by 1930 it amounted to 18,000,000,000 kilowatt hours. With continued depression in manufacturing industries the output started to decline late in 1930 and continued into 1933, but from June, 1933, to the end of 1937 there has been an almost continuous succession of increases each month after adjusting for normal seasonal variations. A slump in 1938 in the pulp and paper industry, which takes around 40 p.c. of the total power generated, caused a reduction in the output. The output for October, 1939, at 2,589,956,000 kilowatt hours, was the largest in the history of the industry; an estimate for the present year is 28,350,000,000 kilowatt hours, as compared with the output of 26,013,000,000 kilowatt hours shown for 1938. Only one other country (Norway) has a greater output per capita and only three other countries have greater total outputs irrespective of size. One reason for this large use of electricity produced by central stations is the absence of coal in the central provinces

and the large quantities of water power available within transmitting distances of the principal manufacturing centres. The pulp and paper industry has been an important factor in the rapid increase, using around 40 p.c. of the total output. Low rates and reliable service have increased the domestic use for lighting, cooking, water heating and other household uses; the average per capita consumption has risen to 1,338 kilowatt hours per annum, about twice that in the United States where living standards are very similar. Secondary power used in electric boilers, mainly in pulp and paper mills, has increased from a very small quantity in 1924 to over 7,000,000,000 kilowatt hours in 1937, but the consumption of firm power, or total output less secondary power for electric boilers and exports to the United States, has continued to increase and reached a peak for the month of October, 1939, of 1,804,048,000 kilowatt hours; the index, after adjustment for seasonal variation, rose to 217 for September.



Transformers are Essential Links in the Distribution of Electric Power.—The above views are of a Canadian electrical equipment plant; the upper one shows sheets of insulated silicon steel being cut into laminations for transformer cores. Below, the core legs are being built up for power transformers (over 200 kva.). These legs are later assembled by yoking them together into units so that two or more core legs make a complete magnetic circuit. At lower right, a huge 1,250 kva. transformer is shown ready for delivery to the purchaser.

Courtesy, Ferranti Electric Limited, Toronto

The rated capacity of electric motors in manufacturing industries in Canada in 1937 was 79.2 p.c. of the total capacity of all power equipment in these industries, the increase from 61.3 p.c. in 1923 being almost continuous. In the mining industries this conversion to electric drive has been even greater, growing from 57.3 p.c. in 1923 to 79.7 p.c. in 1937. In 1937 almost 84 p.c. of these electric motors in manufacturing industries

and 85 p.c. in mining industries were driven by power produced in central stations.

Mechanical power, particularly electric motors, has been increasing in manufacturing industries much more rapidly than the number of employees during the past decade. From 1923 to 1937 power equipment, measured in horse-power, increased by 119.5 p.c., whereas the number of employees increased by only 30.5 p.c. Of course, employees decreased from 1929 to 1933, while power equipment continued to increase. At the peak of employment in 1929 the increases over 1923 were 80.2 p.c. for power equipment and 31.9 for employees. These percentage increases are affected by the relative status of each class of power at the beginning of the period and also by the more or less general practice of installing a surplus of motor capacity in plants where each machine has its own motor. One horse-power is equivalent approximately to the capacity of ten men. Consequently in 1923 for each employee there was power equipment with a capacity of 42 men, by 1929 this had grown to a capacity of 57 men, and by 1937 to 71 men. The load factor, or extent to which the available power equipment and man power were used, is not known, but quite probably the ratio between use and available capacity was changed very little for these years.

Electricity, principally hydro-electric energy, is also displacing coal and oil to heat furnaces, ovens and boilers, and is doing enormous quantities of work in electrolytic refining of metals, production of fertilizers, metal plating and so forth.

Investments in central electric stations for 1937 amounted to \$1,497,330,231, which was larger than for any manufacturing industry; revenues amounted to \$143,546,643 and 1,500,128 domestic customers were served. These are approximately 60 p.c. of all families in Canada, both urban and rural.

Average Monthly Output, Central Electric Stations in Canada, 1926-39

Year	From Water	From Fuel	Total	Year	From Water	From Fuel	Total
	'000 kwh.	'000 kwh.	'000 kwh.		'000 kwh.	'000 kwh.	'000 kwh.
1926.....	991,041	16,746	1,007,787	1933.....	1,436,486	26,150	1,462,636
1927.....	1,193,481	18,944	1,212,425	1934.....	1,733,810	29,484	1,763,294
1928.....	1,340,292	21,192	1,361,484	1935.....	1,917,958	32,410	1,950,368
1929.....	1,441,203	27,622	1,468,825	1936.....	2,078,739	37,452	2,116,191
1930.....	1,463,330	25,230	1,488,560	1937.....	2,256,779	41,882	2,298,661
1931.....	1,339,907	26,071	1,365,978	1938.....	2,130,006	37,728	2,167,734
1932.....	1,296,460	25,845	1,322,305	1939 ¹	2,282,196	39,178	2,321,374

¹Ten-month average.

The above figures are interesting as showing the consistent progress of the industry from 1926 to 1930 and, after a two-year interval, its continued progress. Even in the worst of the depression years (1932) the drop in output was only a little over 11 p.c. of the maximum, and, from June, 1933, onward there has been very rapid and fairly continuous increase. The index number adjusted for seasonal variations reached an all-time high point for any month at 239.83 in June, 1937 (1926 = 100), and was 238.77 in June, 1939.

approved lending institutions, the security in the form of a first mortgage running jointly to the approved lending institution and to the Government. Loans may be for an amount not exceeding 80 p.c. of the lending value of the property, or 90 p.c. where lending value is \$2,500 or less and the house is being built for an owner-occupant. The other 20 p.c. or 10 p.c., respectively, is to be provided by the borrower. Provision is also made for loans ranging between 70 p.c. and 80 p.c. when the lending value exceeds \$2,500, and for loans ranging between 50 p.c. and 90 p.c. when the lending value does not exceed \$2,500. In order to encourage the extension of the Act to the smaller and more remote communities, the Minister is authorized to guarantee approved lending institutions against loss up to an amount not in excess of 25 p.c. of the total amount of loans made by each such lending institution. The interest rate paid by the borrower on all loans made under Part I is 5 p.c. This is made possible by the fact that the Government advances one-quarter of the total mortgage money on an interest basis of 3 p.c. Loans are made for a period of 10 years subject to renewal for a further period. Interest, principal, and taxes are payable in monthly instalments. Amortization of principal is effected at a rate sufficient to pay off the entire loan in 20 years, but more rapid amortization may be arranged.

Part II of the Act is designed to assist local housing authorities (including limited-dividend housing corporations) to provide decent, safe, and sanitary housing to be rented only to families of low income who cannot afford the 'economic rental'. The Dominion Government is authorized to make first mortgage loans to local housing authorities up to a maximum amount of \$30,000,000, but loans to any one municipality must not exceed the proportion of \$30,000,000 which the population of the municipality bears to the total urban population of Canada based on the 1931 Census. Loans of 80 p.c. of the cost of construction, but not exceeding \$2,400 per family unit, may be made to limited-dividend housing corporations organizing low-rental housing projects, and dividends on the shares of which are limited to 5 p.c. annually. Loans of 90 p.c. of the cost of construction, and not exceeding \$2,700 per family unit, may be made to other local housing authorities. Interest is at $1\frac{1}{2}$ p.c. in the case of limited-dividend corporations, and 2 p.c. for other local housing authorities. Payments are made half-yearly so as to amortize the loan in approximately 35 years. Local taxes in excess of 1 p.c. of the cost of construction must not be levied. For loans made to local housing authorities other than limited-dividend housing corporations, the interest and principal must be guaranteed by the province.

Part III authorizes the Minister of Finance to pay the increase in municipal taxes (excluding special taxes and local improvement taxes) levied on a house costing \$4,000 or less, the construction of which begins between June 1, 1938, and December 31, 1940, as follows: 100 p.c. of such taxes for the first tax year; 50 p.c. for the second; and 25 p.c. for the third. The chief conditions to be complied with are: (1) The municipality in which the house is erected, if it owns lots suitable for residential purposes, must make a satisfactory offer to sell a reasonable number of such lots at not more than \$50 per lot, or at not more than the lowest price at which the municipality has power to sell such lots, to persons who agree to begin the construction of houses for their own occupation within one

CHAPTER X

CONSTRUCTION

Construction has received considerable stimulus in the past two or three years from the Dominion Housing Act, 1935, the National Housing Act, 1938, the Home Improvement Loans Guarantee Act, 1937, and the Municipal Improvements Assistance Act, 1938. All these Acts are administered by the Dominion Department of Finance.



The Laying of the Corner-Stone of the Supreme Court Building by Her Majesty during the Royal Visit to Ottawa. His Majesty and Prime Minister Mackenzie King look on with interest.

Courtesy, Canadian Government Motion Picture Bureau.

National Housing Act, 1938.—This legislation has a twofold purpose: (1) to assist in the improvement of housing conditions; and (2) to assist in absorption of the unemployed by stimulation of the construction and building material industries. The Act has three Parts.

Part I re-enacts the main features of the Dominion Housing Act, 1935, with important amendments designed to encourage the construction of low-cost houses and the extension of lending facilities to the smaller and more remote communities. The Minister of Finance is empowered to make advances up to \$20,000,000, less advances already made and administrative expenses already incurred under the Dominion Housing Act, which amounted to approximately \$5,500,000. The Act provides for loans for the construction of new dwellings, including single-family houses, duplexes, and apartment houses, but not including buildings used for both dwelling and commercial purposes. All loans are made through

year from the respective dates of purchase. Any new house complying with the other general conditions is eligible for tax assistance, and not only such houses as may be built on lots sold by the municipality. (2) The cost of construction of the house including land, building, architectural and legal expenses, must not exceed \$4,000. (3) The house must be built for a person for his own occupation.

Loans Made Under the Dominion Housing Act and the National Housing Act to Sept. 30, 1939

Province	Loans	Family Units Provided	Amount	Province	Loans	Family Units Provided	Amount
	No.	No.	\$		No.	No.	\$
P.E.I.....	16	16	87,434	Man.....	396	543	2,082,613
N.S.....	533	549	2,285,900	Sask.....	35	106	254,742
N.B.....	152	175	698,597	Alta.....	—	—	—
Que.....	1,242	2,634	10,636,105	B.C.....	1,666	1,881	5,983,875
Ont.....	4,136	6,203	21,773,802	Totals.....	8,176	12,107	43,862,868

The Home Improvement Loans Guarantee Act, 1937.—This Act provides for a limited guarantee to chartered banks and certain other approved lending institutions in respect of loans made to owners of residential property to finance repairs, alterations, and additions to urban and rural dwellings (including farm buildings). The lending institutions are guaranteed against loss to the extent of 15 p.c. of the aggregate of such loans made by them, but the total amount guaranteed is \$50,000,000 and the maximum liability of the Government is therefore \$7,500,000. No loan shall exceed \$2,000 on any single property except in the case of a multiple-family dwelling when the loan shall not exceed \$1,000 plus \$1,000 for each family unit provided. Loans of \$1,000 or less are made for a term not exceeding 3 years and loans in excess of \$1,000 for a term not exceeding 5 years; they are repayable in convenient instalments. The maximum charge for loans is 3½ p.c. discount for a one-year loan repayable in equal monthly instalments, and proportionately for other periods.

Loans Made Under the Government Home Improvement Plan to Aug. 31, 1939

Province	Loans	Amount	Province	Loans	Amount
	No.	\$		No.	\$
Prince Edward Island.....	840	205,826	Manitoba.....	5,369	2,085,498
Nova Scotia.....	6,306	1,905,219	Saskatchewan.....	1,621	578,338
New Brunswick.....	3,244	1,067,449	Alberta.....	6,409	2,757,295
Quebec.....	13,396	6,771,870	British Columbia.....	8,521	2,683,428
Ontario.....	40,327	16,789,451	Totals.....	86,033	34,844,374

The Municipal Improvements Assistance Act, 1938.—The sum of \$30,000,000 is available under this legislation for the purpose of creating employment on productive undertakings by providing funds to municipalities at a low interest rate to assist in constructing or making extensions or improvements to, or renewals of, self-liquidating projects for which there is urgent need and which will assist in the relief of



A Quagmire being
Converted into a Modern
Motor Speedway.



Left centre.—Clay, Salt and
Gravel being dropped into
a Mixer to make the Salt-
stabilized Base.



The Finished Road Base.



A Paver Capable of Laying a
Mile of Asphalt Surface per
Day on the Finished Base.

*Courtesy, Canadian
Industries Limited*

unemployment. A municipality may apply for loans up to an amount equal to \$2·89 per head of its population. There is a further provision under which a loan not exceeding \$200,000 may be made available to any municipality however small. All loans bear interest at the rate of 2 p.c. per annum, payable semi-annually, and are to be amortized by semi-annual payments sufficient to pay off the entire loan during a period not exceeding the useful life of the project. As security for such loan the municipality must deliver its debentures or other securities, equal in principal amount to the loan, and may also be required to give a first mortgage, hypothec, or other charge on the project.

Each project and application for loan must be approved, and the loan itself, both in respect of interest and principal, must be guaranteed by the government of the province concerned.

Loans Approved Under the Municipal Improvements Assistance Act, 1938, to Oct. 12, 1939

Province	Loans	Amount	Province	Loans	Amount
	No.	\$		No.	\$
Prince Edward Island	1	7,000	Saskatchewan	24	865,400
Nova Scotia	4	118,862	Alberta	23	905,520
New Brunswick	6	452,514	British Columbia	20	2,038,935
Manitoba	3	175,988	Totals	81	4,564,219

Railways.—The expenditures of railways on maintenance of way, and structures and equipment are not included in the census figures of the construction industries given below and are therefore summarized here. For steam railways expenditures for these purposes in 1938 amounted to \$124,450,528 as against \$131,475,672 in 1937 and \$194,000,000 in 1929. For electric railways the total for 1938 was \$5,916,564 as against \$5,838,116 in 1937 and \$9,000,000 in 1929. Expenditures on new line of steam railways were \$2,065,146 in 1938 compared with \$3,052,644 in 1937, whereas in the years 1928-31 they averaged \$30,000,000 per year.

Annual Census of the Construction Industries.—A census of construction was first made by the Dominion Bureau of Statistics for 1934 but the basis of compilation was not standardized until 1935 so that, with the compilation of the 1936 figures, data are now available on a comparable basis for the years shown in the following table. It should be pointed out that no relationship exists between these figures and those of values of contracts awarded as shown at the foot of p. 104. In the latter case all values are included since awards are made irrespective of whether the contract is completed or even begun in that year, whereas the industrial statistics show only the work performed in the years specified.

Of the 1937 total value of work performed, 70 p.c. was represented by entirely new construction as compared with 66 p.c. for the previous year. The remainder was for alterations, repairs, maintenance, etc. With regard to type of construction, engineering contracts (such as for streets, highways, harbour and river work, etc.) accounted for 49·2 p.c. as compared with 46·4 p.c. in 1936. Buildings accounted for 37·1 p.c. compared with 38·8 p.c. in 1936.

Statistics of the Construction Industry, 1937, with Totals for 1936

Province or Group	Capital Invested	Persons Employed	Salaries and Wages Paid	Cost of Materials Used	Value of Work Performed
	\$	No.	\$	\$	\$
Totals, 1936	164,322,376	142,316	112,846,384	122,189,238	258,040,400
Province, 1937					
Prince Edward Island	178,289	382	314,202	378,393	754,448
Nova Scotia	7,388,699	11,409	8,509,950	8,185,301	20,180,404
New Brunswick	7,602,583	7,136	6,246,052	7,946,649	17,557,146
Quebec	53,622,840	46,968	49,173,637	49,096,729	101,460,731
Ontario	78,805,856	57,859	59,868,331	76,849,906	148,352,327
Manitoba	6,374,592	5,249	5,337,698	6,720,247	12,475,326
Saskatchewan	3,699,968	5,660	3,405,373	3,462,655	8,436,495
Alberta	4,900,479	4,735	4,970,730	5,153,609	11,199,894
British Columbia and Yukon	14,339,907	12,254	12,811,418	17,150,946	31,458,343
Totals, 1937	176,971,223	151,652	150,637,291	175,844,435	351,874,114
Group, 1937					
Contractors, builders, etc.	143,347,454	96,865	107,456,466	151,804,667	278,209,051
Municipalities	16,388,378	15,428	12,980,647	5,965,292	20,128,323
Harbour Commissions	1,407,662	804	921,671	311,451	1,616,949
Provincial Govt. Depts.	10,233,292	34,430	25,247,393	15,472,069	45,435,326
Dominion Govt. Depts.	5,594,437	4,125	4,031,214	2,290,956	6,484,465

Volume of Construction, 1939.—The recovery in construction, on the whole, has not paralleled that indicated in many other industries, although substantial improvement has been reported recently. According to the records of the construction contracts awarded, as maintained by MacLean Building Reports, Limited, the value of such contracts rose from \$162,588,000 in 1936 to \$224,056,700 in 1937, but dropped to \$187,277,900 in 1938. The total for the first ten months of 1939 was \$165,010,000 or \$3,437,300 higher than in the same months of 1938.

Construction Contracts Awarded in Canada, Jan. 1 to Oct. 31, 1938 and 1939

(MacLean Building Reports, Limited.)

Type of Construction	1938		1939	
	No.	Value	No.	Value
		\$		\$
Apartments	205	6,962,400	346	8,870,800
Residences	15,608	29,586,200	18,668	49,456,300
Totals, Residential	15,813	46,548,600	19,014	58,327,100
Churches	332	4,081,600	299	4,466,500
Public garages	716	2,692,000	658	2,977,600
Hospitals	107	5,931,100	119	7,181,600
Hotels and clubs	356	2,517,600	293	2,654,300
Office buildings	428	4,382,700	347	4,249,900
Public buildings	495	11,946,100	403	8,550,200
Schools	495	9,715,200	303	7,176,300
Stores	1,808	9,226,900	1,833	6,401,100
Theatres	82	1,420,500	73	1,234,400
Warehouses	506	3,797,200	437	4,273,300
Totals, Business	5,385	55,710,900	4,765	49,166,200
Totals, Industrial	696	13,898,200	758	19,066,700
Bridges	172	3,850,700	185	3,018,800
Dams and wharves	114	3,478,500	216	7,303,100
Sewers and watermains	159	2,870,900	279	3,115,300
Roads and streets	551	15,727,000	609	22,309,600
General engineering	492	19,487,900	70	2,704,200
Totals, Engineering	1,488	45,415,000	1,359	38,461,000
Grand Totals	23,322	161,572,700	25,896	165,810,000

The Dominion Bureau of Statistics collects monthly statistics showing the anticipated cost of the building represented by the permits taken out in 58 cities, the record going back to 1920. The value of the construction work authorized in these cities was estimated at \$60,817,332 in 1938, as compared with \$55,844,999 in 1937; as a matter of fact, the 1938 total exceeded that for any other year since 1931, but, throughout this period, the construction industries have generally operated at a low level. During the first ten months of 1939, the value of the buildings for which permits were granted was \$49,539,913. This was about 6 p.c. lower than the figure for the months January to October, 1938, but it exceeded the total for the first ten months in any other year since 1931. It is interesting to note that the value of the authorizations issued during the first nine months of 1939 was higher than in the same period of 1938, but the unusually large aggregate reported in October, 1938, brought about a reversal of this favourable comparison.

In the table following are given the data for the 58 cities in the period January to October, 1938 and 1939; these monthly figures are unrevised.

Building Permits, by Cities, Ten Months, 1938 and 1939

City	1938	1939	City	1938	1939
	\$	\$		\$	\$
Charlottetown, P.E.I.	89,210	129,488	St. Thomas, Ont.	136,306	145,231
Halifax, N.S.	1,026,187	1,032,402	Sarnia, Ont.	167,078	194,213
New Glasgow, N.S.	65,370	51,283	Sault Ste. Marie, Ont.	275,430	486,557
Sydney, N.S.	468,834	342,403	Toronto, Ont.	6,447,102	6,638,569
Fredericton, N.B.	91,200	104,570	York and East York Townships, Ont.	1,290,800	1,659,557
Moncton, N.B.	254,282	432,770	Welland, Ont.	131,274	189,709
Saint John, N.B.	217,313	425,800	Windsor, Ont.	931,626	721,026
Montreal-Maisonneuve, Que.	8,178,782	7,719,569	Riverside, Ont.	78,500	114,800
Quebec, Que.	1,649,856	2,315,189	Woodstock, Ont.	109,531	312,403
Shawinigan Falls, Que.	245,155	396,375	Brandon, Man.	49,525	74,540
Sherbrooke, Que.	599,958	1,009,150	St. Boniface, Man.	923,765	286,796
Three Rivers, Que.	707,840	957,915	Winnipeg, Man.	1,728,300	2,341,650
Westmount, Que.	453,244	364,913	Moose Jaw, Sask.	46,907	58,059
Belleville, Ont.	108,440	245,146	Regina, Sask.	421,905	563,173
Brantford, Ont.	233,115	207,248	Saskatoon, Sask.	445,840	206,029
Chatham, Ont.	345,271	435,103	Calgary, Alta.	865,896	960,557
Port William, Ont.	517,840	477,236	Edmonton, Alta.	2,749,770	1,526,025
Galt, Ont.	234,392	238,005	Lethbridge, Alta.	193,927	406,809
Guelph, Ont.	115,556	169,049	Medicine Hat, Alta.	6,510	7,190
Hamilton, Ont.	1,894,092	1,950,405	Kamloops, B.C.	61,862	89,758
Kingston, Ont.	355,521	356,727	Nanaimo, B.C.	101,235	71,143
Kitchener, Ont.	544,165	545,090	New Westminster, B.C.	654,607	751,730
London, Ont.	584,645	1,603,385	Prince Rupert, B.C.	270,734	74,815
Niagara Falls, Ont.	307,634	167,383	Vancouver, B.C.	7,735,440	5,767,281
Oshawa, Ont.	71,230	216,610	North Vancouver, B.C.	90,955	95,869
Ottawa, Ont.	5,006,909	1,799,706	Victoria, B.C.	687,395	608,297
Owen Sound, Ont.	173,876	101,940			
Peterborough, Ont.	375,629	449,237			
Port Arthur, Ont.	733,203	390,516			
Stratford, Ont.	74,437	71,095			
St. Catharines, Ont.	325,310	485,249			
			Totals—58 Cities	52,696,759	49,539,913

The population of these 58 centres constituted about 36 p.c. of the total population of the Dominion as enumerated in the Census of 1931; during the year 1938, their building authorizations amounted to 32.5 p.c. of the total value of the construction contracts awarded throughout Canada. This ratio was rather lower than the average proportion in the years 1920-38 which was 39.4 p.c. In the first ten months of 1939, the proportion was lower than that of 1938, standing at 30 p.c.

Employment in the construction industries, according to statistics from some 1,250 contractors with 125,058 employees, showed rather less fluctuation in 1939 than in the 1938 period, and the index number was ten points higher, averaging 114.7 p.c. of the 1926 average, as compared with 104.7 in the period Jan. 1 to Nov. 1, 1938. Construction in the cities is to a considerable extent limited to work classified in the building division, in which the index of employment averaged 61.0 in the same period of 1939, as compared with 59.2 in the period Jan. 1 to Nov. 1, 1938.



Sectional Granite Pillars Quarried in Quebec and Ready for Shipment.

The wholesale prices of building materials during 1939 were practically the same as in 1938; while they were lower than in the first ten months of 1937 they were higher than in the same period of any preceding year since 1930. Based on the 1926 average as 100, the index of wholesale prices for these commodities averaged 88.9 in the period January to October, 1939, as compared with 89.4 in the first ten months of 1938 and 95.0 in the same period of 1937. The preliminary index of wage rates, as prepared in the Department of Labour, stood at 170.1 p.c. of the 1913 average as compared with 169.4 in 1938.

CHAPTER XI

LABOUR—UNEMPLOYMENT RELIEF— OLD AGE PENSIONS

Dominion Department of Labour.—The steady growth of industry and labour organization in Canada has been accompanied on an increasing scale by governmental consideration of labour problems. The Dominion Department of Labour was established in 1900. Its duties are to aid in the prevention and settlement of labour disputes, to collect and disseminate information relative to labour conditions, to administer the Government's fair wages policy in regard to wages and hours of labour on government contracts, and to deal with problems involving the interests of workers.



Sewing Room in a Canadian Plant where Rubber Shoes are Manufactured.
Courtesy, Dominion Rubber Company Limited, Kitchener, Ont.

Under the first-mentioned of these functions, the Industrial Disputes Investigation Act, enacted in 1907 to promote the settlement of disputes in mines and certain public utility industries, has attracted favourable comment throughout the world. Up to Mar. 31, 1939, 579 threatened disputes had been referred to Boards of Conciliation and Investigation established under its provisions and open breaks had been averted in all but 39 cases. Under a separate statute, entitled the Conciliation and Labour Act, conciliation officers are available to assist in the settlement of labour disputes arising from time to time, and their services have been widely utilized to this end.

The administration of the fair wages policy in regard to government building and construction works is carried out under an Act of Parliament entitled the Fair Wages and Hours of Labour Act, 1935, and in regard to Government contracts for various classes of supplies and equipment,

under the provisions of an Order in Council. The monthly *Labour Gazette* has, since 1900, provided a comprehensive survey of labour conditions in Canada, and is supplemented by various special publications dealing with wages and hours of work, labour organizations, labour laws, etc. The Department also administers the Employment Offices Co-ordination Act, the Technical Education Act, the Government Annuities Act, the Combines Investigation Act, the Dominion relief legislation, and the Youth Training Act, and is charged with the duties arising from relations of Canada with the International Labour Organization of the League of Nations.

Provincial Departments of Labour.—Labour legislation in Canada is, for the most part, a matter for the provincial legislatures. In all provinces except Alberta and Prince Edward Island there is a special department or bureau charged with the administration of labour laws. There is little labour legislation in Prince Edward Island, and in Alberta the Department of Trade and Industry administers most of the labour legislation, the Board of Industrial Relations having charge of statutes regulating wages and hours. Legislation for the protection of miners is administered in each province by the department dealing with mines. Minimum-wage legislation for both male and female workers in every province except Nova Scotia and Prince Edward Island is administered by a special board which, in most cases, forms part of the Labour Department. Workmen's compensation laws in all provinces except Prince Edward Island are administered by special boards. In the four western provinces the Workmen's Compensation Boards are independent bodies; in Nova Scotia, Ontario, and Quebec they are under the direction of the Minister of Labour, and in New Brunswick under the Provincial Secretary.

Gainfully Occupied and Wage-Earners

Gainfully Occupied.—Statistics of the gainfully occupied by sex and age are obtained at each decennial census, but for intercensal years estimates are made by applying the percentage of gainfully occupied in the population, as in 1931, to the intercensal estimates of population.

Estimated Numbers and Percentages of the Population Normally Gainfully Occupied in each Age Group, 1939

Age Group	Male		Female	
	No.	P.C.	No.	P.C.
	'000		'000	
10-13.....	5	1.11	1	0.13
14.....	13	11.18	2	1.92
15.....	30	26.56	7	6.00
16-17.....	125	55.12	47	20.72
18-19.....	179	80.33	89	49.39
20-24.....	478	92.64	214	42.36
25-34.....	990	97.73	193	21.73
35-44.....	716	97.82	87	12.98
45-54.....	639	96.61	66	11.54
55-64.....	442	90.77	44	10.69
65-69.....	110	75.48	11	8.61
70 or over.....	94	42.00	10	4.59
Totals, 10 Years or Over¹.....	3,731	76.69	771	17.04

¹ Persons of unstated age are omitted.

Experience has shown that this percentage does not vary much from census to census (especially in the total of gainfully employed, although the numbers at various ages, particularly in the lower age groups, need some adjustment). The table on p. 108 gives estimates of the numbers that, on the above basis, would be normally gainfully occupied in 1939.

Wage-Earners.—The number of wage-earners is less than the total gainfully occupied because the latter includes large numbers working on their own account such as farmers, doctors, etc., who are not wage-earners. Again, the number of wage-earners employed at any time depends on industrial activity. Correlation has been made of wage-earners actually employed in June, 1931 (as collected by the Employment Statistics Branch of the Dominion Bureau of Statistics) with the distribution of total wage-earners enumerated in the Census as at work on June 1, 1931. This shows that the employment statistics collected monthly by the Bureau of Statistics from employers having 15 or more persons on their staffs are broadly representative and can therefore be used to estimate reliably the total number of wage-earners employed during intercensal years. On this basis, the estimate of wage-earners employed in the twelve-month period September, 1938, to August, 1939, averaged 2,305,000, which represents 84.7 p.c. of the total wage-earners.

Estimated Numbers of Wage-Earners actually Employed

Month and Year	Wage-Earners Employed	Per Cent Employed ¹	Month and Year	Wage-Earners Employed	Per Cent Employed ¹
	'000			'000	
Sept. 1937.....	2,587	92.0	Sept. 1938.....	2,402	87.4
Oct. 1937.....	2,577	91.4	Oct. 1938.....	2,359	86.2
Nov. 1937.....	2,504	89.6	Nov. 1938.....	2,346	85.5
Dec. 1937.....	2,377	86.2	Dec. 1938.....	2,225	82.5
Jan. 1938.....	2,300	85.1	Jan. 1939.....	2,193	81.9
Feb. 1938.....	2,225	83.6	Feb. 1939.....	2,193	81.7
Mar. 1938.....	2,163	82.6	Mar. 1939.....	2,161	81.4
Apr. 1938.....	2,212	83.5	Apr. 1939.....	2,186	82.2
May 1938.....	2,304	85.2	May 1939.....	2,329	85.6
June 1938.....	2,338	85.8	June 1939.....	2,385	86.6
July 1938.....	2,368	85.0	July 1939.....	2,419	87.3
Aug. 1938.....	2,378	86.6	Aug. 1939.....	2,461	88.1
Averages	2,356	86.4	Averages	2,385	84.7

¹ Estimated on the basis of the number of normally gainfully occupied, the proportions employed among labour unions, and the bearing of these factors on general employment among wage-earners in the past.

Organized Labour in Canada

Until the middle of the nineteenth century only a small number of independent trade unions, for the most part consisting of workmen of a single craft in one locality, had been formed in Canada. From 1850 to 1870 unionism was greatly stimulated by the marked progress of the trade-union movement in Great Britain and in the United States of America. The Dominion's basic trade-union legislation, passed in 1872, was patterned closely after the British statutes of the previous year. At the same time the United States was furnishing Canada with the model for the actual machinery of labour organization, and in this period most of the existing

Canadian local unions affiliated with the American central organizations of their respective crafts. The Trades and Labour Congress of Canada, has been functioning continuously for over half a century as the recognized head and legislative mouthpiece of the internationally organized Canadian workers.

Beginning in 1901 a number of 'national' unions, later known as National Catholic Unions, were organized in the Province of Quebec, and in 1921 a central organization of these unions, known as the Confederation of Catholic Workers of Canada, was established. The Canadian Federation of Labour, formed in 1902, continued as a separate entity for a quarter of a century and then merged with the All-Canadian Congress of Labour, which was established in 1927. In 1936 there was formed a new organization known as the Canadian Federation of Labour.

The total number of organized workers in Canada at the end of 1938 was 385,039, as compared with 384,619 in 1937. International unions had 2,086 branches in the Dominion, with a combined membership of 230,547. Unions operating only in Canada had 1,232 locals, with a combined membership of 154,492.

Industrial Disputes

During the ten months (January to October, inclusive) of 1939 there were 114 strikes and lockouts, which involved 42,771 workers and caused a loss of 188,250 man working days. During the twelve months of 1938 there were 147 disputes, involving 20,395 workers and causing a time loss of 148,678 working days, and, in 1937, 278 disputes, involving 71,905 workers and causing a time loss of 886,393 working days. The minimum loss in working days since the record was commenced in 1901 was in 1930, when 91,797 working days were lost in 67 disputes, involving 13,768 workers. The maximum loss was in 1919, when 336 disputes involved 148,915 workers and caused a time loss of 3,400,942 working days.

Dominion Unemployment Assistance Measures, 1939.

THE YOUTH TRAINING PROGRAM

The Youth Training Act, 1939.—The Dominion-Provincial Youth Training Program was placed on a more permanent footing with the passing by Parliament at its last session of an Act continuing it for three years. The Act, which is entitled the Youth Training Act, 1939, provides an aggregate sum of \$4,500,000 "for the purpose of promoting and assisting in the training of unemployed young people to fit them for gainful employment in Canada". Under the legislation \$1,500,000 will be made available in each of the fiscal years ending Mar. 31, 1940, Mar. 31, 1941, and Mar. 31, 1942.

During the fiscal year ended Mar. 31, 1939 (the second year of the program's operation), an appreciable increase was recorded in the number of young people given training. The grand total in all courses that year was 71,812, as compared with 55,457 in the program's first year. Of the 71,812, 15,878 were trained in projects designed to prepare them for wage-earning employment, while 31,676 took agricultural and rural courses and 24,258 took physical-training courses.

Not only has there been an increase in the number of trainees but expansion in certain of the projects has occurred. Physical-training projects, confined to two provinces during the first year of the program, are now being carried on in five, viz., British Columbia, Alberta, Saskatchewan, Manitoba, and New Brunswick. In five of the provinces courses in air mechanics are actually operating or will shortly open. Training of wireless operators has been carried on in certain of the provinces.

Early in 1939 forestry training became one of the most important projects for reconditioning young men. The sum of \$1,000,000 was provided by parliament to be used for a National Forestry Program during the fiscal year ending Mar. 31, 1940. Of this amount \$600,000 was utilized in forestry projects under the Dominion-Provincial Youth Training Program, the provinces meeting Dominion expenditures on a dollar-for-dollar basis. The remaining \$400,000 was devoted to forestry-training projects in Dominion Forest Experiment Stations and National Parks.

