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DEPARTMENT OF  
TRADE AND COMMERCE



# A FACT A DAY ABOUT CANADA

FROM THE

DOMINION BUREAU OF STATISTICS

ELEVENTH SERIES

1944 - 1945

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No. 93. Mon. Jan. 1, 1945 -- Longevity of the Canadian People

Irrespective of sex, the expected life span of the average one year old Canadian child has been extended 2.31 years during the period between the 1931 and 1941 censuses, according to life tables compiled by the Dominion Bureau of Statistics on the basis of 1941 census population figures and mortality of 1940 - 42. The one year old Canadian girl extended her expected life span by 3.09 years and the one year old boy extended his by 1.53 years.

The expected life span of the average one year old Canadian girl is now 68.73 years and that of a one year old Canadian boy, 66.14 years. In 1931, the expected life span of the average one year old girl was 65.64 years and that for the one year old Canadian boy 64.61 years. At the age of ten, the average Canadian girl may expect to live another 61.08 years, or 2.36 years more than was the expectancy in the same age group in 1931. Amongst the males, 10 years of age, the expectancy of life was 58.70 years in 1941 as compared with 57.96 in 1931, an extension of 0.74 years.

At 20 years of age, the average Canadian woman has in prospect 51.76 years of life as compared with 49.76 in 1931. Amongst the men, 20 years of age, the longevity period in 1941 was 49.51 years as compared with 49.05 in 1931. On reaching 30 years of age, the average woman may expect to live 42.81 years as compared with 41.38 in 1931, and the average man 40.73 years as compared with 40.55.

On attaining her 40th year, the average Canadian woman has 33.99 years of life ahead, whereas the average man has 31.87 years in prospect. In 1931, the average life expectancy of women at 40 years was 33.02 and of men 31.98 years. At 50 years of age, the life expectancy of women averaged 25.46 years as compared with 24.79 in 1931 and of man 23.49 years as compared with 23.72.

In her 60th year the average Canadian woman has 17.62 years of life to look forward to, whereas in 1931 the average was 17.15 years. Amongst the men at 60 years of age, the life expectancy period was 16.06 years in 1941, having fallen from 16.29 in 1931. At 70 years of age, the average woman may expect to live 10.93 years as compared with 10.63 in 1931, and the expectancy of the average 70 year old man is now 9.94 years as compared with 10.06 in 1931.

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No. 94. Tues. Jan. 2, 1945 -- Royal Canadian Mounted Police

The Royal Canadian Mounted Police is a constabulary maintained by the Dominion Government. It was organized in 1873, and was known as the North West Mounted Police, whose duties were confined to what was then known as the Northwest Territories. In 1904, its name was changed to Royal North West Mounted Police.

In 1905, when Alberta and Saskatchewan were constituted provinces, an arrangement was made whereby the Force continued to discharge its duties as formerly, each province making a contribution towards defraying the cost. This was continued until 1917. Soon after the close of the First World War an extension of governmental activities made it obvious that the enforcement of Dominion Statutes was assuming increasing proportions and that it would soon be necessary to have a police force responsible therefor. In 1918, to the Royal North West Mounted Police was assigned the duty of the enforcement of Dominion legislation for the whole of Western Canada, west of Port Arthur and Fort William, and in 1920 for the whole of Canada.



In 1920, the name of the Force was changed to the Royal Canadian Mounted Police, and the former Dominion Police with headquarters at Ottawa, whose duties were largely connected with guarding public buildings in that city and the Canadian dockyards at Halifax, N.S., and Esquimalt, B.C., were absorbed by the Royal Canadian Mounted Police.

At the present time, the Royal Canadian Mounted Police is responsible throughout Canada for the enforcement of the laws against smuggling by land, sea and air; it enforces the provisions of the Excise Act and the Migratory Birds Convention Act; is responsible for the suppression of the traffic in narcotic drugs; assists the Mines and Resources, Fisheries and numerous other Dominion Departments in executing the provisions of their respective Acts, and in some cases in administrative duties; is responsible for the protection of government buildings and dockyards; is the sole police force operating in Yukon Territory and the Northwest Territories; and performs a variety of services in all provinces and both Territories for the Dominion Government.

