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DEPARTMENT OF
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CANADA

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A FACT A DAY ABOUT CANADA

FROM THE

DOMINION BUREAU OF STATISTICS

JUNE 1940

SIXTH SERIES

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James Muir,

Editor.

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BIOLOGICAL SURVEY
OF CANADA

from the

Dominion Bureau of Statistics

No. 245. Sat. June 1, 1940 - Royal Canadian Navy

Those of us who live far inland are not so ready to realize the importance of the work of the Royal Canadian Navy as those who live down by the sea, where waves curl and dash on the shore -- where fishermen toil for a living for their families under conditions that are hazardous and where sailors who travel to far countries are constantly coming and going. Occasionally the films and a good book tell something of the story.

But war days bring the sea and the seamen closer to us and we gain some little conception of what ships and crews mean to us of the Empire and our own Canada, and what they have meant to the British people who pinned their faith on the navy in order that they "never, never shall be slaves."

Generally speaking, however, Canadians know very little about their navy and its expansion. It is much more imposing than probably most had thought.

The latest figures show that the personnel of the Royal Canadian Navy consists of 952 officers and 5,662 ratings. These numbers include 125 Canadian officers and 100 ratings who are serving in the British Navy. Many of these are young men who, when their training is completed in the United Kingdom, will come back to Canada and serve in the Royal Canadian Navy.

The personnel is expanding continuously, and it is estimated that by March of next year there will be 1,450 highly trained officers and 10,000 ratings.

The fleet consists of 7 destroyers, 15 minesweepers, 6 anti-submarine vessels, 15 fishermen's reserve vessels, and 51 other auxiliary vessels. The conversion of 3 high speed merchant ships to light cruisers will be completed shortly. A number of other vessels have been acquired and are now being armed for patrol duty. It is also very important to know that 90 additional vessels are under construction. These include 54 patrol vessels and 18 minesweepers. These are being built in 20 shipyards.

The Royal Canadian Navy, apart from its patrol duties on the coasts of the Dominion, is assisting actively in the coastal defence of Newfoundland, and is co-operating with the British and French navies in the Caribbean area. It is also taking an active and important share in the convoy duty so essential if the military supplies and foodstuffs required by the Allies are to cross the ocean in security.

These figures will surprise a great many people who know little or nothing of the Royal Canadian Navy.

Note: These figures are taken from a statement made to the House of Commons by the Prime Minister, as are the figures given in the following three Facts. The situation is changing speedily and, as time goes on, revised statements will be made.

No. 246. Sun. June 2, 1940 - Royal Canadian Air Force

So spectacular has been the success of the Allied airmen in stemming the progress of the German invaders that the public mind is avid to know exactly what part Canada is playing in the conflict in the air.

The latest figures available show that Canada had 1,889 officers and 10,926 airmen, or 12,815 of all ranks, at the middle of May.

Their disposition is divided between army cooperation, home defence and the Royal Air Force contribution to the Canadian share of the instructional staff of the air training plan. In cooperation with the army, Canada has one squadron overseas, and a second squadron is completing its training in Canada. Provision has been made for the continuous training of reinforcements for both squadrons in our army cooperation schools.

For home defence there are nine squadrons in our present establishment and when the establishment is completed, there will be twelve squadrons.

Recruitment of the Royal Canadian Air Force is intimately associated with the British Commonwealth Air Training Plan to which reference was made last month. However, it may be well to recall that this is a joint plan in which the United Kingdom, Canada, Australia and New Zealand are all concerned.

No air training plan can turn out trained pilots, observers and gunners immediately after its inception. Apart from pupils, about forty thousand officers, airmen and civilians will be employed when it is fully developed. Many thousands of pilots, air observers and air gunners will be trained each year on a progressively increasing scale.

Over one thousand aeroplanes will be manufactured in Canada in 1940 and over 1,500 in 1941.

No. 247. Mon. June 3, 1940 - Canadian Overseas Army

The First Division of the Canadian Active Service Force is overseas, and its strength has been enlarged by the necessary auxiliary troops. The number of troops in the First Division and its auxiliaries is 23,438.

At Canadian Military Headquarters in England there are 240 officers and men. The total of men overseas, therefore, is 23,678.

There is in training for overseas service a Second Division with its auxiliary troops amounting to 24,645.

There are under mobilization other troops under the following headings: Depots and training centres, 16,282; troops engaged in coastal defence and anti-aircraft work, 9,036; troops engaged in guarding vulnerable points, 1,665; other troops in Canada, 6,223.

The total personnel in the Canadian Active Service Force as of May 10 is given as 81,519.

In addition to the Active Service Force, the non-permanent active militia has been organized into eleven territorial regiments for the purpose of providing reinforcements for the Canadian Active Service Force units overseas.

Apart from troops overseas and troops engaged in home defence, Canadian troops are assisting in the defence of strategic areas in Newfoundland, and further assignments of duties are contemplated in the Atlantic area.

In the three services there were, as of May 10, more than 100,000 men in active service. In addition, organization has been provided for the reinforcement of the Canadian Active Service Force and for the recruitment, as rapidly as ships can be put into commission, of the personnel of the Royal Canadian Navy.

No. 248. Tues. June 4, 1940 - Cost of the War

Said the Prime Minister in the opening days of the new Parliament last month: "The world has greatly changed since 1914. Canada has changed with it. Our national status has changed. Our political responsibility has changed. Our financial position has changed. Our industrial capacity has changed. The problems of local defence and overseas activity have been revolutionized by the new range, effectiveness and destructive power of aircraft, submarines, mechanized weapons and military equipment. The machine of war, more than ever, dominates the man at war. Military power can no longer be resolved in terms of the number of men enlisted."

The financial situation is radically different from the situation in 1914. At that time Canada was able to borrow money outside of Canada, both in the United Kingdom and the United States. Today we are prohibited by the neutrality legislation of the United States from access to their security markets.

The actual money which has been paid out of the Treasury on war account in the first eight months of the present war has been more than double the amount paid out in the first eight months of the last war. The first estimate of cost for the present fiscal year was \$500,000,000, but developments have required a revision of the estimate and the cost is now placed at \$700,000,000.

There will probably be a further revision, without doubt over 1,100 million dollars. In other words, we shall be spending over three million dollars a day on the average.

In the last war there was no Canadian air force and no air training plan. Naval expenditure alone will be \$100,000,000 but in the corresponding period of the last war it was only \$3,000,000. Estimated naval expenditure for the first year is more than three times the total naval expenditure for the whole of the last war.