Young men, between the ages of 18 and 25 years, were given instruction in the various branches of forestry work under qualified foresters. They were housed in camps and paid a daily wage. The forestry corps has proven its value during the first year of extended operation both in development and training of Canadian youth and in the preservation of one of Canada's greatest natural resources.

THE UNEMPLOYMENT AND AGRICULTURAL ASSISTANCE ACT, 1939

Material Aid.—Under the provisions of the Unemployment and Agricultural Assistance Act, 1939, the administration of which is vested in the Minister of Labour, the Dominion is continuing to assist all of the provinces in discharging their responsibilities in connection with the granting of material aid to necessitous persons. Agreements have been entered into with all the provinces providing for a Dominion contribution towards the cost of material aid (which is defined by the agreements as meaning either food, fuel, clothing, and shelter, or cash in lieu thereof) on a dollar-for-dollar basis with the provinces up to a maximum Dominion contribution of 40 p.c. Generally speaking, this means a division of the cost between the three participating governments of 40 p.c. by the Dominion, 40 p.c. by the province, and 20 p.c. by the municipality. The agreements further provide that the Dominion will pay 50 p.c. of expenditures incurred for material aid supplied to individuals within a province who are in necessitous circumstances and have not established provincial residence therein, and will also pay 50 p.c. of the expenditures incurred for the provision of material aid to individuals in necessitous circumstances with provincial residence in a province but currently resident within another province, it being provided that the province shall in each instance also contribute 50 p.c.

Under the terms of the agreements the provinces are required to maintain certain residence regulations, and it is further provided in the agreements that the province shall set an amount as the monthly maximum for material aid to be issued to any one family, which maximum shall be based on the estimated earnings of a man following the occupation of an unskilled labourer within the province. Certain exceptional cases are provided for.

Municipal Improvement Projects.—Provision is made in the agreements with all provinces except Ontario, for a Dominion contribution of 50 p.c. of the direct labour costs incurred in the carrying out of approved municipal improvement projects during the fiscal year 1939-40 up to a maximum amount provided in each of the agreements. It is provided that each province shall, as a condition precedent to Dominion contribution, submit a schedule setting forth a description of each project, the estimated total cost, the estimated direct labour cost, and the condition of unemployment then existent in the municipality concerned. The municipality and province must certify that each project is being undertaken primarily to relieve unemployment. The province is required also to contribute 50 p.c. of the direct labour costs, the municipalities absorbing the costs of material and supervision. Schedules are required to be approved by the Minister of Labour before projects may be undertaken.

Provision is made that the Dominion contribution shall apply only to wages paid to unemployed persons in necessitous circumstances, and that said persons shall, as a condition precedent to their employment on authorized municipal improvement projects, be properly certified as unemployed and in necessitous circumstances.

It is the duty of the provinces to see that all persons employed on municipal improvement projects carried out under the terms of the agreements are paid fair wages. In general, the maximum number of hours per day to be worked by any individual is restricted to eight. In no instance shall any employee work in excess of an average of forty-eight hours per week over a period of three consecutive calendar weeks.

Rehabilitation of Unemployed Higher-Age Individuals.—Parliament provided funds for the fiscal year 1939-40 for the purpose of restoring the skill, physique, and morale of that group of middle-aged workers who, because of the depression and continued unemployment, find themselves unable to compete in the labour market. The Dominion contributes 50 p.c. of the cost to the province of such rehabilitation plans. Agreements are in effect under the Unemployment and Agricultural Assistance Act, 1939, with the Provinces of Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia. The provinces have initiated such schemes as rustic furniture manufacturing, basket-making, hard-rock mining, forestry and road-making, and a farm chore plan. The Province of Quebec is studying the possibilities of the plan and, it is expected, will submit proposals to the Dominion Government.

Farm Placements.—The agreements entered into with the Provinces of Manitoba, Saskatchewan, Alberta, and British Columbia, under the Unemployment and Agricultural Assistance Act, 1938, respecting the placement on farms of unemployed persons who would otherwise be in receipt of aid, expired on Mar. 31, 1939. Under the provisions of the Unemployment and Agricultural Assistance Act, 1939, these agreements were, at the request of the provinces, extended to Apr. 30, 1939. At Sept. 15, 1939, agreements with the four western provinces were in course of negotiation providing for the operation of the Farm Employment Plan during the fall and winter months on a similar basis to the plan in effect in 1938-39. Under the 1938 agreements 31,314 persons were placed under the plan as follows: Manitoba, 9,079; Saskatchewan, 17,038; Alberta, 4,820; and British Columbia, 377. Of the total, 10,178 remained on the farm

after the discontinuance of the plan, viz.: Manitoba, 4,500; Saskatchewan, 4,714; Alberta, 900; and British Columbia, 64.

Supplementary Plan.—In order to meet special conditions prevailing in the Province of British Columbia an agreement entered into under the provisions of the Unemployment and Agricultural Assistance Act, 1938, was extended for the period Apr. 1, 1939, to Mar. 31, 1940, by which it was provided that the Dominion would contribute 50 p.c. up to a maximum Dominion contribution of \$250,000 of the cost of certain forestry and road work to provide employment for single, homeless, unemployed individuals. During the summer of 1939, 1,000 men were given employment on these projects.

An agreement entered into with the Province of New Brunswick under the Unemployment Relief and Assistance Act, 1936, was revived under the Unemployment and Agricultural Assistance Act, 1939. Provision is made for the carrying on of a forestry project. This agreement, designed to provide employment for single, homeless, unemployed individuals, provides for a Dominion contribution of 50 p.c. of the expenditures of the province incurred on the undertaking during the fiscal year 1939-40 up to a maximum Dominion contribution of \$14,047.

Relief Settlement.—The Dominion is continuing to assist the Provinces of Quebec, Manitoba, and Alberta, in placing on the land, under the relief settlement agreements in effect since 1932, selected families who would otherwise be in receipt of material aid. Families and individuals settled up to Sept. 15, 1939, are shown below:—

Settler Families and Individuals Approved and Settled Under Relief Settlement Agreements up to Sept. 15, 1939

Province	Settler Families	Total Individuals	Province	Settler Families	Total Individuals
	No.	No.		No.	No.
Nova Scotia.....	343	2,154	Saskatchewan.....	939	4,604
Quebec.....	4,004	23,463	Alberta.....	954	4,493
Ontario.....	606	2,990	British Columbia....	52	285
Manitoba.....	1,583	7,895	Totals.....	8,481	45,884

Development of Tourist Highways.—Under the provisions of the Unemployment and Agricultural Assistance Act, 1939, agreements have been entered into by the Dominion with all the provinces except Quebec providing for Dominion contribution to the cost of construction of highways to further the development of tourist traffic. In Quebec the Dominion Department of Public Works is carrying out works of this nature as a Dominion undertaking.

Mining Roads.—Agreements are in effect with all the provinces except Prince Edward Island and New Brunswick providing for Dominion contribution to the cost of providing transportation facilities into mining areas. The Dominion's contribution to the undertakings is 66⅔ p.c. of the expenditures of the provinces up to certain maximum amounts provided in each of the agreements.

Saskatchewan Drought Area—Material Aid.—An agreement entered into with the Province of Saskatchewan under the Unemployment and Agricultural Assistance Act, 1938, was extended by Order in Council issued pursuant to the provisions of the 1939 Act for the period Apr. 1, 1939,

to Nov. 30, 1939. This agreement, as extended, provides for a contribution of 100 p.c. of the expenditures incurred by the Province in supplying material aid (food, fuel, clothing, and shelter) to persons in necessitous circumstances resident within the area of drought as defined by the agreement. The maximum amount provided by the agreement for the period Apr. 1, 1939, to Nov. 30, 1939, is \$1,500,000.

Seed Assistance—Saskatchewan.—An agreement was entered into with the Province of Saskatchewan to provide assistance to the Province for seed and seeding operations in 1939. The agreement provides for a Dominion contribution to the Province in this respect not to exceed \$200,000 and also for a loan to the Province not to exceed \$1,300,000.

Re-establishment of Settlers.—Agreements are in effect with the Provinces of New Brunswick, Saskatchewan, Alberta and British Columbia in respect to the re-establishment of settlers. This is a continuation of the policy of the previous two years, the agreements with the four provinces, arrived at under the 1937 Act, being extended. The program is designed to assist settlers in pioneer areas to become self-sustaining. The amounts made available as a 50 p.c. contribution under the agreements for the fiscal year 1939-40 are: New Brunswick, \$30,000; Saskatchewan, \$250,000; Alberta, \$75,000; British Columbia, \$15,000.

Employment and Unemployment

Unemployment in Trade Unions.—Monthly statistics are tabulated in the Department of Labour from reports furnished by trade unions showing the unemployment existing among their members. In the first ten months of 1939, 1,939 organizations reported an average membership of 245,098, of whom 30,782 were, on the average, unemployed; this was a percentage of unemployment of 12.6, compared with 12.7, 10.4 and 13.2 for the first ten months of 1938, 1937, and 1936, respectively.

Applications, Vacancies and Placements of the Employment Service of Canada.—Since the Employment Offices Co-ordination Act was passed in 1918 the Dominion Department of Labour, in co-operation with the provinces, has maintained local employment offices in a number of centres throughout the Dominion; the volume of business transacted by these bureaux is regarded as indicative of current labour conditions. Up to Oct. 31, 1939, 661,682 applications for work and 347,087 vacancies were registered at the 76 existing offices, while the placements effected numbered 331,629. In the same period of 1938, 636,266 applications for work, 318,376 vacancies, and 301,442 placements were recorded.

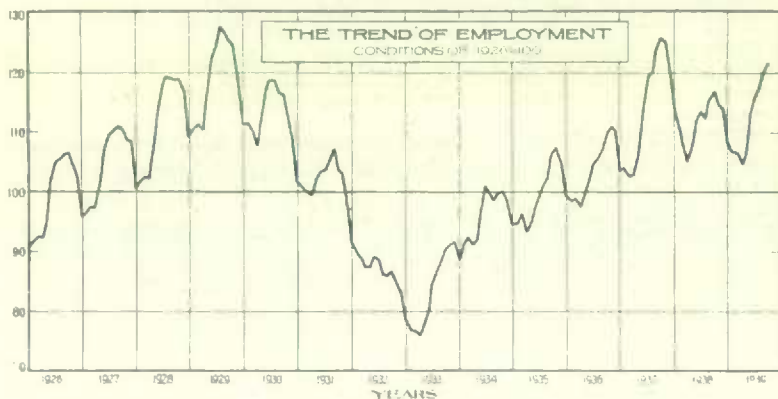
National Registration.—The national registration of persons in receipt of aid, which was instituted by the National Employment Commission, is now carried on by the National Registration Branch of the Department of Labour. An initial registration of all persons receiving material aid (direct relief) from the provinces and municipalities, where the Dominion contributes financially to such aid, was made in September, 1936, and monthly returns have since been received from municipalities distributing aid. Re-registrations were carried out in September, 1937, September, 1938, and September, 1939.

In addition to providing data in respect to numbers receiving aid, separated as to urban and agricultural, the national registration has pro-

vided statistical data concerning the degree of employability of adults, domestic status, age, industry, occupation and time of last employment, length of time on aid, and so forth.

The national registration showed a Dominion total on aid for August, 1939, of 808,511* persons (individuals on their own, heads of families, and wives and other dependants of heads of families), of whom 547,882 were on urban aid and 260,629 were on agricultural aid. These figures do not include persons engaged at wages on works to relieve unemployment. The grand total had increased from 757,635* for the same period of 1938: the increase was largely due to a change in relief policy in Quebec where works to relieve unemployment were replaced by direct relief. Urban aid showed an increase over the year from 471,099, while the total on agricultural aid had declined from 286,536. Excluding members of agricultural families, persons 16 years of age or over on urban aid reported as fully employable showed an increase across Canada from 124,325 to 143,322.

Employment, 1938 and 1939.—Statistics of the number of persons on the payrolls of leading employers throughout the Dominion are tabulated monthly by the Dominion Bureau of Statistics, the record since 1920 extending to manufacturing, logging, mining, transportation, communications, construction and maintenance, services, and trade. This record of employment is a valuable index to the business situation. In the first eleven months of 1939, returns were furnished by some 11,624 establishments employing an average staff of 1,097,298 persons; in the same period of 1938, the employees of the 10,800 co-operating firms had averaged 1,067,400. In the first five months of 1939, the situation was



not so favourable as in the preceding year, but beginning with June, improvement in this comparison was shown each month. The employment index (1926 = 100) averaged 113.0 in the first eleven months of 1939, compared with 111.6 in the same period of 1938. The 1939 figure was fractionally lower than that of 113.4 in the Jan. 1 to Nov. 1 period of 1937, but was higher than that for any other year since 1930.

*Not including figures for New Brunswick, which has substituted a works program for material aid assistance; also figures for Quebec are subject to minor revision.

Employment by Economic Areas.—In most of the provinces, employment averaged higher in the first eleven months of 1939 than in 1938; however, in Ontario the index was fractionally lower, while in New Brunswick there was a greater falling-off in that comparison, mainly due to curtailment in logging operations. Improvement over 1937 was shown in Quebec and the western provinces, but elsewhere employment was in smaller volume. In all five economic areas, industrial activity was at a higher level than in 1936 and the years immediately preceding.

Index Numbers of Employment as Reported by Employers, by Economic Areas, as at the First of each Month

NOTE.—These indexes are calculated upon the average for the calendar year 1926 as 100. The relative weight shows the proportion of employees reported in the indicated economic area to the total reported by all employers making returns in Canada at Nov. 1, 1939.

Year and Month	Maritime Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	Canada
1929—Averages	114.8	113.4	123.1	126.3	111.5	119.0
1930—Averages	118.3	110.3	114.6	117.1	107.0	113.4
1931—Averages	85.3	82.0	81.2	56.2	78.0	83.4
1932—Averages	101.0	91.7	101.3	90.0	90.4	96.0
1933—Averages	103.7	95.4	103.3	95.2	97.7	99.4
1934—Averages	109.4	100.7	106.7	99.3	101.1	103.7
1937—Averages	121.0	115.4	118.3	99.3	106.8	114.1
1938—						
Dec. 1	109.8	121.7	114.4	103.5	105.8	114.0
Averages, 12 mos.	111.5	117.0	113.7	100.0	104.2	111.8
1939—						
Jan. 1	109.2	114.0	108.8	97.1	98.0	108.1
Feb. 1	100.5	113.0	109.2	93.9	96.2	106.5
Mar. 1	101.2	112.8	109.1	94.3	96.7	106.5
Apr. 1	99.7	109.4	108.0	91.7	100.5	104.9
May 1	100.2	111.6	107.9	94.5	103.3	106.2
June 1	108.4	121.0	113.6	101.0	106.6	113.1
July 1	115.9	124.0	114.7	104.0	111.0	115.8
Aug. 1	115.6	126.4	114.2	109.4	117.0	117.5
Sept. 1	116.4	128.5	116.2	114.0	116.6	119.6
Oct. 1	117.9	126.4	121.4	116.4	118.7	121.7
Nov. 1	117.9	131.5	124.4	112.7	115.5	123.6
Averages, 11 mos.	109.4	120.0	113.4	102.6	107.3	113.0
Relative Weight by Economic Areas as at Nov. 1, 1939	7.2	31.2	41.0	12.2	8.4	100.0

Employment by Cities.—In the months Jan. 1 to Nov. 1, 1939, the situation reported in Montreal, Quebec City, Toronto, Ottawa, and Vancouver was more favourable than in 1938; there was little general change in Winnipeg, while in Hamilton and Windsor employment was slacker. As compared with 1937, activity on the whole was lower in Hamilton, Windsor, and Winnipeg, and higher in Montreal, Quebec City, Toronto, Ottawa, and Vancouver; employment in these cities generally was brisker than in 1936.

Employment by Industries.—In the first eleven months of 1939, the index in manufacturing averaged 111.4, compared with 111.1 in 1938 and 114.3 in 1937; the figure for Nov. 1, 1939, was higher than in any other month for which data are available, slightly exceeding the previous maximum recorded at Oct. 1, 1937. Except in a few instances, employment in the various branches of manufacturing was in greater volume in the latter part of 1939 than in the same period in 1938, and in many cases, the situation was also more favourable than in the latter months of 1937, when industrial activity had been at an exceptionally high level.

Among the non-manufacturing industries, mining, transportation, construction, services, and trade afforded more employment than in the first eleven months of 1938; in most of these, the indexes were also higher than in 1937. Despite improvement in logging during the last few months of 1939, that industry was generally quieter than in 1938 and earlier years since 1933.

Index Numbers of Employment as Reported by Employers, by Industries, as at the First of each Month

Year and Month	Manu- factur- ing	Logging	Mining	Com- muni- cations	Trans- porta- tion	Con- struc- tion and Main- tenance	Service	Trade	All Indus- tries
1929—Averages	117.1	125.8	120.1	120.6	109.7	129.7	130.3	126.2	119.0
1930—Averages	108.9	108.0	117.8	119.8	104.6	129.8	131.6	127.7	113.4
1931—Averages	80.9	66.5	97.5	83.9	79.0	74.6	106.7	112.1	83.4
1932—Averages	90.2	124.7	110.8	79.1	80.3	109.3	115.1	117.9	96.0
1933—Averages	97.1	126.9	123.3	79.8	81.2	97.8	118.2	122.1	99.4
1934—Averages	103.1	138.7	136.5	81.0	84.1	88.2	124.5	127.4	103.7
1935—Averages	111.4	189.3	153.2	85.4	85.2	99.5	130.2	132.1	114.1
1936—									
Dec. 1.....	110.1	160.4	163.3	84.0	85.0	112.8	131.7	139.7	114.0
Averages, 12 mos.	111.0	142.8	155.9	85.0	84.4	105.4	135.2	132.6	111.8
1937—									
Jan. 1.....	104.3	150.6	160.4	83.3	79.9	95.4	131.7	144.8	108.1
Feb. 1.....	106.0	143.0	160.5	81.2	79.4	89.4	129.5	131.0	106.5
Mar. 1.....	107.0	108.8	160.9	80.8	80.3	94.3	128.5	128.9	106.5
Apr. 1.....	107.1	64.0	157.4	81.2	79.3	91.6	131.4	131.1	104.9
May 1.....	108.4	51.0	155.8	82.0	81.4	94.2	133.2	135.1	106.2
June 1.....	111.4	97.1	160.5	83.8	86.5	115.3	141.8	136.6	113.1
July 1.....	111.3	95.3	164.1	86.0	87.6	133.1	147.6	137.4	115.8
Aug. 1.....	112.8	73.5	165.6	87.5	87.5	146.3	149.8	135.5	117.5
Sept. 1.....	115.3	60.3	168.0	87.3	90.0	152.2	151.7	134.9	119.6
Oct. 1.....	119.7	115.0	170.3	87.5	94.8	131.5	136.1	138.0	121.7
Nov. 1.....	122.1	206.4	171.0	80.7	90.6	117.6	135.2	140.2	123.6
Averages, 11 mos.	111.4	106.0	163.1	84.3	85.2	114.7	137.9	135.8	113.0
Relative Weight by Industries as at Nov. 1, 1939 ¹	51.0	5.0	6.6	1.9	9.1	11.8	2.5	11.2	100.0

¹ See headnote to table on p. 116

Old Age Pensions and Pensions for Blind Persons

The Old Age Pensions Act, 1927.—The Act provides for a Dominion-Provincial system of non-contributory old age pensions in such provinces as have enacted and given effect to special legislation for this purpose. The provinces are charged with the payment of pensions, the Dominion reimbursing each province, quarterly, to the extent of 75 p.c.* of the net cost of its payments on account of old age pensions. All the provinces are now operating under such agreements. Old age pensions are also payable in the Northwest Territories. Authority was given to the Gold Commissioner of the Yukon in 1927 to enter into an agreement with the Dominion Government for the purpose of obtaining the benefit of the Old Age Pensions Act, but no scheme has as yet been formulated.

*The proportion to be paid by the Dominion as set forth in the Act of 1927 was one-half, but this was increased at the 1931 session of Parliament to 75 p.c., which increase was made effective from Nov. 1, 1931.

Statement of Old Age Pensions, as at June 30, 1939

Province	Effective Date	Pensioners	Average Monthly Pension	Dominion Government Contributions	
				Apr. 1 to June 30, 1939	From Inception of Act
		No.	\$	\$	\$
Prince Edward Island.....	July 1, 1933	1,901	11.05	46,801	905,709
Nova Scotia.....	Mar. 1, 1934	14,252	14.75	469,709	9,148,324
New Brunswick.....	July 1, 1936	11,597	14.27	371,945	4,014,281
Quebec.....	Aug. 1, 1936	47,879	17.86	1,911,630	20,279,986
Ontario.....	Nov. 1, 1929	58,249	18.50	2,405,314	70,870,426
Manitoba.....	Sept. 1, 1928	12,330	18.64	509,491	15,203,498
Saskatchewan.....	May 1, 1928	12,321	16.60	465,175	13,728,273
Alberta.....	Aug. 1, 1929	10,374	18.45	425,190	10,137,898
British Columbia.....	Sept. 1, 1927	12,726	19.22	541,961	14,525,987
Northwest Territories.....	Jan. 25, 1929	7	20.00	430	15,371
Totals.....	-	181,636	-	7,147,616	158,829,814

Pensions for Blind Persons.—By an amendment to the Old Age Pensions Act, assented to Mar. 31, 1937, provision is made for the payment of pensions, under certain conditions, to blind persons who have attained the age of forty years. The maximum pension payable to blind persons is \$240 a year which is subject to reduction by the amount of the pensioner's income in excess of \$200 a year in the case of an applicant who is unmarried or is a widower or a widow without a child or children, and by the amount of income in excess of \$400 a year in the case of an applicant who is married or a widower or widow with a child or children. The Act provides for a reduced pension to a blind person who marries another blind person subsequent to the date on which the Act came into force.

Pensions for blind persons are administered by the provincial authorities under agreements made by the Lieutenant-Governors of the provinces with the Governor in Council. The Dominion Government assumes responsibility for 75 p.c. of the net sum paid out by the provinces for pensions to blind persons. Operations to June 30, 1939, are shown below.

Statement of Pensions for Blind Persons, as at June 30, 1939

Province	Effective Date	Pensioners	Average Monthly Pension	Dominion Government Contributions	
				Apr. 1 to June 30, 1939	From Inception of Amendment
		No.	\$	\$	\$
Prince Edward Island.....	Dec. 1, 1937	102	14.07	3,155	14,334
Nova Scotia.....	Oct. 1, 1937	506	19.13	21,577	107,980
New Brunswick.....	Sept. 1, 1937	549	19.63	24,583	120,093
Quebec.....	Oct. 1, 1937	1,494	19.52	66,226	386,706
Ontario.....	Sept. 1, 1937	1,211	19.46	53,632	291,330
Manitoba.....	Sept. 1, 1937	228	19.54	9,554	49,473
Saskatchewan.....	Nov. 15, 1937	221	19.88	10,103	48,048
Alberta.....	Mar. 7, 1938	160	19.57	6,747	28,036
British Columbia.....	Dec. 1, 1937	251	19.16	10,639	50,988
Totals.....	-	4,722	-	206,216	1,094,988

CHAPTER XII

TRANSPORTATION AND COMMUNICATIONS

Steam Railways.—Over half of the railway mileage in Canada is owned and operated by the Dominion and Provincial Governments and the remainder by incorporated companies. The Canadian Northern, Grand Trunk Pacific, and Grand Trunk Railway Companies were taken over by the Dominion Government in 1917, 1919, and 1920, respectively. The mileage of these three systems was close to 16,000 miles, but after amalgamation considerable mileage of duplicating lines was removed. The National Transcontinental, with over 1,800 miles of line, was constructed by the Dominion Government but under a contract to lease it to the Grand Trunk Railway Company. From time to time, several smaller companies were unable to continue operation and were taken over by the Dominion and Provincial Governments. The Intercolonial in the east and the Hudson Bay Railway in the west were built by the Dominion Government under agreements with the provinces and have been operated by the Government accordingly, but these constitute a small part of the total mileage now publicly owned and operated. The mileage of railways publicly operated as at Dec. 31, 1938, was as follows: Dominion, 22,812 miles; provincial, 922 miles; municipal, 92 miles; total, 23,826. The mileage operated by incorporated companies was 18,916, the principal private system being the Canadian Pacific Railway with 16,718 miles of line. The total of 42,742 miles with an estimated population of 11,209,000 gives Canada an average of 3.81 miles per 1,000 population which is second only to Australia with an average of 4.10 miles, and close to twice the average for the United States.

With the exception of western grain rates, which are fixed by statute, the railway freight, passenger, and express rates are under the jurisdiction of the Board of Transport Commissioners. This Board also controls safety features of operation, frequency of railway service, abandonment of lines, and so forth. It also has jurisdiction over rates and service of telegraph, telephone, commercial aviation, and over freight rates of certain classes of water carriers on the Great Lakes and St. Lawrence River.

Freight traffic on the railways reached a peak of 118,652,969 tons in 1928, declined steadily to 1933 and increased somewhat for the next four years, but dropped back to 76,175,305 tons in 1938. Passenger traffic has declined quite consistently since 1919 and in 1938 only 20,911,196 passengers were carried, which was only about half of the number carried ten years earlier, and only 41 p.c. of the number carried in 1920.

Reduced traffic has lowered the revenues from a high of \$534,106,045 in 1929 to \$233,133,108 in 1933 and \$336,833,400 in 1938. Without corresponding reductions in operation expenses, net incomes declined rapidly. Deficits of the Canadian National system increased and dividends of the Canadian Pacific were reduced or passed entirely.

The number of employees declined from a high point of 187,846 in 1929 with wages of \$290,732,500, to 127,824 in 1938 with a total payroll of \$195,108,351.

The table below shows the gross revenues and the numbers of cars of revenue freight loaded for 1937, 1938, and the months of 1939 for which data are available.

Railway Statistics, by Months, 1937-39

Month	Railway Gross Operating Revenues			Total Revenue Car Loadings		
	1937	1938	1939	1937	1938	1939
	\$ '000	\$ '000	\$ '000	No. '000	No. '000	No. '000
January.....	25,140	24,362	23,798	192	187	171
February.....	24,710	23,316	22,652	186	180	160
March.....	28,691	25,925	25,700	214	200	191
April.....	29,458	25,192	25,191	208	185	179
May.....	29,257	25,445	29,680	209	190	215
June.....	28,253	24,577	26,160	214	187	195
July.....	29,405	25,773	27,794	219	183	196
August.....	29,211	28,439	29,774	231	213	229
September.....	32,682	34,504	42,960	262	250	295
October.....	34,781	37,609	-	260	257	270
November.....	30,586	30,431	-	235	219	248
December.....	28,969	27,521	-	204	178	-

Electric Railways.—Horse-drawn street cars were operated in Montreal and Toronto in 1861 and the first electric street car system was operated between Windsor and Walkerville in 1886. St. Catharines was second to Windsor and had electric street cars in 1887; Victoria was third (February, 1890); and Vancouver fourth (June, 1890).

The number of municipalities serviced with electric street cars increased steadily and in 1919 there were 66 separate systems in urban and interurban service. The rapid development of paved streets and highways and of motor vehicles showed effects, traffic fell off, and, one after another, electric systems ceased operation or substituted motor buses. In 1938 only 38 systems were operating and of these 23 were using motor buses to take care of part of the service.

The latest development has been a revival of the trackless trolley bus, which is a pneumatic-tired vehicle operated through double overhead wires and two trolley poles. These vehicles have been in use in England and in other countries for many years but have only recently been adopted by Canadian companies. At the end of 1938 the Montreal and Winnipeg systems were operating trackless trolley buses and Edmonton began operating this class of vehicle in 1939.

The total number of passengers carried in 1938 was 629,778,738, of which 33 p.c. was carried by the Montreal system and 25 p.c. by the Toronto system.

The total investment for 1938 amounted to \$204,606,491, gross earnings to \$42,537,767 and miles of track to 1,693.

Express Companies.—Express service might be defined as an expedited freight service on passenger trains. Services provided by the Canadian National, Canadian Pacific, and Northern Alberta Railways and by the Railway Express Agency on United States lines in Canada operate over 65,024 miles of railway, steamer, motor-vehicle, and aircraft routes. In addition to handling freight ranging from small packages to carloads of fish, fruit, race horses, etc., money orders are sold and redeemed. Total

revenues for 1938 amounted to \$17,674,477, employees numbered 4,678, and the payroll, including part-time wages, amounted to \$7,222,887.

Roads and Highways.—Construction of roads suitable for motor traffic has been one of the principal items of provincial expenditures during the past twenty years. The Dominion Government has built roads in national parks and has granted subsidies to the provinces, first in 1920 and again as an unemployment relief measure in 1930-38, but has not constructed any rural roads outside of Dominion lands.

During 1919-37, the total expenditures for construction and maintenance amounted to \$895,098,330 by the provinces, exclusive of Prince Edward Island, for which data are not available (an estimate of \$6,000,000 for that province would be not far astray), \$191,189,016 by Ontario rural municipalities, and \$21,403,530 by the Dominion Government—a total of \$1,107,690,876.



The New Pattullo High-level Bridge.—The old Westminster bridge (now a railway bridge exclusively) can be seen in the background. *M.S. Hikawa Maru*, one of the combination passenger-freighter vessels of the Nippon Yusen Kaisha Line, is shown passing under the bridge from the Port of New Westminster.

Courtesy, New Westminster Harbour Commissioners

The mileage at the end of 1937 was 114,032 miles of surfaced roads, 296,280 miles of improved earth roads, and 148,728 miles of unimproved earth roads. Of the surfaced roads, 92,989 miles were gravel or crushed stone, 8,715 bituminous surfaces, 2,466 portland cement, concrete, and sheet asphalt, and the remainder were other surfaces.

The expenditures for 1937 amounted to \$95,020,812, including \$61,955,555 for construction of roads, \$7,472,627 for construction of bridges, \$20,239,174 for maintenance of roads, \$2,191,032 for maintenance of bridges, \$36,972 for foot paths and sidewalks, and the remainder for administration and general expenses.

Motor Vehicles.—The number of motor vehicles registered in Canada has increased steadily and rapidly from 3,054 in 1908 to 276,893 in 1918,

1,069,343 in 1928, and 1,394,853 in 1938, an average of one vehicle for each 8.1 persons. This density is exceeded only by the United States 4, New Zealand 7, and Hawaiian Islands 7.

Preliminary provincial data for 1938 show \$26,230,196 collected from motor-vehicle registrations, drivers' permits, etc., and \$41,247,688 from gasoline tax, a total of \$67,477,884.

During 1938 there were 1,545 persons killed in motor-vehicle accidents. This number was exceeded only in 1937 when there were 1,633 fatal motor-vehicle accidents.

Motor Vehicles Registered in Canada, in Recent Calendar Years

Year	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada ¹
1920....	1,418	12,450	11,121	41,562	177,561	38,257	60,325	38,015	28,000	408,790
1925....	2,947	22,745	18,863	97,418	342,174	50,884	77,940	54,538	56,427	724,048
1930....	7,376	43,029	34,699	178,548	662,506	78,850	127,193	101,119	98,938	1,232,489
1931....	7,744	43,758	33,627	177,485	662,216	75,210	107,830	94,642	97,932	1,200,668
1932....	6,982	41,013	28,041	165,730	531,597	70,840	91,275	86,781	91,042	1,113,533
1933....	6,940	40,648	26,867	160,012	520,353	68,590	84,944	86,041	88,554	1,083,178
1934....	7,206	41,932	29,094	165,526	542,245	70,430	91,461	89,369	92,021	1,129,532
1935....	8,231	43,952	31,227	170,644	564,076	70,660	94,792	93,870	98,411	1,176,116
1936....	7,632	46,179	33,402	181,628	590,226	74,940	102,270	97,468	106,079	1,240,124
1937....	8,011	50,048	36,780	197,917	623,918	80,860	105,064	100,434	116,341	1,319,702
1938....	7,992	51,214	37,110	205,463	669,088	88,219	109,014	107,191	119,220	1,394,853

¹ Includes Yukon.

Canals.—Canals were the earliest large transportation works in Canada. One of the first locks was a small one constructed by the Hudson's Bay Co. at Sault Ste. Marie which was destroyed by United States troops in 1814. Another was built at the Lachine Rapids in the St. Lawrence above Montreal in 1825, followed by the Welland Canal in 1829 to overcome the obstacle of Niagara Falls. The Rideau Canal (military in primary purpose), the St. Lawrence System, and the Chambly Canal followed. To-day there are six canal systems under the Dominion Department of Transport, namely: (1) between Fort William and Montreal, (2) from Montreal to the International Boundary near Lake Champlain, (3) from Montreal to Ottawa, (4) from Ottawa to Kingston, (5) from Trenton to Lake Huron, and (6) from the Atlantic Ocean to Bras d'Or Lakes in Cape Breton. These canals have opened to navigation from the Atlantic about 1,890 miles of waterways. Under the Department of Public Works or other authority are minor canals and locks to facilitate local navigation on disconnected waterways. Among projected canals the most important are those connected with the deepening of the St. Lawrence waterway.

The Great Lakes and St. Lawrence River form one of the busiest waterways in the world. More traffic passes up and down the Detroit River than any other waterway and the traffic through the canals at Sault Ste. Marie in 1929 reached a peak of 92,616,898 tons, more than through the Panama and Suez Canals combined. The greater part of this traffic is iron ore from Lake Superior to United States ports on Lake Erie and return cargoes of coal, and grain down-bound destined to St. Lawrence ports, Buffalo, Port Colborne, and other lower lake ports.

The Royal Train

The Royal Train, on board which His Majesty King George VI and Her Majesty Queen Elizabeth made their tour of Canada and the United States in the spring of 1939, was the handsomest and most completely appointed train ever to run on rails on this Continent.