Under the Royal Canadian Mounted Police Act, any province may enter into an agreement with the Dominion Government for the services of the Royal Canadian Mounted Police, to enforce provincial laws and the Criminal Code, upon payment for its services, and at the present time such agreements are in force with the Provinces of Prince Edward Island, Nova Scotia, New Brunswick, Manitoba, Saskatchewan and Alberta.

The Force is controlled and administered by a Minister of the Crown and may be employed anywhere in Canada. From a Force of 300 in 1873, it had a strength on March 31, 1943, of 4,928, consisting of 98 officers, commissioned by the Crown, 2,859 non-commissioned officers and constables, 108 ordinary special constables, 1,845 constable guards, and 18 security service (not including police personnel). In 1937 a "reserve" strength of 300 men was authorized by Parliament, and at the present time, these are principally centred in such cities as Toronto and Winnipeg.

The Force is organized into 13 Divisions of varying strength distributed over the entire country, and its means of transport consist of 115 saddle horses, 779 motor-vehicles and 283 sleigh dogs.

The term of engagement is five years for recruits, with re-enlistment for a period not exceeding five years, but on account of the war situation there are not very many men being engaged. The training course which is of six months' duration, or longer, consists of drill, physical training - including instruction in wrestling, boxing and jiu-jitsu - and police duties both Dominion and Provincial. The principal training centres are at Regina, Sask., and at Rockcliffe, Ont., at each of which there is an up-to-date scientific laboratory.

The duties of the Force have increased tremendously since the outbreak of the present war and the Commissioner of the Royal Canadian Mounted Police is Registrar General of Enemy Aliens in Canada. The guarding of vulnerable points throughout the Dominion, apart from military property, rests solely upon the Royal Canadian Mounted Police. The Force has furnished one Provost Company consisting of approximately 185 men to the Canadian Active Army overseas.

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No. 95. Wed. Jan. 3, 1945 -- Pears

The pear is a delicious fruit, the especial qualities of which have been recognized and appreciated from the earliest times. It is probably a native of

western Asia and adjacent Europe, whence it has been introduced by man into all temperate climates of the civilized world. Evidence of the culture of the pear has been found in Swiss lake-dwellings and mention of it is made in the oldest Greek writings.

Distinctively a cool climate tree, the pear is generally propagated by means of root grafting. These form what are called standard trees which are usually placed 20 to 25 feet apart in the orchard. Dwarf trees are produced by grafting the pear upon quince stocks.

The names and descriptions of some 5,000 varieties of pears appear in European publications, while in the horticultural literature of the United States not more than 1,000 are to be found. Somewhat over 200 varieties have been tested at Experimental Farms in Canada. Of those grown commercially in this country, the Bartlett and the Kieffer appear to be the most popular.

The statistics of annual production reveal that much progress has been made in the pear growing industry in Canada in recent years. In 1926 the crop amounted to 275,000 bushels; in 1931, 402,000; in 1936, 476,000; and in 1942, 753,000 bushels. In 1944 the most bountiful crop in history was harvested at 845,000 bushels; the financial returns to the growers totalled \$2,020,000.

Considerable quantities of pears are canned each year, both in the canning factories and in the homes. The latest figure available on the activities of industrial canneries are those for 1942, during which year nearly 16,039,000 pounds of pears were canned. During the past five years approximately 46 per cent of the annual pear crop was packed by the commercial canners. A sizeable portion of the balance must have been canned in the home and eaten in the fresh state, as our exports of fresh pears are negligible.

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#### No. 96. Thurs. Jan. 4, 1945 -- The Yellowtail

One of several kinds of flatfish taken commercially in Canada's Atlantic fisheries, the Yellowtail, comes honestly by the name. The under side of its tail is edged with lemon yellow, fading to white in the centre, though on the upper side the shading is brownish. Nature's colour schemes also explain other names sometimes given the fish, Rusty dab and Russet flounder. Each of these two names traces back to the colouring of the fish's upper side. Basically, this colouring is brownish or slaty olive but it is tinged with reddish or rust shades and the fish is marked with fairly large irregular spots of rusty red - hence, Rusty dab or Russet flounder. Yellowtail, however, is the name used in official fisheries records.