The needs of modern war also have almost doubled the cost per man of maintaining a division in the field.

No. 249. Wed. June 5, 1940 - Wood as War Material

The value of wood as a war material is attested by its inclusion in certain lists of war contraband.

Timber is essential for boxes for ammunition and supplies, for the building of aerodromes, aircraft, dug-outs, shelters and pontoon bridges, and to provide ties for railway tracks. Wood is used in the manufacture of war equipment, as for example in the stocks of rifles and light machine guns. Cartridge wrappers consist of paper made from wood pulp. Large quantities of fibre-board and corrugated board are used in packaging.

Purified wood pulp yields cellulose nitrate or gun-cotton used as an explosive for demolitions and as the chief ingredient of smokeless powders, photographic films, collodion and celluloid plastics. Dynamite, of which wood flour forms an appreciable part, is employed in construction outside of war zones. Specially prepared wood charcoal is the chief working substance in gas masks. Acetone, obtained from acetate of lime produced in the distillation of wood, performs the function of a solvent or diluent in some explosives.

Wood is an important auxiliary war material. Rayon and staple fibre from wood pulp can be more extensively used in place of cotton. Producer gas from wood and charcoal may be used for developing power for automobiles and trucks, and so release quantities of gasoline for military purposes. Ethyl alcohol can be produced from wood waste and from the waste liquor of sulphite pulping.

Thus the vast timber resources of Canada, which are so important in peace time trade, play an equally important role in war.

No. 250. Thurs. June 6, 1940 - Courtesy and Hospitality to Visitors

The Hon. C. D. Howe said a very timely thing in a recent radio address:

In the production of our war supplies we are using, and will continue to use, the resources that are available in this country, to the limit, but there are raw materials that we do not have in Canada, and there are goods that we are not equipped to manufacture in the quantities and with the speed that is demanded by our present necessity. Our natural market for these items is with our great industrial neighbour, the United States.

To purchase war materials in the United States, we are compelled by Act of Congress to pay cash in American dollars. To do that we must acquire American dollars from every possible source. Our present purchases in the United States are paid for out of reserves of American currency that have been accumulated by our Foreign Exchange Control Board, but with the quickening tempo of war and the dire emergency of the moment, our purchases in the United States must increase, and those increasing purchases will require more American dollars. We are exporting all the raw and manufactured commodities that the United States market is able to absorb. It is futile to look for any great improvement there. One other way is open for us to obtain these much needed American dollars, and that is through the tourist traffic.

Tourist money is a source of American dollars that places no strain on our economy. All we are expected to give in exchange is scenery, courtesy and hospitality. The scenery, nature has provided. Surely it is not asking too much for us all to provide the courtesy and hospitality.

The Prime Minister of Canada has issued an invitation to our neighbours to the South to visit us this summer. Those who will come will come by invitation, and should be treated with the full courtesy due a guest.

No. 251. Fri. June 7, 1940 - Masculinity of the Canadian Population

Throughout the older countries of the world there is usually found an excess of female over male population. The normally higher rate of mortality among males, the greater number of males who migrate, the effects of war, the employment of males in the army, navy, and merchant marine, and the preponderance of males among emigrants are some of the more important factors having a bearing upon population conditions in Canada.

In the newer countries of the world however, the preponderance of males among immigrants results in a general excess of male over female population. This has been true of Canada from the commencement of its history, the first census in 1666 showing 2,034 males to only 1,181 females.

In 1784 when the English speaking immigration to Canada for purposes of settlement was commencing there were 54,064 males and 50,759 females in the colony. At the middle of the 19th century there were 449,967 males to 440,294 females in Lower Canada and 499,067 males to 452,937 females in the more newly settled Upper Canada, and since Confederation the same phenomenon of the excess of males has occurred throughout the growing northwest.

The great immigration of the first decade of the present century resulted in raising what is called the 'masculinity' (i.e. the excess of males over females per 100 of population) of Canadian population to the highest point in recent history, being nearly 6.07 per cent in 1911. The Great War, however, both checked immigration and took about 60,000 young Canadian male lives as its toll, with the result that at the census of 1921 the masculinity of our population was only 3 per cent, or 515 males to 485 females per 1,000 of population. At the 1931 census there were 518 males to 482 females for Canada as a whole.

No. 252. Sat. June 8, 1940 - Mines Field Programme

Thirty-seven geological and topographical survey and exploratory parties, comprising a force of about 170 men, have been assigned to field work this year. These parties will map and investigate areas in every mineral producing province in the Dominion and in Yukon and the Northwest Territories.

In view of the wartime requirements of the nation, particular attention is being given to investigations in connection with such minerals as have a direct bearing on the war effort. The work is largely directed toward the extension of the gold mining industry which provides foreign credits now so essential, and toward an evaluation of resources in petroleum. An increased domestic supply of petroleum is necessary for wartime needs, and also to limit Canada's dependence on foreign sources. Investigations will be made also of deposits of many of the so-called war minerals, such as chromium, manganese, molybdenum, and tungsten, which are of particular importance in the production of arms and munitions.

Twenty-six parties will be engaged in geological surveys and investigations, and eleven in topographical mapping. In addition, two topographical parties will be employed on supervisory work. Of the geological parties, three will be in British Columbia, five in Alberta, one in Saskatchewan, two in Manitoba, two in Ontario, four in Quebec, one in New Brunswick, one in Nova Scotia, one in Yukon, and three in the Northwest Territories. In addition, one geological party will operate both in New Brunswick and Nova Scotia. Two other parties will be employed on the general investigation of deposits of war minerals, one in British Columbia and Yukon, and the other in the rest of the Dominion.

The topographical mapping programme for 1940 will be devoted entirely to surveys in the foothills district of Alberta which is now of such importance as a potential source of petroleum supplies. Ten topographical parties, one control party, and two supervisory parties will operate in this district.

No. 253. Sun. June 9, 1940 - Gophers

There are pests and pests, but one of the worst is a small, inoffensive looking creature called a gopher. While seldom seen in the eastern sections of Canada, he is as much a part of the West as cowboys and dogies, and can be seen any day sitting up stiffly on his hind legs, looking slyly out of the corner of his eye, but ever on the alert, ready at a moment's notice to pop back into his hole.

The gopher is a small, light brown colored rodent, somewhat resembling a squirrel. He has a bushy tail, large hind quarters and tiny, nervous front feet which he uses to hold his food. His home is underground, and he literally honey-combs the earth with tunnels. These burrows are injurious not only because of the space they consume, but because they make traps for horses and cattle, and form runways for water to escape from the fields.