Coloured a rich blue and silver from one end to the other, with gunmetal roof, chromium handrails, light-coloured treads on the steps, and streamlined throughout its entire length, the Royal Train was a beautiful example of the art and ingenuity of the shops of the Canadian railways. Extension of the colour scheme to the locomotive and the carrying of the Royal Coat-of-Arms on the front of the locomotive as well as on the sides of the two cars occupied by Their Majesties, completed its regal appearance.

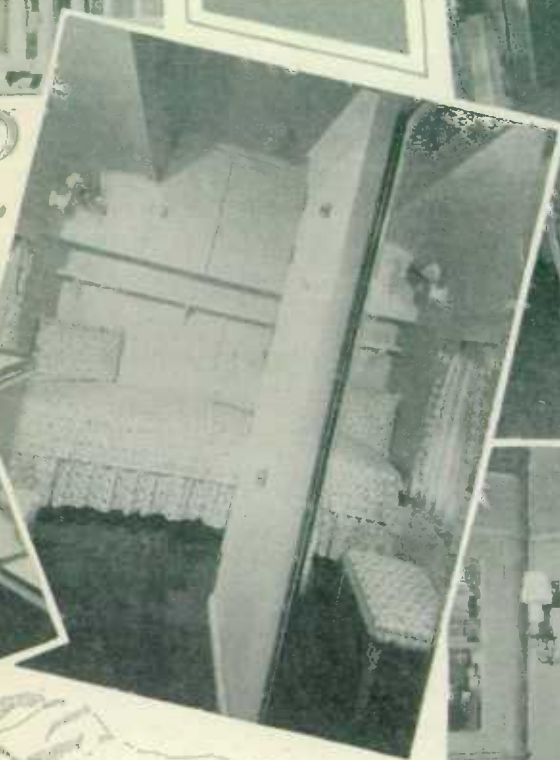
Into the making of this train, which drew from Their Majesties the comment that it was the most beautiful and comfortable train on which they had ever travelled, went all the craftsmanship of the Car Equipment and Locomotive Departments of Canada's two great railway companies. It was a twelve-car train, the two rear cars of which, numbered 1 and 2, were occupied by Their Majesties. Car No. 1 comprised an observation end, radio equipped and tastefully furnished, and two adjoining bedrooms each with its private dressing room. There were also two bedrooms for members of the private staff of Their Majesties. Car No. 2 had a large lounge at the rear, an office, a dining room and kitchen, and two bedrooms with bathroom for members of the Royal staff.

Members of the Royal entourage, the Prime Minister of Canada, his secretariat and other members of the Government, and officials concerned with the details of the tour, together with the train crew, occupied the other cars.

The train was air-conditioned throughout. It carried its own electric generating equipment. It had its own telephone switchboard with intercommunication between the cars and with land communication. On their car Their Majesties were able to keep in touch with not only members of the Royal suite on board the train, but with members of the Royal Family and the Government in Great Britain.

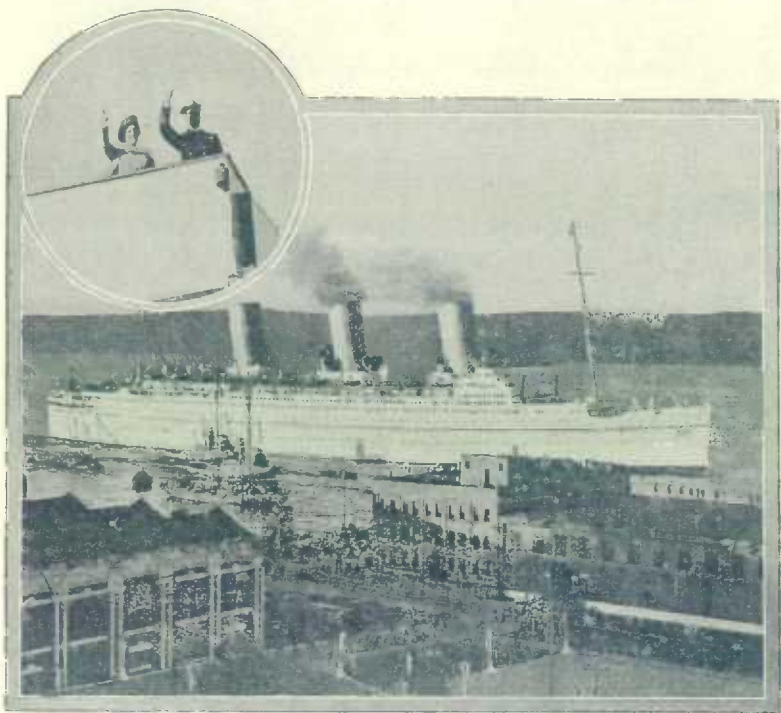
Running half an hour ahead of the Royal Train throughout the tour was a companion train known as the Pilot Train, which carried the newspaper correspondents covering the Royal Tour, members of the protective forces, railroad and other officials. Although not as elaborate as the Royal Train, the Pilot Train also had telephone facilities, its own electric generating set, a photographic darkroom, and a Royal Train post office through which many hundred thousand pieces of mail passed.

*Courtesy, Canadian National Railways and
Canadian Pacific Railway Company*



THE
ROYAL TRAIN

The maximum draught of vessels plying between the lakes is governed by channels in the Detroit and St. Mary's Rivers, and is limited to about 21 feet. Since 1932 when the New Welland Ship Canal, with 25 feet in the stretches between locks (the locks have 30 feet of water above the sills), was opened, large upper-lake vessels have passed down as far as Prescott. The St. Lawrence canals have a depth of 14 feet (reduced in periods of low water) so that ocean vessels, except of very small tonnage, cannot sail up into the lakes; a few such vessels have been engaged in the Great Lakes traffic for several years, bringing over cargoes from European ports. Traffic using the St. Lawrence canals reached a new high record in 1938 with 9,236,318 tons. Traffic using the Welland Ship Canal has increased steadily, the total of 12,629,054 tons for 1938 being more than double the 1930 traffic and over five times the 1920 traffic.



The *Empress of Britain* as she left Halifax Harbour conveying Their Majesties back to England after the Royal Tour of Canada, June 15, 1939. Inset: Their Majesties waving good-bye to Canada.

Courtesy, Canadian Government Motion Picture Bureau.

Shipping.—Each of the years ended Mar. 31, 1934, 1935, 1936, and 1937 showed an increase over the preceding year in respect of tonnage of sea-going and inland international vessels entered and cleared at Canadian ports, but 1938 showed a somewhat lower figure, viz., 91,369,266 tons compared with 94,586,746 tons in 1937. The coasting vessels have also shown a decrease for 1938, the figures being 88,731,613 tons compared with 91,421,172 registered net tons in 1937.

The vessels on the Canadian Shipping Registry in 1902 numbered 6,836, with a total of 652,613 tons. There was a fairly steady increase to 8,573 in 1919, followed by a decrease to 7,482 in 1921; since 1921 there has been an increase to 10,127, representing 1,274,163 tons in 1938.



A Modern Lumber-Carrier at a Canadian Dockyard.

Courtesy, New Westminster Harbour Commissioners

Telegraphs.—Canada's first telegraph line was erected in 1846-47 between Toronto, Hamilton, St. Catharines, and Niagara. In 1847, also, the Montreal Telegraph Co. was organized and a line built from Quebec to Toronto. Other lines were built rapidly and eventually came under the single control of the Great Northwestern Telegraph Co., which remained alone in the field until the building of the Canadian Pacific railway and the Canadian Government telegraph lines. In 1938, there were 373,283 miles of telegraph wire in Canada, handling 12,845,224 telegrams, and the cable companies handled 1,404,214 cablegrams, the majority of which are forwarded to destination by the telegraph companies. The gross revenue amounted in 1938 to \$10,611,207. Six transoceanic cables have termini in Canada, 4 on the Atlantic and 2 on the Pacific. There are also 18 other cables from Atlantic ports to Newfoundland, St. Pierre and Miquelon, Bermuda, and United States and Canadian ports. There are also radio stations open for commercial traffic, mostly government-owned, but operated in part by the Marconi Wireless Telegraph Company, in addition to stations operated in connection with shipping, or private commercial stations operated by canneries, logging companies, etc. The number of wireless messages handled is now over 300,000 a year.

Aircraft at East Main River near
James Bay, Quebec.



Mining Supplies being Delivered
at Rose Lake, Quebec.

TRANSPORTING MACHINERY AND SUPPLIES TO NORTHERN CANADA BY AIR

Mining Machinery being Unloaded
at Doré Lake, Saskatchewan.



Loading Radium Concentrates
in Bellanca "Air Cruiser" at
Great Bear Lake,
Northwest Territories.

*Courtesy, Department
of Transport*

Telephones.—The discovery of the telephone was, in regard to its main principles and the first electrically recorded transmission of the human voice, made in Canada, although Alexander Graham Bell was a resident of the United States at the time of its recorded invention. The first long-distance talk was conducted by Alexander Graham Bell between Brantford and Paris, a distance of eight miles, on Aug. 10, 1876. Telephone development in Canada, however, dates only from 1880. In 1883 there were but 4,400 rental-earning telephones, 44 exchanges, and 40 agencies, with 600 miles of long-distance wire. In 1937 telephones numbered 1,322,794 with a wire mileage of 5,307,884, the investment being \$335,810,564. The Prairie Provinces have well-organized government systems.

Air Navigation.—The aeroplane has provided a vastly-improved means of transportation in the undeveloped northern areas of Canada where the only alternatives were canoe in summer and dog team in winter. Air travel soon proved not only much quicker, but much cheaper, and a rapid expansion took place without the aid of government subsidy. The mileage flown by aircraft increased from 185,000 in 1922 to 12,294,088 in 1938, when 139,706 passengers, 21,704,587 lb. of freight, and 1,901,711 lb. of mail were carried. Furthermore, the aeroplane has proved a great boon to Canada in the administrative field for the development and conservation of her vast natural resources. Aerial forest-fire patrols are now carried on over large parts of almost every province; fishery patrols by aeroplane protect territorial waters and enforce fishing regulations; and by the use of aeroplanes equipped with special cameras, preliminary surveys, which would have taken years by the older methods, are now made quickly over large tracts of difficult country. This development in Canada has differed from that in other countries where air traffic between the chief centres of population has received most attention. The Trans-Canada Airway is designed to facilitate progress along this line.

Trans-Canada Airway.—The Trans-Canada Airway is now in operation from Vancouver to Montreal and Moncton. Intermediate aerodromes lighted for night flying are established at approximately one-hundred-mile intervals. Meteorological services provide weather maps four times daily and district forecasts for the ensuing six hours. As part of the facilities of the Trans-Canada route and its feeders, there are now in operation thirty radio range stations at approximately one-hundred-mile intervals, except in the mountain regions where closer spacing is necessary.

Work on the section east of Montreal is nearing completion and, it is expected, will be in operation by the end of 1939. A new aerodrome is under construction at Charlottetown and the municipal airports at Saint John and Halifax are being enlarged and improved.

A mail, express, and passenger service was inaugurated on Mar. 1, 1939, between Vancouver and Montreal. Passengers may leave Montreal at 8:30 p.m. and arrive the following morning at Vancouver at 11:05 a.m. A daily service from Edmonton to Lethbridge and from North Battleford, Prince Albert, and Moose Jaw to Regina and from Toronto to North Bay connect with the main trunk service. In addition to these services, there are thirty-five scheduled mail and passenger services operating in Canada serving, not only the main centres of population, but also the remoter districts where mining activity is great, and giving fast, reliable transportation to all parts of the Dominion.

THE TRANS-CANADA AIRWAY



Trans-Canada
Airways
Aeroplanes at
Vancouver.

Trans-Canada
Aircraft at
Vancouver.



A Trans-Canada
Airways Lockheed 14
Machine over
Manitoba Prairie.

Courtesy, Civil Aviation Branch, Department of Transport, and Post Office Department

National Radio.—When the Canadian Broadcasting Corporation replaced the Canadian Radio Broadcasting Commission, on Nov. 21, 1936, national radio broadcasting entered a second phase in Canada. Established on a basis similar to that of the British Broadcasting Corporation, the new

organization has now a Board of nine Governors, a General Manager, and an Assistant General Manager.

The Board of Governors (members are appointed for three years in rotation) acts as "trustee of the national interest in broadcasting", and is responsible for the policies of the Corporation. It is thus the guarantee to the public that broadcasting is being administered in a non-partisan and business-like manner. Members of the Board of Governors are unpaid. The CBC is responsible to Parliament through the Minister of Transport.

Marked progress has been made towards improvement in coverage, reception, and program service. The most important technical developments of the past two years have been the inauguration of four 50,000-watt transmitting stations: CBL at Hornby, Ontario, serving the Province of Ontario; CBF at Verclères, Quebec, for the Province of Quebec; CBA at Sackville, New Brunswick, constructed to give a complete service to the Maritime Provinces; and CBK at Watrous, Saskatchewan, serving the Prairie Provinces. A 5,000-watt transmitter, CBR, was installed at Vancouver, B.C., in 1937. Thus, a notable advance has been made towards completion of the plan envisaged in the report of the Royal Commission on Radio Broadcasting appointed in 1938 to investigate the whole problem of broadcasting in Canada.

Apart from the high-power transmitters already completed, CBC is steadily adding new technical equipment to its facilities. Canada's first complete mobile units, including short-wave sending and receiving apparatus, recording machines, and pack sets which can be carried by a commentator in territory inaccessible to the units proper, came into use for the first time in 1938.

On Oct. 1, 1937, a contract was completed for transmission facilities enabling national network programs to be heard sixteen hours each day in all five Canadian time zones. This nation-wide network carries both the sustaining programs of the Corporation and a limited number of carefully selected commercial features. In addition to the stations owned by the CBC, the national network includes a large number of privately-owned transmitters.

During 1938, CBC inaugurated a series of broadcasts by leading Canadian symphony orchestras, a policy which has been continued in 1939 and will continue during the coming year. A wide variety of dramatic presentations have been offered, notably the Shakespearean series, with leading actresses and actors of stage and screen in the principal roles.

The highlight in Canadian broadcasting during 1939 was the Royal Visit to Canada. This unprecedented event was responsible for the most comprehensive assignment in the entire history of radio broadcasting. Throughout the month-long visit to Canada of Their Majesties the King and Queen, CBC carried out a complete coverage of the tour, through actuality broadcasts from every major city in the Dominion. In addition, CBC presented each evening a recorded summary of the day's activities. Not a single break-down occurred in any of the engineering or other arrangements throughout that period of time.

During 1939 the news service provided by the CBC in co-operation with the Canadian Press was regionalized, four fifteen-minute newscasts



His Majesty the King delivering his Empire Broadcast from Winnipeg, Manitoba, on Empire Day, May 24, 1939.

Courtesy, Canadian Government Motion Picture Bureau

being given daily in each time zone, in addition to daily national news summaries dealing largely with international affairs.

The outbreak of the war at the beginning of September, 1939, threw an unusually heavy burden upon the CBC. For two weeks a greatly augmented service of news and comment was instituted throughout the entire twenty-four hours of the day, in order to keep listeners informed regarding the tremendous events taking place. Since then, the CBC has striven to bring regularly to listeners authoritative, interesting, and up-to-the-minute news and views on the international situation through specialized talks and discussions by experienced commentators, expert students, and international figures. A representative of the CBC is a member of the Censorship Committee and the Corporation is the point of contact between that Committee and radio stations and other organizations throughout Canada in disseminating the important information and instructions associated with broadcasting.

Now that the fundamental work of organization and provision of transmitting facilities to give effective coverage across the Dominion has been completed, more time is being devoted to the development of good programs. Full benefit is being taken of the accumulated experience of a highly-efficient staff of producers in the fields of both musical and dramatic presentation.

Expenditures.—Despite the comparatively large expenditures necessary for lines, and for the costs of providing, maintaining, and operating

network transmitting facilities in a country like Canada, more than 50 p.c. of CBC total revenues are being spent on programs. Below is shown an analysis of all CBC expenditures from the Corporation's inception, including the nine-month period ended Dec. 31, 1939.

Canadian Broadcasting Corporation Expenditures, Fiscal Years 1936-39

Item	1936		1937		1938		1939 ¹	
	\$	p.c.	\$	p.c.	\$	p.c.	\$	p.c.
Administration.....	120,607	7.57	125,360	8.07	146,686	6.77	101,790	4.81
Programs.....	621,248	38.99	645,818	41.53	1,088,420	50.28	1,092,504	51.67
Operation of stations.....	170,954	10.73	206,981	13.38	286,763	13.24	316,570	14.97
Lines.....	451,406	28.33	434,247	27.82	477,962	22.07	421,998	19.94
Depreciation.....	-	-	-	-	106,846	4.94	154,122	7.29
Leases of time on private stations.....	229,281	14.38	143,037	9.20	58,494	2.70	12,893	0.61
Interest on Government loan.....	Nil	-	Nil	-	Nil	-	14,599	0.69
Totals.....	1,593,496	100.00	1,555,421	100.00	2,165,111	100.00	2,114,476	100.00

¹Nine months

The CBC is fully alive to the desirability of providing the Canadian public with television service as soon as the necessary expenditures come within the bounds of the practicable, and CBC engineering officers have been in constant touch with developments in television and facsimile in both Great Britain and the United States.

To add further variety to the programs provided to Canadian radio listeners, the General Manager and the Chairman of the Board of Governors spent some time in England in 1939 to arrange an exchange of desirable programs between CBC and the British Broadcasting Corporation. This will mark a new period of co-operation between the two great national broadcasting systems. Eventually the plan will require construction in Canada of a high-powered short-wave station, a national project of international significance which successive committees of Parliament have unanimously recommended.

The Post Office.—The Post Office is under the direction of a special Department of the Dominion Government. The number of post offices has increased from about 3,470 in 1867 to over 12,000 in 1939, the postal revenue in 1938-39 being approximately \$42,896,000. Rural mail delivery dates from 1908. The Post Office Department, in the fiscal year 1938-39, issued money orders to the amount of \$135,417,000, payable in Canada and \$9,787,000 payable in other countries, a combined net increase over the previous year of \$758,000. In addition, postal notes to the value of \$12,349,000 were issued in 1938-39. During the War, there was a general increase in postage rates, but these were gradually reduced again between 1926 and 1930. They were increased once more on July 1, 1931, and since that date the letter rate of postage for Canada, Great Britain, the British Empire, France, the United States and all other places in North and South America, has remained at 3 cents for the first ounce and 2 cents for each additional ounce.



HANDLING HIS MAJESTY'S CANADIAN MAIL

**Sorting Mail for British and Foreign
Dispatch in a Central Post Office.**

**Trans-Canada Aeroplane being Loaded
with Mail for Transcontinental
Transport.**



Courtesy, Post Office Department

Official air-mail service was inaugurated in October, 1927. Since that time great advances have been made, both in the number of services and in the volume of mail conveyed, as shown by the following statistics:—

	Mileage Flown No.	Mail Carried lb.		Mileage Flown No.	Mail Carried lb.
1927-28.....	9,538	38,484	1936-37.....	977,864	1,200,831
1931-32.....	1,229,021	443,501	1937-38.....	1,474,041	1,367,972
1935-36.....	852,108	1,189,982	1938-39.....	3,711,948	1,822,344

The institution of air-mail service to remote and otherwise inaccessible areas, too numerous to itemize, has been of the greatest importance in developing the natural resources of Canada. For example, mails from Vancouver now reach White Horse within 24 hours and those from Edmonton reach Aklavik on the Arctic Ocean within a week, a small part of the time required for surface transport. The gold-mining industry, in particular, has been greatly assisted by the efficiency of the postal service rendered by air. During the winter season Pelee Island in Lake Erie, remote settlements on the north shore of the Gulf of St. Lawrence, Anticosti Island, the Magdalen Islands, and Telegraph Creek in northern British Columbia, which formerly relied on dog teams or were entirely isolated from civilization, are now given regular air-mail service.

During the season of navigation air-mail service between Montreal and Rimouski is operated to connect with the principal transatlantic steamers.

While the great majority of Canadian air-mail services are to remote areas, there are several interurban and international services which effect considerable time-saving between important mailing centres in Canada and the United States. This year has witnessed the inauguration of regular air-mail service over the Trans-Canada Air Lines, and this system, with its feeder lines, has given a direct service to most of Canada's leading cities. By utilizing this service a letter mailed at the close of the business day in Montreal reaches an addressee in Vancouver the following afternoon. Corresponding gains over ordinary conveyance are effected between most other points in Canada.

Another important forward step has been the inclusion of Canada in two transatlantic air-mail services, the Imperial Airways flying boats calling at Montreal, and those of Pan-American Airways stopping at Shediac, N.B. This service has reduced the transit time between London, England, and Montreal to two days.

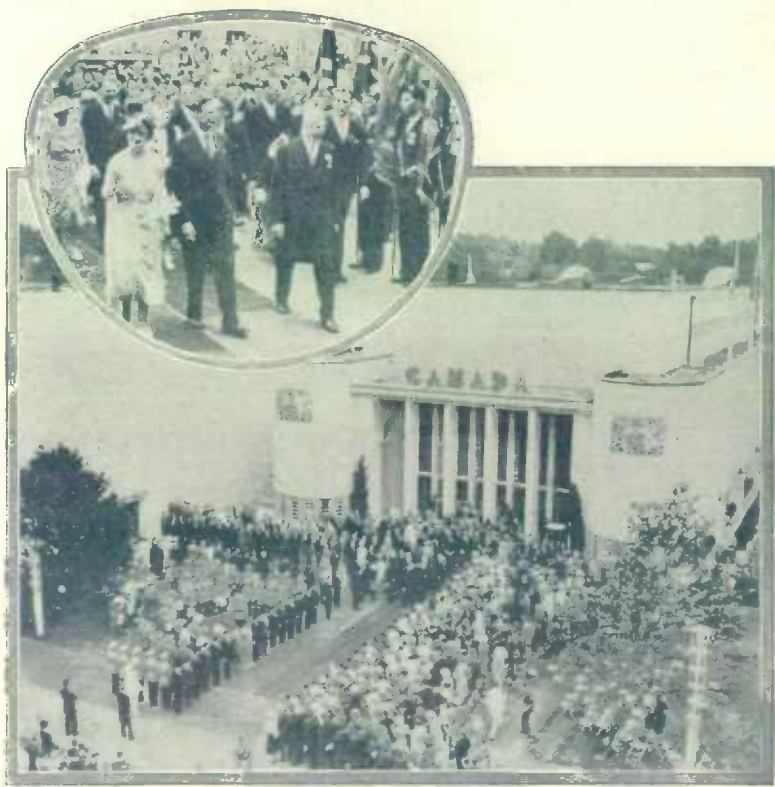
CHAPTER XIII

EXTERNAL TRADE OF CANADA—NON-COMMODITY EXCHANGES

External Trade*

Statistics presented in various parts of this handbook show the rise to present high levels of the outputs of the varied branches of Canadian industry. Comparison of these figures with those of other countries shows that in 1938 Canada was first in the production of asbestos, nickel, and newsprint; third in copper, gold, and zinc ore; fourth in lead; fifth in wheat; and sixth in automobiles.

* In statistics of imports in this chapter, excise duty which had been included in the value of distilled spirits, chiefly whisky, imported into Canada from countries entitled to the British Preferential Tariff since the fiscal year 1920-21, is excluded as from Apr. 1, 1935. Such imports from the United Kingdom, which constitute the major part of this item, were valued at \$4,743,819 in 1938-39.



The Royal Visit to the Canadian Pavilion at the World's Fair, New York. *Inset:* Their Majesties being escorted to the building by the Hon. W. D. Euler, Minister of Trade and Commerce (right).

Courtesy, Canadian Government Motion Picture Bureau

Though the level of per capita consumption in Canada is high, it is plain that domestic consumption cannot account for all of the enormous output in many branches of production, since the Dominion is only about thirteenth among the countries of the world in population (having little more than one-half of one per cent of the world's population). Were it not for foreign trade Canada could profitably market but one-quarter of the present volume of fertilizers, cheese, bacon, and hams, but one-tenth of the shingles, whisky, platinum, silver, and raw furs, and small proportions also of the commodities in whose production the Dominion is a world leader (see preceding paragraph).

The drop in world trade that occurred in 1938-39, as shown in the figures published by the League of Nations, is reflected in the Canadian statistics. Among the twelve countries for which statistics are presented in the table on page 141, Australia is the only one that showed a rise in value of imports; only Italy had increased exports. Canada's imports at \$658,000,000, and exports at \$970,000,000 showed rises from 1932-33 lows of 61.7 p.c. and 81.3 p.c., respectively, though they were down by 17.6 p.c. and 10.6 p.c. from the preceding year. The export balance of trade stood at \$312,000,000 which has only been exceeded once in the past ten years.

The lower Canadian trade of the past fiscal year as compared with the year before was partly due to smaller quantities of goods exchanged, and partly to lower prices. Had prices remained the same in 1938-39 as in 1937-38 value of imports would have been down 13.2 p.c., instead of about 17.6 p.c., indicating that about 4 p.c. may be attributed to the fall in prices. In the case of exports almost all of the decline of 13.4 p.c. may be attributed to price since volume fell by only 0.6 p.c.

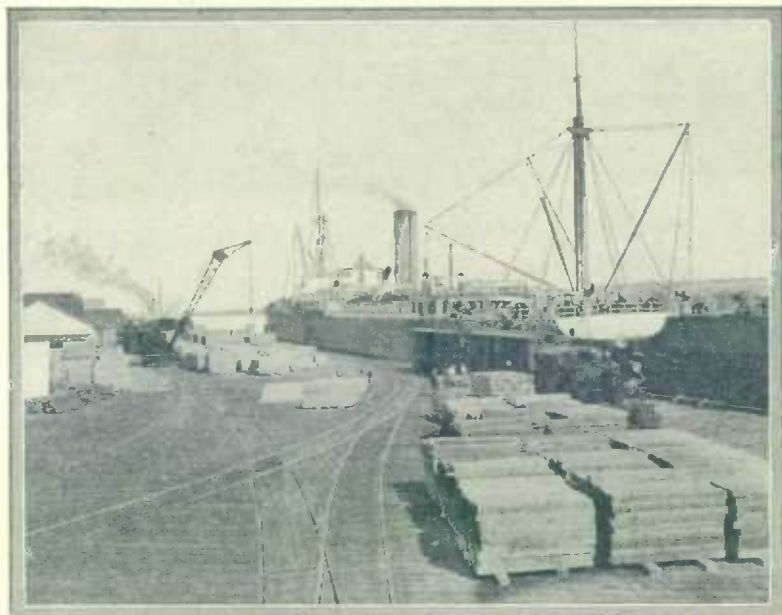
Summary of Total Imports and Exports of Canada

Fiscal Year	Total Imports	Exports			Excess: Imports-Exports+
		Canadian Produce	Foreign Produce	Total	
	\$	\$	\$	\$	\$
1913-14.....	619,193,998	431,588,439	23,848,785	455,437,224	-163,756,774
1919-20.....	1,064,528,123	1,239,492,098	47,166,611	1,286,658,709	+222,130,586
1924-25.....	796,932,537	1,069,067,353	12,294,290	1,081,361,643	+284,429,106
1929-30.....	1,248,273,582	1,120,258,302	24,679,768	1,444,938,070	+193,335,512
1932-33.....	406,383,744	528,064,278	6,913,842	534,978,120	+128,594,376
1933-34.....	433,798,625	665,954,071	6,311,324	672,265,395	+238,466,770
1934-35.....	522,431,153	756,625,925	7,658,963	764,284,888	+241,853,735
1935-36 ¹	562,719,063	849,030,417	13,441,659	862,472,076	+299,753,013
1936-37.....	671,875,566	1,061,181,906	13,062,314	1,074,244,220	+402,368,654
1937-38.....	799,069,918	1,070,228,609	14,592,595	1,084,821,204	+285,751,286
1938-39.....	658,228,034	926,962,245	42,807,906	969,770,151	+311,542,117

¹ See footnote to p. 138.

As might be expected, duties collected fell very nearly as sharply as total imports, standing at \$89,273,000 for the fiscal year. Since the fall in the amount of duty collected was not quite as great as the fall in the amount of imports, the average *ad valorem* rate of duty, which is the amount collected expressed as a percentage of the value of imports, rose from 13.0 p.c. in 1937-38 to 13.6 p.c. Partial cause of this is the fact that the proportion of free imports was slightly lower in 1938-39 than in the previous year.

World Trade During 1938.—While the year 1937 as a whole showed more trade both by value and quantity than any since 1930, its later months initiated a decline which continued through a large part of 1938. International trade, in common with other business factors, turned upwards again about the middle of 1938, but the year as a whole was 13 p.c. below the preceding period in gold value of imports and exports combined. The League of Nations "Review of World Trade" notes among



Loading Bar Metal and Fir Ties for the United Kingdom, Main Dock,
Pacific Coast Terminals.

Courtesy, New Westminster Harbour Commissioners

the characteristics of international trade that in 1938 the decline in quantum was more pronounced for raw materials than for manufactured goods, that the United States demand for goods has had a very great effect in the past ten years and, particularly in 1937 and 1938, that the decline in imports of creditor countries, principally the United States, helped to further the disintegration of world economy into separate trading blocs, that non-industrial countries tended to maintain their purchases in 1938 at a high level, that prices in general declined, but the decline was resisted in the case of several commodities required for armament purposes.

The League of Nations estimates that of the fall of 13 p.c. in the gold value of trade in comparison with 1937, the decline in quantum is responsible for about 8 p.c., and in prices for 5 p.c. It is of interest to note that, although world production and population have undoubtedly grown considerably in the past fifteen years, the quantum of world trade shows a little upward or downward trend.

Trade of Leading Commercial Countries of the World, 1938 Compared With 1937

(Expressed in Canadian Currency)

Country	Total Trade			Net Imports			Domestic Exports		
	Rank		Amount	Rank		Amount	Rank		Amount
	1937	1938		1937	1938		1937	1938	
			\$'000,000			\$'000,000			\$'000,000
United Kingdom.....	1	1	6,840	1	1	4,525	2	2	2,315
United States.....	2	2	5,034	2	3	1,960	1	1	3,074
Germany (including Austria).....	3	3	4,787	3	2	2,473	3	3	2,294
France.....	4	4	2,215	4	4	1,334	5	5	881
Canada.....	6	5	1,599	8	8	677	4	4	912
Japan.....	5	6	1,531	5	7	703	6	6	768
Belgium.....	7	7	1,510	6	6	776	7	7	734
Netherlands.....	8	8	1,357	7	5	783	10	9	574
British India.....	9	9	1,152	10	10	554	9	8	598
Italy.....	11	10	1,139	9	9	589	15	10	550
Australia.....	13	11	1,041	12	12	519	12	11	552
Sweden.....	14	12	988	11	11	523	14	12	465

Leading Imports and Exports of Canada.—Detailed tables of the twenty-five leading commodities imported and exported follow.

Imports of Twenty-five Leading Commodities, Fiscal Year 1938-39 Compared with 1937-38

Rank		Commodity (In order of value, 1938-39)	Totals Imports, 1938-39		Increase or Decrease 1938-39 Compared with 1937-38	
1937-38	1938-39		Quantity	Value \$	Quantity	Value \$
2	1	Petroleum, crude, gal.	1,249,052,392	41,483,348	103,766,741	-5,151,372
3	2	Coal, ton	13,008,576	35,937,195	-1,621,323	-2,970,514
1	3	Machinery, except farm	-	35,286,756	-	-13,081,743
5	4	Automobile parts	-	23,455,938	-	-6,269,314
6	5	Farm implements and machinery	-	18,079,948	-	-1,165,820
8	6	Sugar for refining, cwt.	9,457,485	17,279,170	+340,598	-61,233
4	7	Plates and sheets, iron, cwt.	4,691,193	16,649,286	-3,024,200	-14,834,809
13	8	Books and printed matter	-	15,340,194	-	+380,884
9	9	Fruits, fresh	-	13,808,406	-	-2,738,541
11	10	Automobiles, No.	14,830	13,131,262	-4,463	-2,513,199
12	11	Electric apparatus	-	12,501,483	-	-3,048,642
7	12	Cotton, raw, lb	119,495,894	11,311,409	-31,865,457	-6,133,209
10	13	Vegetable oils, gal.	23,869,501	10,538,840	-1,556,186	-5,289,651
17	14	Tea, lb	39,046,899	9,598,848	+1,000,864	-248,002
14	15	Rubber, crude, "	62,617,210	8,987,960	-16,174,631	-5,741,056
29	16	Gasoline, gal.	119,410,143	7,794,626	+43,685,216	+2,219,974
20	17	Paper	-	7,575,317	-	-409,489
18	18	Clay and products	-	7,193,037	-	-1,981,563
15	19	Engines and boilers	-	7,132,507	-	-3,739,883
22	20	Spirits and wines	-	6,805,490	-	-634,142
19	21	Stone and products	-	6,713,684	-	-1,918,079
21	22	Glass and glassware	-	6,696,774	-	-1,085,921
24	23	Nails, tops and waste wool, lb	11,436,987	5,582,058	+285,774	-1,240,190
26	24	Worsted and serges, "	4,309,618	5,504,393	-637,328	-954,475
25	25	Furs	-	5,458,739	-	-1,363,038



Ships Lined Up at the Main Dock of the Pacific Coast Terminals at the Height of the Fruit Season, Loading Fresh Apples for the United Kingdom and the Continent.