Among all species, individual fish may vary more or less in colour shadings, size, weight, etc., and mature Yellowtail run from, say, 16 inches to 24 inches in length and weight from about one to two pounds. Their spawning time is, roughly, from April to June, though it may vary somewhat with the years and, in some measure, in different districts. A female Yellowtail may produce as many as 130,000 eggs at a spawning, though the average production is probably substantially smaller than that. Like other flatfish, Yellowtails feed on small crustaceans and small fish which they find at the sea bottom. Yellowtails are apparently not great travellers and their migrations are limited in range.

Practically all of the Dominion's catch of Yellowtails is taken by Nova Scotia fishermen, and from offshore grounds, though the fish are present in some other waters off the Canadian coast beside those of Nova Scotia. The North American range of the species is from the coastal areas of the north shore of the Gulf of St. Lawrence and



northern Newfoundland southward to the New Jersey region. A kindred species occurs in Europe where scientists know it as *Limanda Limanda*.

Since the Yellowtail is a small-mouthed creature it is only rarely taken by hook and line. Virtually all of the Canadian landings are made by steam trawling - a method of fishing in which a powered vessel drags a large, strong net along the bed of the sea to capture bottom-frequenting fish of different kinds.

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No. 97. Fri. Jan. 5, 1945 -- Army Wipes Out Tetanus

Tetanus - commonly known as lockjaw - has been virtually wiped out in the Canadian Army. In all the fighting in Europe, including Dieppe, not a single case has been reported among Canadian troops. This latest revealed achievement of the Royal Canadian Army Medical Corps marks another milestone in its crusade to make the Canadian Army the most disease-free in the world. The remarkable victory over tetanus, which during the Great War killed 70 out of every 100 soldiers infected, in spite of the anti-toxin then in use, is the result of compulsory immunization or "toxoiding".

Total immunization of the Canadian Army was first ordered early in 1940, when every officer and man in the service was given injections of tetanus toxoid. Since then the compulsory immunization of all incoming personnel has been carried out as a matter of routine. Incoming soldiers are given a series of three injections of the toxoid with a three weeks' interval between each. From then on a stimulation, or "booster shot" is given at regular yearly intervals. In the case of a wounded soldier, if there is any doubt as to whether or not he has received his last "booster shot", he is given a precautionary injection at the first field medical unit he reaches.

Tetanus toxoid, medical officers point out, should not be confused with the now out-moded tetanus anti-toxin. The toxoid, developed at the Pasteur Institute of Paris in 1923, makes the body immune to infection by stimulating the production of what medical men refer to as tetanus "anti-bodies".

Tetanus anti-toxin, on the other hand, still used in civilian practice but rarely in the Army, is employed only as an emergency measure, in an attempt to counter the disease after diagnosis has shown it to be already contracted. Once infection has set in, tetanus toxoid is of no use. It is too late. The doctor then has no recourse but to resort to anti-toxin, and hope for the best. Officers of the Royal Canadian Army Medical Corps look forward to the time, not so far away perhaps, when Canadian civilians will realize the value of toxoiding, and voluntarily seek the immunity now enjoyed by Canadian troops.

The bacillus which causes tetanus is found in soil, particularly soil polluted by animal manure. In this state it lies dormant in the form of a spore. It becomes active again when it gets into an open wound, particularly when it can get into the airless reaches of a deep wound. As the bacillus develops it excretes a poison which attacks the nervous system, causes the spine to curve backwards in an increasingly painful arc, and ends in paralysis and death.

The spores of the tetanus bacilli, which can live for years in the soil, are an ever present menace to wounded men. The ancient soil of Europe, site of countless battlegrounds down through the centuries, has long been recognized as one of the world's most dangerous sources of infection.