Living principally on seeds and grain, the gopher stores up his winter's supply of food in his nest where he remains in partial hibernation, depending upon the severity of the climate. Each year farmers stage a miniature war against these ever increasing pests. As their natural enemies, the birds of prey, coyotes and wolves are steadily decreasing, many municipalities place a small bounty on the gopher of perhaps a cent a tail. The farmers themselves set poison and traps, and suffocate them out by stuffing a rag saturated with bisulphide of carbon in the holes.

Recent statistics show that in one province alone over 780,000 gophers were killed in a year. That of course does not include the thousands killed of which there is no record.

No. 254. Mon. June 10, 1940 - Systematic Food Production

Foresight in evolving an efficient system of food production capable of functioning in Canada under any eventuality is reflected in the recent speech of the Hon. J. G. Gardiner, Dominion Minister of Agriculture, in the House of Commons on the War Appropriation Bill. "Before the war came", said Mr. Gardiner, "the government had reorganized the Dominion Department of Agriculture into four divisions, with a director over each division. It was done because the government realized, as a result of the experiences we were having in the British market, that something very unusual was going on in the continent of Europe. It was done, too, as a result of an action taken by the Prime Minister, which had some relationship to myself as Minister of Agriculture, in the spring of 1936, when he said to me that he desired me to go to Great Britain and Europe. When I asked him why, he replied, 'No one can administer the Department of Agriculture in the Dominion of Canada, a country producing the large surpluses we produce for marketing in Great Britain or on the Continent, without having an intimate knowledge of what is going on both in Great Britain and on the Continent'.

"I repeat," continued Mr. Gardiner, "that as a result of the experience gained at that time we reorganized the department and changed it from a department composed of a dozen or more branches to a department organized under four directors, a deputy minister, and an assistant deputy minister. The day war was declared, the principal officers of the department were called together to discuss the part to be played by agriculture in war activity. An agricultural supplies board composed of six members was established. The board, together with the department, commenced immediately to deal with the agricultural situations arising out of the war. Co-operation with provincial authorities, with advisory boards, and with other Dominion

government bodies was sought from the beginning to accomplish the following things: (1) to establish constructive direction for agricultural production; (2) to make available for export those commodities required by Great Britain; (3) to conserve essential supplies such as feeding materials, insecticides, and fertilizers needed to meet the production of farm products in Canada, and, (4) to assist in the marketing of surplus farm products."

All these things have been done. The special committees of the Agricultural Supplies Board in every province of Canada cover practically every phase of agriculture. Other war time boards and committees functioning since the outbreak of war are the War Time Prices and Trade Board, the Bacon Board, the Wool Controller, the Sugar Administrator, the Hides and Leather Administrator, the Committee on Animal Feeds, together with sub-committees set up under the direction of the boards. The farmers throughout Canada have been kept informed of developments through these various committees and organizations, as well as directly through agricultural representatives, the newspapers, and the radio.

No. 255. Tues. June 11, 1940 - Nutritive Values of Food Purchases

According to a survey of some 1,500 Canadian families, conducted by the Dominion Bureau of Statistics, meat products accounted for about 20 per cent of the cost of the average family's weekly food purchases. The chief nutritive elements obtained from this source were protein, iron and phosphorus. Protein from meat products amounted to 28 per cent of the total received from all sources, while the iron content comprised almost 25 per cent of all iron received. Meats provided 19 per cent of the total phosphorus in regular food purchases, 12 per cent of the caloric content and 2 per cent of the calcium.

Purchases of fresh, dried, and canned fish formed a small proportion of family food purchases, amounting to only 2 per cent of all expenditures for regular use. Nutritive values available from this source were correspondingly low, being less than 4 per cent of all protein, 3 per cent of phosphorus, and less than one per cent of calories, iron and calcium.

The average weekly outlay for dairy products comprised more than one-fourth of all food purchases, the highest cost shown for any of the commodity groups. Dairy products were an exceedingly rich source of calcium, supplying over 70 per cent of the total quantity purchased. Almost nine-tenths of this amount was obtained from milk, and most of the remainder from cheese. Dairy products also contained one-third of all phosphorus, one-fourth of calories, and almost one-fifth of the protein supply. A comparatively low iron content was shown for this group, which provided only 8 per cent of the iron obtained from all regular food purchases.

Purchases of eggs formed 5 per cent of family food costs. The quantities purchased by survey families provided 8 per cent of their iron, 6 per cent of phosphorus, and 5 per cent of protein. They furnished only a small proportion of calories and calcium, approximately 2 per cent of the total in each case.

Cereals formed one of the most inexpensive sources of nutritive requirements. This group accounted for 18 per cent of all food expenditures, yet provided much higher proportions of nutritive constituents, with the exception of calcium. Cereal products provided the principal sources of calories, protein and iron. They furnished over 30 per cent of the total caloric content of food purchases, almost 35 per cent of all protein, and 25 per cent of iron and phosphorus. In addition this group supplied 11 per cent of all calcium.

Less than 6 per cent of family food outlay was expended for sugar products, which contained about 14 per cent of total calories available. More than 6 per cent of all iron was derived from the same source, but only 3 per cent of calcium, and less than 1 per cent of protein and phosphorus.

Vegetables formed 9 per cent of the weekly cost of foods, but supplied 23 per cent of all iron, and 12 per cent of phosphorus. In addition this group also provided 8 per cent of all protein, and 7 per cent each of calcium and calories. As already noted, no attempt was made to estimate the vitamin content of vegetable purchases.

Purchases of fruits appeared expensive to wage-earner families in relation to the proportion of total food values obtained. However, fruits are an important source of vitamins, vitamin C in particular being characteristic of citrus and other fruits. This group accounted for about 8 per cent of food costs, and provided 4 per cent of iron, 3 per cent of calories and calcium, 2 per cent of phosphorus and 1 per cent of protein.

No. 256. Wed. June 12, 1940 - Rubber and its Manufacture in Canada

One afternoon, about the year 1770, the English natural philosopher, Joseph Priestly, sat crouched over the writing table in the neat and well-ordered study of his home in Leeds. He was engaged in writing his treatise on "The Theory and Practice of Perspective". It was an arduous task. The words, laboriously pencilled out in long-hand, did not flow easily. Often a phrase once set down did not seem just right. Corrections were frequent, but Priestly's manuscript did not bear the marks of many revisions. Somewhere he had obtained a bit of a peculiar, heavy, black, doughy substance that had been brought to Europe from the tropics as a curiosity. Priestly found that this material could be used to rub out pencil marks. This use devised by him gave to the substance the name "rubber" which is used to-day wherever the English language is spoken.