Courtesy, New Westminster Harbour Commissioners

Domestic Exports of Twenty-Five Leading Commodities, Fiscal Year 1938-39 Compared with 1937-38

Rank 1937- 38	Rank 1938- 39	Commodity (In order of value, 1938-39)	Totals Domestic Exports, 1938-39		Increase or Decrease 1938-39 Compared with 1937-38	
			Quantity	Value	Quantity	Value
				\$		\$
1	1	Newsprint paper.....cwt.	49,507,879	107,360,211	-14,307,913	-12,647,339
3	2	Gold bullion, non-monetary.....oz.	2,504,687	87,590,120	+32,571	+1,386,384
2	3	Wheat.....bu.	120,847,635	84,494,433	+31,218,712	-31,779,276
4	4	Nickel.....cwt.	1,966,845	49,565,526	-304,034	-12,353,074
5	5	Copper in forms.....	4,231,647	42,190,363	+671,019	-3,484,013
6	6	Planks and boards M ft.	1,728,667	37,100,824	-77,059	-6,502,085
7	7	Meats.....	-	35,375,618	-	-5,987,157
8	8	Wood-pulp.....cwt.	11,173,247	26,814,418	-4,565,834	-13,145,760
9	9	Fish.....	2,893,993	25,622,980	-158,531	-660,333
12	10	Aluminium in bars.....	1,450,851	24,794,611	+354,721	+4,045,638
10	11	Automobiles.....No.	58,849	22,806,873	-10,001	-2,492,490
11	12	Wheat flour.....bbl.	4,072,943	15,777,707	+168,065	-7,443,659
16	13	Furs, raw.....	-	13,584,861	-	-413,374
18	14	Asbestos, raw.....ton.	296,048	13,265,885	-64,930	-455,508
20	15	Pulpwood.....cord	1,492,540	13,231,521	-97,823	+762,700
19	16	Cheese.....cwt.	824,703	12,052,703	-54,772	-885,865
24	17	Silver ore and bullion.....oz.	26,756,102	11,509,345	+4,542,025	+1,595,870
23	18	Copper ore and blister.....cwt.	1,397,439	10,572,203	+307,585	+254,244
17	19	Cattle.....No.	196,815	10,280,469	-90,644	-3,634,072
27	20	Apples, fresh.....bbl.	2,897,090	10,179,330	+683,355	+2,402,372
21	21	Machinery, except farm.....	-	9,703,463	-	-1,601,732
13	22	Whisky.....pl. gal.	2,083,865	9,457,275	-2,645,927	-9,311,018
15	23	Lead.....cwt.	3,501,679	9,433,528	+153,681	-4,682,418
29	24	Platinum and other metals of the platinum group, in concentrate or other forms.....	-	8,988,895	-	+1,573,551
14	25	Zinc.....cwt.	2,979,176	8,872,584	-769,001	-7,186,580

Canada's Trade by Countries.—The United States and the United Kingdom are the most important suppliers of Canadian imports. The

following statement shows that together they account for nearly 80 p.c. of the Dominion's purchases abroad. The United Kingdom figure is more than ten times that of the next most important country—the Straits Settlements. It is also of interest that of the first ten countries in the table, six are Empire countries, and further, that of the imports from all countries excluding the United States and the United Kingdom, almost half is from the Empire. The twenty-five countries below account for about 97 p.c. of total imports in each year.

**Imports from Twenty-Five Leading Countries, Fiscal Year 1938-39
Compared with 1937-38 and 1936-37**

Rank			Country (In order of importance, 1938-39)	Totals Imports			Increase or Decrease 1938-39 Compared with—	
1936-37	1937-38	1938-39		1936-37	1937-38	1938-39	1936-37	1937-38
				\$'000	\$'000	\$'000	p.c.	p.c.
1	1	1	United States	393,721	487,239	412,477	+ 4.8	- 15.3
2	2	2	United Kingdom	129,508	145,009	115,836	-10.7	-20.2
5	3	3	British Straits Settlements	10,541	15,786	10,564	+ 0.2	-32.2
4	5	4	Germany	11,684	11,397	10,117	-13.4	-11.2
6	4	5	Australia	9,470	12,171	8,807	- 7.0	-27.6
7	6	6	British India	8,326	9,405	8,356	+ 0.4	-11.2
15	16	7	Colombia	4,520	4,617	7,602	+19.2	+ 66.0
13	14	8	British Guiana	5,051	5,557	7,028	+39.1	+26.5
8	8	9	Belgium	6,696	7,462	6,212	- 7.2	-16.8
12	13	10	Jamaica	5,173	5,668	6,066	+20.0	+ 7.0
9	10	11	France	6,454	6,489	5,950	- 7.8	- 8.3
14	12	12	Japan	4,707	5,782	4,467	- 6.9	-22.7
10	9	13	New Zealand	5,377	7,397	3,878	-21.9	-47.6
18	11	14	Ceylon	3,962	6,149	3,576	- 9.7	-41.6
17	19	15	Netherlands	4,252	3,547	3,535	-16.9	- 0.3
22	18	16	Switzerland	2,701	3,802	3,001	+11.1	-21.1
16	21	17	China	4,275	3,341	2,582	-39.6	-22.7
28	20	18	Italy	1,722	3,358	2,481	+44.1	-26.1
11	17	19	Peru	5,212	4,541	2,414	-54.2	-48.8
21	30	20	Trinidad and Tobago	2,787	1,497	2,400	-13.9	+ 60.3
27	29	21	British West Indies, Other	1,793	1,624	2,226	+26.9	+49.3
23	27	22	Fiji Islands	2,395	2,578	2,176	- 9.1	-15.6
3	15	23	Argentina	11,724	5,205	2,140	-81.7	-58.9
19	23	24	Barbados	3,711	3,143	2,100	-43.4	-33.2
25	26	25	Newfoundland	2,162	2,596	2,067	- 4.4	-20.4

In the countries receiving Canadian exports, the United States and the United Kingdom are also in the lead, taking between them 75 p.c. Australia follows the United Kingdom, though at only one-tenth the amount of the latter. The table on p. 139, showing the twenty-five leading countries, includes about 97 p.c. of total domestic exports.

Goods shown as exported to some countries may not finally be consumed in those countries and other countries may buy and use more Canadian goods than the statistics indicate. For example, exports to the United Kingdom are known to include large amounts of wheat and other grains shipped 'on order'. The final destination is not known at the time of exportation from Canada. Similarly, considerable quantities of Canadian exports are consigned to one or other of the great European free ports and thence transhipped to the country of consumption. Since the country of final destination in these cases is not known at the time when the goods leave Canada, even to the owners, exports to such countries as the United Kingdom, Belgium, Netherlands, etc., which carry on large entrepôt trade, are higher than would be the case if the exports in question were credited

to the countries of final consumption. Exports to other countries such as Norway, Switzerland, etc., which obtain Canadian goods indirectly, would be correspondingly higher than the Canadian export statistics indicate.

Domestic Exports to Twenty-Five Leading Countries, Fiscal Year 1938-39 Compared with 1937-38 and 1936-37

Rank			Country (In order of importance, 1938-39)	Totals Domestic Exports			Increase or Decrease 1938-39 Compared with—	
1936-37	1937-38	1938-39		1936-37	1937-38	1938-39	1936-37	1937-38
				\$'000	\$'000	\$'000	p.c.	p.c.
1	1	1	United States	435,015	423,131	375,939	-13.6	-11.2
2	2	2	United Kingdom	407,997	409,412	325,465	-20.2	-20.5
3	3	3	Australia	26,954	32,422	33,254	+23.4	+2.6
5	4	4	Japan	21,630	26,640	21,045	-2.7	-21.0
10	9	5	Germany	7,829	12,254	17,790	+127.3	+45.2
8	6	6	New Zealand	11,187	16,031	17,028	+52.8	+6.3
6	5	7	British South Africa	15,574	16,199	15,913	+2.2	-1.8
4	7	8	Belgium	23,436	14,504	9,952	-57.5	-31.7
9	8	9	Netherlands	10,916	13,209	9,903	-9.3	-25.4
7	11	10	France	11,718	7,609	8,777	-25.1	+15.4
11	10	11	Newfoundland	7,728	9,389	8,039	+4.0	-14.4
12	13	12	Norway	6,907	6,672	7,664	+11.0	+14.9
19	21	13	Sweden	3,237	3,156	5,859	+81.0	+85.6
18	16	14	Jamaica	3,327	4,388	4,435	+33.3	+1.1
17	12	15	Argentina	3,727	7,420	4,014	+7.7	-45.9
22	18	16	Trinidad and Tobago	2,054	3,806	3,787	+24.0	-0.5
10	14	17	Ireland (Eire)	3,800	5,153	3,543	-6.8	-31.2
20	17	18	British India	3,221	4,348	3,319	+3.0	-23.7
15	15	19	Brazil	3,873	4,830	3,295	-14.9	-31.8
13	20	20	China	4,899	3,354	3,225	-34.2	-3.8
23	19	21	Mexico	2,854	3,484	2,362	-17.2	-32.2
25	22	22	British Straits Settlements	1,939	2,942	2,119	+9.5	-26.0
32	24	23	Hong Kong	1,373	2,024	1,895	+35.0	-6.4
14	23	24	Italy	4,656	2,272	1,789	-61.6	-21.9
28	26	25	British West Indies, Other	1,571	1,932	1,699	+8.1	-12.1

Summary of Trade with British Empire and Foreign Countries

Fiscal Year	Canada's Trade with—					
	United Kingdom	United States	Other British Empire	Other Foreign Countries	Total British Empire	Total Foreign Countries
	\$	\$	\$	\$	\$	\$
Imports—						
1927-28	186,435,824	718,896,270	63,124,733	140,499,630	249,560,557	859,395,900
1928-29	194,041,381	868,012,229	63,346,829	140,288,652	257,358,210	1,008,290,881
1929-30	189,179,738	847,442,037	63,494,864	148,156,943	252,674,002	995,598,980
1930-31	149,497,392	584,407,018	55,401,034	117,307,251	204,898,426	701,714,269
1932-33	86,466,055	232,548,055	33,918,209	53,451,365	120,384,324	245,999,420
1934-35	111,682,490	303,639,972	44,503,981	62,604,710	156,156,471	366,244,632
1935-36	117,874,822	319,479,594	59,846,488	65,518,159	177,721,310	384,997,753
1936-37	129,507,885	393,720,662	68,687,957	79,989,062	198,165,842	473,709,724
1937-38	145,008,771	487,279,507	88,196,645	78,584,995	233,205,416	555,864,502
1938-39	115,636,017	412,476,517	65,074,178	65,041,022	180,710,195	477,617,639
Exports (Canadian)—						
1927-28	410,691,392	483,700,034	88,284,515	251,228,053	498,975,907	734,928,087
1928-29	429,730,485	504,161,604	106,258,803	328,108,239	535,989,288	832,269,843
1929-30	281,745,965	515,049,763	97,825,173	225,637,401	379,571,138	740,887,164
1930-31	219,246,499	349,660,563	73,617,897	157,217,708	292,864,390	506,878,271
1932-33	184,361,019	197,424,723	37,757,908	108,520,628	222,118,927	305,945,351
1934-35	290,885,237	304,721,354	67,314,241	93,705,093	358,199,478	398,426,447
1935-36	321,556,798	350,302,426	77,754,681	89,416,512	399,311,479	449,718,938
1936-37	407,996,698	435,014,544	87,601,407	130,569,257	495,598,105	555,553,801
1937-38	409,411,682	423,131,091	108,027,338	129,658,498	517,439,020	552,789,569
1938-39	325,465,011	375,939,361	102,768,387	122,789,486	428,233,398	498,728,847

Review of Canada's Trade by Months.—The statistics of exports in the preceding pages include exports of non-monetary gold. Imports and exports of gold are subject to influences that do not apply to trade in other commodities. It has been considered advisable for the present, as from September, 1939, to exclude the gross figure of gold imports and exports from the ordinary trade reports. This is in line with procedure adopted in other countries. However, the figure for net non-monetary gold exports will continue to be published as a footnote to the regular trade statistics.

The monthly trade figures as available when going to press for the calendar year 1939 compared with 1936, 1937, and 1938, are given below. The statistics for the months prior to September, 1939, have been revised so as to exclude the gold previously included, and, therefore, differ with statistics previously published and those shown in the preceding pages of this report.

Imports and Exports by Months, January, 1936, to October, 1939

Month	Imports				Exports of Canadian Produce			
	1936	1937	1938	1939	1936	1937	1938	1939
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
January	40,590	51,583	49,720	43,743	53,131	76,663	70,300	70,083
February	41,597	48,681	46,952	40,380	59,122	64,018	59,019	57,572
March	52,681	70,990	65,056	58,381	71,605	83,371	73,329	69,270
April	42,217	56,886	48,895	41,908	45,539	58,494	50,860	50,311
May	59,121	76,707	67,123	72,958	80,342	89,170	86,998	79,932
June	57,598	75,669	58,947	63,709	78,586	94,026	85,944	76,367
July	53,821	71,996	55,823	57,980	83,423	90,820	86,181	75,753
August	50,258	69,966	57,026	62,708	81,448	89,216	69,111	75,560
September	52,983	70,240	56,412	73,564	83,806	82,505	72,206	81,461
October	65,159	82,113	63,909	79,053	100,062	93,268	88,169	90,488
November	66,169	80,641	63,304	-	107,416	100,724	85,976	-
December	52,996	53,125	4,286	-	93,344	75,093	69,888	-

The Commercial Intelligence Service

The Commercial Intelligence Service, maintained by the Department of Trade and Commerce, is designed to further the interests of Canadian trade in other parts of the Empire and in foreign countries. To this end there are established throughout the world offices administered by Trade Commissioners. These Trade Commissioners make periodical reports upon trade and financial conditions, variations in markets, and the current demand or opportunities for Canadian products. They also secure and forward to the Department in Ottawa inquiries for Canadian goods and, in general, promote the development of overseas markets.

Organization at Ottawa.—The headquarters staff at Ottawa is presided over by a Director, who is the head of the Service and administers and unifies the work assigned to the various Trade Commissioners. Assisting the Director are the following divisions: Directories—Exporters Directory, listing Canadian exporters, with their agents abroad, commodities handled, etc., and Foreign Importers Directory; Editorial; Commodity Records—where information regarding markets for Canadian export commodities is indexed; Economics; Animal and Fish Products; Vegetable Products;

Metals and Chemical Products; Forest Products; and Miscellaneous Manufactures.

Organization Abroad.—There are thirty-seven Canadian Trade Commissioners or commercial diplomatic officers conveniently located abroad. In some countries or territories, such as the United Kingdom, Australia, British West Indies, South Africa, Japan, and the United States there is more than one commercial officer; in other cases an officer covers adjacent countries. Besides the five mentioned above, countries in which officers are located are as follows: Argentina, Belgium, Brazil, British Malaya, China, Cuba, Egypt, France, Hong Kong, India and Ceylon, Ireland (Eire) and Northern Ireland, Italy, Mexico, Netherlands, New Zealand, Norway, Panama, and Peru.



Canadian Motor-Cars being Assembled in New Zealand.
Courtesy, Department of Trade and Commerce.

Under an arrangement made by the Minister of Trade and Commerce with the British Foreign Office, Canadians interested in trade matters may secure information and advice from British Commercial diplomatic officers and British consuls in all countries in which Canada is not represented by her own Commercial Intelligence Service.

Commercial Intelligence Journal.—The Commercial Intelligence Journal, containing the reports of the Trade Commissioners and other pertinent material relating to export trade, is published weekly by the Department of Trade and Commerce in both English and French editions. The subscription price for either edition is \$1 per annum in Canada and \$3.50 outside of the Dominion. Special reports dealing with various phases of Canada's export trade are also issued from time to time, as supplements to the Commercial Intelligence Journal.

Non-Commodity Items of Foreign Exchange

A nation's commodity trade alone cannot be taken as a complete index of its prosperity, for there are many other exchanges besides those of goods, all of which must be taken into account in order to find out the basic state of affairs in regard to total international transactions.

The Tourist Trade.—An item in the above which deserves special mention is the tourist trade. For the year 1938 the tourist trade was calculated to have brought \$273,431,000 into the country, and after the deduction of \$123,913,000 spent by Canadian tourists abroad, the favourable balance was estimated at \$149,518,000. By far the most important factor is the automobile traffic between Canada and the United States, it being estimated that such United States tourists spent \$180,258,000 in Canada in 1938, while Canadian automobile tourists spent about \$49,362,000 in the United States. Tourist expenditures are, in part, the return which Canada derives from her picturesque scenery, fish and game, winter sports, etc.

Summary of Tourist Expenditures

Year	Expenditures of Outside Tourists in Canada (A)	Expenditures of Canadian Tourists in Other Countries (B)	Excess of (A) over (B)
	\$	\$	\$
1929	309,379,000	121,645,000	187,734,000
1931	250,776,000	76,452,000	174,324,000
1933	117,124,000 ¹	50,860,000	66,264,000
1934	145,974,000	63,658,000	82,316,000
1935	214,778,000	95,400,000	119,178,000
1936	251,299,000	110,400,000	140,899,000
1937	290,581,000	124,422,000	166,159,000
1938	273,431,000 ²	123,913,000 ²	149,518,000 ²

¹ Canadian funds. No adjustment for exchange was considered necessary in subsequent years

² Revised figures.

Apart from the revenue which Canada derives directly from the tourist trade there are many other important results. First-hand knowledge of the country, its products and resources, serves to stimulate the demand for such products and attracts new capital for investment here. There is, too, a value derived from neighbours becoming better acquainted and through the exchange of ideas that cannot be measured in dollars and cents. A more widely diffused knowledge of the culture, interests, and difficulties of other nations leads to a richer social and intellectual life for all and the mutual understanding which springs from such contacts is an invaluable source of international goodwill.

The Canadian Balance of International Payments.—The merchandise and tourist trades have been discussed above. There are other important exchanges of services and numerous movements of capital between Canada and other countries as well. In order to summarize all of the nation's commercial and financial transactions with other countries and to reveal their general significance, a statement called the balance of international payments is drawn up. A statement of this kind segregates all of the current exchanges of merchandise, gold, and services from

operations on capital account, those which, for example, usually directly affect Canada's foreign assets and liabilities.

By doing this it is possible to observe the various sources of external income and disbursements and their relationships. When current income exceeds current disbursements, as has been the experience of Canada for a period of years, this is indirect evidence that the movement of capital is outward on balance. The direct study of capital movements shown in the capital account of the statement confirms these indirect estimates and reveals the general character of the movements. By making an analysis of capital movements it is possible to appraise their general consequences. Such an analysis discloses, for instance, whether the nation is increasing or reducing its foreign obligations. It makes it possible to judge the character of the changes, such as whether their effects are of a relatively permanent or temporary nature.



Grading Silver Fox Skins in a London Warehouse.

Courtesy, Department of Trade and Commerce

The accompanying statements of the Canadian balance of international payments reveal that in 1938, as in 1937, Canada continued to have a substantial credit balance from its trade in merchandise, gold, and services with other countries. These receipts from exports of merchandise, sales of gold; and the expenditure of tourists in Canada exceeded all current payments to other countries for imported merchandise and services including the large volume of interest and dividends paid to investors in other countries. The resulting balance of credits in 1938 amounted to over \$184,000,000. These surplus credits from exports of goods and services were available for the transfer of capital from Canada, and the

outflow of capital therefore continued in large volume. As in other recent years, the volume of retirements of Canadian bond issues held abroad was greater than the new issues floated in capital markets outside of Canada. In contrast, in the trade in outstanding securities there was an inflow of capital as sales by Canada of outstanding securities, particularly Canadian stocks, exceeded Canadian purchases. Net outward movements of capital arising from the operations of insurance companies and international direct investments (in 'branch plants') were also large. In general, the consequences of the capital operations during the year were to further reduce external liabilities and to increase somewhat Canadian assets abroad.



Cargo of Potatoes from Prince Edward Island for New York and New Jersey Markets.

Courtesy, Department of Trade and Commerce

It will be observed that the credit balance in 1938 was lower than that in 1937. This change is closely related to the generally lower level of prices and reduced business activity throughout the world in the latter year. Smaller credit balances in 1938 from the merchandise and tourist trades were partly offset by larger credits from gold and smaller debit balances on account of interest and dividends, freight, and miscellaneous services. The reduction in the net outward movement of capital during the year reflected a smaller outflow of capital for the retirement of Canadian securities held abroad and a shift from net purchases of outstanding securities in 1937 to net sales in 1938. Other capital movements continued to be predominantly outward in direction and generally in greater volume.

In both years, it may be perceived, the net credits on account of exchanges of merchandise, gold, and services were greater than the net payments traced in the capital account. If all of the estimated values of

BALANCE OF INTERNATIONAL PAYMENTS 145

transactions entering the accounts were exactly accurate and if there were no omissions these balancing items would offset one another. Such perfect accuracy is unattainable in practice, of course, owing to the magnitude and complex character of the transactions.

Estimated Balance of International Payments, 1937 and 1938¹

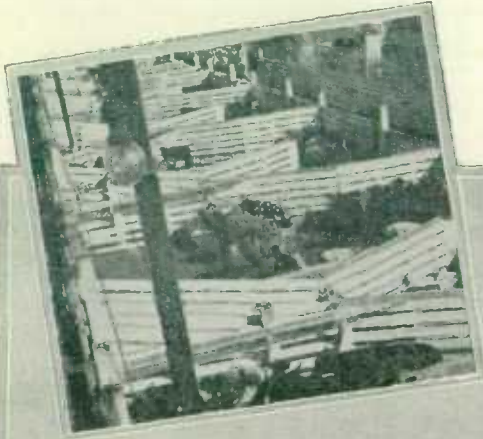
Item	1937		1938 ¹	
	Gross Value of Transactions	Net Receipts (+), Net Payments (-)	Gross Value of Transactions	Net Receipts (+), Net Payments (-)
	\$'000.000	\$'000.000	\$'000.000	\$'000.000
Exchanges of Commodities, Gold, and Services				
Merchandise sold to other countries.....	1,009.7	+213.3	847.0	+180.5
Merchandise bought from other countries.....	796.4		666.5	
Gold sold to other countries.....	145.1	+145.0		+156.5
Gold received from other countries.....	0.1			
Expenditures in Canada of tourists from abroad.....	284.7	+170.3	267.0	+145.0
Expenditures of Canadian tourists abroad.....	124.4		122.0	
Interest and dividends received from abroad.....	78.8	-246.2	70.0	-242.0
Interest and dividends paid abroad.....	325.0		312.0	
Receipts from abroad for freight transportation.....	111.7	-25.5	101.0	-20.0
Payments abroad for freight transportation.....	137.2		121.0	
Receipts for other trade and service transactions.....	25.2		24.6	
Payments for other trade and service transactions.....	63.9	-38.7	59.8	-35.2
Net Receipts (Credits).....	-	+218.2	-	+184.8
Capital Movements				
Sales of new issues of Canadian securities abroad.....	89.5	+89.5	89.9	
Retirements of Canadian securities owned abroad.....	177.9	-177.9	150.0	-60.1
Receipts from the sale of other securities abroad.....	506.6		367.0	
Payments for the purchase of other securities abroad.....	511.4	-4.8	340.0	+27.0
Remittances to insurance companies in Canada.....	24.0			
Remittances abroad by insurance companies in Canada.....	34.0	-10.0		
Change in estimated net assets abroad of Canadian banks.....	13.0	-13.0		-127.0
Other capital movements—net payments in operations of international branch plants, etc.,.....	82.6	-82.6		
Net Outward Movement (Net Payments).....	-	-198.8	-	-160.1

¹ Preliminary.

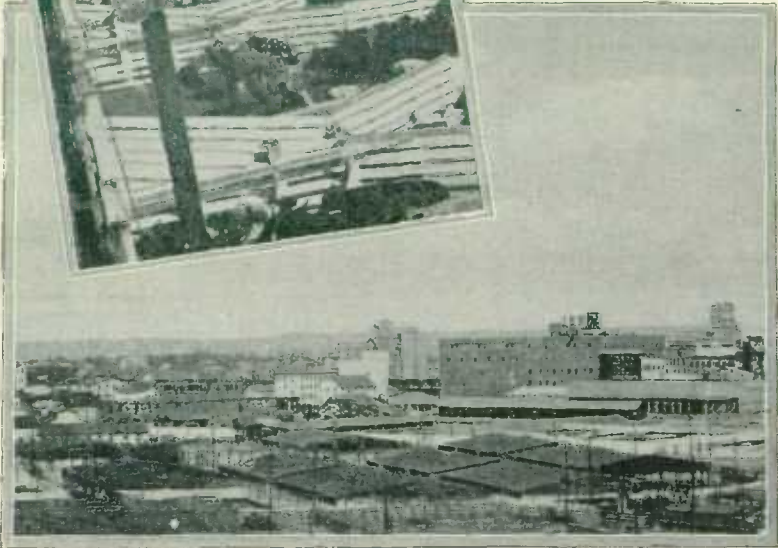
CHAPTER XIV

INTERNAL TRADE—WHOLESALE AND RETAIL TRADE —FREIGHT MOVEMENTS—SECURITY PRICES— COMMODITY PRICES—COST OF LIVING

Internal trade is of primary importance. The task of providing goods and services for home consumption by 11,315,000 people requires a greater expenditure of economic activity than that required for the prosecution of external trade, even though Canada ranks sixth among



A Row of Open Cattle Pens
in Western Canada.



General View of the Covered Stockyards at Calgary, Alberta.

Courtesy, Canadian Government Motion Picture Bureau

trading countries of the world. Internal trade includes the transportation and distribution of goods within the country through the medium of railways, steamships, warehouses, wholesale and retail stores, and other agencies. It also includes all services such as those carried on by doctors, theatres, hospitals, schools, banks, insurance companies, and innumerable others. All such activities, even if not productive of material goods, add substantially to the national income.

Historically, Canadian internal trade developed as a result of the fur trade, fur being the first great staple sought in Canada by Europeans in

exchange for their products. This trade spread until it covered the whole area of the country, forming the framework into which the economic activities of the nation were gradually built. Lumber, fisheries, agricultural, mineral, and other resources were gradually exploited. As population grew, locally-manufactured products supplanted certain imports. Diverse resources in various parts of the country led to a vast exchange of products and growing wealth to increased services.

Unfortunately, owing to the many ramifications of internal trade, its statistical measurement presents great difficulties. Nevertheless, some idea of its extent may be gathered from the fact that in the latest year for which the figure has been published, the national income arising from those gainfully occupied in Canada was estimated at \$4,265,000,000, while the money value of exports of Canadian produce was \$1,015,000,000 in the same year.

The sections which follow deal with those features of internal trade that have not received treatment elsewhere in this handbook.

Wholesale and Retail Trade

Wholesale Trade.—Notwithstanding the development during recent years of the modern chain store with its own warehousing facilities, the wholesale merchant still plays an important part in the distribution of goods in Canada.

Indexes of Sales of Retail and Wholesale Establishments, 1935-38
(1930=100)

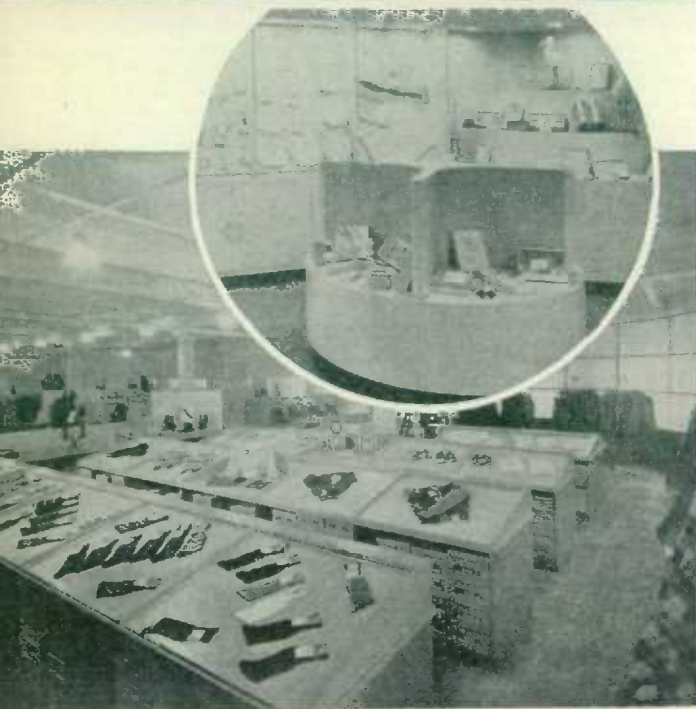
Province	Retail Stores					Wholesale Establishments ¹				
	1930	1935	1936	1937	1938	1930	1935	1936	1937	1938
Prince Edward Island.....	100 0	71.9	82.4	85.3	80.7	100 0	70.6	83.8	83.9	74.7
Nova Scotia.....	100 0	81.6	88.7	99.8	96.3	100 0	84.0	91.2	102.3	96.9
New Brunswick.....	100 0	73.1	79.4	90.9	84.9	100 0	77.7	84.9	98.7	94.1
Quebec.....	100 0	71.3	76.5	86.9	86.2	100 0	77.7	84.7	100.2	93.1
Ontario.....	100 0	78.0	83.0	92.9	89.9	100 0	83.3	91.5	105.1	99.4
Manitoba.....	100 0	73.4	78.5	85.2	84.9	100 0	80.9	88.3	101.4	102.8
Saskatchewan.....	100 0	63.2	69.7	68.3	68.4	100 0	65.6	70.9	70.8	74.8
Alberta.....	100 0	74.0	78.7	86.3	91.5	100 0	72.9	79.3	86.6	89.0
British Columbia.....	100 0	75.8	84.0	93.6	89.5	100 0	77.7	84.9	97.2	93.8
Yukon and N.W.T.....	100 0	68.3	61.2	75.2	75.1	-	-	-	-	-
Canada	100 0	71.6	80.1	89.0	87.3	100 0	78.9	86.2	98.7	94.6

¹ Regular wholesale houses. For a full description of the index, see the report "Wholesale Trade in Canada, 1930-33", obtainable from the Dominion Statistician.

In 1931, there were more than 5,000 wholesale houses in Canada, with sales amounting to over a billion dollars, a large proportion of which was made to retail merchants. In addition, there were more than 8,000 other types of wholesalers such as manufacturers' own wholesale branches, bulk tank stations of petroleum distributors, commission merchants and agents, and brokers of different types. Although these did not perform all the functions of regular wholesale merchants they handled sales or orders valued at more than \$2,000,000,000 in 1930.



Part of the Shipping
Floor in a Wholesale
Grocery Warehouse.



Men's Furnishings
Department in a Wholesale
Dry Goods Showroom.

Inset:
The Baby Department.



Attractive Display Shelves
in a Modern Retail
Provision Store.

*Courtesy, Canadian
Grocer, Toronto*

Retail Trade.—The final stage in the distribution of consumer goods is effected through a great number of retail stores ranging in size from small shops with meagre daily takings to large enterprises whose annual sales are reckoned in millions of dollars. The 1931 Census of Merchandising and Service Establishments showed that there were 125,000 retail stores in Canada in 1930, with annual sales amounting to \$2,756,000,000. Almost 40 p.c. of these stores had annual sales of less than \$5,000 each while at the other end of the scale there were 86 large individual stores each doing an annual business of more than \$1,000,000. More than 400,000 persons were engaged in retail trade including some 105,000 proprietors drawing no stated salary and another 300,000 persons who received approximately \$300,000,000 in salaries and wages. Capital investment in retail trade amounted to \$1,200,000,000.

Current Trends.—Conforming with the trend in general business conditions, retail trading declined during the period following the census year until in 1933 dollar value of retail sales was 35 p.c. below the 1930 level. A gradual improvement which commenced in the latter part of 1933 continued until 1937 when dollar sales were 37 p.c. above the mid-depression period and came within 11 p.c. of the amount recorded for 1930. Changes in dollar volume of retail sales are due not only to variation in the actual quantities of goods purchased but also to changes in price levels. How much of the change in dollar sales is due to price movements it is impossible to say. Nevertheless it is certain that a great proportion of the change in food-store sales may be attributed to this factor. On the other hand, variations in annual sales by motor-vehicle dealers, furniture stores, or jewellery stores are more indicative of changes in the quantity of goods actually being sold.

Retail sales were relatively well-maintained in 1938, dollar volume of retail trading for the year standing only 2 p.c. below 1937. Figures available for the first eight months of 1939 indicate that while food-store sales have been better than maintained, sales for most other lines of business were slightly lower than in the corresponding period of 1938.

Chain Stores.—The position occupied by chains in the retail marketing structure of Canada has varied but little during recent years. The annual survey of chain stores made in connection with the Census of Merchandising shows that chain stores (other than department store chains) did approximately 17 p.c. of the total retail business in 1937 and 1938. In earlier years the ratio of chain to total sales was about 18 p.c.

Summary Statistics of Chain Stores, 1931-38

Calendar Year	Chains No.	Chain Stores No.	Value of Chain Sales	
			Amount	P.C. of Total Sales
			\$	
1931.....	506	8,557	434,199,700	18.7
1932.....	486	8,398	360,806,200	18.8
1933.....	461	8,230	328,902,600	18.5
1934.....	445	8,210	347,186,100	17.9
1935.....	445	8,024	364,589,800	17.9
1936.....	457	8,124	394,935,000	17.9
1937.....	447	7,815	414,133,300	16.9
1938.....	457	7,692	414,448,300	17.2

A significant development in chain store policy in the food-retailing field during recent years is the trend towards larger stores and the closing out of smaller units. In 1934 there were only 152 individual units of food chains each with annual sales of \$100,000 or more and these transacted 21.7 p.c. of the total food chain business. In 1938 there were 263 stores in the same size class and these accounted for 39.1 p.c. of the total sales of all food chains.

Retail Services.—More than 40,000 establishments are engaged in supplying services of various kinds to the Canadian public. The provision of amusements and domestic and personal services forms the chief business of the service groups. In 1930, \$249,000,000 was spent by consumers in such establishments; employment was provided for 64,000 persons.