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No. 98. Sat. Jan. 6, 1945 -- How Canada Built Merchant Ships

Canada, which began the war with about 250,000 tons of ocean shipping, will probably end it with six or seven times as much. When the Canadian shipbuilding programme is completed it will have turned out roughly 400 ships totalling around 2,700,000 gross tons, or 3,700,000 deadweight tons. About 20 of these were planned as tankers; about 40 as 4,700 deadweight dry cargo carriers; and about 340 as 10,000 deadweight dry cargo carriers, some of which, however, have been converted into fleet auxiliary vessels of various types.

The tankers, of which about a dozen are converted 10,000-tonners and some 6 or 7 smaller coastal type, are all in Canadian service. Three of the 4,700-tonners have been turned over under Canadian Mutual Aid to the United Kingdom and two to Australia, some have also been made temporarily available to the Ministry of War Transport under other arrangements.

Of the 10,000-ton dry cargo vessels, some were sold to the United States and others, as already stated, have been or are being converted to vessels of a special type for fleet auxiliary work. As to the remainder, about 100 have been, or will soon have been, turned over to Great Britain under Mutual Aid, and about 110 have been, or soon will have been, retained for war service under Canadian control.

The Canadian-built ships transferred to Great Britain are known as "Fort" ships; that is they all bear the prefix "Fort", having been named after historical Canadian forts. Similarly, the ships retained under Canadian control are known as "Park" ships, taking their name from well-known national, provincial or municipal parks in Canada. The ownership and management of these "Park" vessels are vested in the Park Steamship Company Limited, a Crown company under the Minister of Munitions and Supply. For individual management-operation, however, the Park Steamship Company assigns them to various private Canadian shipping companies on a management-fee basis. All profits made or losses sustained are for the account of the Crown in right of the Minister of Munitions and Supply.

A statement by the Minister of Trade and Commerce, Mr. MacKinnon - who is Minister responsible for the Canadian Shipping Board - tells in outline the story of shipbuilding in Canada how, before the war, the industry had been allowed to decline to a point where there were only a few yards which maintained themselves almost wholly on repair business, how, when war began, Canada had to start again almost from scratch.

Our shipbuilding programme was undertaken in the early spring of 1941 when the British Commonwealth was exposed to severe peril. France was caught in the German grip. The terrible weight of Nazi power lay heavy upon enslaved Europe. At sea, a savage submarine campaign was raging with unabated fury. Just how serious the situation had become may be judged from the fact that by the end of 1940 nearly 900 British ships totalling over 3,000,000 tons had been lost. Including Allied and neutral ships, the losses ran to over 1600 ships or more than 5,000,000 tons.

The entry of the United States into the war and the start of its expanded shipbuilding programme were still almost a year away. It was clear, also that these losses would continue for some time and might even become worse; as indeed they did, in point of actual fact. The figures for losses suffered from 1941 to 1943 show this very plainly. By the end of 1943 a total of 5,758 ships with a tonnage of over 22,000,000 tons had been lost. The British share of these losses was very heavy. More than 2,900 British merchant ships with a tonnage of 11,643,000 were gone. The balance was made up by the combined losses of all the Allied and neutral nations.



It must be emphasized, therefore, that the great ship production which Canada developed was not planned by her in advance, but was forced upon her by the desperate needs of the war. The ships were built, just as any other munitions were produced, as weapons with which to fight the war; and without ships to carry them, all other munitions would have been useless. This fact should be clearly understood and remembered by the general public as well as by shipping men in all the countries concerned when important decisions on post-war shipping are being reached.

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No. 99. Sun. Jan. 7, 1945 -- Pre-War World Shipping Picture

In September 1939, the Canadian Merchant Marine, taking vessels of 500 gross tons and over and using round figures throughout, consisted of something under 400 vessels totalling about 1,100,000 gross tons. Of these, some 260 of 700,000 gross tons were vessels operating principally on the Great Lakes and the St. Lawrence. Another 60, totalling 150,000 gross tons, were engaged in coastal trades. The number of vessels operating in deep sea trades was around 40, with a gross tonnage of about 250,000 tons.