Christopher Columbus is said to have been the first white man to become acquainted with rubber. It is related that on the occasion of his second voyage to America -- 1493-96 he witnessed a game played by the inhabitants of Hayti using balls prepared from the gum of a tree. But Hayti did not produce rubber. It is certain, however, that Spanish explorers found rubber in Mexico about 1521, and saw it being used by the natives in various ways. Over 200 years later the Portuguese missionaries found the natives in the region of the Amazon Valley using rubber to make crude articles of clothing, shoes, headgear, torches, and other useful items.

But the civilized world was slow in learning to make use of rubber. During more than two centuries after rubber was first brought to the attention of Europeans, it was regarded only as a curiosity and was given no serious consideration from a commercial viewpoint. As late as 1791 James Anderson was able to write in an article in the Edinburgh Bee --

"It is easy to see that the uses to which this substance might be applied in arts and manufactures are innumerable, and as such can be effected by no other known substance in nature. Yet so blind has mankind hitherto been to these advantages...all that has been done is to suffer the natives to mould it into the form of a small kind of bottle...and these, when brought to Europe, are applied to scarcely any other use than being cut to pieces for the purpose of effacing marks made upon paper by a black lead pencil, or that of idly amusing children by stretching it out and observing how perfectly it again recovers its pristine form."

To-day more than fifty thousand different products of rubber are marketed to contribute to human comfort, health and pleasure. It is used for such unrelated products as automobile inner tubes and tire casings, refrigerant hose, artificial flowers, nursing bottle nipples, electrical insulation, footwear, surgeons' gloves, mattresses and cushions, golf and tennis balls, adhesive tape, rubber bands, floor coverings and telephone receivers. These varied uses bear witness both to the versatile qualities and properties of the material and to the adaptiveness and technical skill of the modern rubber industry.

The rubber industry in Canada is practically confined to the provinces of Ontario and Quebec. In 1938 only four of the fifty-three firms reporting production were outside of these two provinces. Ontario has six of the seven firms reporting production of tires in 1938. Factories situated in the province of Ontario produced over 80 per cent of the entire output of rubber manufactures; employed over 82 per cent of the capital and 72 per cent of the persons engaged in the industry.

No. 257. Thurs. June 13, 1940 - German Spending on War

Authoritative figures regarding the costs of armaments incurred by various countries, perhaps show the definite reason for the success of the Germans in this war of aggression. The costs of each country have been converted to American dollars so that the magnitude of these war expenditures will be more readily understood. Costs in the five years from 1935 to 1939 are totalled.

The race for war preparations was begun by Germany and Russia in 1935 and by 1936 had far outstripped the expenditures of all other countries. By the end of 1939 Germany alone had spent \$19,100,000,000 or nearly twice as much as Britain and France combined. The United Kingdom had spent \$6,200,000,000 and France \$4,900,000,000.

It is astonishing to find that Russia had spent \$13,500,000,000, or more than any other country except Germany. Indeed Russia spent more than twice the outlay of Great Britain. In fact, from 1935 to 1937 inclusive, Russian expenditures outstripped those of Germany, but the Soviet then slowed down and Germany sprang far ahead in 1938 and 1939, increasing yearly the heavy expenditures of 1936 and 1937.

The expenditures of the United States and Japan were each \$5,100,000,000, somewhat more than those of France. The expenditures of the three great democracies of Great Britain, United States and France together amounted to \$16,200,000,000 or \$2,900,000,000 less than those of Germany alone.

If financial outlays during the past five years are the gauge of success in war, the position of Italy is not so strong as the shouts of defiance from that country would indicate, for Italy was the seventh spending power with a total of only \$3,700,000,000.

Fifty-three other nations combined spent the sum of \$8,400,000,000, or much less than half what Germany spent. Canada's part was about \$200,000,000.

No. 258. Fri. June 14, 1940 - Buckwheat as a Farm Crop

It has been said that there should be no idle acres, but frequently there is a low lying area which in some seasons cannot be properly utilized until too late

for the ordinary cereals. Such a location might be profitably sown to buckwheat. As a general-purpose crop suited to farming conditions in Eastern Canada, buckwheat has many advantages. It will thrive on comparatively infertile light sand or on soil which tends to be acid or lacks drainage. For this reason it can be grown on land which might otherwise remain idle.

Buckwheat is important commercially, having long been considered an excellent food both for human beings and for animals. The whole grain is used extensively for livestock purposes being considered by many as almost interchangeable with barley. Buckwheat flour is used, frequently combined with flours of other grains, to make a pancake flour mixture. A quantity has always found an export market in the United States and Europe and as a cash crop there are excellent opportunities for profitable returns.

It should be sown late in the season as it is necessary to have the crop blossom after the heat of midsummer. Seeding is best delayed until the last week of June so that the blossoming period is favoured by the cooler weather of late summer. In this way seeding takes place during a more or less idle season of early summer thus extending the use of equipment and labour. No extra equipment is required to handle a buckwheat crop.

The quick germination and rapid growth of the buckwheat plant give it excellent advantages as a weed destroyer. A period of frequent cultivation with spring tooth or disc harrow should keep down weeds until the time comes to sow the crop. The dense growth and shade will then smother out quack grass and other noxious weeds. Although buckwheat is used extensively as a smother crop, it has been found that it can be used quite satisfactorily as a nurse crop for sweet clover.

There are two types of this crop but the smooth hulled type is more generally grown. Silverhull and Japanese are common varieties of this type and the ones grown for milling purposes. The other type is rough hulled and gives a good yield of grain for feeding purposes.

Last year the production of buckwheat in Canada totalled 6,848,000 bushels, valued on the farm at \$4,083,000. The buckwheat acreage in 1939 was 335,200.

No. 259. Sat. June 15, 1940 - Trans-Canada Airways

The construction of the trans-Canada airway system was brought to completion during the year 1939. This system consists of a chain of airports linked up by intermediate aerodromes at approximately 100-mile intervals and is equipped with facilities for the safe and regular operation of the passenger, mail and express-carrying service of the Trans-Canada Air Lines from Vancouver to Moncton.