Motion Picture Theatres.—An extensive advertising campaign carried on by distributors in the early months of 1938 was at least partially responsible for increased attendance at motion picture theatres during a period when expenditures for most goods and services were undergoing some curtailment. There were 137,976,052 paid admissions to 1,133 theatres in Canada in 1938 compared with 134,374,061 admissions to 1,047 theatres in the preceding year. Box office receipts (exclusive of amusement taxes) were \$33,635,052 for 1938, up 3.5 p.c. from the amount recorded for 1937. Per capita expenditure at motion picture theatres was \$3.02 for 1938, and \$2.93 for 1937.

Internal Freight Movement

The subject of interprovincial trade is of interest to many persons, but comprehensive data are even more difficult to record than those of international trade. There is practically no restriction on movements across the provincial borders and consequently the records of movements of commodities, people, money, etc., are very incomplete.

The railways are required to record the tons of revenue freight, under 76 commodity classes, loaded and unloaded and received from and delivered to foreign railways and boat lines for each province. The excess of loadings in any province over unloadings shows a net movement out of that province, but does not reveal the places to which the excess was shipped and, similarly, the excess of unloadings over loadings indicates a net import into the province. For the Prairie Provinces, where only a small proportion of the freight is moved by agencies other than the railways, the net movements into and out of the provinces indicate fairly accurately net imports and exports, but in the eastern provinces where vessels and motor vehicles are important factors in transportation only a part of the story is told by these railway data. No records are yet available of the movements of commodities, people, etc., by vessel or motor vehicle from province to province.

Security Prices

The Bureau of Statistics publishes several series of index numbers, designed to measure the movement of security prices in general and of important groups of stocks in particular. These constitute an important barometer of business conditions.

The record of Canadian common stock prices, extending back to 1914, is quite different from that of commodity prices. During the War of 1914-18 and in the years immediately following, the average level of commodity prices advanced to two and one-half times the average height in 1914, while common stock prices averaged less than two-thirds of 1914 levels during this period. Again, during the years 1927 to 1929, the behaviour of these two price groups was very different. This time stock prices increased by approximately 100 p.c., while commodity prices drifted slowly downward. Both commodities and stocks declined subsequent to the latter part of 1929, and since the spring months of 1933 they have both moved irregularly upward.

Investors Monthly Index Numbers of Common Stocks, 1937-39

(1926=100)

Year and Month	Utilities	Industrials	Total ¹	Year and Month	Utilities	Industrials	Total ¹
1937				1938 (concl.)			
January.....	68.5	222.0	137.4	June.....	45.1	163.5	100.0
March.....	71.0	241.7	147.2	September.....	42.7	162.2	98.6
June.....	63.2	210.1	129.4	December.....	44.0	179.4	106.8
September.....	57.4	193.3	118.9				
December.....	49.5	167.7	103.7	1939			
1938				January.....	42.7	171.4	102.9
January.....	48.4	177.0	107.7	March.....	44.4	171.4	103.7
March.....	43.1	164.0	99.2	June.....	43.7	157.6	97.0
				September.....	42.2	168.2	100.1

¹ Includes bank stocks.

From the extreme high of 217.1 registered in September, 1929, a general index of common stock prices dropped sharply at first, and then more gradually, until it reached 43.2 in June, 1932. Temporary recovery was followed by a secondary decline lasting until March, 1933, when the index was 48.9. Subsequent intermittent recovery carried this series upward to 147.2 in March, 1937, before any major reaction occurred. This continued until April, 1938, at which time a low of 97.9 was reached. Since then markets have fluctuated uncertainly, and the index for September, 1939, was 100.1.

Index Numbers of Twenty-five Mining Stocks, by Months, 1935-39

(1926=100)

Month	1935	1936	1937	1938	1939	Month	1935	1936	1937	1938	1939
January.....	124.3	142.4	174.6	144.1	158.0	July.....	117.9	157.6	141.8	151.1	155.8
February.....	124.2	149.8	177.2	147.7	158.8	August.....	115.6	158.1	146.2	156.0	151.4
March.....	128.2	144.2	172.6	134.9	155.0	September.....	119.1	157.6	127.6	144.0	137.7
April.....	128.7	145.8	154.1	133.9	143.7	October.....	118.6	158.2	121.6	157.4	144.7
May.....	128.3	150.3	142.1	139.5	151.4	November.....	125.5	167.0	129.4	159.6	144.7
June.....	123.0	156.1	134.7	145.8	153.9	December.....	133.6	167.7	134.3	159.0	-

The post-War peak in mining share prices was reached in October, 1927, two years prior to the highest levels in utilities and industrial stocks. At that time a price index for mining issues touched 143.8, considering prices in 1926 as equal to 100.0. It then declined irregularly to an all-time

low of 46.8 during June, 1932. From that month until February, 1937, the general trend of mining stock prices was decidedly upward, although the advance was interrupted by a long period of gradual reaction beginning in the final quarter of 1934 and extending through the greater part of 1935. At the crest of the rise in February, 1937, the mining stock index was 177.2. Since that time marked fluctuations have occurred but the movement has been predominantly downward. The November, 1939, index was 144.7.

Commodity Prices

There have been three distinct periods in price history since the beginning of the War of 1914-18. First, a rapid rise and subsequent reaction occurred when the Canadian wholesale price index (1926 = 100) advanced from 64.0 to 155.9 between 1913 and 1920, and then declined to 97.3 for 1922. It remained close to this level (approximately 50 p.c. above price averages for 1913) until near the end of 1929. This seven-year stretch of comparative stability constituted the second period. During the final period, a decline carried the wholesale index downward from 95.6 for 1929 to 66.7 for 1932, after which a gradual recovery advanced it to 71.1 for 1935. Price levels at that time exhibited a tendency to stabilize at somewhat more than 10 p.c. above pre-war levels, but a secondary advance much more impressive than the first raised the wholesale price level sharply in the latter half of 1936, and still higher in 1937. This advance was not maintained, however, and the index dropped steadily throughout 1938 to touch the year's low of 73.3 in December. After advancing from 73.2 in January 1939 to 73.7 in May, prices again eased but moved sharply forward following the outbreak of war in September. The September index stood at 78.2, about 8.0 p.c. above the August figure which was the low for the year to date. Further price advances occurred in October.

Index Numbers of Wholesale Prices, 1913-38¹, and by Months, 1939

(1926 = 100)

Year	Index	Year	Index	Year	Index
1913	64.0	1926	100.0	1939—	
1914	65.5	1927	97.7	January	73.2
1915	70.4	1928	96.4	February	73.2
1916	84.3	1929	95.6	March	73.2
1917	114.3	1930	86.6	April	73.4
1918	127.4	1931	72.1	May	73.7
1919	134.0	1932	66.7	June	73.3
1920	155.9	1933	67.1	July	72.6
1921	110.0	1934	71.6	August	72.4
1922	97.3	1935	72.1	September	78.2
1923	98.0	1936	74.6	October	79.3
1924	99.4	1937	84.6	November	-
1925	102.6	1938	78.6	December	-

¹ 236 commodities to 1926; 502 from 1926 to 1934; subsequently 567

Nutrition and Family Living Expenditures.—The Bureau has recently conducted an investigation into this subject. The survey covered 12 cities and information was obtained which showed, not only the ordinary living expenses of families with incomes of from \$450 to \$2,500 per annum, but also the number of persons per family, persons per room, children per family, ownership of automobiles, etc. Several bulletins have been issued and may be obtained on application.

Cost of Living

Statistics of cost of living constitute a very important phase of price statistics. Index numbers of retail prices, rents, and costs of services, issued by the Bureau of Statistics, are constructed to measure the general movement of such prices and costs in the Dominion as a whole. They are computed in such a manner as to make comparisons possible with other general index numbers constructed on similar principles, as, for example, the index of wholesale prices. Calculated as they are on the aggregative principle, i.e., the total consumption of each commodity, the Bureau's index numbers afford an excellent measurement of changes in the average cost of living in the Dominion as distinguished from that of any particular class or section.

Index Numbers of Retail Prices, Rents, and Costs of Services, 1930-38, and by Months, 1939¹

(Average prices in 1926=100)

Year	Total Index	Food Index	Fuel Index	Rent Index	Cloth- ing Index	Sun- dries Index
1930.....	99.2	98.6	95.7	105.9	93.9	99.4
1931.....	89.6	77.3	94.2	103.0	82.2	97.4
1932.....	81.3	64.3	91.4	94.7	72.3	94.6
1933.....	77.5	63.7	87.7	85.1	67.1	92.6
1934.....	76.6	69.4	87.7	80.1	69.7	92.1
1935.....	79.1	70.4	86.8	81.3	69.9	92.2
1936.....	80.8	73.4	86.4	83.7	70.5	92.9
1937.....	83.1	77.3	84.9	86.9	72.7	93.4
1938.....	84.1	78.0	85.1	89.8	73.3	94.1
1939—1						
January.....	83.3	75.2	85.7	90.1	72.8	94.2
February.....	83.1	74.5	85.4	90.1	72.8	94.2
March.....	83.1	74.5	85.3	90.1	72.8	94.1
April.....	83.1	74.5	85.1	90.1	72.8	94.2
May.....	83.1	74.6	84.5	90.0	72.8	94.3
June.....	82.9	74.3	84.3	90.0	72.6	94.1
July.....	83.1	75.1	83.9	90.0	72.6	94.1
August.....	83.0	74.9	83.7	90.0	72.6	94.1
September.....	82.9	74.2	83.8	90.0	73.1	94.1
October.....	84.7	79.8	85.1	89.9	73.1	94.1
November.....	85.0	80.5	86.1	89.9	73.1	94.2
December.....	—	—	—	—	—	—

¹ Preliminary figures.

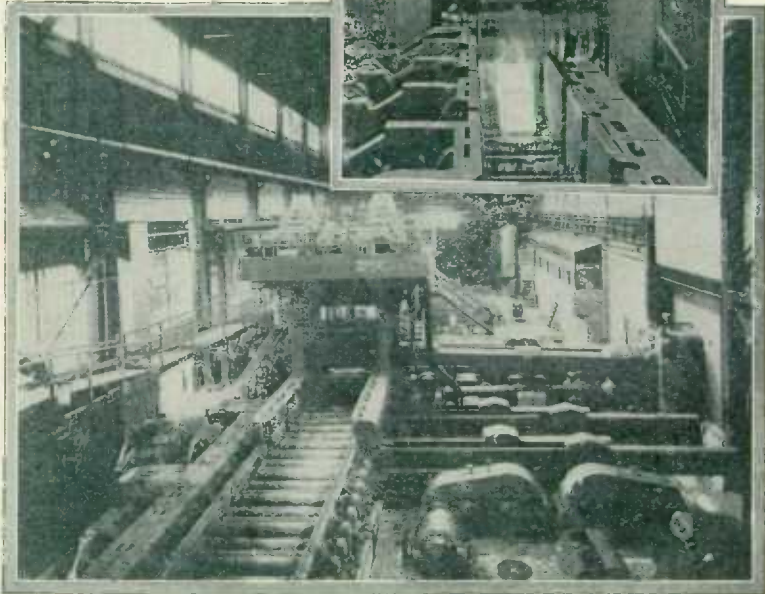
The movements in living costs prior to the War of 1914-18 have been similar to those already outlined for wholesale commodity prices. From 65.4 in 1913, the Bureau's cost of living index mounted to 124.2 in 1920, and then declined sharply to 100.0 in 1922. There was little change of importance from that time until 1930, when the index was 99.2. In the next three years, however, it followed the lead of primary markets and declined to 77.5. Between 1934 and 1938 a gradual upward movement carried the average index up to 84.1. However, an irregular monthly decline, first noticed in the fall months of 1938, persisted throughout 1939 with the result that the September index stood at 82.9. In October the index rose to a high point of 84.7 for the year.

CHAPTER XV

THE MANUFACTURES OF CANADA

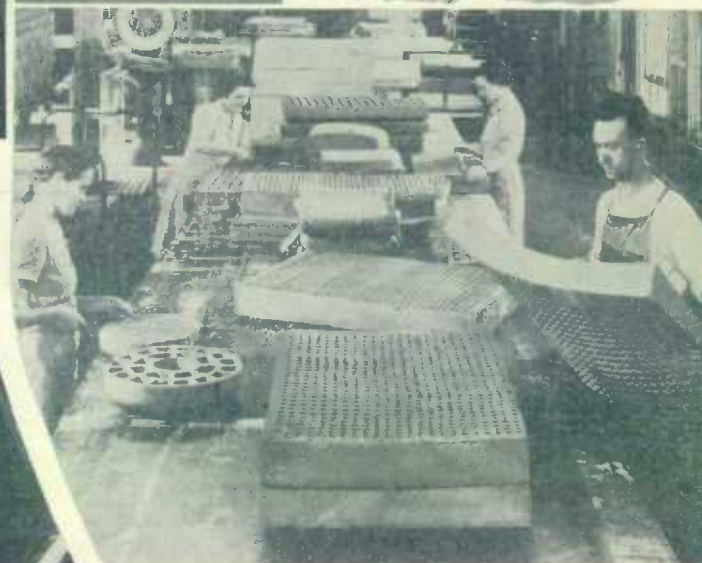
The present century has witnessed the chief forward movement in Canadian manufactures, mainly as the result of two great influences: first, the opening up of the West, which greatly increased the demand for manufactured goods of all kinds and especially construction materials; and secondly, the first World War, which left a permanent imprint upon the variety and efficiency of Canadian plants. By 1920, the gross value of Canadian manufactured products was no less than \$3,693,000,000, the capital invested \$2,915,000,000, and the number of employees 591,753.

View of the Mill taken from the Control Pulpit and showing the Manipulator Side Guards with Tilting Fingers located in Left Guard.



A 44-inch Blooming Mill at a Hamilton Steel Plant.—This view is taken from the approach side. The mill more than doubles the plant capacity for rolling ingots into 'blooms' and 'billets'. The range of sizes includes blooms up to 20 inches square and slabs up to a maximum of 51 inches wide.

Courtesy, Steel Company of Canada, Limited



Canada's Rubber Industry

Although producing no raw rubber, Canada ranks among the leading countries of the world as a manufacturer of rubber goods. Few articles of commerce bring Canada into touch with more countries, and strangely enough it is in selling rubber products, rather than in buying rubber, that Canada has dealings with so many countries.

Canadian factories use approximately 80,000,000 lb. of rubber and gutta percha in a year. About half of the output is automobile tires and rubber tubes, about one-third is rubber footwear, and the remainder includes a long list of products, chief among which are belting and hose. The annual value of rubber products made in Canada has only twice been below fifty million dollars in the past twelve years. About three-quarters of the production is for home use, the other quarter being exported to almost every corner of the globe. Tires alone go to more than a hundred countries.

The industry is concentrated mainly in Ontario and Quebec, the chief centres being Toronto, Hamilton, Kitchener, and Guelph in Ontario, and Montreal, Sherbrooke, Granby, St. Jérôme, and Lachine in Quebec.

The layout, on the reverse side, reading downward from left to right shows:—

Left.—(1) Removing an inner tube from the mould. (2) The operation of building up truck tires. (3) Inserting the airbag for the shaping of truck tires by expansion process prior to placing in the vulcanizing moulds.

Left Centre.—(1) Rubber hose being built up layer by layer on a backbone of spiral metal core. (2) Special insulating compound being moulded round copper cable.

Centre.—A typical Ontario rubber goods factory.

Right Centre.—(1) The manufacture of rubber footwear. (2) Rubber hot water bottles being moulded from expensive dies.

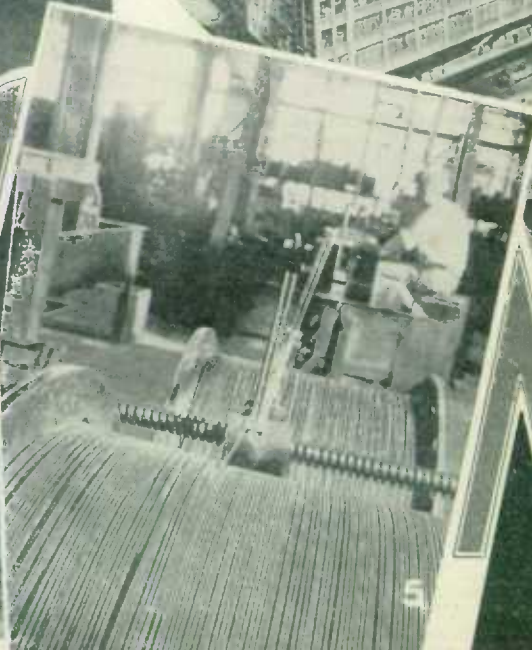
Right.—(1) Manufacturing rubberized cloth by rolling special rubber compound right into the fabric. (2) Mixing the compound for rubberizing cloth, by means of hot shiny rollers. (3) Inspection of rubber bands; a never-ending stream passes these girls who must be eagle-eyed to pick out the faulty ones.

The layout to the left reading from left to right and downward, shows:—(1) Scott testing machine used for determining tensile strength and elongation of rubber samples. (2) Hardness tester machine used for determining state of cure of a rubber compound. (3) Inspection of finished foamed latex products. (4) Machines winding rubber thread on golf balls. *Inset:* Marking and final inspection of the golf balls.

Courtesy, Canadian Industries Limited; Canada Wire and Cable Co.; Dunlop Tire and Rubber Goods Co. Ltd.; Dominion Rubber Co. Ltd.; Firestone Tire and Rubber Co. Ltd.; The B. F. Goodrich Rubber Co. of Canada, Ltd.; Gutta Percha and Rubber Co. Ltd.; Seiberling Rubber Co. of Canada Ltd.; Viceroy Manufacturing Co. Ltd.



GLIMPSES OF CANADA'S RUBBER INDUSTRY



Hundreds of millions of capital had been attracted from outside (see p. 187) in achieving this striking result. After 1920 the figures declined, but subsequent gains brought them back, for 1929, to even higher levels than 1920, as the table below shows.

To-day, the manufacturing industries of Canada stand on the threshold of a new era in their development. The demands created by the present war, due to Canada's strategic position as a source of supply of food and armaments, is bound to have far-reaching effects on the magnitude and diversification of Canadian manufacturing production. Fortunately, Canadian manufacturers are well equipped to undertake the huge task which they will be called upon to perform.

The growth of Canadian manufactures is not just of recent origin, as is evident from the table below.

Historical Summary of Statistics of Manufactures, 1870-1937

Year	Estab- lish- ments	Capital	Em- ployees	Salaries and Wages	Cost of Materials	Net Value of Products ¹	Gross Value of Products
	No.	\$	No.	\$	\$	\$	\$
1870.....	41,259	77,964,020	187,942	40,851,009	124,907,846	96,709,927	221,617,773
1880.....	49,722	165,302,623	254,935	59,429,002	179,918,593	129,757,475	309,678,068
1890.....	75,964	353,213,000	369,595	100,415,350	250,759,292	219,088,594	469,847,886
1900 ²	14,650	446,916,487	339,173	113,249,350	266,527,858	214,525,517	481,053,375
1910 ²	19,218	1,247,583,609	515,203	241,008,416	601,509,018	564,466,621	1,105,975,639
1920 ²	22,157	2,914,518,693	591,753	711,080,430	2,083,579,571	1,609,168,808	3,692,748,379
1929 ²	22,216	4,004,892,009	666,531	777,291,217	2,029,070,813	1,755,386,937	3,883,446,116
1933 ²	23,780	3,279,259,838	468,658	436,247,824	967,788,928	919,671,181	1,954,075,785
1934 ²	24,209	3,249,348,864	519,812	503,851,055	1,229,513,621	1,087,301,742	2,393,692,729
1935 ²	24,034	3,216,403,127	556,664	559,467,777	1,419,146,217	1,153,485,104	2,653,911,209
1936 ²	24,202	3,271,263,531	594,359	612,071,434	1,624,213,990	1,289,592,672	3,002,403,814
1937 ²	24,834	3,465,227,831	660,451	721,727,037	2,006,926,787	1,508,924,867	3,625,459,500

¹ For and since 1929 the figures for the net value of production represent the gross value less the cost of materials, fuel and electricity. Prior to this, only the cost of materials is deducted. ² Includes all establishments employing five hands or over. ³ Includes all establishments irrespective of the number of employees but excludes construction and custom and repair work.

In 1937 the value of production amounted to \$3,625,459,500, an increase of 20.7 p.c. over the previous year but still 6.7 p.c. below the 1929 level. For the first time since the depression set in the volume of production exceeded that of 1929, the previous peak year. It is estimated that the increase is between 5 and 6 p.c. The drop in the gross value of production 1929-37, noted above, was largely due to a drop of 13.5 p.c. in the wholesale prices of manufactured products. In 1937 the number of employees rose to 660,451, an increase of 11.1 p.c. from the 1936 figures; the increase in the salary and wage payments amounted to \$109,655,603, and average earnings rose to \$1.093. The following statement shows the percentage variation in employment, salary and wage payments, and value of production since 1929.

Item	Percentage Variation Compared		
	1933 with 1929	1937 with 1929	1937 with 1936
Employees.....	-29.6	-0.9	+11.1
Salaries and wages paid.....	-43.8	-7.1	+17.9
Gross value of products.....	-49.6	-6.7	+20.7

Industries, by Provinces and Purpose Groups

Among the manufacturing groups, analysed on a purpose classification basis, and judged by gross value of production, the producers materials group, which includes manufacturers and building materials, ranked first in 1937 with 33.6 p.c. of the total value of manufactured products. The industries manufacturing food products came second with 21.9 p.c. of the total, followed by the industrial equipment group with 15.2 p.c., vehicles and vessels 8.8 p.c., clothing industries 7.5 p.c., drink and tobacco 4.2 p.c.

Census of Manufactures, by Provinces and Purpose Groups, 1937

Province or Group	Estab-lish-ments	Capital	Em-employees	Salaries and Wages	Cost of Materials	Net Value of Products ¹	Gross Value of Products
Province	No.	\$	No.	\$	\$	\$	\$
P.E.I.	246	2,637,472	1,062	807,541	2,386,091	1,117,298	3,566,691
N.S.	1,135	94,756,801	18,088	16,727,738	46,984,052	33,140,796	84,393,656
N.B.	805	89,797,597	15,612	14,563,310	36,983,284	28,770,72	69,479,207
Que.	8,518	1,117,772,721	129,033	216,971,207	562,889,160	445,885,666	1,046,470,796
Ont.	9,190	1,474,803,201	321,743	373,018,048	1,025,871,741	814,703,114	1,880,388,188
Man.	1,043	119,363,026	23,706	27,198,878	87,684,514	49,950,465	140,805,451
Sask.	989	39,279,050	6,107	6,758,154	43,782,999	17,068,655	62,205,884
Alberta.	1,95	70,804,070	12,524	13,903,062	55,898,599	28,923,095	86,225,069
B.C. and Yukon	1,713	256,011,093	42,576	51,979,393	144,466,346	99,359,051	251,924,258
Totals	24,834	3,465,227,831	669,451	721,727,037	2,008,926,787	1,508,524,867	3,625,459,600
Purpose Group							
Producers materials	6,892	1,482,194,043	208,930	232,733,013	634,232,482	517,085,301	1,221,670,588
Food	8,696	441,611,585	96,740	94,656,930	558,118,480	222,874,824	792,271,852
Industrial equipment	2,086	629,908,231	97,250	119,070,287	280,540,896	256,338,599	551,891,976
Vehicles and vessels	376	248,940,257	55,141	71,890,706	186,070,917	128,554,741	319,280,534
Clothing	2,158	173,474,299	95,214	79,547,935	148,901,374	120,812,007	271,690,917
Drink and tobacco	668	187,487,631	21,646	24,398,981	68,935,399	81,472,043	152,152,105
Book and stationery	2,349	137,392,420	40,348	53,453,842	44,257,314	92,638,593	138,673,644
House furnishings and equipment	800	89,293,123	27,446	27,169,931	41,836,387	46,648,414	90,102,397
Personal utilities	634	43,476,516	12,420	12,729,626	28,185,411	26,387,756	55,289,473
Miscellaneous	175	31,440,726	5,255	6,075,786	15,842,137	16,052,889	32,436,614

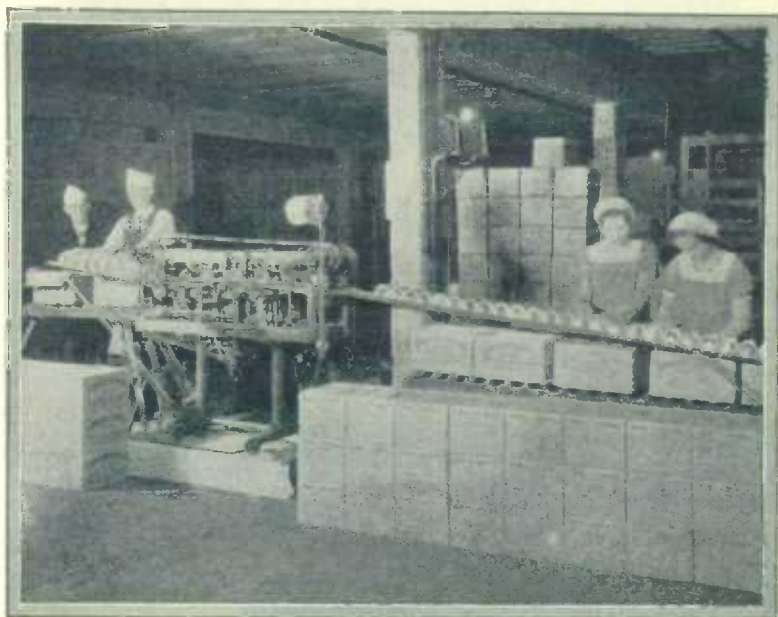
¹ Gross value less cost of materials, fuel, and electricity.

In the paragraphs following, a short review will be given of the two groups of industries most likely to feel the effects of the increased demands occasioned by the present war. As mentioned previously these two groups are the "food" and "iron and steel" industries.

FOOD INDUSTRIES

To supply the daily needs of the Canadian people for food is a huge task requiring the labour of many people and an organization which is world-wide in its ramifications. Some of the leading industries in this group with their gross values of production in 1937 were as follows: slaughtering and meat packing, \$181,419,311; flour and feed mills, \$133,634,179; butter and cheese, \$124,935,055; bread and other bakery products, \$76,462,891; fruit and vegetable preparations, \$50,289,711; biscuits

and confectionery, \$49,475,403; sugar, \$40,916,044; coffee, tea, and spices, \$27,035,275; fish curing and packing, \$26,088,625; miscellaneous foods, \$20,172,809; breakfast foods, \$11,461,213; and condensed milk, \$11,247,823. A brief review of the more important of these industries follows.



The Shipping Room of a Canadian Cannery.—The fruit and vegetable preparation industry in Canada showed a capital investment of well over \$47,000,000 and distributed, in salaries and wages, \$7,200,000 in 1937. The large majority of employees in this industry are female and are seasonally employed.

Courtesy, Canadian Government Motion Picture Bureau

Slaughtering and Meat Packing.—Slaughtering and meat packing is the leading industry of the food group. In 1937 its output was valued at \$181,419,311; it furnished employment to 13,070 persons who were paid \$17,085,008 in salaries and wages. About \$121,000,000 was paid out by packers for live stock. The packing plants are concentrated in the larger centres of population and are located in all provinces, with Ontario, Quebec, Manitoba, and Alberta of chief importance in the order named. Of the 138 establishments, 36 contributed 91 p.c. of the total output, while 7 of the largest plants had an average production of about \$13,000,000. The same is true of employment. Thirty-six plants reported 89 p.c. of the total number of persons employed, while the seven largest plants averaged 868 employees each. This industry contributes materially to the foreign trade of Canada. The exports in 1937 totalled \$54,113,878, the principal single item comprising "bacon and hams, shoulders and sides". Imports in 1937 were \$13,671,616 and consisted chiefly of hides and skins, sausage casings, gelatine, and meat.

Dairy Products.—Manufacturing statistics of dairy production are given in the chapter on Agriculture at pp. 63-66.

Flour Milling.—The flour-milling industry with an output valued at \$133,634,179 in 1937 is one of the leading industries of the group from the point of view of gross value of production. This industry, which has existed to meet the domestic needs for more than 300 years, is one of the Dominion's oldest manufactures, but it is only within recent times that its progress has become outstanding. The first World War gave a great impetus to this trade. The 335 flour mills, as distinguished from feed mills, many of them of the most modern type and highest efficiency, have a capacity far in excess of Canada's demands. During 1928, productive capacity reached about 121,000 barrels per day. Since then, this industry has been adversely affected by the difficulties that have beset the Canadian grain trade and the decline in the prices of grains. Exports of wheat flour declined from 10,737,266 barrels in 1928 to 4,087,011 barrels in 1937 but in spite of the decrease Canada continues to be one of the leading exporters of wheat flour.

The flour-milling industry has a tremendous capacity to produce whatever flour may be needed under present war conditions. In 1937, the maximum daily capacity of the mills was 102,057 barrels per day of 24 hours, or an annual capacity of over 37,000,000 barrels. Even if the industry were to work only at 75 p.c. of its capacity, over 27,000,000 barrels of flour could be produced. Such a production would allow for an export of about 17,000,000 barrels per annum, an increase of 13,000,000 barrels over the quantity exported in 1937.

Canned Foods.—The development in the production of canned foods in Canada has shown a remarkable expansion since the beginning of the twentieth century. In 1900 the total value did not exceed \$8,250,000, but in 1930 it had increased to more than \$55,000,000, or six and one-half times as much. In 1933 the value of production dropped to \$33,000,000, and rose again to \$62,000,000 in 1937. The principal commodities used in the canning industry are: fish, fruits and vegetables, milk, and meats, while the industry itself forms an adjunct of considerable importance to other industries, notably the tin-can industry, the wooden-box industry, and the paper and printing industries. The development of the canned-foods trade has effected great changes in the relation of foods to seasons. Fruits and vegetables of many kinds, retaining much of their original freshness and flavour, are to be had at all times of the year. Producers in the country are provided with an enormously extended market, and consumers in both city and country with cheap and wholesome food in great variety. The consumer also enjoys protection by the inspection services of the Department of Agriculture and the Department of Fisheries.

Quantity and Value of Principal Foods Canned in Canada, 1937

Product	Quantity	Value
		\$
Fish.....case	2,217,708	13,619,606
Fruits....."	2,120,413	5,251,981
Vegetables....."	9,611,050	17,117,580
Meats.....lb.	6,093,546	1,318,900
Soups.....case	2,426,739	6,021,687
Concentrated milk products.....	-	10,078,192
Other foods.....	-	8,786,959
Total	-	62,194,905

Biscuits and Confectionery.—The value of biscuits and confectionery produced in Canada totalled \$49,475,403 in 1937. Of this amount \$14,103,665 was represented by biscuits, \$24,233,992 by chocolate and sugar confectionery, and the balance of \$11,137,746 by cocoa and chocolate, nuts, and other products. Large quantities of biscuits and confectionery are consumed annually in Canada. In 1937 the per capita consumption of biscuits amounted to 9.64 pounds and confectionery 12.1 pounds. The biscuit, confectionery, and cocoa and chocolate industry is thus of considerable importance. In 1937 there were 223 establishments reporting. These plants had a capital investment of \$38,565,652; they furnished employment to 11,879 persons who were paid \$10,892,004 in salaries and wages. The industry is concentrated mainly in Ontario.

Sugar.—The production of sugar requires the construction of large factories entailing huge capital investments. In 1937 there were 10 plants in operation with an average investment in fixed and current assets of over \$3,500,000 each. The location of these plants was as follows: Nova Scotia, 1; New Brunswick, 1; Quebec, 2; Ontario, 3; Alberta, 2; and British Columbia, 1. The selling value at the factory of the products made by the industry totalled \$40,916,044. To produce the large quantity of sugar required by Canadians, it took the labour of 2,332 persons who received \$3,318,861 in salaries and wages. The quantity of sugar produced reached the huge total of 1,025,553,455 pounds, enough sugar to allow more than 92 pounds to every person in Canada. Both cane and beet sugar are produced. Beet sugar is produced in Ontario and Alberta from locally grown beets and constituted 11.8 p.c. of the total output in 1937. The production of beet sugar has risen considerably during the past decade, the output having increased from 60,969,131 pounds in 1927 to 120,440,235 pounds in 1937. The sugar-refining industry is, therefore, of considerable importance in the industrial life of Canada.

IRON AND STEEL INDUSTRIES

The iron and steel industries account annually for about 17 p.c. of all factory output in the Dominion and for about 19 p.c. of factory employment. In 1937 the gross output value for the 1,345 establishments in this group was \$624,819,877 and the number of employees, 127,148.

Pig iron production totalled 705,427 long tons in 1938, a decline of 21 p.c. from 1937. Only 4 companies operate iron-ore blast furnaces in Canada but, if operated at capacity, these plants could make 1,450,000 tons of pig iron per year. In 1938 only 6 units were used and output amounted to less than one-half of the Dominion's capacity. The record production was in 1929 when 1,080,160 tons were made and the next best year was 1918 with 1,067,456 tons.

In 1938 alone the imports of iron ore totalled 1,302,430 tons, of which about 50 p.c. was from the United States for use in Ontario and about 50 p.c. from Newfoundland for use in Nova Scotia.

Recent developments with respect to iron ore in Canada are therefore important. In 1939, after a lapse of 15 years, Canada again became a producer of iron ore for blast furnace use. The Algoma Steel Corporation Limited, stimulated by an Ontario Government bounty, began work two

Checking the Size
of Rolls.



A Large 30-inch Rail and Structural Mill on which Heavy Structural
Sections are Rolled.

Courtesy, Algoma Steel Corporation, Limited, Sault Ste. Marie

years ago on a beneficiating plant, the objective being to sinter their low-grade siderite ore and so raise the iron content to the standard required for blast furnace use. Initial shipments were made in August, 1939. When finally completed this plant will have a yearly capacity of about 300,000 tons of sintered ore. The immense reserve of crude ore is estimated at 100,000,000 tons.