Considering that Canada ranked fourth or fifth in world trade, the size of her pre-war ocean merchant fleet was very modest. In 1939, if all steamships and motorships of 100 gross tons and over, but exclusive of sailing vessels, are taken into account, there was a world total of 29,763 ships with a gross tonnage of 68,509,432. Of this total, Great Britain and Ireland, which stood first, had 6,722 ships giving them a tonnage of roughly 17,891,000. Next came the United States with 2,958 ships whose tonnage was approximately 11,490,000. Japan stood third with 2,337 ships and a tonnage of 5,629,845. Canada was in twelfth position. She had 792 ships with a tonnage of roughly 1,223,900. Norway, Germany, Italy, Holland, France, Greece, Sweden, and Russia were all ahead of Canada. Indeed, if the deep sea figures of 250,000 gross tons were taken, Canada came almost in the lowest rank among the world's maritime nations.

There is little that can be said now with any degree of finality on the outlook for post-war shipping; but the rough shape of the post-war shipping picture is beginning to appear. The main point which stands out most vividly is that, despite the heavy losses, the world will have a larger shipping tonnage at the war's end than at its start. Whatever other difficulties countries may meet in their international and domestic trade, they will not suffer from want of ships.

This increase need not, of itself, form a very grave problem. Nations could strive to increase the volume of world trade and reach agreement on ways and means for disposing satisfactorily of surplus shipping. But, unfortunately, many other important elements aggravate the problem. Apart from this increase, a startling alteration has occurred in the distribution of tonnage. The United States, as a result of her huge construction effort, will probably have an ocean merchant marine equal to that of all other countries combined. Instead of owning about 15 per cent of the ocean tonnage as in 1939, she will own 50 per cent or more, and Canada, which began the war with about 250,000 gross tons of ocean shipping, will probably end the war with six or seven times as much.

On the other hand, the United Kingdom and our other Allies, such as Norway, the Netherlands, France and Greece, will have lost a large part - in some cases the greater part - of their pre-war fleets and will have little or no chance during the war of replacing it. Thus, the United States and Canada stand, albeit at greatly different levels, on one side of the central problem, while the other maritime countries stand at varying levels on its other side.



We are justified in expecting a period of several years after the end of the war during which the large demobilization, continued relief and rehabilitation movements, and the flow of international commerce will make strong demands upon the world's shipping resources. This is the period in which satisfactory adjustments on questions of major policy must be reached.

A helpful factor is to be found in the United Maritime Authority. Established under the Agreement signed last summer, it provides that those among the United Nations, including Canada, who have chiefly contributed to Allied shipping needs shall accept and discharge, as a common responsibility, the provision of adequate shipping facilities during the final phase of the war. Although it is presently contemplated that this Agreement will end within six months after the war with Japan is won, it will furnish in the meantime a forum wherein the principal maritime nations of the world will have an opportunity to explain their individual problems, and to consider the basis on which international agreement may possibly be reached.

We in Canada are keeping this whole problem under close review. We are ready to play our part in helping to achieve a just and wise decision that will aid the world in making an agreement on shipping policy the prelude to still larger economic co-operation on an international scale.

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No. 100. Mon. Jan. 8, 1945 -- Farm Homes

While a constant and needful program is directed by responsible institutions and organizations towards the improvement of farming on the prairies, the construction of well appointed farm homes, improved by attractive surroundings, has obviously been neglected. Makeshift buildings used during pioneer days are still considered good enough by many who appear content to live in them surrounded by a bare, windswept and unattractive landscape.

A bright, comfortable home in pleasant surroundings encourages a love for farm life. Recognizing the real need of such progress on the prairies the Dominion Experimental Farms Service through its Division of Illustration Stations is developing a project to encourage the remodelling and painting of old dwellings and, where necessary, the erection of modern buildings. Simple, but attractive landscaping of the surroundings completes the job.