It was found on experimental flights that additional radio range stations were needed at certain points in the Rocky Mountains and elsewhere. On the entire system there are now thirty-seven radio range stations in operation. These are situated at intervals of one hundred miles, except in the mountain region, where the spacing is closer. In their immediate vicinity there is an airport fully lighted for night flying and equipped with first-class meteorological services. Weather reports and other information are relayed to planes in flight and to the central forecasting stations at Vancouver, Lethbridge, Edmonton, Winnipeg, Kapuskasing, Toronto and Montreal. At each of these seven stations a weather map is prepared four times daily, and district forecasts are issued for the ensuing six hours.

The Department of Transport has provided for assistance to municipalities desiring to construct or improve existing airports. Thirty-six cities have taken advantage of this offer, including most of the larger centres of population. Commercial air transport companies providing services to districts in northern Canada have played a large part in the transportation system. New discoveries in northern Saskatchewan and the Northwest Territories have resulted in increased activities in these areas in the carriage of mail, passengers and freight.

On November 1st, 1939, the Trans-Canada Air Lines commenced a mail and express service between Montreal and Moncton, followed shortly by passenger service, thus bringing into operation the last leg of a trans-continental service.

No. 260. Sun. June 16, 1940 - Soil-less Plants

For over 70 years it has been known that plants could be grown without the use of soil. However, it wasn't until recently that this type of cultivation became very widespread.

A soil-less farm has been established on Wake Island in mid-Pacific, where vegetables are grown for the use of passengers of the Pacific Clipper airships. The success of this venture is astounding, and it is reported that the yields have been tremendous.

Soil, after all, merely furnishes an anchorage for the roots, water in which are dissolved minerals necessary to the growth of the plant, and of course oxygen. Therefore, if some means of support was given the roots and the essential minerals were dissolved in water, it seems reasonable to expect a normal plant growth. In California the seeds or young plants are placed in wire baskets in a bed of shavings, peat moss, chopped straw or excelsior, and the roots hang down in a nutrient solution in a tray beneath. If there is plenty of sunlight and a good fresh supply of water in which are dissolved the proper minerals, the plants will thrive and produce fruit of as fine a flavor and texture as ordinary soil grown plants.

There are several advantages in this water culture, which at first might be overlooked. Soil-less growth conserves space, as there is plenty of plant food available, and the necessity for spacing the plants far apart is eliminated. There is the freedom from common soil diseases, which are carried by decaying matter in the soil, and freedom from insects and weeds. Growers are assured of consistently uniform crops, year after year. Larger yields are received from soil-less-grown plants. For instance at one prominent Experiment Station tomato vines grew over fifteen feet tall and produced more than twenty pounds of fruit per vine. It is a simple matter to start young plants and to remove old ones with this new method of cultivation. Finally, the place factor enters into the question. Water-culture, or chemiculture as it is sometimes called, can be conducted on sites that otherwise would be useless.

Taking a glance into the future of this fascinating new industry, it is not impossible to visualize a steady increase in its popularity, not only as a hobby, but as a commercial enterprise. A recent edition of a publication called Plant Chemiculture states that the waste vegetation which grows so abundantly in water-culture, could be utilized in the modern wonder process -- plastics. The author goes on to say that the vegetation could be digested and fermented for motor fuels. Truly it is an industry linking field with factory without the necessity of soil.

No. 261. Mon. June 17, 1940 - Weeds Cause Loss

Every farmer is familiar with the effect of weeds on crop yield and is continually striving to keep these persistent plants under control. Weeds are particularly effective in reducing grain yields during dry years when the supply of soil moisture is limited.

The results of experimental work show that weeds have approximately the same water requirement as the cereals. They use from 220 to 550 pounds of water for each pound of dry matter produced. The Russian thistle is the most efficient of the weeds tested in the use of water. The heavy infestations of this weed that may occur during a dry season are ample evidences of its efficiency.

Experiments dealing with the storage of moisture in fallow land have shown that when the weed growth was kept down the type of cultivation did not materially influence the conservation of moisture. The growth of weeds in a field following harvest may utilize all the available moisture in the soil, thus reducing the benefit of the fall rains. Likewise, the weed growth on the field the following spring prior to or after cultivation uses up moisture that should be stored in the soil. A heavy infestation of weeds is not necessary to seriously deplete the moisture supply, for one ton of dry matter represents 220 to 550 tons of water; thus a crop of even one-half ton per acre of dry weeds will have used the equivalent of 1 to 2½ inches of rainfall. It is evident that any weed growth on land being fallowed uses moisture that should be conserved for the following grain crop.

Weeds growing in a cropped field compete with the grain for the available moisture, with a corresponding reduction in the yield. Even a few weeds may cause a reduction of 25 per cent or more in the yield of grain. It is during a dry period that the weeds cause the greatest damage, for cereal crops cannot compete successfully when moisture supplies are low.

Under certain conditions, weeds have a beneficial effect in the trapping of snow and prevention of soil drifting. Each farmer must decide for himself whether the benefit derived from the weeds will compensate for the loss of moisture required to produce such growth.

No. 262. Tues. June 18, 1940 - Hay-making

Here is a little advice helpful in these war days when everything possible is being conserved.

The old maxim "Make hay while the sun shines" is fast losing its universal application in connection with the process of converting grass and legume crops into feed for livestock. The relatively newer method of ensiling these crops enables the grower to produce a good quality of feed under adverse weather conditions which might render hay making impossible. This does not mean that rainy weather is more suitable than fine weather for making silage, but since it takes several days to make grasses and legumes into hay, while they can be ensiled immediately as cut, the chance of weather damage is practically eliminated by the latter method.

For sixteen years the Central Experimental Farm at Ottawa has conducted experiments with regard to various methods of ensiling some 20 different crops. Red clover or alfalfa cut when in full bloom, sweet clover in the bud stage, and timothy, oats or barley cut just after heading, have all been made into excellent silage. The moisture content of the crop is extremely important in making silage.

If it is too wet there is danger of rotting and if too dry moulding may take place. Normally, a moisture content of 70 per cent is nearly ideal and cutting at the stages mentioned above will give approximately the correct amount of moisture, providing there is not too much added by the outside influence of dew or rain.

As further insurance against possible spoilage in the silo, the addition of molasses to grasses and legumes for silage is recommended. Molasses provides the necessary carbohydrates upon which bacteria may feed to produce lactic acid, which in turn preserves the silage. These materials, although relatively high in corn are comparatively low in grasses and legumes and their addition artificially to the latter crops is therefore recommended. Approximately 50 pounds of molasses per ton of crop ensiled should give good results. The more adverse the weather conditions, the greater the need for adding molasses.