Of even greater importance from a national standpoint are the recent developments at Steep Rock Lake, 145 miles west of Port Arthur, where diamond drilling has outlined a huge tonnage of iron ore of exceptionally high grade, about 61 p.c. iron content compared with 51 p.c. iron in the imported ores which are now being used. Development work is now being pushed on this property with the expectation that shipments will begin early in 1940.

Production of steel ingots and castings in 1938 totalled 1,152,728 tons including 1,103,090 tons of ingots and 49,638 tons of castings. Steel furnaces operated at about 61 p.c. of capacity. The record output of steel was in 1918 when 1,672,954 tons were produced.

Rolled products such as billets, rails, bars, wire rods, plates, etc., are now made in 16 different mills, the value of output amounting to \$46,040,787 in 1938. Recent additions to the products made in these works include heavy structural shapes, plates up to 42 inches in width and tin plate, all of which were previously imported in large quantities. Special attention has been given to alloys and special steels and Canadian mills are now able to supply practically all of the domestic requirements of these materials.

Among the secondary or fabricating groups, the automobile industry is most important, production of cars and trucks in 1938 amounting to

166,086 units valued at \$108,158,725 at factory prices. Canadian-made cars are shipped to all parts of the world, exports in 1938 amounting to 57,767 in number and \$22,235,474 in value.

The manufacture and maintenance of railway cars and locomotives ranked next to automobiles in output value and led all iron and steel industries in the number of persons employed. The 37 establishments in this group reported gross pro-

duction in 1938 at \$81,936,751 and the number of employees at 19,905.

Armament orders contributed to the expansion of the aircraft industry as output advanced to \$6,927,105 in 1938 from \$1,730,724 in 1937. Production included 282 complete machines valued at \$4,001,622.

Output values for other industries in this group were as follows in 1937: sheet metal products, \$49,132,766; farm implements, \$18,961,394; machinery, \$57,096,816; iron castings, \$41,913,753; wire and wire goods, \$23,558,635; shipbuilding, \$10,360,686; boilers and engines, \$11,211,501; heating and cooking apparatus, \$15,976,018; hardware and tools, \$22,464,718; and bridge and structural steel work, \$16,850,324.



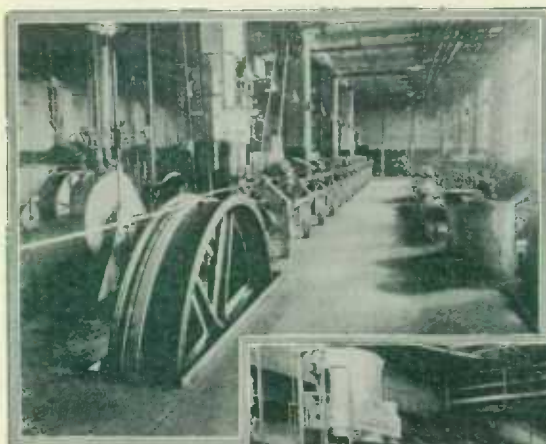
A Multiple Wood-Carver in Operation.—This machine cuts out a large number of identical designs in one operation.

Courtesy, Canadian Industries Limited

Leading Individual Industries

The industries based on mineral resources have taken their place among the leading manufactures of Canada along with the industries based upon forest, and agricultural (including live-stock) resources.

The pulp and paper industry, although of comparatively recent development, had, by 1923, displaced flour milling as Canada's most



Insulating a Power Cable with Paper Wrapping.

Right—Lead-Covering of the Cables.

Below—The Cable Testing Department of a Large Montreal Plant.



Right—The Insulated Power Cable being Removed from the Impregnating Tank before the Lead Sheathing Operation.



The Manufacture of Power Cable.—Cable insulated and sheathed as shown is used for both high and low tension power lines where they come into populated areas.

Courtesy, Northern Electric Company Limited, Montreal

important manufacturing industry and, in spite of recent vicissitudes, held that position up to 1935 when it was displaced by the non-ferrous metal smelting and refining industry. In employment, and salaries and wages paid, however, pulp and paper is still the leading industry.

The incidence of the depression resulted in a re-arrangement in the rank of many industries that has already proved temporary in some cases. The suspension of capital expenditures, a serious factor in the depression, greatly reduced the output of such important industries as sawmills, electrical equipment, automobiles, railway rolling-stock, primary iron and steel, machinery, etc. On the other hand, demand for goods for immediate consumption was more stable, especially in such industries as petroleum products, bakeries, cotton yarn and cloth, printing and publishing, clothing, tobacco, beverages, etc. However, as previously stated, some return to the pre-depression order of importance is in evidence. Comparing the rankings for 1933 with those for 1937, it may be noted that automobiles came up from eleventh to fourth place, sawmills from fourteenth to seventh, electrical equipment from sixteenth to eighth; cotton yarn and cloth, and bread and other bakery products, which appeared in eighth and seventh places, respectively, in 1933, dropped back again to fourteenth and eleventh.

Principal Statistics of Fifteen Leading Industries, 1937

Industry	Estab- lish- ments	Capital	Em- ployees	Salaries and Wages	Cost of Materials	Gross Value of Products ¹
	No.	\$	No.	\$	\$	\$
Non-ferrous metal smelt- ing and refining.....	14	162,696,595	11,570	17,990,947	201,862,965	318,278,251
Pulp and paper.....	98	570,352,287	33,205	48,757,795	91,121,629	226,244,711
Slaughtering and meat packing.....	138	65,411,606	13,070	17,085,008	148,057,651	181,419,311
Automobiles.....	15	57,996,242	14,946	22,138,991	92,706,147	134,810,280
Flour and feed mills.....	1,086	56,280,032	5,803	5,877,756	111,558,331	133,634,179
Butter and cheese.....	2,558	60,001,842	16,583	15,699,085	91,175,996	124,935,055
Sawmills.....	3,836	90,405,103	33,917	27,173,872	57,280,080	104,849,785
Electrical apparatus and supplies.....	191	97,187,905	21,706	26,291,436	41,695,446	98,841,992
Petroleum products.....	57	64,280,266	5,137	8,246,843	80,401,880	98,454,014
Railway rolling-stock.....	37	88,426,476	21,496	29,187,157	56,191,146	93,854,555
Bread and other bakery products.....	3,179	49,164,576	21,252	19,759,740	39,498,456	76,462,891
Rubber goods (including footwear).....	50	65,119,212	13,035	14,041,066	31,126,755	74,263,753
Primary iron and steel.....	55	96,875,377	14,054	19,929,498	33,805,631	72,280,669
Cotton yarn and cloth.....	38	67,832,556	19,160	16,350,956	42,063,654	72,113,878
Printing and publishing.....	779	53,235,912	17,834	25,189,376	12,990,521	60,982,409
Totals, Fifteen Leading Industries.....	12,129	1,595,265,989	263,768	313,716,526	1,121,526,298	1,871,425,723
Grand Totals, All In- dustries.....	24,524	3,465,227,831	660,451	721,727,037	2,006,926,787	3,625,459,500
Percentages of Fifteen Leading Industries to All Industries.....	48.9	46.0	39.8	43.5	56.3	51.6

¹ Net value is obtained by deducting cost of materials, fuel, and electricity used in manufacturing from the gross value.

Manufactures in Leading Cities

Montreal proper, with an output valued at \$511,481,054 in 1937, exceeded Toronto proper, with \$475,470,149. After these two cities came Hamilton with \$170,651,205, Windsor \$136,896,194, Vancouver \$95,717,017, and Winnipeg with \$80,108,696. Fifteen other places had manufactures with a gross value of production of over \$25,000,000 in 1937.

Cities of Canada with a Manufacturing Production of Over Twenty-Five Million Dollars in 1937

City	Estab- lish- ments	Capital	Em- ployees	Salaries and Wages	Cost of Materials	Gross Value of Products ¹
	No.	\$	No.	\$	\$	\$
Montreal.....	2,474	415,816,451	105,931	112,652,112	281,407,615	511,481,054
Toronto.....	2,797	423,350,508	96,247	115,520,050	247,422,098	475,470,149
Hamilton.....	479	182,730,036	32,016	40,255,040	83,978,873	170,651,205
Windsor.....	228	77,750,511	18,650	26,019,449	78,667,058	136,896,194
Vancouver.....	824	85,851,189	17,641	20,783,032	53,139,109	95,717,017
Winnipeg.....	622	72,419,041	17,284	19,687,511	45,498,865	80,108,696
Montreal East.....	11	39,820,004	2,018	2,802,796	49,062,688	63,651,833
Oshawa.....	45	25,155,927	6,652	8,831,017	39,347,172	59,884,575
Kitchener.....	161	35,456,720	9,338	9,754,831	24,043,367	46,747,407
London.....	239	36,891,879	9,731	10,793,037	21,373,863	46,168,611
Peterborough.....	76	22,279,586	5,766	5,928,739	17,051,515	32,478,113
Quebec.....	299	47,856,602	9,674	8,532,341	15,817,137	31,480,045
Calgary.....	170	26,018,084	4,238	5,308,491	19,480,087	30,555,738
Edmonton.....	175	19,559,054	4,460	5,294,026	19,480,580	29,264,699
Three Rivers.....	52	59,201,086	5,737	6,579,468	13,446,983	29,102,521
Ottawa.....	203	33,743,492	7,013	8,546,417	13,155,129	28,244,935
New Toronto.....	19	26,571,130	2,957	4,256,507	15,238,764	28,046,465
Brantford.....	107	38,999,182	7,277	7,411,079	14,714,828	28,017,964
Sarnia.....	47	16,858,650	3,159	4,368,227	21,261,941	26,720,108
St. Boniface.....	42	10,533,632	1,778	2,252,237	19,066,261	25,627,615
St. Catharines.....	90	21,874,082	5,463	6,295,818	13,593,287	25,291,903

¹ Net value is obtained by deducting cost of materials, fuel, and electricity used in manufacturing from the gross value.

Conditions During the Years 1934-39

Perhaps the best all-round barometer of conditions is afforded by the indexes of employment maintained from month to month in the Dominion Bureau of Statistics. These are based on returns received from establishments having 15 hands or over and include the great majority of employees. The indexes are given below for the latest six years.

Indexes of Employment in Manufactures

(1926=100)

Month	1934	1935	1936	1937	1938	1939	Month	1934	1935	1936	1937	1938	1939
Jan. 1	80.0	87.4	96.8	102.4	108.6	104.3	July 1	93.8	98.5	104.7	119.0	111.8	111.3
Feb. 1	84.2	90.1	98.5	105.3	110.3	105.0	Aug. 1	94.2	99.8	104.9	118.1	110.0	112.8
Mar. 1	86.5	92.7	99.5	107.6	110.5	107.0	Sept. 1	94.3	100.8	105.9	121.2	113.8	115.3
Apr. 1	88.1	93.9	101.1	110.8	110.8	107.1	Oct. 1	94.4	103.3	109.0	121.7	112.5	119.7
May 1	90.2	95.6	102.7	113.8	110.6	108.4	Nov. 1	92.8	103.5	107.7	119.0	110.9	122.1
June 1	93.2	98.4	103.4	117.9	112.3	111.4	Dec. 1	91.3	101.4	107.0	116.3	110.1	-



A Glimpse of the Rugged Coast of Cape Breton Highlands National Park, Nova Scotia.

Courtesy, National Parks Bureau of Canada

delightful outings over the highways and trails that penetrate its mountain fastnesses. Located on the International Boundary, it adjoins Glacier National Park in Montana, with which it forms the Waterton-Glacier International Peace Park.

CHAPTER XVI

THE NATIONAL PARKS OF CANADA

Among Canada's most valuable possessions is her fine system of national parks. Nineteen regions of outstanding beauty or interest, which comprise a total area of 12,403 square miles, are set aside for the perpetual use and enjoyment of the people. The national parks conserve the wild life of Canada under natural conditions, preserve the original beauty of the landscape, and provide remarkable opportunities for outdoor life and recreation. They are administered by the Department of Mines and Resources through the National Parks Bureau.

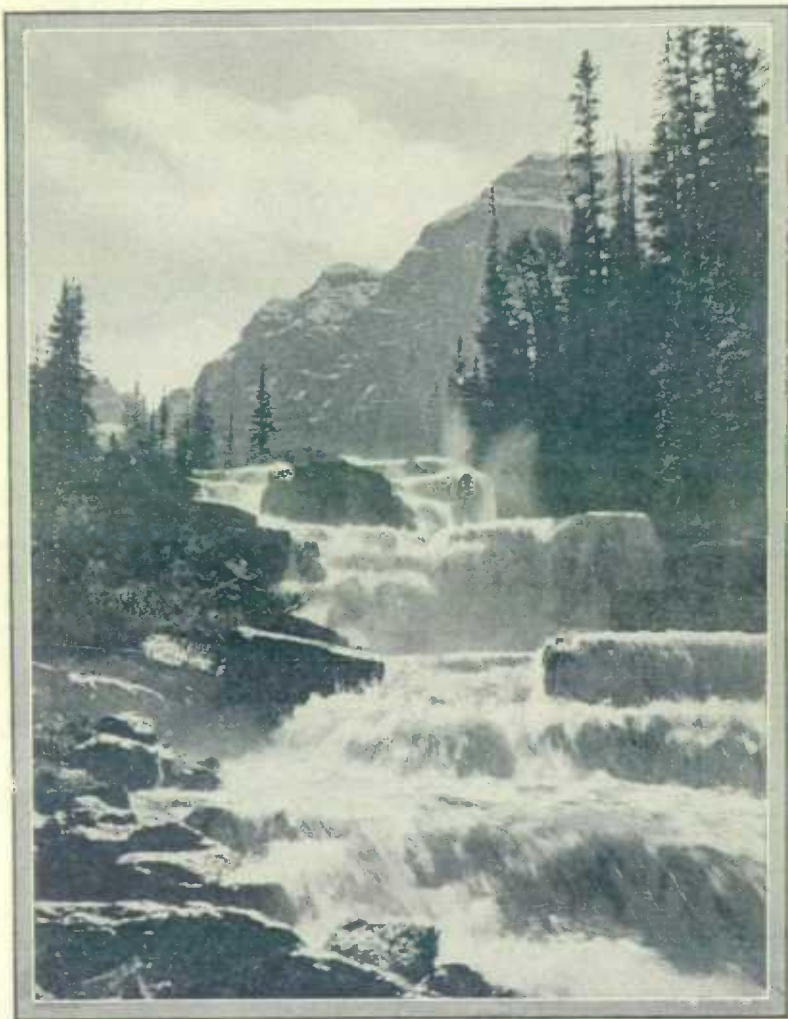
Within the parks nearly 700 miles of motor roads and 3,000 miles of trails have been built to open up new and interesting regions. Picturesque towns have developed at the administrative centres of the larger parks, where facilities for recreation such as golf courses, tennis courts, outdoor swimming pools, and bath-houses have been made available. Lakes and streams are periodically stocked with game fish, and accommodation for tourists operated by private enterprise has been supplemented by the provision of equipped public campgrounds. The local administration of the parks is carried out by resident superintendents or other officials.

The scenic and recreational parks situated in the Rocky and Selkirk Mountains of Alberta and British Columbia are best known, and contain regions of scenic grandeur probably unsurpassed in the world. Among the enormous ranges are hundreds of lofty peaks, huge glaciers, and beautiful valleys set with sparkling lakes or coursed by foaming streams. Banff National Park, 2,585 square miles in area, was the first national park established in the Dominion. It lies on the eastern slope of the Rockies and contains the world-famous resorts, Banff and Lake Louise. The town of Banff, the park headquarters, forms the centre of a remarkable system of trails and motor highways which provide access to such well-known points as Lake Louise, Moraine Lake, and the Mount Assiniboine regions, as well as adjacent park areas. An all-year resort, Banff offers a wide range of recreations both in summer and winter, and its accommodations are numerous and excellent.

Adjoining Banff Park to the north is Jasper National Park, largest on the continent. This immense area of 4,200 square miles is noted for its historical associations, and is also a summer and winter playground. Among its outstanding points of interest are Maligne Lake, Miette Hot Springs, Tonquin Valley, and Mount Edith Cavell. Set high on the shoulders of mighty peaks that form part of the Continental Divide, and extending into Banff Park is the Columbia Ice-field, the melting glaciers of which feed streams that eventually reach three oceans, the Atlantic, Arctic, and Pacific. A new scenic highway, which will connect Banff and Jasper Parks and provide access to the Columbia Ice-field, is expected to be open for tourist travel by July 1, 1940.

In southwestern Alberta is Waterton Lakes National Park, 220 square miles in area. Outstanding from a scenic point of view, Waterton offers

West of the Great Divide of the Rockies, which forms the boundary between Alberta and British Columbia, are Kootenay and Yoho Parks, both of which adjoin Banff Park. Yoho Park, 507 square miles in area, contains many remarkable scenic places including the famous Yoho Valley and Emerald, O'Hara, and Wapta Lakes. Kootenay Park borders the Banff-Windermere Highway for a distance of about 62 miles, and contains an area of 587 square miles. Its outstanding attractions are Radium Hot Springs, among the hottest in the Rockies, and Sinclair Canyon, a mighty chasm in the western wall of the Rockies.



The Giant's Steps in Paradise Valley, Banff National Park, Alberta.

Courtesy, National Parks Bureau of Canada

The western outposts of Canada's National Park system are Glacier and Mount Revelstoke Parks in the Selkirk Mountains. Glacier Park, served only by railway, is a primitive area of 521 square miles. Mount Revelstoke Park, containing 100 square miles, is situated at a general elevation of 6,000 feet above sea level, and is accessible by a spectacular highway from the town of Revelstoke.



Lake Louise, Banff National Park, Alberta.

Courtesy, Canadian Government Motion Picture Bureau

Eastward in the Prairie Provinces are found parks, different, but not less attractive, in type of beauty. Prince Albert National Park, containing an area of 1,869 square miles, lies almost in the geographical centre of Saskatchewan. It possesses a remarkable system of lakes interconnected by small streams and rivers, and forms a paradise for fishermen and lovers of outdoor life. Southeasterly, in Manitoba, is Riding Mountain National Park, a well-timbered area of 1,148 square miles situated at an altitude of 2,000 feet. It is easily accessible by rail and highway and ranks as one of Canada's most popular vacation centres.

Three national parks in Ontario provide ideal vacation and camping areas in beautiful surroundings. Point Pelee Park, the most southerly mainland point in Canada, has miles of fine sand beaches, and is also one of the outstanding bird sanctuaries of the Dominion. Georgian Bay Islands Park, comprising a group of islands in the famed Georgian Bay region, and St. Lawrence Islands Park, which includes several islands and a mainland reservation among the "Thousand Islands", also have been reserved for public use.

The recent establishment of Cape Breton Highlands National Park in Nova Scotia adds a new type of scenery to the Dominion playgrounds. This park contains 390 square miles, and its attractive sea beaches and rugged coastline, backed by a high mountainous tableland with deep valleys opening to the sea, provide views that are among the experiences of a lifetime. The park is accessible by the Cabot Trail, a motor highway which girdles its northern portion and connects with the main provincial highways.

Prince Edward Island National Park, established in 1937, extends along the northern shore of that province for a distance of 25 miles. In its seven square miles are magnificent stretches of fine sand beaches and dunes backed by forested and agricultural areas of great pastoral charm. These new maritime parks, where development is proceeding, promise to become two of the most popular vacation areas on the continent.

While all national parks are wild-life sanctuaries, some are more particularly devoted to the protection of big-game animals threatened with extinction by the advance of settlement over their former range. Buffalo and Elk Island National Parks, in Alberta, fenced areas of 197 and 51 square miles, respectively, contain large herds of buffalo and elk as well as a large number of moose and deer. Nemiskam National Park provides, within its area of eight square miles, a sanctuary for pronghorned antelope. Elk Island National Park also possesses excellent facilities for outdoor life and recreation and has been developed into a widely-known vacation area.

Another function of national park administration is that concerned with the preservation, restoration, and marking of historic sites throughout the Dominion. In the work of acquiring and selecting sites worthy of commemoration, the Dominion Government has the assistance of the Historic Sites and Monuments Board, a group of recognized authorities on the history of the section of the country they represent. Of the total number of sites that have been considered by the Board, nearly 300 have been suitably marked by the Department of Mines and Resources and many others recommended for future attention. Two of the largest and best-known historic sites in the Maritime Provinces, Fort Beauséjour, near Sackville, New Brunswick, and Fort Anne, at Annapolis Royal, Nova Scotia, have been established as national historic parks. Intimately associated with events relating to the early history of Canada, these parks possess fine museums containing many interesting exhibits.

National Parks are thus conserving for the future outstanding regions of natural beauty and places of national interest, to which Canadians and visitors from other countries have access for all time. Their value to Canada is increasing each year for they are not only serving to meet the educational and recreational needs of her people, but, by helping to swell the flow of tourist travel from abroad, they are also adding to the economic wealth of the nation.

CHAPTER XVII

PUBLIC FINANCE

Dominion Finance

Among the powers conferred on the Dominion Government by the British North America Act were: the right to deal with the public debt and property; the right to raise money by any system of taxation (the provinces were limited to direct taxation); and the borrowing of money on the credit of the Dominion. The Department of Finance was established in 1869 to have "supervision, control and direction of all matters relating to financial affairs, public accounts, and revenue and expenditure of the Dominion".



Casting Gold Bars
for Coinage.



Furnaces for Assay Work, Royal Canadian Mint, Ottawa.

Courtesy, Canadian Government Motion Picture Bureau

At Confederation the revenues, notably the customs and excise duties that had previously accrued to the treasuries of the provinces, were transferred to the Dominion and combined into a consolidated revenue

fund against which certain specific charges, such as cost of collection, interest on public debt, and salary of the Governor General, were made. The remainder of the fund was appropriated by Parliament. The public works, cash assets, and other property of the provinces, except lands, mines, minerals, and royalties, also became Dominion property. In its turn the Dominion became responsible for the pre-existing debts of the provinces.

Since the main source of the revenues of the provinces was now taken over, the Dominion undertook to pay annual subsidies to the provinces for the support of their governments and legislatures. With the growth of the Dominion, the principle of subsidy payments has been extended to the western provinces and from time to time adjustments have been made in the moneys so paid.

Dominion Finances, 1868-1939

Fiscal Year	Revenue Receipts	Per Capita Receipts ¹	Total Expenditure	Per Capita Expenditure ¹	Net Debt at End of Year	Net Debt per Capita ¹
	\$	\$	\$	\$	\$	\$
1868	13,687,928	3.90	14,071,689	4.01	75,757,135	21.58
1871	19,375,037	5.25	19,293,478	5.23	77,706,518	21.06
1881	29,635,298	6.85	33,796,643	7.82	155,395,780	35.93
1891	38,579,311	7.98	40,793,208	8.44	237,809,031	49.21
1901	52,516,333	9.78	57,982,866	10.80	268,480,004	49.99
1911	117,884,328	16.36	122,861,250	17.05	340,042,052	47.18
1921	436,292,184	49.65	528,302,513 ²	60.12	2,340,878,984	266.37
1926	382,893,009	40.51	355,186,423 ²	37.58	2,389,731,099	252.85
1931	357,720,435	34.48	441,568,413 ²	42.56	2,261,611,937	217.94
1932	334,508,081	31.84	448,742,316 ²	42.71	2,375,846,172	226.14
1933	311,735,286	29.19	532,369,940 ²	49.84	2,596,480,826	243.09
1934	324,660,590	30.00	458,157,905 ²	42.33	2,729,978,140	252.22
1935	361,973,763	33.10	478,106,581 ²	43.72	2,846,110,958	260.28
1936	372,595,996	33.79	532,585,555 ²	48.29	3,006,100,517	272.69
1937	454,153,747	40.84	532,035,432 ²	47.84	3,083,952,202	277.33
1938	516,692,749	46.10	534,408,117 ²	47.68	3,101,667,570	276.71
1939	502,171,354	44.37	553,033,097 ²	48.88	3,152,559,314	278.62

¹ Per capita figures for census years are based upon census populations and for intervening years on official estimates. ² Includes advances to railways and transfers from active to non-active assets.

At the time of the formation of the Dominion, the revenue collections were comparatively small but obligations shouldered by the central government provided for completion of the Intercolonial railway, and, with the entry of British Columbia, for the construction of the Canadian Pacific railway; early in the present century the National Transcontinental was undertaken. Indeed, the single item of railways and canals accounted for almost the entire increase in the net direct debt of from \$76,000,000 in 1868 to \$336,000,000 in 1914. To a very great extent, therefore, the national debt down to the War of 1914-18 represented expenditures for productive purposes and tangible assets were acquired by the Dominion therefor. Moreover, this debt was largely held outside Canada. The next decade witnessed the tremendous increase in the direct debt from \$336,000,000 to a maximum of \$2,453,777,000 in 1923—an increase of over two billions of dollars not represented, in the main, by corresponding assets, and upon which interest charges were relatively high. One redeeming feature was that the major portion of this debt was held within the country, for the abnormal prosperity induced by the War provided Canadians with the funds to invest in Government issues and the added

desire of the Government to tap the rapidly-accumulating resources of the masses was instrumental in instructing the man-in-the-street how to invest his money in bonds. Following 1923 there was a steady fall in the net direct debt to \$2,177,764,000 in 1930, but the depression, with accompanying railway deficits and large necessary expenditures for unemployment relief, has established a new high level of indebtedness of \$3,152,559,314, as at Mar. 31, 1939, or an equivalent of \$278.62 net debt per capita.

Fiscal Year 1938-39.—The Minister of Finance, the Hon. Chas. A. Dunning, in his Budget Speech of Apr. 25, 1939, outlined the financial position of Canada and estimated that the over-all deficit for 1939-40 should not exceed \$60,000,000, exclusive of any further losses which might be incurred through the Government's guarantee of wheat marketings.

The most important tax change was the provision for a credit against income tax equal to 10 p.c. of the capital expenditures made by any individual, firm, partnership, or corporation in the year preceding Apr. 30, 1940. Provision was also made for extension to Jan. 1, 1943, of the period of eligibility for the three-year exemption from income tax granted to new metalliferous mines. In order to implement the undertaking made in the United States-United Kingdom Trade Agreement, the Budget exempted all but goods entering the country under the General Tariff from the special excise tax of 3 p.c. on imports. Minor changes were made in the Customs Tariff and the Income War Tax Act, while under the Excise Act the tax on spirits used in making vinegar was increased from 27 cents per gallon to 60 cents per gallon.

The Special War Budget.—On Sept. 12, 1939, at a special session of Parliament called following on the outbreak of war in Europe, the Acting Minister of Finance, Hon. J. L. Ilsley, presented a comprehensive program of tax changes intended to provide revenues to meet the additional expenditures arising out of Canada's participation in the war. The most important feature of this program was the Excess Profits Tax Act, which provided for a tax on excess profits, to be calculated at the option of the taxpayer on either of two bases. One option embodies a graduated tax on profits when calculated as a percentage of capital employed in the undertaking, while the other option embodies a tax of 50 p.c. on the increase in profits over the average profits for the four years 1936, 1937, 1938, and 1939, or the four fiscal periods of the taxpayer ending therein. It was provided that, in either case, the ordinary income tax paid could be deducted as an expense before calculating the Excess Profits Tax.

Under the Income War Tax Act the ordinary rate of tax on corporations was increased from 15 p.c. to 18 p.c., while the rate on corporations making a consolidated return was increased from 17 p.c. to 20 p.c. A war surtax equal to 20 p.c. of the tax payable by individuals under existing income tax rates was levied. Allowance of contributions to patriotic organizations as a deduction up to 50 p.c. of net taxable income was also provided for.

Under the Excise Act the duty on spirits was increased from \$4 to \$7 per proof gallon; the duty on Canadian brandy was increased from \$3 to \$6 per proof gallon; the duty on malt was increased from 6 cents to 10 cents per pound; the duty on manufactured tobacco, with the exception of cigarettes, was increased from 20 cents to 25 cents per pound; the duty on

cigarettes weighing not more than three pounds per thousand was increased from \$4 per thousand to \$5 per thousand. Other changes affecting malt liquor and malt syrup were also made.

Under the Customs Tariff, increases were made in the duty on imported beers, liquors, wines, and tobaccos to correspond with the increases made in the tax on these products when manufactured domestically. In addition, there was imposed an increase in the duty on coffee of 10 cents per pound, and of 5 cents per pound on tea valued less than 35 cents per pound, 7½ cents per pound on tea valued 35 cents or more but less than 45 cents per pound, and 10 cents per pound on tea valued 45 cents or more per pound.



Chlorination Room, Refinery, Royal Canadian Mint, Ottawa.

Courtesy, Canadian Government Motion Picture Bureau

Although no increase was made in the rate of sales tax, important items were removed from the exempt list, including canned fish, salted or smoked meats, and electricity and gas when used in a dwelling place. Carbonic acid gas and similar preparations used for aerating non-alcoholic beverages were taxed at the rate of 2 cents per pound under the Special War Revenue Act, while the tax on wines of all kinds, except sparkling wines containing not more than 40 p.c. proof spirit, was increased to 15 cents per gallon; the tax on champagne and all other sparkling wines was increased to \$1.50 per gallon.

The Public Accounts.—In the Public Accounts, receipts on ordinary account are classified under two headings: (1) receipts from taxation; and (2) non-tax revenue resulting from public services maintained by the Government. Special receipts, which are usually of a non-recurring character, are included in a third category. Expenditures are now being classified under four headings: (1) ordinary expenditures, which include the

ordinary operating costs of government, pensions, subsidies to provinces, etc.; (2) capital expenditures on account of railways, canals, and public works; (3) special expenditures consisting chiefly of expenditures designed to relieve unemployment and agricultural distress, etc.; and (4) Government-owned enterprises, representing losses of, or non-active advances to Government-owned enterprises that are operated as separate corporations. Previous to the fiscal year 1935-36, this latter type of expenditure was shown under special expenditure or loans and advances (non-active).

The public revenues decreased by \$14,521,000 in 1938-39 as compared with the previous year, an all-time record in income tax collections being more than offset by declines in all other tax categories.

Total receipts from taxation for the year 1938-39 amounted to \$435,707,000 as compared with \$448,652,000 in the previous year, \$386,551,000 in 1936-37 and \$317,312,000 in 1935-36. Summary figures of receipts and expenditures follow:—

Summary of Total Receipts, Fiscal Years 1936-39

Item	1935-36	1936-37	1937-38	1938-39
	\$'000	\$'000	\$'000	\$'000
Customs Import Duties.....	74,005	83,771	93,456	78,751
Excise Duties.....	44,410	45,957	52,037	51,314
War Tax Revenue—				
Banks.....	1,281	1,210	1,107	1,014
Insurance companies.....	761	775	867	891
Income tax.....	82,710	102,365	120,366	142,026
Sales tax.....	77,552	112,832	138,055	122,139
Tax on cheques, excise taxes, etc.....	35,181	39,641	42,764	39,572
Tax on gold.....	1,412	—	—	—
Totals, Receipts from Taxation.....	317,312	386,551	448,652	435,707
Non-tax Revenues.....	54,910	58,478	61,646	62,310
Total Consolidated Fund Receipts.....	372,222	445,029	510,298	498,017
Special Receipts and Other Credits.....	374	9,125	6,395	4,154
Grand Totals	372,596	454,154	516,693	502,171

Summary of Total Expenditures, Fiscal Years 1936-39

Item	1935-36	1936-37	1937-38	1938-39
	\$'000	\$'000	\$'000	\$'000
Ordinary Expenditure.....	372,539	387,112	414,891	413,032
Capital Expenditure.....	6,544	3,492	4,430	5,424
Special Expenditure ¹	102,047	78,004	68,535	71,895
Government-owned Enterprises ²	50,841	44,218	44,833	58,944
Other Charges.....	515	19,179	1,719	3,768
Grand Totals	532,586	532,005	534,468	553,063

¹ Includes \$49,636,000 for unemployment relief in 1935-36; \$69,253,000 grants-in-aid to provinces and relief projects and \$8,751,000 special drought area relief in 1936-37; \$43,948,000 grants-in-aid to provinces and relief projects and \$24,586,000 special drought area relief in 1937-38; \$25,000,000 reserve against estimated losses on wheat marketing guarantees applicable to fiscal year 1938-39.

² Includes net income deficit of the Canadian National Railways (including Eastern lines) incurred in the calendar years 1935 to 1938 as follows: \$47,421,000, \$43,303,000, \$42,346,000, and \$54,314,000, taken into the accounts of the Dominion in the fiscal year after the close of the calendar year.

It will be seen from the above tables that, for the fiscal year ended Mar. 31, 1939, total receipts of \$502,171,000 compared with total expenditures of \$553,063,000, including net income deficit of the Canadian National

Railways amounting to \$54,314,000 and \$25,000,000 reserve against estimated losses on wheat marketing guarantees applicable to the fiscal year 1938-39. Thus the total deficit for that year was \$50,892,000. This is substantially more than the deficit of \$17,715,000 shown in the preceding year and considerably less than the deficits for 1936-37 and 1935-36 which amounted to \$77,851,000 and \$159,989,000, respectively.

Provincial and Municipal Finance

Provincial Finance

Provincial Governments in Canada are in the position, under Section 118 of the British North America Act, 1867 (30 and 31 Vict., c. 3), and the British North America Act, 1907 (7 Edw. VII, c. 11), of having a considerable assured income in subsidies from the Dominion Treasury. In addition, through the ownership of their lands, minerals, and other natural resources, the provinces are in a position to raise considerable revenues through land sales, sales of timber, mining royalties, leases of water powers, etc. Further, under Section 92 of the British North America Act, provincial legislatures are given authority to impose direct taxation within the province for provincial purposes and to borrow money on the sole credit of the province.

Among the chief methods of taxation to be employed has been the taxation of corporations and estates. Prominent among the objects of increased expenditure are education, public buildings, public works (especially roads and highways), labour protection, charities, hospitals, and places of correction.