Following are some results of this kind of improvement work; several years ago the old dwelling on the illustration station farm at Dugald, Manitoba, was remodelled to provide a modern kitchen, bathroom, sunporch and sewage disposal system. Then the exterior was painted, a lawn was made on the grounds, specimen trees, shrubbery, hedges and flower borders were planted on a scale that would require a minimum of labour, but at the same time be of sufficient scope to complement the recreated dwelling. A similar project was completed at Gunton Station farm in 1944. Both these good farms are now owned and operated by members of the second generation. Rehabilitation of the dwelling and grounds was inspired principally by the desire that the third generation, now old enough to assume active partnership, would eventually retain ownership.

In 1944 the operator of the Illustration Station farm at Swan River saw his years of saving and planning encouraged when he completed a new modern dwelling to replace the log structure of homesteading days. This new house is virtually a town home in the country. Farmyard activities that must necessarily be linked with the dwelling are carried on in specially provided work rooms. The home proper is set apart from the chores of the farm.

These are but three examples of a need that might profitably be multiplied thousands of times on the prairies. The average farmer is today acquiring a financial position sufficiently strong to help the construction of a comfortable home equipped with modern appliances. There is perhaps no greater need than the improvement of farm homes.

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No. 101. Tues Jan. 9, 1945 -- Growth of Canada's Rubber Industry

Canada ranks among the leading countries of the world as a manufacturer of rubber goods and was normally also the sixth largest importer of rubber in the world before the war, ranking after the United States, the United Kingdom, Japan, Germany and France.

Canadian rubber products consist of tires of all kinds, inner tubes, rubber boots and shoes, rubber heels and soles, rubber belting, hose, druggists' and medical supplies, mechanical rubber goods, and numerous other items. Materials consumed include not only raw and reclaimed rubber, but also a wide range of chemicals, fabrics, etc.

Available statistics show that in 1890 the rubber industry in Canada represented a capital investment of \$2,331,000, gave employment to 1,224 persons and produced goods worth \$2,059,000. For the years 1910, 1915, and 1917, total production was valued at \$7,039,000, \$14,393,000 and \$43,639,000, respectively. Employment was given to 10,258 persons in 1917, and capital invested totalled \$28,396,000.

A general survey of the industry in 1942 shows that establishments manufacturing rubber tires, rubber footwear and other rubber goods numbered 49, of which 29 were located in Ontario, 18 in Quebec, one in Saskatchewan and one in British Columbia. These plants had a capital investment of \$74,465,000, furnished employment to 15,500 persons who received \$23,413,000 in salaries and wages and produced goods valued at \$122,231,000 from materials costing \$61,577,000.

As compared with 1939, the foregoing totals represented a decrease of five in the number of establishments, with increases in all other items as follows: capital invested, \$9,091,000 or 14 per cent; employment, 1,300 persons or nine per cent; salaries and wages paid, \$7,809,000 or 50 per cent; cost of materials used, \$32,763,000 or 114 per cent; and gross value of production, \$52,286,000 or 75 per cent.

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No. 102. Wed. Jan. 10, 1945 -- Conversion of Rubber Industry to War Production

With the outbreak of war in the latter part of 1939, a change-over in the output of the Canadian rubber industry began to take place. By selecting standard balloon tires for passenger cars, and balloon tires for buses, trucks, etc., as indicative of the trend, not only the conversion to war production may be shown, but also the increasing tempo of that conversion.

For the four years 1939-42, the production of standard balloon tires, for passenger cars was 1,398,000, 1,509,000, 1,424,000 and 57,000, respectively so that there was a decrease of 1,341,000 in the number of such tires produced in 1942 as compared with 1939. For the same years the production of balloon tires for buses, trucks, etc., was 250,000, 408,000, 986,000 and 1,321,000, or an increase of 1,071,000. It may be noted that no aeroplane tires were manufactured in 1939, while 8,054 were made in 1940, 48,939 in 1941 and 103,000 in 1942.



In addition to the evident conversion in tire production, the industry stepped up its production of waterproofed and anti-gas clothing, etc. It manufactured tank tracks and treads, etc., bogie tires and wheels and top rollers, rubber dinghies, bomb-tail covers, de-icers for aeroplane wings, helmet linings, etc., as well as items produced to a considerable extent in peacetime and yet entering into vehicles and other manufactures which are part of the war effort.