Grasses and legumes properly handled as silage will provide highly nutritious feed with comparatively little loss and at relatively low cost. In contrast to hay making, ensiling is not so dependent on the whims of the weather man.

No. 263. Wed. June 19, 1940 - Canadian Filberts

The cultivation of filberts in British Columbia is gradually increasing and yields from young orchards indicate that commercial prospects for this crop are reasonably good. Practically all the nuts used are imported, which in itself is assurance that a local market exists and with the evidence now available certain recommendations as to suitable varieties can be given.

Some confusion exists as to the terms hazel, filbert, and cob. In the Pacific Northwest the name hazel is used chiefly in reference to the native species of *Corylus*. In Britain, the term cob refers to those nuts which have a short husk which barely covers the nut. In shape the nuts are chiefly roundish to wedge shape. Filberts, as such, have husks appreciably longer than the nuts. The word filbert is generally used in describing the cultural practices for cobs and filberts, and is so used in this article.

At the Dominion Experimental Farm in Agassiz, B.C., filbert trees were first planted in the early '90's, and some of these original plants are still growing and producing crops. The trees in this first planting were set out much closer than is now practised and were allowed to grow as shrubs instead of being pruned to trees, which is today the most common method. In 1926 a new orchard was planted which consisted of seedling trees, and since that date named varieties have been added. A few of the seedlings are of promise. The majority though, as is common with fruit tree seedlings, are not of commercial value on account of low yield of some trees and inferior size of nuts with others, or a general lack of vigor of the tree itself. From some of the named varieties satisfactory results have been obtained.

Generally, it may be said that the filberts as compared to cobs are softer and thinner shelled and command a premium of one to three cents a pound on the market. The DuChilly is the most promising kind in this group and should comprise the largest number of trees in any orchard. The Nooksack is extensively planted in Washington as a pollenizer and is very similar to the DuChilly. Amongst the cob nuts, Barcelona is the most extensively planted in the states of Washington and Oregon, but at Agassiz the nuts are not attractive, as the shell has a dull, somewhat smoky appearance. The kernel itself has a large amount of loose scale, commonly referred to as rag. Madame de Bolwyller is much more promising. Kentish....

Cob is also a good nut but has an extremely hard shell. It supplies, though, a large amount of late pollen.

Filberts, using the term in its broadest meaning, are not self-fertile, due to the fact that male and female flowers are not in full bloom at the same time. An orchard of mixed varieties is therefore necessary. A suitable combination of trees would include DuChilly with some trees of Madame de Bolwyller, Barcelona and Kentish Cob.

No. 264. Thurs. June 20, 1940 - Watering the Garden?

Think of this, you who are doing your best to raise a good crop this year. While the reputation of the dust mulch as a means of conserving soil moisture has been rather heavily discounted by scientific investigation at some points, the hoe and the scuffler are still indirect means of watering the garden, because for one thing they kill the moisture-pumping weeds. Even during a prolonged dry spell a hill of corn may continue to thrive if assured all the moisture in a square yard of ground. If obliged to compete with a mat of weeds, the corn is stunted.

The Peace River region of Northern Alberta and Northern British Columbia is subject to lengthy periods of dry weather, yet the Dominion Substation at Beaverlodge, Alberta, has never had a complete failure of its vegetable garden and usually has a flourishing one, though no vegetable crop except celery is ever watered after the transplanting stage. Transplants are occasionally watered when being set out — not afterwards. It is strictly against the rule insisted upon by the Superintendent, W. D. Albright, who wishes to see what can be grown by the means within anyone's reach. Incidentally, clean cultivation conserves all the plant food, as well as the moisture, for the crop.

The average gardener's blind faith in the sprinkling can is pathetic. Beyond a little momentary refreshment of the leaves, the sprinkled contribution is wasted or worse. The moisture that helps a crop materially is the moisture that gets down to the seeds or the roots. It takes quite a wetting to do this.

When the seed bed is excessively dry, a judicious soaking of the opened seed furrow to promote germination might not be a bad idea, but after that, if instead of toting pails of water from creek or pond, people would use the rake, hoe and scuffler assiduously to keep down intruders, they would be surprised to find how well their gardens grew with the moisture provided by nature.

No. 265. Fri. June 21, 1940 - Along the Richelieu

Visitors to Canada this year motoring via the Lake Champlain and Richelieu route through Quebec traverse a region abounding in historical associations, which date back to 1603 when Champlain promised to assist the Montagnais Indians make war on their ancient enemy, the Iroquois. Many thrilling exploits, following Champlain's journey up the Richelieu to keep his promise, are recalled by historic sites marked or preserved by the National Parks Bureau in co-operation with the Historic Sites and Monuments Board of Canada. In addition there are other historic sites throughout the valley of the Richelieu that have been marked by provincial and municipal authorities or by historical societies.

At the mouth of the Richelieu, then known as the Iroquois River, Champlain's adventurous journey was begun in 1609. The thriving town of Sorel now stands at...

this point, and a cairn and bronze tablet mark it as the site of Fort Richelieu, built by Pierre de Saurel in 1665 as a defence post against the Iroquois. Champlain's progress was arrested by the rapids at Chambly, at which point Fort Chambly was also erected in 1665 and rebuilt in 1709. The old walls of this fort have been preserved, and a museum containing many interesting relics is maintained.

Although many of Champlain's followers turned back at Chambly, he continued with two French companions and sixty Indians in twenty-four canoes, pausing six miles up the river to explore Ile Ste. Therese. Another fort bearing the name of the island was erected here, the site of which is marked by a boulder and tablet.

Pressing onward, Champlain next reached a point where now stands the historic City of St. Johns. The site of Fort St. Johns, built in 1748, is marked by a boulder and tablet, and the terminal here of the first railway in Canada is commemorated by a tablet.

Besides the reminders of Champlain's exploits along the Richelieu are memorials recalling stirring events in the years that followed his epic voyage. Outstanding among these is massive and imposing Fort Lennox, situated on Ile aux Noix, ten miles from the International Boundary. Built of stone, its great earthworks, bastions and moat are relics of the storied past.

No. 266. Sat. June 22, 1940 - Agriculture in War Time

From time to time there have appeared in these Facts many references to agricultural production, because more and better crops of all kinds are wanted, in order to make Canada's contribution to the success of the Allies the greatest possible. Dr. J. M. Swaine, Director of the Science Service of the Department of Agriculture, makes it very clear in an address he delivered at McMaster University.