Aggregate Provincial Revenues and Expenditures

Fiscal Year	Ordinary Revenue	Ordinary Expenditure	Direct Liabilities ¹
	\$	\$	\$
1901.....	14,074,991	14,146,059	²
1921.....	102,030,458	102,569,515	565,470,552
1926.....	146,450,904	144,183,178	893,499,812
1929.....	183,599,024	177,542,192	1,034,071,264
1930.....	188,154,910	184,804,203	1,140,953,696
1934.....	175,867,349	229,483,726	1,558,601,636 ³
1935.....	160,567,695 ⁴	181,175,687 ⁴	1,717,370,436
1936.....	232,616,182	248,141,808	1,839,322,142
1937.....	268,497,670	253,443,737	1,862,303,955
1938 ⁵	268,578,260	252,151,331	1,909,727,805
Prince Edward Island.....	1,894,135	1,974,248	9,597,841
Nova Scotia.....	11,804,383	11,296,664	106,019,569
New Brunswick.....	8,609,192	8,549,782	97,784,251
Quebec.....	53,344,037	50,335,751	283,495,889
Ontario.....	99,838,596	95,228,877	687,959,345
Manitoba.....	16,932,889	16,427,700	141,083,453
Saskatchewan.....	19,109,668	19,306,527	202,097,959
Alberta.....	24,127,806	21,359,739	173,678,127
British Columbia.....	30,917,554	27,672,043	208,011,371

¹ Sinking funds are not deducted. ² Not available. ³ In addition, there were trust account liabilities amounting to \$47,920,235 in 1934. There were corresponding offsetting trust account assets amounting to \$47,920,235 in 1934. ⁴ Nova Scotia figures are for fourteen months and Ontario for five months. ⁵ Figures of ordinary revenue and expenditure for 1938 are not all-inclusive and therefore not entirely comparable with those for previous years.

The Growth of Provincial Taxation.—Whereas in earlier years the Dominion subsidies, together with the revenues arising out of the natural resources of the provinces and from fees for specific services rendered to

the citizens, nearly sufficed to cover the whole expense of government and rendered a resort to taxation for provincial purposes practically unnecessary in most of the provinces, the great increase in the functions of government since the commencement of the present century has put an end to this state of affairs. Ordinary provincial taxation (covering succession duties and taxation of incomes, corporations, lands, mines or minerals, amusements, etc.) amounted to \$12,575,159 in 1916, to \$42,593,417 in 1929, \$51,621,242 in 1930, \$48,383,044 in 1933, \$46,741,293 in 1934, \$63,516,087 in 1936 and \$82,279,924 in 1937. In addition to this ordinary taxation, provincial revenues have been augmented by the control of the liquor traffic, the issuance of licences and permits for motor vehicles, and by the imposition of taxes on gasoline sales. In recent years the revenues collected from these sources alone have far exceeded those from ordinary taxation, the figures being: Liquor traffic control profits, 1929, \$27,599,687; 1931, \$32,128,693; 1934, \$12,814,120; 1935, \$10,818,228; 1936, \$19,338,366; 1937, \$23,457,320. Motor vehicles (including licences and permits, 1929, \$21,735,827; 1931, \$19,952,575; 1934, \$20,840,513; 1935, \$19,754,336; 1936, \$22,854,410; 1937, \$26,053,580. Gasoline tax, 1929, \$17,237,017; 1931, \$23,859,067; 1934, \$26,812,275; 1935, \$20,474,977; 1936, \$32,310,353; 1937, \$35,415,061.

The increasing use of automobiles for both commercial purposes and pleasure is clearly demonstrated by the revenue figures for motor vehicles and gasoline taxes shown above. The rate of gasoline tax has been increased repeatedly in all provinces since its inception and many of these increases were made in the period of the depression after 1930; gasoline tax revenue is therefore not a good criterion as to mileage run unless these changes in taxes are considered.

Bonded Indebtedness of the Provinces.—The bonded indebtedness of the provinces amounts to about 77.5 p.c. of their total direct liabilities. In recent years, the aggregate bonded indebtedness of the provinces has increased steadily. The total for the nine provinces was \$704,225,134 in 1925, \$817,940,202 in 1929, \$1,224,372,822 in 1933, \$1,329,684,651 in 1934, \$1,373,321,604 in 1935, \$1,426,293,679 in 1936, \$1,442,544,809 in 1937, and \$1,533,524,253, in 1938. This bonded indebtedness for 1938 was divided by provinces as follows: P.E.I., \$6,690,000; N.S., \$102,666,380; N.B., \$89,801,573; Que., \$257,576,099; Ont., \$585,557,531; Man., \$93,997,481; Sask., \$123,949,693; Alta., \$127,999,260; B.C., \$145,286,236. The development of the principle of public ownership is largely responsible for the high bonded indebtedness in certain provinces, particularly in Ontario where the hydro-electric system and the provincially-owned Temiskaming and Northern Ontario Railway largely account for the bonded indebtedness of the province. These public utilities are, of course, revenue-producing.

Municipal Finance

Under the provisions of the British North America Act, the municipalities are the creations of the Provincial Governments. Their organization and their powers vary in different provinces, but almost everywhere they have very considerable powers of local self-government. If we include the local government districts of Saskatchewan and Alberta, there are 4,317 municipal governments in Canada. These 4,317 municipal governments have together probably 20,000 members described as mayors, reeves, controllers, councillors, etc., the experience training them for the

wider duties of public life in the Dominion and in the provinces. Certain of the larger municipalities, indeed, are larger spenders of public money than are some of the provinces.

The cost of municipal government, like the cost of provincial and Dominion government, has greatly increased compared with 1914 and earlier years, principally due to the services demanded from municipal bodies. Among such public services that play a large part in municipal expenditures may be mentioned education, roads and highways, sanitation, fire and police protection, and charities and social relief. The cost of these services is almost entirely met by municipal governments through local taxation. In the Province of Prince Edward Island there is no municipal system outside Charlottetown and seven small incorporated towns.

Municipal System of Taxation.—Throughout the Dominion, the chief basis of municipal taxation is the real estate within the limits of the municipalities; in certain provinces, however, personal property, income, and business carried on are also taxed. General taxes are normally levied at the rate of so many mills on the dollar of the assessed valuations, although the basis of assessment varies widely in different provinces and in municipalities within the same province. In some provinces Equalization Boards have placed a more equitable valuation on lands as among the various rural municipalities.

The period of depression was responsible for a very considerable delinquency in tax payments, while the burden of unemployment relief since 1930, which has been carried by the municipalities with help from the Provincial and Dominion Governments, has been increasingly heavy. The resulting heavy taxation upon real estate has tended to curtail new building for commercial and industrial as well as residential purposes and is responsible in no small measure for the slow recovery of the construction industry (p. 104) in spite of the encouragement of residential construction by the National Housing Act (pp. 99-101).

Bonded Indebtedness of Municipalities.—Like other Canadian governing bodies, the municipalities of the greater part of Canada borrowed rather too freely during the years in the last post-war period. The following table shows the total municipal bonded debt outstanding in each province for 1937, compared with 1919.

Municipal Bonded Debt for 1919 and 1937 and Sinking Funds for 1937, by Provinces

Province	Total Gross Bonded Indebtedness of Municipalities		Sinking Funds Offsetting Gross Bonded Indebtedness
	1919	1937	1937
	\$	\$	\$
Prince Edward Island	970,100	2,901,175	588,332
Nova Scotia	17,863,881	34,695,716	12,250,123
New Brunswick	11,188,467	26,591,813	8,021,877
Quebec	199,705,568	513,533,544	77,372,509
Ontario	243,226,877	425,744,206	59,829,018
Manitoba	55,562,788	94,487,659	43,736,244
Saskatchewan	39,585,358	55,507,932	19,232,213
Alberta	65,870,464	60,964,770	20,106,819
British Columbia	94,741,615	122,780,368	30,123,028
Totals	729,715,148	1,337,297,193	271,760,163

CHAPTER XVIII

CURRENCY—BANKING—INSURANCE—LOAN AND TRUST COMPANIES—CAPITAL INVESTMENTS, ETC.

Currency

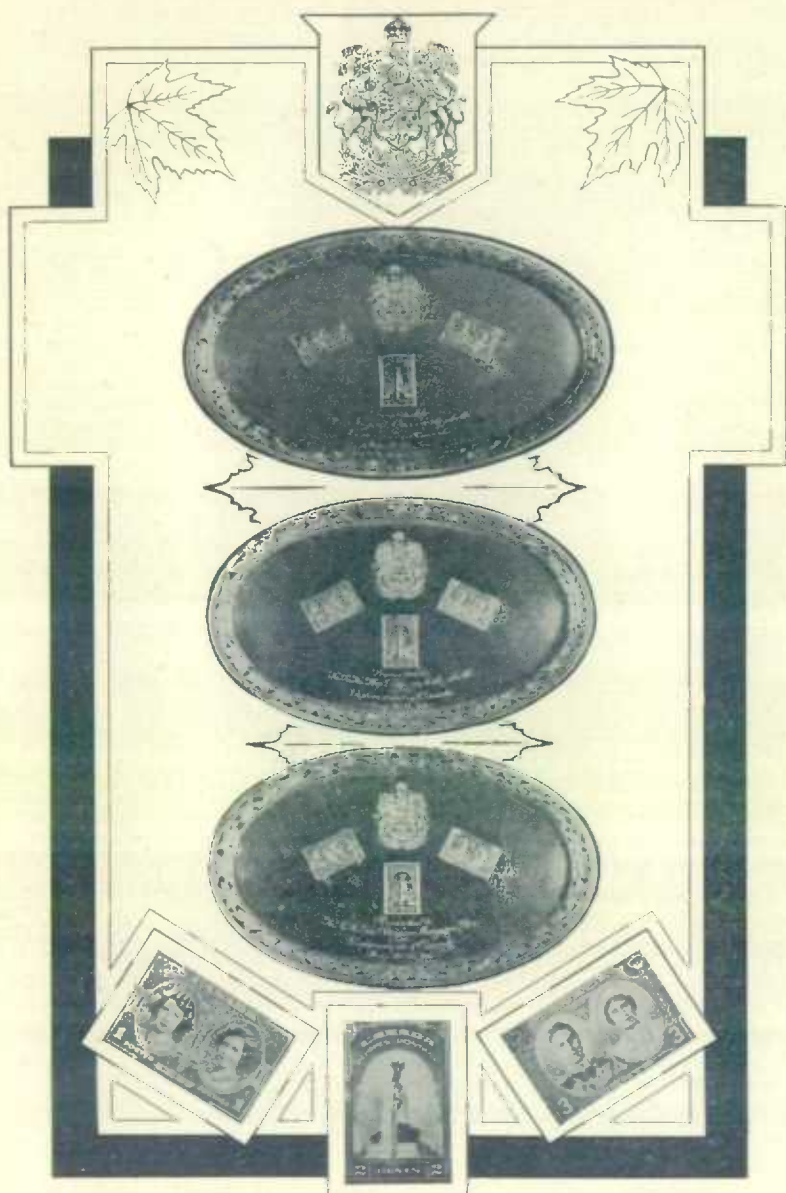
Early trade in Canada was carried on largely by barter. Beads, blankets, beaver and other furs, tobacco, and wheat have been, at various times, used for currency. Further, under the French *régime*, playing cards, stamped with a value and redeemable yearly on the receipt of bills of exchange on Paris, came into circulation. In the early years of the British period, the Spanish dollar and the English shilling were the chief mediums of exchange, together with such paper money as the army bills issued by the Government for supplies during the War of 1812. In 1853 a measure was passed providing for the adoption of decimal currency with a dollar equivalent to the United States dollar, and from Jan. 1, 1858, the accounts of the Province of Canada were kept in terms of dollars. The use of the dollar as a monetary unit was extended throughout the new Dominion by the Uniform Currency Act of 1871.

The Canadian gold dollar weighs 25·8 grains, nine-tenths fine gold, and thus contains 23·22 grains of gold. Only very limited issues of gold coin have ever been made. British and United States gold coin are legal tender in Canada. Subsidiary silver coin is legal tender up to \$10; the 5-cent piece (now made of nickel) is legal tender up to \$5; and the 1-cent bronze coin, up to 25 cents. Since 1931, the Government has permitted the export of gold only under licences issued by the Department of Finance, thus conserving the gold resources of the nation to meet the external obligations, and Canadian mines now dispose of their gold through the Royal Canadian Mint according to definite conditions of purchase.

Bank Notes.—Canadians early became accustomed to the free circulation of paper money, either in the form of notes of the chartered banks or of notes issued by the Government.

Under the Bank Act the chartered banks may issue notes of the denominations of \$5 and multiples thereof to the amount of their paid-up capital. This amount is to be reduced by 5 p.c. per annum for a period of five years from Jan. 1, 1936, and by 10 p.c. per annum for a period of five years from Jan. 1, 1941. In case of insolvency, bank notes are a first lien on assets and for over fifty-five years no note holder has lost a dollar.

In addition to notes of the chartered banks, there are also now in circulation notes of the Bank of Canada. These notes may be issued to any amount as long as the Bank maintains a reserve in gold equal to at least 25 p.c. of its note and deposit liabilities. Prior to the establishment of the Bank of Canada, the Government issued notes under certain statutory authorities, backed in part by gold and securities. The Dominion's liability in respect of these notes was assumed by the Bank of Canada on Mar. 11, 1935. The following table shows the average amount of bank notes and Dominion (or Bank of Canada) notes outstanding in various years.



Silver: Trays Presented to Her Majesty Queen Elizabeth, H.R.H. the Princess Elizabeth, and H.R.H. the Princess Margaret Rose, respectively, by the Postmaster General on behalf of the Government of Canada during Their Majesties' Visit to Canada, May 17 to June 15, 1939.—Each tray is engraved with replicas of the Canadian Coat-of-Arms and the three commemorative stamps issued for the occasion.

*Courtesy, Post Office Department and Canadian
Bank Note Company, Limited*

Notes Outstanding, 1900-39

(Yearly Averages)

Year	Dominion or Bank of Canada Notes Outstanding	Bank Notes Outstanding	Year	Dominion or Bank of Canada Notes Outstanding	Bank Notes Outstanding
	\$	\$		\$	\$
1900.....	26,550,465	46,574,780	1933.....	179,217,446	130,362,488
1910.....	89,628,569	82,120,303	1934.....	190,261,981	135,537,793
1920.....	305,806,288	288,600,379	1935.....	127,335,340	125,644,102
1929.....	204,381,492	178,291,030	1936.....	105,275,223	119,507,306
1930.....	174,616,019	159,341,085	1937.....	141,053,457	110,259,134
1931.....	163,079,362	141,969,350	1938.....	161,137,069	99,870,493
1932.....	165,878,510	132,165,942	1939.....	176,377,920 ¹	94,559,128 ²

¹ Since Mar. 11, 1935, the figures used represent Bank of Canada notes. ² Averages for ten months.

Banking

The Canadian banking system is a product of evolution, having grown up gradually with changes made from time to time as experience directed. Its most distinctive feature, the branch-bank system, is well adapted to the needs of a country of wide area and scattered population.

Banking in Canada began to develop some of the features of a central bank system soon after Confederation. These in chronological order are:—

(1) *Central Note Issue*, permanently established with the issue of Dominion notes under legislation of 1868.

(2) *The Canadian Bankers' Association*, established in 1900 to effect greater co-operation in the issue of notes, in credit control, and in various other ways.

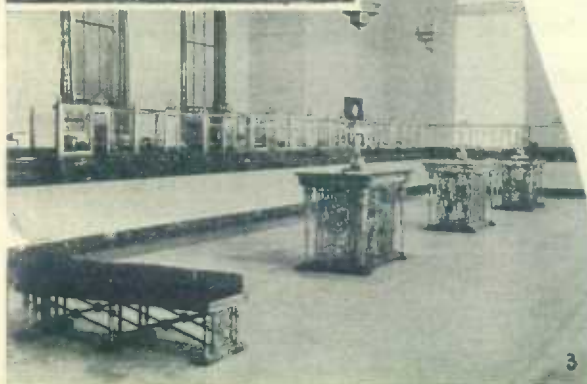
(3) *Central Gold Reserves*, established in 1913.

(4) *Re-discount Facilities*, made a permanent feature of the system in 1923, provided the banks with a means of increasing their legal tender cash reserves at will.

(5) *The Bank of Canada*, established in 1935.

The Bank of Canada.—Legislation was enacted in 1934 to establish the Bank of Canada as a "central" or "bankers'" bank. The original shares were sold to the public. Under a 1936 amendment additional shares constituting a majority of the outstanding stock, were sold to the Minister of Finance on behalf of the Government of Canada. During the 1938 session of Parliament, legislation was passed for the purchase of all shares then in the hands of the public by the Government so that the Bank of Canada is now completely owned by the people of Canada as a whole. The Bank of Canada assumed the liability of the Dominion notes in circulation on Mar. 11, 1935, when the Bank commenced business, in return for gold and silver held by the Government as security for Dominion notes and 3 p.c. five-year Dominion of Canada bonds. The chartered banks also surrendered to the Bank of Canada the gold held by them in Canada at the currency value (\$20.67 per fine ounce). An allowance was made to the banks in respect of 40 p.c. of the gold held by them, which proportion of their gold was considered as being held against foreign liabilities. For this gold they received the market price.

The Bank is empowered to buy and sell securities in the open market; to discount securities and commercial bills; to fix minimum rates at which it will discount; to buy and sell bullion and foreign exchange. It is the



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A Few of Canada's Commercial Banking Institutions.—(1) The Main Toronto Office and Provincial Headquarters for the Bank of Montreal in Ontario—now under construction; (2) Main Banking Room, Bank of Montreal, Montreal, Que. (3) Main Banking Room, Bank of Nova Scotia, Halifax, N.S.; (4) Drawing of the Bank of Nova Scotia, Toronto, Ont. (5) Banking Hall, Canadian Bank of Commerce, Toronto, Ont. (6) Head Office, Canadian Bank of Commerce, Toronto, Ont.

Courtesy, Bank of Montreal, Bank of Nova Scotia, and Canadian Bank of Commerce

main issuer of paper money in Canada and will become increasingly so as the chartered banks gradually reduce their issues to 25 p.c. of their paid-up capital (see p. 178). The Bank may issue notes to any amount so long as it maintains a reserve of gold coin and bullion equal to not less than 25 p.c. of its note and deposit liability in Canada. The reserve, in addition to the gold coin and bullion, may include silver bullion, foreign exchange, securities of the United Kingdom and the United States having a maturity not exceeding three months, and bills of exchange having a maturity not exceeding ninety days and payable in the United Kingdom, the United States, or a gold standard country.

The chartered banks are required to maintain a reserve of not less than 5 p.c. of their deposit liabilities payable in Canadian dollars in the form of deposits with and notes of the Bank of Canada.

The Bank acts as the fiscal agent of the Dominion of Canada and may, by agreement, act as banker or fiscal agent for any province. The Bank does not accept deposits from individuals and thus does not compete with the chartered banks in the commercial banking field.

Commercial Banking.—The number of chartered banks, which was 36 in 1881 and 34 in 1901, decreased to 25 in 1913 and is now only 10. This lessening of the number of banks has been accompanied by a great increase in the number of branches. In 1868 there were only 123 branch banks in Canada. By 1902 the number, including sub-agencies, had grown to 747, by 1916 to 3,198 and by 1929 to 4,069, but by the beginning of 1939 the number had decreased to 3,332. From 1867 to October, 1939, the total assets have grown from \$78,000,000 to \$3,852,000,000.

Statistics of Individual Chartered Banks as at Oct. 31, 1939

Bank	Branches in Canada and Abroad ¹	Total Assets	Liabilities to Shareholders	Liabilities to the Public	Total Liabilities	Loans and Discounts	Deposits by the Public
	No.	\$ '000,000	\$ '000,000	\$ '000,000	\$ '000,000	\$ '000,000	\$ '000,000
Bank of Montreal.....	489	1,026	75	949	1,024	282	896
Bank of Nova Scotia.....	300	339	36	302	336	127	281
Bank of Toronto.....	171	164	15	147	162	56	138
Banque Provinciale du Canada.....	135	64	5	59	64	20	51
Canadian Bank of Commerce.....	532	746	50	694	744	280	651
Royal Bank.....	695	970	55	911	966	359	852
Dominion Bank.....	133	164	14	149	163	66	138
Banque Canadienne Nationale.....	225	164	12	151	163	71	143
Imperial Bank of Canada.....	103	188	15	172	187	76	161
Barclay's Bank (Canada) ²	2	27	2	25	27	2	19
Totals, Oct. 1939.....	-	3,852	279	3,559	3,828	1,339	3,330
Totals, 1938³.....	2,875	3,349	279	3,057	3,336	1,201	2,824
Totals, 1937³.....	2,890	3,317	279	3,026	3,305	1,201	2,776
Totals, 1936³.....	2,961	3,145	278	2,866	3,134	1,141	2,615
Totals, 1935³.....	2,978	2,957	278	2,668	2,946	1,276	2,427
Totals, 1930³.....	3,598	3,237	305	2,910	3,215	2,965	2,517
Totals, 1920³.....	4,876	3,064	252	2,784	3,036	1,935	2,438
Totals, 1910³.....	2,621⁴	1,211	179	1,019	1,198	870	910
Totals, 1909³.....	641	460	98	356	454	279	305

¹ As at Dec. 31 of previous year. Does not include sub-agencies.

² Barclay's Bank commenced operations in Canada in September, 1929.

³ Averages from the respective monthly statements, except in the case of the numbers of branches in Canada and abroad which are as at Dec. 31.

⁴ 1911.

Of late years the banks of Canada have extended their business outside of the country itself and at the beginning of 1939 had among them 141 branches (not including sub-agencies) in foreign countries, mainly in Newfoundland, the West Indies, Central and South America, and in the great centres of international finance, London, Paris, and New York.

The numbers of branches, assets, liabilities, loans, and deposits of the Canadian chartered banks as at Oct. 31, 1939, by banks, together with totals (yearly averages) for certain years are shown in the table on p. 182.

Bank Clearings and Bank Debits.—Through the clearing houses, inter-bank transactions have been recorded since 1889; they form a valuable indication of the trend of business. They, however, do not tell the whole story, since numerous transactions between persons who carry their accounts in the same bank are not recorded in bank clearings; also, every amalgamation of banks lessens the total volume of clearings. Again, head office clearings have been effected through the Bank of Canada since Mar. 11, 1935, and this has tended to increase exchanges compared with previous years. For these reasons, a record of cheques debited to accounts at all branches at clearing-house centres is considered to possess greater reliability as a barometer of economic conditions and such a record was instituted in 1924; between that date and 1929 the grand total of bank debits for Canada increased from \$27,157,000,000 to \$46,670,000,000. Since 1929 there was a steady decline to the 1932 level of \$25,844,000,000, but in the next four years the movement was generally upward, reaching \$35,929,000,000 in 1936. In 1937 and 1938 there were recessions, bank debits in the latter year amounting to \$30,924,000,000, a decrease of 14 p.c. from the 1936 figure.

**Bank Debits at the Clearing-House Centres, by Economic Areas,
1934-38**

Economic Area	1934	1935	1936	1937	1938
	\$	\$	\$	\$	\$
Maritime Provinces....	534,251,057	574,052,860	630,402,014	733,359,446	639,682,953
Quebec.....	9,449,709,866	8,977,529,023	10,938,647,731	11,568,421,542	9,965,182,391
Ontario.....	14,919,504,095	13,876,626,476	15,778,679,837	15,939,149,497	13,810,063,008
Prairie Provinces.....	6,337,239,720	6,445,395,764	6,505,518,677	4,827,021,407	4,572,383,521
British Columbia.....	1,625,968,184	1,672,462,218	2,075,358,484	2,098,109,246	1,937,050,859
Totals.....	32,866,672,922	31,546,066,341	35,929,606,743	35,166,061,138	30,924,362,732

Insurance

Life Insurance.—The life insurance business was introduced into Canada by companies from the British Isles and the United States about the middle of the nineteenth century. By 1875 there were at least 26 companies, and possibly several more, competing for the available business in Canada, as against 41 active companies registered by the Dominion and a few provincial companies in 1938. Of the 41 active companies registered by the Dominion, 28 were Canadian, 4 British, and 9 foreign.

The development of life insurance in Canada, as in other English-speaking countries at least, has been marked by an increased service to the individual policyholder. The benefits that may now be obtained

under a life insurance policy are calculated to meet the needs of the policyholder and of his dependants, whether in event of old age or in event of death or of disability. In 1919 there was introduced what is known as "group insurance", a plan whereby a group of persons, usually employees, are insured by their employer, for a uniform amount or a varying amount determined by a formula, under one policy, generally on the term plan, the employer paying the premium or a substantial part thereof. Each employee usually has the right to obtain an individual policy at ordinary normal rates, without medical examination, on termination of employment.

As a result of the adaptation of life insurance policies to the needs of the public, and of the growing wealth of the country, the increase in the amount of life insurance in force has been remarkable. In 1869 the total life insurance in force in Canada, by Dominion companies, was only \$35,680,000 as compared with approximately \$6,630,000,000 at the end of 1938. This latter figure was equal to \$591 per head of population. In addition, there was \$179,000,000 of fraternal insurance in force by Dominion licensees and \$134,000,000 of insurance in force by provincial licensees. Thus the total life insurance in force in the Dominion at the end of 1938 was approximately \$6,943,000,000. The premium income from Canadian business of all Dominion registered companies (not including fraternal benefit societies) increased from \$90,000,000 in 1920 to \$221,000,000 in 1930, but decreased to \$199,000,000 in 1938.

The following table shows the sales of life insurance month by month in recent years. The statistics are not complete but represent approximately 85 p.c. of the total business transacted in Canada.

Sales of Life Insurance in Canada, by Months, 1937-39

NOTE.—The figures in this table are those published by the Hartford Research Bureau except that totals for Newfoundland, included therein, have been deducted.

Month	1937	1938	1939	Month	1937	1938	1939
	\$'000	\$'000	\$'000		\$'000	\$'000	\$'000
January.....	27,492	30,291	30,131	July.....	32,043	29,775	31,918
February.....	30,402	31,605	30,588	August.....	27,891	27,552	28,194
March.....	31,741	34,484	33,345	September.....	27,214	27,147	36,814
April.....	32,577	29,624	27,938	October.....	33,365	31,495	34,379
May.....	31,559	29,902	33,144	November.....	37,901	36,181	-
June.....	37,316	34,767	35,415	December.....	36,459	35,343	-

Fire Insurance.—Fire insurance in Canada began with the establishment, by British fire insurance companies, of agencies usually situated in the seaports and operated by local merchants. The oldest existing agency of a British company is that of the Phoenix Fire Office of London, now the Phoenix Assurance Co., Ltd., which opened in Montreal in 1804.

The Halifax Fire Insurance Co. is the first purely Canadian company of which any record is obtainable. Founded in 1809 as the Nova Scotia Fire Association, it was chartered in 1819 and operated in the province of Nova Scotia until 1919, when it was granted a Dominion licence.

The report of the Superintendent of Insurance for the year ended Dec. 31, 1938, shows that at that date there were 275 fire insurance companies

doing business in Canada under Dominion licences, of which 56 were Canadian, 69 were British, and 150 were foreign companies, whereas in 1875, the first year for which authentic records were collected by the Insurance Department, 27 companies operated in Canada—11 Canadian, 13 British, and 3 United States. The proportionate increase in the number of British and foreign companies from 59 to 80 p.c. of the total number is a very marked point of difference between fire and life insurance in Canada, the latter being carried on very largely by Canadian companies.

The enormous increase since 1869 (the earliest year for which statistics are available) in the fire insurance in force, is no doubt partly due to the growth of the practice of insurance; but it is also important as an indication of the growth of the value of insurable property in the country, and thus throws light upon the expansion of the national wealth of Canada. By 1880, companies with Dominion licences had fire insurance in force totalling \$411,564,271; by 1900, the one billion-dollar mark had almost been reached, and by 1930, the total stood at \$9,672,997,000. At the end of 1938, besides \$9,963,691,423 of fire insurance in force in companies with Dominion licences, there was also \$1,214,374,556 in force in companies with provincial licences, or about \$11,178,065,975 in force with companies, associations, or underwriters licensed to transact business in Canada.

Miscellaneous Insurance.—Miscellaneous insurance now includes among other classes in Canada: accident (including personal accident; employers' and property liability, and accidental damage to personal property); sickness; falling aircraft; earthquake; automobile; aviation; burglary; explosion; forgery; fraud; credit; guarantee; hail; inland transportation; live stock; machinery; personal property; plate glass; property; sprinkler-leakage; steam boiler; title; tornado; and weather insurance; etc. Whereas, in 1880, 18 companies were licensed for such insurance, in 1938 there were 250 companies, of which 54 were Canadian, 66 British, and 130 foreign.

The total net premium income for 1938 was \$37,552,257 and the most important class of miscellaneous insurance, according to the amount of premiums received, was automobile insurance, which has greatly increased during the past twenty years; although a decrease had been shown for a few years prior to 1935, there have been increases in 1935, 1936, 1937 and 1938. As recently as 1910, the premium income of companies doing an automobile insurance business was only \$80,466; in 1916 it was \$909,503 and in 1938, \$18,015,202. The premium income of personal accident insurance came second with \$3,246,247. Combined accident and sickness insurance was third in 1938 with \$2,696,848. The premium income of all accident and sickness insurance combined totalled \$10,381,845.

Loan and Trust Companies

The principal function of loan companies is the lending of funds on first mortgages on real estate, the money thus made available for development purposes being secured mainly by the sale of debentures to the investing public and by savings department deposits. Of the loan companies under provincial charters, the majority operate largely in the more prosperous farming communities.

The number of loan and savings societies in operation and making returns to the Government at Confederation was 19, with an aggregate paid-up capital of \$2,110,403 and deposits of \$577,299. Rapid increases in the number of companies and total volume of business resulted from subsequent legislation. In 1899, 102 companies made returns showing paid-up capital stock of \$47,337,544, reserve funds of \$9,923,728 and deposits of \$19,466,676; total liabilities had increased from \$3,233,985 to \$148,143,496 between 1867 and 1899. After slight decreases in the number of loan companies in operation, through amalgamations and absorptions, further growth was recorded shortly after the turn of the century. As a result of the revision of the laws relating to loan and trust companies in 1914, statistics of provincially incorporated loan and trust companies ceased to be collected, but of late years these have made voluntary returns so that all-Canadian totals are again available.

The paid capital stock of all real-estate-mortgage loan companies at the end of 1938 was \$37,762,799 (Dominion companies \$19,338,653 and provincial companies \$18,424,146); reserve funds \$25,232,397 (Dominion companies, \$14,758,827 and provincial companies, \$10,473,570); liabilities to the public \$128,966,874 (Dominion companies, \$100,660,915 and provincial companies, \$28,305,959); and liabilities to shareholders, \$65,268,045 (Dominion companies, \$35,477,710 and provincial companies, \$29,790,335).

Trust companies act as executors, trustees, and administrators under wills or by appointment, as trustees under marriage or other settlements, as agents or attorneys in the management of the estates of the living, as guardians of minors or incapable persons, as financial agents for municipalities and companies and, where so appointed, as authorized trustees in bankruptcy. Some companies receive deposits but the lending of actual trust funds is restricted by law. Trust companies are principally provincial institutions, since their original main functions were connected with probate, which lies within the sole jurisdiction of the provinces.

The aggregate total assets of the trust companies of Canada at the end of 1938 were \$2,814,272,512 as compared with \$805,000,000 in 1922 (the earliest year for which figures are available). The bulk of these assets (\$2,582,473,976 in 1938) was represented by estates, trusts and agency funds. The assets of Dominion companies in 1938 amounted to \$291,691,038 and of provincial companies to \$2,522,581,474.

Small Loans Companies

There have been incorporated in recent years by the Parliament of Canada, a number of companies which make small loans, usually not exceeding five hundred dollars each, on the promissory notes of the borrowers and additionally secured in most cases by endorsements or chattel mortgages. While small loans companies may, under their charter powers, make loans on the security of real estate, actually they have made only a very few of such loans. As the business of these companies has reached considerable proportions, the figures are now separated from those of the loan companies proper. The figures relating to the three companies of this class that have commenced operations are: paid capital of Dominion small loans companies at the end of 1938, \$1,001,750; reserve funds, \$613,361; liabilities to the public, \$3,119,797; liabilities to shareholders, \$2,056,828.

British and Foreign Capital Invested in Canada

In the opening decades of the century, the marked expansion in Canada was largely based on capital imported from the United Kingdom, at least \$1,500,000,000 being imported during 1900-12. During the War of 1914-18 the latent capital resources of Canada itself were for the first time exploited on a large scale, nearly \$2,000,000,000 being raised by the Dominion Government.

The rapid growth in United States investments in Canada took place after 1914. Between 1926 and 1930 these investments increased from \$3,161,200,000 to \$4,298,400,000. This influx of capital followed two contrasting channels. A large part of the capital was raised through the sale of new issues in New York but the capital coming to Canada through the channel of direct investment has been increasingly heavy. Since 1930 there has been a reduction in the value of United States investments in Canada, as a result of the redemption of Canadian securities owned in the United States, changes in the values of equity investments in Canada, and other factors.

Because of the great variety of forms these investments take and the difficulties inherent in arriving at satisfactory valuations, along with the continual changes in ownership in some cases, these estimates should be considered as approximations rather than exact representations.

Capital Invested in Canada by Other Countries

Country	1914 ¹	1919 ²	1926 ²	1930 ²	1935 ²	1936 ²	1937 ²
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
United Kingdom.....	2,712	2,607	2,598	2,766	2,729	2,719	2,685
United States.....	904	1,809	3,161	4,298	4,045	3,974	3,932
Other countries.....	178	173	132	132	124	130	148
Totals	3,794	4,589	5,891	7,196	6,898	6,823	6,765

¹Estimated by various authorities.