The role of technical agriculture during the war, said Dr. J. M. Swaine, is clearly to assist in maintaining a sound agricultural industry in Canada, competent to supply the agricultural products required to a greater degree than ever before, able to furnish the United Kingdom and the allies of Canada with whatever they may need, and to maintain a stability that will make post-war adjustments possible without serious trade disturbances.

With an industry dependent so largely on overseas trade, and with those markets greatly reduced and future demands extremely uncertain, technical agriculture has before it a great field of work. Canada's largest market, the home market, should be more fully exploited; much attention has been given to selling apples and poultry in Great Britain, probably too little to selling them in Ontario and the Prairie Provinces. Soil fertility must be improved and maintained; the best cultural practices employed; the best seed produced and used; improved varieties developed and utilized; farm economics studied and applied; plant and animal pests and diseases controlled; new uses for agricultural products found and exploited; storage and processing facilities used much more extensively; and production and marketing policies and educational programs carried through as effectively as possible. Canadian produce should be of the finest quality, with the greatest economic production per acre in order to obtain the lowest possible cost to the producer and to the consumer.

In all this work, scientific-technical agriculture must give leadership and guidance, for on its help the agricultural community will be dependent as never

before in the history of Canada. Careful planning by agricultural leaders and by individual farmers will be absolutely necessary in order for agriculture to play its part successfully in the years ahead.

No. 267. Sun. June 23, 1940 - Fighting Forest Fires

We thrill with pride when we read of the exploits of our aviators who are rendering such wonderful service to the Empire in the battle zones of Europe, and we recall that many of them have had an exceptional experience before joining the Air Force.

Aircraft play an important part in safeguarding Canada's vast forests from the ever-threatening ravages of fire. In remote forest areas which are not covered by permanent lookout detection systems, the airplane provides a rapid means of spotting, reporting and reaching forest fires. Ontario and Manitoba maintain their own air forces for this work. Saskatchewan also uses airplanes for this purpose, but secures them as required from commercial air services under contract. On occasion other forest protective services in the Dominion also make use of aircraft on this basis.

In forest protection work the airplane serves a triple role---spotting and reporting fires, transporting men and equipment rapidly to otherwise not readily accessible fires, and directing and co-ordinating the efforts of fire-fighters on extensive fires. When used for patrol purposes the aircraft are maintained at a convenient base. In most cases, flying boats or pontoon-equipped machines, which can land on the many lakes in the north country, are used. When the forest protection officer concludes from the knowledge of weather conditions in the region that the fire hazard is high he issues instructions for air patrols. The aircraft fly over the area following definite laid out courses so that all points come under the eyes of the observers. When a fire is spotted, the observer of a radio-equipped plane at once notifies headquarters of its location, but if radio is not available the fire is not usually reported until the plane returns to its base.

As soon as a fire is reported by the air patrol, the protection officer arranges for the dispatch of men and equipment to the scene. If this is known to be at a rather inaccessible point which would entail much delay to reach by ordinary means of transportation, the fire-fighters are loaded on a transport plane and flown to a suitable landing spot as near the fire as possible. The fire-fighters then reach the burning area with the minimum of delay.

In the United States experiments are being conducted in dropping men, equipment and supplies from airplanes by parachute in the vicinity of the more inaccessible fires. These experiments are being watched with interest by the Canadian forest authorities.

No. 268. Mon. June 24, 1940 - Caring for Wild Life

During the present century the realization of the importance of conserving wild life has been marked a feature of our domestic policies, and progress in that policy continues, despite the claims of war activities. Many of Canada's valuable fur-bearing animals are subject to marked fluctuations in numbers, according to the Department of Mines and Resources, Ottawa, which, with the assistance of the Bureau of Animal Population, Oxford University, and the Hudson's Bay Company, is making a study of wild life populations.

This survey takes the form of an annual questionnaire distributed to resident traders, trappers, the Royal Canadian Mounted Police, and officers of government departments stationed in the Northwest Territories. The investigation is carried on from year to year because the situation is changing continually and it is hoped that the work will produce data from which a forecast can be made relating to the expected abundance of each important species. The results of the study may also suggest measures to prevent unnecessary depletion of any species of wild life during the periods of scarcity.

Canada's fur trade has undergone great changes since the French régime in Canada. The railway first revolutionized conditions throughout the country, then more recently the advent of the motor car has influenced the extension of highways to the limits of settlement, and beyond. Boats now ply the lakes and rivers, and the airplane is used for the transportation of furs from the more inaccessible districts. The advance of lumbering, mining and agricultural settlement, together with improved methods of capture, have driven the fur-bearing animals farther and farther afield, and caused serious reductions to their numbers.

To guard against further depletion and to ensure the prosperity of Canada's great wild life heritage, the Dominion and provincial governments have adopted strong measures of conservation. With respect to fur-bearing animals, limitations of catch or closed seasons are in effect in districts where natural conditions provide a suitable habitat, and in strategic places sanctuaries have been provided from which the surrounding country may be naturally restocked.

No. 269. Tues. June 25, 1940 - Necessity of Economy

Responsibility is upon all governments, Dominion, provincial and municipal to exercise every possible economy in view of the unquestioned priority of the war effort Hon. J. L. Ralston, as Minister of Finance, has emphasized.

"The drain the war effort will cause on the man-power, equipment and resources of the country makes it vitally imperative that all governmental authorities not only dominion - but, if I may go beyond federal bounds - provincial and municipal as well - should appraise, with a sense of national responsibility, the justification for the dollars proposed to be spent on normal activities", he said. "Every such dollar must, directly or indirectly, come out of the pockets of the people. It ought almost to go without saying that to provide the enormous sums which must be spent by the Dominion this year for defence, the ordinary expenditures of governments - all governments - in Canada - must be decreased if they are not to restrict the amount that can be devoted to the driving task of defeating Nazism."

"In the federal field I have had the effective co-operation of my colleagues and their department officers in achieving the economies I have reported. The premiers or provincial treasurers of several of the provinces have discussed this problem with me, and I have also had the opportunity of conferring with a number, at least, of the mayors of our cities and towns on the same subject. The attitude of them all was so instantly and definitely co-operative as to convince me that all that is necessary is that the position be understood, to make certain that the response of all governmental authorities will be just as unhesitating and just as re-assuring."

No. 270. Wed. June 26, 1940 - Using Technical Schools

Arrangements have been made in eight provinces for the use of the vocational shops in the technical schools during the summer vacation period in connection with the training of youths and of older men. These shops are to be used to provide instruction in occupations connected with industries engaged in war-contract work, machine-shop, sheet metal work, moulding, welding, aircraft manufacturing, motor mechanics and wood working will be undertaken. The minimum age of admission to such schools is 16 and at the outset it is the intention to draw a large proportion of the trainees from the students in senior years in the technical schools. Older men also will be admitted provided they have had some previous experience in the trade for which training is desired.

Technical schools' facilities are being placed at the disposal of the Government without charge for rental or depreciation as the municipalities' contribution to the war effort. Approximately fifty-five schools have been offered for this purpose. They are distributed as follows:

Ontario.....	24
British Columbia.....	5
Alberta.....	2
Saskatchewan.....	3
Manitoba.....	2
Quebec.....	12
New Brunswick.....	6
Nova Scotia.....	1

The first of these schools has been opened and it is expected all will be in operation by the beginning of July affording training facilities for a minimum of 5,000. Where necessary a second shift will be operated in the schools.

No. 271. Thurs. June 27, 1940 - Canadian Representation Abroad

It will be useful at this time to know who are the representatives of Canada abroad. They are associated with the External Affairs Department of the Government. There are five in countries of the British Commonwealth of Nations and six in other countries.

The five High Commissioners in British Countries are: United Kingdom, Hon. Vincent Massey, P.C.; Australia, Charles J. Burchell; New Zealand, Walter A. Riddell; South Africa, Henry Laureys; Ireland, John Hall Kelly. Their offices are in the capitals of the various countries and the cable address is Domcan, with the exception of that in the United Kingdom, which is Dominion.

Canadian representatives in other countries are styled Envoy Extraordinary and Minister Plenipotentiary. They are: United States, Loring C. Christie; France, Lt.-Col. George P. Vanier, D.S.O., M.C.; Belgium, Jean Desy; Netherlands, Jean Desy; League of Nations, Geneva, Switzerland, H. H. Wrong; Mr. Wrong is described, however, as Permanent Delegate to the League of Nations.

No. 272. Fri. June 28, 1940 - Representatives in Canada from Abroad

There are four representatives of British Commonwealth nations in Canada, with headquarters at Ottawa. With the exception of the South African representative they are styled High Commissioners. The South African is described as the Accredited Representative.

The representatives of British Countries are: United Kingdom of Great Britain and Northern Ireland, Sir Gerald Campbell; Union of South Africa, D. de Waal Meyer; Ireland, John J. Hearne; Australia, Major-General the Hon. Sir William Glasgow, K.C.B.

By the way, this brings up a point that has mystified a great many people since the Irish Free State became Eire officially. Whether to still speak of Ireland as Ireland is the question, so the matter was referred for decision to the External Affairs Department. The southern part of the island is officially designated as Ireland, and when there is any ambiguity the word Eire should be added in brackets.

Representatives of other countries are all described as Envoy Extraordinary & Minister Plenipotentiary. They are: United States, Hon. Pierrepont Moffat; France, René Ristelheuber; Japan, Baron Tomii; Belgium, Baron Silvercrux; Netherlands, F.E.H. Groenman. All of the offices of these representatives are in Ottawa.

No. 273. Sat. June 29, 1940 - Caring for British Children

From 5,000 to 5,500 British children, between the ages of 5 and 15 years inclusive, will be given refuge here from war-troubled Europe, during the course of the month of July. They will be placed in good Canadian homes for the duration of the war.

Offers to take these children in and give them a comfortable home have been pouring in to the provincial organizations set up for that purpose. The number of offers far exceeds the demands for the present time.

The children are to be sent to Canada only with the full approval of their parents or guardians. The Dominion Government will use its medical officers and its immigration authorities overseas for examination of the children before sailing. It will take charge of their reception at Canadian ocean ports, and provide transportation and care en route to provincial distribution centres. Welfare organizations in the provinces will co-operate with the Dominion Government in their placement and after-supervision.

More than half of the initial contingent of children will be placed in Ontario and Quebec, the remainder being distributed in other provinces on a pro rata population basis.

A communication from the Canadian High Commissioner states that about 3,000 evacuees will have arrived in Canada about the middle of July and a further 750 every five days thereafter to July 25.

No. 274. Sun. June 30, 1940 - Silver Production

Most of Canada's silver is obtained as a by-product from the treatment of base metal ores, chiefly lead and zinc, and of gold ores. The principal silver-producing....

enterprises are located in British Columbia, Yukon and Northwest Territories, the Flin Flon area straddling the Saskatchewan-Manitoba boundary, Ontario and Quebec.

British Columbia was by far the largest producer in 1939, the output coming mainly from the Sullivan silver-lead-zinc mine. Important contributions were also made by Silbak-Premier, Bralorne, Pioneer, and several other gold-quartz mines, by the silver mines of Beaverdell camp, and by various relatively small silver-lead-zinc mines.

In Yukon, production was mainly from the silver-lead ores of the Mayo district. In the Northwest Territories, silver was obtained from the silver-radium ores of Eldorado mine in the Great Bear Lake area, and from the gold-quartz ores of the "Con" property at Yellowknife. A small silver production is also reported from the Contact Lake mine of Bear Exploration and Radium Limited.

In Manitoba, silver was obtained from the copper-zinc ores of Flin Flon and Sherritt Gordon and to a lesser extent from the various gold-quartz mines of the province. Saskatchewan's output is credited to the portion of the Flin Flon ore-body in that province, and to the gold-quartz ores of the "Box" property at Goldfields.

Ontario's silver production came from the silver-cobalt mines of Cobalt and adjoining areas, and from the Sudbury nickel-copper mines. Important contributions were also made from the gold-quartz mines of Porcupine, Kirkland Lake, and other areas. For years the silver production of the Cobalt area has shown a gradual decline due to the low price of silver, but this loss has been partly offset in the last few years by the increased output from the Sudbury nickel-copper mines.

The rapid expansion of metal mining in Quebec during recent years has caused a noticeable increase in the production of silver from the copper-gold ores of Noranda, the copper-zinc ores of Waite-Amulet, the copper-pyrites ores of Aldermac, and the numerous gold-quartz mines in the western part of the province. Some silver has also been obtained in past years from the lead-zinc mines of Portneuf County.

Silver production in Canada during 1939 totalled 23,116,861 fine ounces valued at \$9,359,553 compared with 22,219,195 fine ounces valued at \$9,660,239 in 1938. The average price of silver in 1939 was 40.563 cents per fine ounce as against 43.447 cents in 1938.

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