²Estimated by the Dominion Bureau of Statistics

In spite of this large external indebtedness, Canadian capital controls a very large proportion of the business capital of enterprises operating in Canada.

In considering these statistics of outside capital invested in Canada, it should also be borne in mind that Canada has large investments in other countries. The Bureau estimates that Canadian investments in other countries amounted to \$1,694,000,000 at the end of 1937. Of this \$1,017,000,000 was invested in the United States, \$53,000,000 in the United Kingdom, and \$624,000,000 in countries other than these, not including assets of Canadian insurance companies held abroad. There are also liabilities abroad which must be considered in connection with these assets, but the totals are not materially affected.

Miscellaneous

Canadian Bond Financing.—The declining trend in sales of railway and corporation bond issues, so clearly in evidence for 1933, was reversed in 1934, showed substantial improvement in 1935 and 1936, and receded again in 1937 and 1938.

In the latter year, sales under this head were valued at \$81,792,500. Corporation bond financing accounted for \$62,312,500 of this, so that only \$19,480,000 remained for railway issues. As a result of the business recession, governmental financing greatly exceeded that of private concerns during 1938.

Canadian investors purchased over 92 p.c. of the total offerings, the remainder being sold on the New York and London markets. The latter had not been an important factor in Canadian financing from 1935 to 1938.

Sales of Canadian Bonds, 1929 and 1932-38

Year	Class of Bonds		Distribution of Sales			Total
	Government and Municipal	Railway and Corporation	Sold in Canada	Sold in the United States	Sold in the United Kingdom	
	\$	\$	\$	\$	\$	\$
1929	218,528,309	442,530,600	378,395,909	263,654,000	19,109,000	661,158,909
1932	450,067,632	23,050,000	377,752,632	81,015,000	14,350,000	473,117,632
1934	504,558,132	73,402,696	529,630,828	50,000,000	58,330,000	637,960,828
1935	907,500,200	109,005,700	853,940,900	162,065,000	500,000	1,016,505,900
1936	946,061,087	352,983,224	1,211,824,311	86,000,000	1,250,000	1,299,074,311
1937	1,145,499,475	119,946,800	1,177,196,275	88,250,000	Nil	1,265,446,275
1938	1,048,527,052	81,792,500	1,041,477,886	40,175,000	48,666,666	1,130,319,552

Interest Rates.—There does not exist in Canada as yet a market for money in the same sense as in great financial centres such as London and New York. However, since the War of 1914-18, the importance of Dominion financing in the domestic market has made it possible to compile a Dominion index of bond yields which is representative of interest rates in Canada. Fluctuations in the Dominion of Canada long-term bond yields for the past ten years are shown below.

Indexes of Dominion of Canada Long-Term Bond Yields, 1930-39

(1926=100)

Month	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
January	102.1	93.9	112.7	96.3	93.2	70.9	72.4	64.6	66.3	62.1
February	101.4	93.6	112.2	96.0	91.0	73.2	70.8	68.4	65.4	61.9
March	101.1	91.9	109.1	97.7	86.1	71.4	69.9	72.7	64.7	61.1
April	99.3	90.0	109.8	96.6	83.8	72.2	69.5	73.2	63.7	63.0
May	98.4	89.3	109.3	95.0	81.8	71.4	68.8	71.0	61.7	62.4
June	98.2	88.3	111.7	93.3	82.1	73.4	66.9	69.3	61.8	60.1
July	98.0	88.3	107.5	93.6	80.1	72.1	65.1	69.0	62.7	60.1
August	95.9	88.3	100.5	92.2	77.8	71.6	63.2	68.1	62.7	62.9
September	93.9	95.6	98.7	92.4	77.2	79.8	63.1	68.3	65.3	76.5
October	93.6	105.2	96.2	93.5	79.3	78.9	66.2	69.7	63.2	71.0
November	93.6	107.7	98.5	94.3	77.2	74.5	65.1	68.8	61.5	-
December	93.9	111.7	99.4	95.1	71.3	75.5	64.1	67.4	61.8	-

CHAPTER XIX

EDUCATION—THE NATIONAL RESEARCH COUNCIL

Education

To write of education in Canada is to write of nine separate provincial educational systems, but, with the exception of Quebec's, all have much of their structure and organization in common. They derive in the main from a common root, and of recent years have had increasing opportunity to exchange experience and keep in touch with one another's progress. Only three Dominion-wide educational associations antedate the end of the Great War in 1918, but, in the years since, more than a dozen have come



A Grade 8 Class in a Halifax School, Organized as a Branch of the Canadian Junior Red Cross, Conducting a Business Meeting.—More than 13,000 classrooms in Canada had branches in 1938 with a membership of 400,000 children. In Prince Edward Island, 94 p.c. of the classrooms were included. Peace-time activities include health teaching and practice, social service, assistance to handicapped children, and the promotion of international friendliness through exchange of letters and portfolios.

Courtesy, National Director, Junior Red Cross

into existence, each contributing something to better mutual acquaintance and progress. A further medium was established during 1939 in the Canadian Council for Educational Research, sponsored by the Canada and Newfoundland Education Association, and the Canadian Teachers' Federation, with financial assistance from the Carnegie Corporation of New York. Numerous national bodies that are not educational associations in the narrower sense—e.g., the Federated Women's Institutes, the National Council of Women, the I.O.D.E.—make the schools a subject of major

interest in their national conferences, while still others, of which the Junior Red Cross is an outstanding example, carry out uniform programs in the schools of all provinces.

Some of the older problems of Canadian schools persist with little change, e.g., the problem of the small administrative and financial unit, about which little has been done on a general scale except in Alberta. But in other matters, such as curriculum change, there has been extraordinary progress in the past few years. The revolutionary change in the new programs of study is the attempt to make them 'child-centred' instead of 'subject-centred', to use phraseology that has come into general use. There has been a complete break with the traditional procedure that assumed that the business of education was purely the imparting of knowledge; the new curricula proceed on the assumption that the basic job of the schools is to provide a stimulating environment in which the natural abilities of children may be allowed and encouraged to develop in the most desirable way. All but two or three of the provinces have recast their programs to conform with the new emphasis within the latest few years, or are doing so at the present time. The change in essence represents the adoption of the democratic philosophy into the educational system, emphasizing as it does the supreme worth of freedom and diversity in the development of individual lives. It makes the task of the teacher more complicated and difficult, as does the democratic way for leaders in all walks of life, but at the same time makes it more interesting and challenging; it invites the teacher to demonstrate that he is a member of a real profession, not just the holder of a job.

The teachers in the main seem to have accepted the challenge in an unmistakable way. Attendance at summer schools, where courses are given in the newer teaching methods, has doubled or trebled in some provinces in the space of two or three years, in spite of the slow recovery of the salary level from the losses of the earlier 1930's. Salaries, in rural areas particularly, remain unsatisfactory; only in two provinces is the country teacher paid more than half as much as the city teacher, a situation that allows little hope for the establishment of a permanent rural branch of the profession. The contrast is, of course, the result of the system of school finance whereby each district or section (with some exceptions) is responsible for more than four-fifths of the cost of its schools. Ability to support schools varies greatly from district to district and from year to year, especially in agricultural areas.

A further factor tending to emphasize the inequality as between rural and urban areas is the larger families of children in the countryside, many members of which are raised, at rural expense, for productive lives in the cities. It can be shown that if the cities were to pay the entire cost of the rural schools, they would not, in effect, be paying more than the equivalent of what it has cost to bring up the children who come to them in their adult years. The present system of school support comes far short of providing the equal educational opportunity at which a democratic society is bound to aim but, with appropriate revision of the curriculum accomplished, educationists are in the main concentrating their efforts in the direction of financial reform; the Report of the Royal Commission on Dominion-Provincial Relations may be expected to have

recommendations concerning the inter-relationships of the various governing bodies in the field of public finance. The problem of school support has to be considered in this broader setting.



Children at Work in one of the Saturday Morning Classes at the Art Gallery of Toronto.—In the ten years they have been conducted, these classes have attracted the attention of educationists in many countries for their remarkable success in stimulating artistic expression. Children are recommended for them by their week-day teachers. In addition, four classes of children from the city schools visit the Gallery every school day, and all children are thus assured of several periods on the premises during the upper years of their elementary schooling. Many other types of educational work are sponsored, including morning nursery groups in which the children are from three to five years of age.

Courtesy, Art Gallery of Toronto

As part of the attempt to provide equal opportunity for all, it is of interest to note some of the auxiliary educational services. A special service offered by the departments of education in six of the nine provinces is correspondence instruction for children living in areas remote from a school. In Saskatchewan over 6,000 such children taking high-school studies are helped by correspondence lessons from the Department of Education of that province. Ontario conducts a unique type of school, in its school railway cars, for children in northern areas. The correspondence courses are in some cases followed by physically-handicapped children who are unable to attend school. The larger cities in most of the provinces conduct special classes, in the ordinary schools, for mentally-retarded children, and in some cases for children with defective hearing, sight, and other physical handicaps. This side of the educational system is particularly well-developed in Ontario, where it has been extended into rural communities. Children who are blind or deaf are educated in special residential schools at provincial expense. Institutions for feeble-minded and for delinquent children are also provincially-conducted.

It is more difficult to point to special services on behalf of exceptionally-gifted children, but as the task of leadership becomes increasingly

difficult there are signs of a greater interest in this direction. A campaign for more generous scholarship provision has been in progress on a national scale for several years, and has received support from a wide variety of sources. A resolution favouring national scholarships received sympathetic discussion in the House of Commons in 1937, and the Dominion-Provincial Youth Training Plan in 1939 made provision for student aid beyond the matriculation level. As yet, however, the scholarship situation in Canada does not compare at all favourably with that in Great Britain or the United States, as is shown at some length in the publication "Higher Education in Canada 1936-38", issued by the Dominion Bureau of Statistics in 1939. This is no doubt partly because Canadian universities do not possess great wealth in the form of endowments. All Canadian institutions of higher learning together have a smaller endowment than any one of several universities in the United States, and the private wealth of Canada has created no great foundations that can be drawn upon for scholarship purposes. A satisfactory position will not likely be reached without generous public support; several provincial governments as well as the Dominion have accepted a measure of responsibility that seems likely to increase year by year.

Comparatively little public attention has yet been given to pre-school education. In no province have nursery schools become a part of the public-school system except in Ontario and Quebec where kindergartens are so administered. Some experimental nursery schools have been established by private means and in connection with the universities. The best-known of these is the St. George's School for Child Study conducted in conjunction with the Department of Psychology at the University of Toronto.

Attendance continues to increase at the schools maintained by the Dominion Government for the native Indian population. Practically half of the 18,000 children are now in boarding schools. This proportion tends to increase, in contrast with the situation in the United States where an effort has been made for ten years or more to enroll more of the Indian children in community day schools on the reserves; these can be used as education centres for the adults as well as the children.

Progress of the adult educational movement in general is difficult to gauge with accuracy, but the Director of the Canadian Association for Adult Education in his annual report for 1938 estimated that there had been a two-year increase of 50 p.c. in enrolment of adults in the more formal type of class, much the greater part of the activity being in rural areas. The education-for-economic-action plan of St. Francis Xavier University has spread widely in the Maritime Provinces and Newfoundland and continues to attract international interest. Extension departments in other universities have been strengthened or established, the work at the University of Alberta still being most outstanding for its variety. The activity of the Workers' Educational Association, with the co-operation of the universities, has spread into all but one or two of the provinces, whereas a few years ago it was confined to Ontario. The Canadian Handicrafts Guild has been the focus of a rapidly-expanding interest in home crafts. The program of physical and recreational education introduced in British Columbia a few years ago has been introduced in the Prairie Provinces during 1938-39 and may yet become a national movement.

The Rudiments of Business are Taught by the Practical Operation of a Model Grocery Store.



A School Bank in Operation.



Below: An Electrical Map of World Products.—The pupils are soldering wires to complete the illumination. The map is worked by a switch which lights up areas that produce identical products, combining geography and work-shop practice.

*Courtesy, Inspector C. E. Stothers,
Department of Education,
Toronto.*



In 1939 the Bureau of Statistics published its biannual review of that indispensable aid to adult education, the public library. It shows substantial progress toward the adoption and permanent establishment of modern library service in Prince Edward Island, Nova Scotia, Ontario, and British Columbia. Over half of the Dominion's population, however, mainly rural, remains without public library service—a situation that can hardly be left with safety to perpetuate itself when "the success of our democratic form of government depends on our citizens being intelligent and well-informed", to quote a bulletin of the American Library Association. The public libraries too are more and more called upon to collaborate with the schools in providing the much greater range of reading material that is demanded by the new programs of study. More than a quarter of public library patrons are boys and girls.

Summary Statistics of Education in Canada, 1938

NOTE.—Figures in even hundreds are approximate only.

Type of School or Course	Institutions	Pupils	Teachers	Expenditure
	No.	No.	No.	\$
Provincially Controlled Schools—				
Ordinary and technical day schools	32,300	2,178,285	76,636	125,000,000
Evening schools	351	89,272	2,409	
Correspondence courses	6	20,459	300	
Special schools	19	5,236	500	
Normal schools	54	6,504	640	
Privately Controlled Schools—				
Ordinary day schools	1,303	94,617	5,354	5,500,000
Business training schools	186	23,943	686	
Dominion Indian Schools	367	18,743	600	1,830,071
Universities and Colleges—				
Preparatory courses	60 ¹	20,847	1,121	19,000,000
Courses of university standard	155	46,815	5,360	
Other courses at university	10 ¹	45,831		
Totals	34,800	2,550,555	93,500	151,500,000

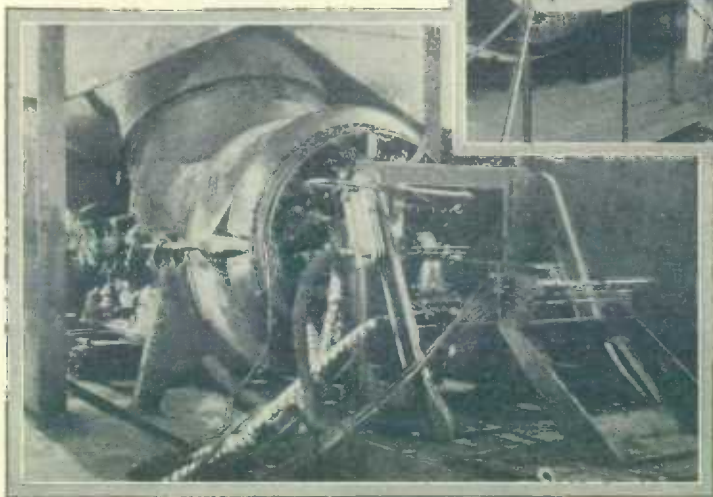
¹Includes only affiliated schools that are not enumerated in "Courses of university standard"

The National Research Council

The National Research Council was organized in 1916 to advise the Committee of the Privy Council on Scientific and Industrial Research regarding matters of science and technology, and to take charge of any scientific or technological work assigned to it by the Committee. In exercising these functions the Council has carried on research in its own laboratories at Ottawa and has co-operated with other bodies interested in research in Canada. This co-operation, largely developed through the system of Associate Committees organized by the Council, has provided a means of avoiding duplication of effort, and has made for greater efficiency by providing for the study of specific problems by such institutions as, by possession of special equipment or suitably-trained personnel, are best equipped for such study. Consultations among the co-operators in committee also bring to bear on many problems the combined experience of many scientists. Grants in aid of research are given by the Council to assist investigators of repute whose work would otherwise be hindered by lack of equipment or assistance. These grants have resulted in the comple-

tion of much research that would not have been possible without aid and have stimulated the development of new research centres, particularly in the smaller universities. The Council's scholarships, aimed to enable outstanding students to acquire training in the methods of research, have also assisted the development of research throughout the country.

Testing a Half-Scale Model Aircraft Ski in the Wind Tunnel.—The model is tested in the inverted position and, in this case, with under-carriage and wing.



Testing an Aircraft Engine in the Engine Laboratory.—The engine is air-cooled by a down draught from the large metal tube; it undergoes a fifty-hour test for compliance with requirements for the issue of Airworthiness Certificate.

Courtesy, National Research Council

The staff of the Council's laboratories is organized in the Divisions of Biology and Agriculture, Chemistry, Mechanical Engineering, and Physics and Electrical Engineering, in which the actual researches are done. In addition to the usual administrative services necessary to such organizations, there are two special Sections. The Section on Codes and Specifications deals with such matters as purchasing standards, building codes, and co-ordination of specifications. The Research Plans and Publications Section serves in a liaison capacity in connection with plans affecting several divisions, has control of the library and all publications, and provides a research information service and technical secretarial services as required.

All Divisions are responsible for the direction and conduct of the technical work in the fields indicated by their designations. Co-operation and collaboration with all other government organizations, and with outside bodies doing similar work; the collection, correlation, and issue of scientific information; the planning of laboratory research; co-operative investigation through committees; and the general correlation of work of Canadian research organizations are primary objects of the Council.

During 1939 a major series of investigations was concerned with production, storage, and transport of food, particularly animal products. In co-operation with the meat-packing industry and the Dominion Department of Agriculture, the Division of Biology and Agriculture made a survey of processes and practices, with the object of improving the quality and uniformity of such products. Many aspects of the investigations are concerned with chemistry, bacteriology, and engineering, in addition to economics, and the co-operation of the Dominion Department of Agriculture and the Fisheries Research Board, through representation on the Associate Committee on Transport of Food, has brought about wide discussion and the general pooling of results.

In the field of cereal improvement similar co-operation has existed for many years; plant breeders, plant pathologists and cereal chemists participate through the medium of the Associate Committees on Field Crop Diseases and on Grain Research. Work on milling and baking quality of wheat and malting quality of barley, done in the Council's laboratories, has been part of a large program of co-operative research. Similar teamwork has been developed more recently in forestry, the laboratories doing work on the development of new fast-growing hybrids, the use of plant hormones in the rooting of cuttings, and the testing of equipment for forest-fire control, as part of a joint program. In addition to these examples of collaboration, about thirty other units function in a similar way. Detailed reports on the work of the laboratory divisions and of other activities are published each year in the report of the Council.

The work of the Division of Mechanical Engineering has expanded rapidly during the past few years, particularly in the field of aeronautics. As a result, the remodelled buildings in Ottawa in which some of the laboratories have been housed are no longer adequate to meet the demands made upon them. Accordingly, new laboratories are being erected.

Expanded facilities will be available. The new wind tunnel will have about twice the capacity of the one now being used. For the first time a spinning tunnel for testing aircraft will be available in Canada. A testing basin 25 feet wide and 600 feet long will permit the testing of large models of hulls of vessels, and aircraft floats and hulls. A new hydraulic laboratory will allow for the study of problems met in power developments, canals, river improvements, etc. Work of this nature previously had to be referred to European laboratories.

In the new laboratories there will also be improved equipment for the Division of Physics and Electrical Engineering, including facilities for work in connection with the transmission of power at high voltages, and a reverberation chamber and other equipment for the study of acoustics. With these new and improved facilities the Council will be able to give a wider range of services to the Government and Canadian industry.

An interesting item of the year's work was a conference of heads of industrial-research organizations held under the auspices of the Council to consider the better correlation of the research work being carried on in various centres throughout Canada. A first step in this direction was the compilation of a list of laboratories in the Dominion which was undertaken late in the year by the Bureau of Statistics at the request of the National Research Council. This list has become of special value as a guide to the location of testing facilities required in war work.

ITINERARY OF THE ROYAL TOUR OF CANADA.

Quebec.—*Wednesday, May 17*—Their Majesties arrived at Quebec on the R.M.S. *Empress of Australia*, accompanied by a naval escort consisting of H.M.S. *Southampton*, H.M.S. *Glasgow*, H.M.C.S. *Skeena*, and H.M.C.S. *Saguenay*, and an air escort provided by the Royal Canadian Air Force. On landing, they were welcomed to Canada by the Prime Minister of Canada, who also acted as Minister in Attendance throughout the tour. The Dominion Cabinet also met Their Majesties, as did His Honour the Lieutenant-Governor of Quebec, the Premier of Quebec, His Worship the Mayor of Quebec, and a host of other Dominion, Provincial, and Municipal Officials.

Their Majesties spent the whole day in Quebec, the principal events being: the welcomes of the Provincial and Civic Governments, the luncheon given by the Dominion Government to which all members of His Majesty's Privy Council for Canada were invited, the demonstration by school children in the historic Battlefields Park, and the banquet given by the Provincial Government. His Majesty greeted his Canadian subjects in a speech delivered at the Dominion Government luncheon and broadcasted across the Dominion by the Canadian Broadcasting Corporation. Their Majesties stayed overnight at the Citadel.

Montreal.—*Thursday, May 18*—The Royal Party arrived at Montreal, after a short stop at Three Rivers. Their Majesties spent the afternoon driving around the city, when they viewed the recently-restored historic fortifications on St. Helen's Island, were received at the City Hall, and had tea at the Chalet on Mount Royal. In the evening they attended a dinner given by the City of Montreal at the Windsor Hotel.

Ottawa.—*Friday, May 19*—His Majesty's first official act at the Capital was to receive in audience the newly-appointed United States Minister to Canada, who presented his credentials. Following this, His Majesty received the Heads of Missions and the Accredited Representatives of the countries of the British Commonwealth. In the afternoon, Their Majesties proceeded to the Houses of Parliament, where His Majesty gave the Royal Assent to certain legislation passed in the current session and addressed the members of both Houses. In the evening a State Dinner was held at Government House. *Saturday, May 20*—Following the Trooping of the Colour in celebration of His Majesty's birthday, Her Majesty officiated at the laying of the corner-stone of the new Supreme Court Building, her speech being broadcast. Afterwards Their Majesties drove through the City of Hull. A garden party at Government House and a Parliamentary Dinner occupied the rest of the day. *Sunday, May 21*—The unveiling of the National War Memorial took place in the morning and His Majesty's speech was broadcast. Their Majesties left for Toronto, travelling via Coteau Junction, Cornwall, Brockville, Kingston, and Cobourg.

Toronto.—*Monday, May 22*—The welcome by the Civic and Provincial Governments, the presentation of Colours by Her Majesty to the Toronto Scottish Regiment (M.G.), and the attendance by Their Majesties at the running of the King's Cup at Woodbine Park were the most notable events in the Ontario Capital.

Winnipeg.—*Wednesday, May 24*—Travelling via Carley, MacTier, White River, Schreiber, Port Arthur and Fort William, Raith, Ignace, Busted (night), and Rennie, Their Majesties arrived in the Manitoba capital on the morning of the 24th. Following the civic reception at the City Hall and the Provincial Government reception at the Legislative Buildings, Their Majesties drove to Government House, where His Majesty broadcasted his first Empire Day speech. After the Lieutenant-Governor's luncheon, Their Majesties drove to Fort Garry Park, where the traditional tribute was received from the Governor of the Hudson's Bay Company. In the evening the Royal Train left for Portage La Prairie, Brandon, and Kemnay (night).

Regina.—*Thursday, May 25*—Arriving via Elkhorn and Broadview, Their Majesties received Civic and Provincial Government welcomes, had tea at the Royal Canadian Mounted Police barracks and dined at Government House. They left for Alberta via Moose Jaw and Waldeck (night).

Calgary.—*Friday, May 26*—Their Majesties arrived at Calgary, having travelled via Medicine Hat, Suffield, and Bassano. They were greeted by 2,000 Indians of the Blackfoot, Blood, Peigan, Stone, and Sarcee tribes. In the evening Their Majesties left for Banff, where they spent the time in relaxation and sight-seeing until Sunday morning.

Vancouver.—*Monday, May 29*—Having spent the previous day travelling through the Rockies, via Field, Beavermouth, Stoney Creek, Glacier, Revelstoke, Sicamous,

Monte Creek, Kamloops, and Keefers (night), the Royal Train arrived at Vancouver in the morning. Following the reception at the City Hall, where His Majesty performed the Ceremony of the Mace and attended a civic luncheon, Their Majesties were taken for a long drive through Vancouver and its environs. In the evening they left for Victoria escorted by H.M.C. ships *Fraser*, *Ottawa*, *Restigouche*, and *St. Laurent*, and by aeroplanes of the R.C.A.F., and stayed at Government House.

Victoria.—*Tuesday, May 30*—After receiving Civic and Provincial Government welcomes, Their Majesties attended a luncheon given by the Government of British Columbia; His Majesty addressed the gathering, his speech being broadcast by the Canadian Broadcasting Corporation. In the afternoon, the King presented a Colour to the Royal Canadian Navy, this being the first naval ceremony of this nature to be held outside the United Kingdom. The following day Their Majesties left Victoria and travelled via Vancouver, New Westminster, Mount Lehman, Chilliwack, Hope, Boston Bar, Mount Robson, and Red Pass Junction to Jasper, arriving on *Thursday, June 1*. Here Their Majesties enjoyed the beauties of Jasper National Park for half a day.

Edmonton.—*Friday, June 2*—Travelling via Edson, Their Majesties arrived in the capital of Alberta, and received official welcomes from the Provincial Government and the City of Edmonton. They were also greeted by 1,200 Cree Indians, who sang the National Anthem in their native tongue. A dinner was tendered by the Provincial Government, after which Their Majesties left for Clover Bar (night).

Prairie Provinces and Ontario Points.—*Saturday, June 3, to Wednesday, June 7*—The Royal Itinerary did not include any more official visits to provincial capitals until the Maritime Provinces were reached. The next five days were largely occupied in travelling, short stops being made at many points, at some of which drives were undertaken; at others, receptions were held at the station. The points covered are listed, as showing the course of the Royal route, and are presented in the order in which the localities were visited. *Saturday, June 3*—Wainwright, Artland, Biggar, Saskatoon, Watrous, Touchwood, and Melville. *Sunday, June 4*—Rivers, East Tower, Winnipeg, Decimal, Redditt, Niddrie, Sioux Lookout, Savant Lake. *Monday, June 5*—Hornepayne, Fire River, Foleyet, Gogama, Laforest, Capreol, Sudbury Junction, Sudbury, and South Parry (night). *Tuesday, June 6*—Zephyr, Toronto, Guelph, Kitchener, Stratford, St. Mary's Junction, Glencoe, Chatham, and Windsor. *Wednesday, June 7*—London, Ingersoll, Woodstock, Brantford (here Their Majesties autographed the historic Bible presented to Her Chapel of the Mohawks by Her Majesty Queen Anne), and Hamilton, where a demonstration of physical training was given by school children. Visits to St. Catharines and Niagara Falls completed the first portion of Their Majesties' Canadian visit.

Official Visit to the United States.—Their Majesties entered the United States at Niagara Falls on the evening of *June 7*. They remained in the United States until the evening of *June 11*, when they took train for the Eastern Townships and the Maritime Provinces.

Quebec Province.—*Monday, June 12*—Entering Canada from Rouse's Point, N.Y., Their Majesties visited Sherbrooke, Leeds Tank, Joffre, Levis, St. Charles, L'Islet, Ste. Hélène, Rivière du Loup, and Trois Pistoles.

Fredericton.—*Tuesday, June 13*—On arrival at Newcastle, Their Majesties motored to Fredericton and received addresses from the Provincial Government and the municipality. A luncheon was given by the Lieutenant-Governor and the Government of New Brunswick at the University of New Brunswick, after which Their Majesties entrained for Fairville, a suburb of Saint John. From Saint John, the Royal Train left for Moncton and Cape Tormentine.

Charlottetown.—*Wednesday, June 14*—Arriving on board H.M.C. Ships *Skeena* and *Saguenay*, the Royal Party visited the Province Building, where addresses were received from the Provincial Government and the City of Charlottetown. A luncheon by the Lieutenant-Governor and a reception in Government House gardens completed the functions in Prince Edward Island.

Halifax.—*Thursday, June 15*—The Royal Party landed at Pictou the previous evening, and after visiting New Glasgow and Truro, Their Majesties reached Halifax and received the welcomes of the Province and the municipality. His Majesty unveiled a portrait of His late Majesty King George V and attended a luncheon given by the Government of Nova Scotia at the Nova Scotia Hotel, when His Majesty broadcasted his farewell address to the people of Canada. Her Majesty the Queen also spoke. In the evening Their Majesties, accompanied by a Naval and Air Force escort, left for Newfoundland aboard the R.M.S. *Empress of Britain*.

The Royal Tour Across Canada

AN EVENT of outstanding importance in Canadian History was the memorable visit of Their Majesties King George and Queen Elizabeth to Canada, May 17 to June 15, 1939. Then, for the first time, a British Sovereign set foot on the soil of one of his Dominions. In this case it was on soil that Frenchmen had discovered and then colonized about three hundred and thirty years ago.

From the moment when Their Majesties stepped from the Royal Yacht *Empress of Australia* at Quebec until their departure on the Royal Yacht *Empress of Britain* from Halifax on June 15, they were the centre of demonstrations of spontaneous loyalty and warm affection from every part of the Dominion, such as have never before been witnessed in British North America.

The purpose of the Tour was not solely to enable the King and Queen to see their Canadian subjects or the expanse of the Dominion from Atlantic to Pacific, nor yet to permit Canadians everywhere an opportunity of seeing Their Majesties. It had a far deeper significance to which the Queen herself gave expression in her speech, delivered in Ottawa in the early stages of the Tour, on the occasion of the laying of the corner-stone of the Supreme Court building. Her Majesty gracefully referred to her "fondest wish" to see "two great races with their different legislations, beliefs and traditions uniting more and more closely, after the manner of England and Scotland, by ties of affection, respect and of a common ideal".

The layout on the reverse side of this insert gives glimpses of Their Majesties during their tour across the Dominion.

Courtesy, Canadian National Railways, Canadian Government Motion Picture Bureau, and Public Works Department.

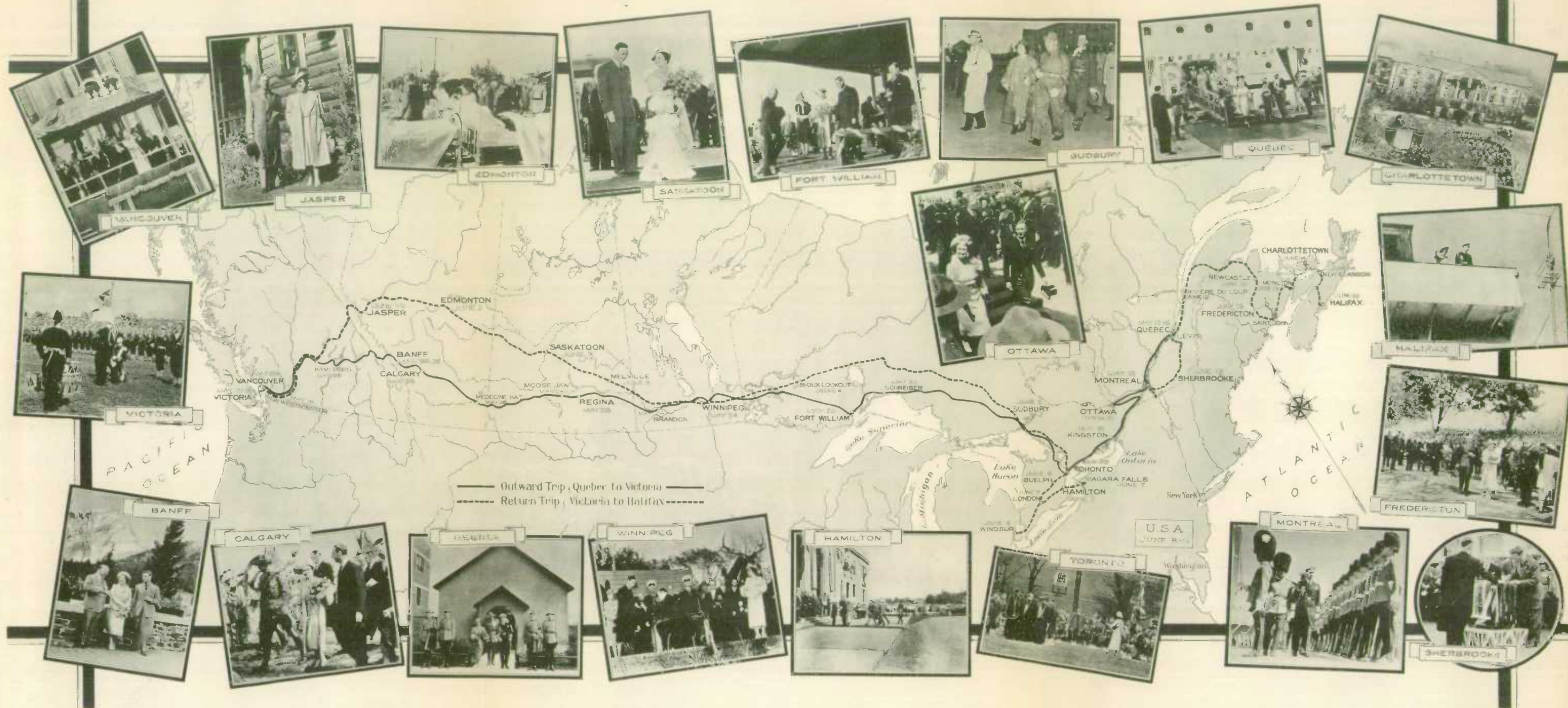


THE NATIONAL
WAR MEMORIAL
unveiled by
HIS MAJESTY
May 21st 1939



The Main Bronze Group, a side view of which is shown at the top and an oblique front view below, represents the "Great Response" of the men and women of Canada. All major arms of the Services are represented. In the circle is shown the emblematic group, symbolic of Victory, Peace, and Liberty, that surmounts the pedestal.

THE ROYAL TOUR OF CANADA, MAY 17 TO JUNE 15, 1939



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