Production of druggists' and medical sundries, and numerous other miscellaneous items, was continued to the greatest possible extent, together with the manufacture of rubber footwear, although there was a considerable decrease in the latter item.

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No. 103. Thurs. Jan. 11, 1945 -- Millions More Fish

Incubator born and bottle fed, so to speak, 18,500,000 salmon and trout youngsters were added to Maritime Province fish stocks last year through distributions made in selected waters by the fish culture staff of the Dominion Department of Fisheries. They'll grow up, or most of them, to help maintain the supplies of trout which give sport to anglers and, in the case of the Atlantic salmon among them, to make money, too, for commercial fishermen.

The fry, advanced fry, and fingerlings entering into the distributions--and a couple of hundred thousand yearlings and older fish included with them--were incubator born in that they were hatched in the troughs of hatcheries operated by the department's Fish Culture Branch. They were bottle fed, not literally, of course, but in the sense that until they were taken from the hatching troughs or hatchery rearing ponds to start life on their own their meals were served them by man and, like other modern babies, they received a diet based on an approved feeding formula. Over two-thirds of them were brought to the fingerling stage before being freed but four million and more were distributed while still in the fry or advanced fry categories.

Nearly half of the fish, or more than 9,100,000 were put into Nova Scotia waters, not haphazardly but only in waters which careful examination by the fish culture people had shown to be suitable. Close to 8,700,000 were distributed in New Brunswick, by far the most of them Atlantic salmon. The remaining distributions, which meant more than 640,000 fish, went into Prince Edward Island streams. About 13,500,000 of the total number were Atlantic salmon over 4,100,000 were Speckled trout, and 395,000 were Rainbow trout. There were between nineteen and twenty thousand Sebago or Landlocked salmon in the lot and 6,400 or so were Brown trout. The others, about 15,500, were Kamloops trout, which, if they could sketch their own genealogical tree completely, would show a life line reaching back to lake-frequenting Rainbows of British Columbia.

All of the salmon and nearly all of the trout had been hatched from egg collections made by the Fish Culture Branch in various parts of the Maritimes during the preceding spawning season. In the case of the Rainbows, however, the distributions represented three different strains of stock from three different parts of the continent, or four strains and four areas if the Kamloops trout are considered as really belonging in the Rainbow group.

The Kamloops fish were hatched in departmental hatcheries from eggs which had been spawned in British Columbia. Some of the Rainbows came out of eggs brought from a Massachusetts fish farm and some from eggs collected at Crooked Creek, N.B., the only stream in the Maritime Provinces where a resident population of Rainbows--ordinarily inveterate migrants--has been established. The fourth strain were fish hatched from eggs brought from Missouri, an especially interesting strain since, by



lengthy Missouri experiments in selective breeding, they have been transformed into autumn-spawners whereas other Rainbows spawn in the spring. How trout from four different strains of the one kind of fish will behave when living under the same natural conditions is a question which will be followed by fish culturists with interest and the answer may have useful bearing on later fish cultural work.

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No. 104. Wed. Jan. 12, 1945 -- Soilless Culture

Everything that is known about the growing of plants without soil, commonly known as soilless culture or chemical gardening, including its application to outside gardens, was explained in a recent address delivered by an official of the Dominion Department of Agriculture. The possibility of growing plants without soil was not a new discovery. Originally it was employed in experimental research, and the Division of Horticulture at Ottawa had used it for the last 20 years in studying the nutritional requirements of various horticultural crop plants, and in becoming familiar with the appearance of the plants when specific plant nutrients were lacking or inadequate.

Miraculous yields which sometimes had been claimed for soilless gardening were neither miraculous or peculiar to the method. Extremely high yields were simply the result of lengthening the growing season, and that could not be done economically in soil or in soilless culture. Any plant which did not have a terminal type of flowering could grow indefinitely with an adequate supply of nutrients, provided it was not killed by insects or disease and did not have its life cut short by frost. Because the roots of plants were capable of absorbing and assimilating only food that was in solution, it did not matter whether soil or some other medium furnished that food.

A number of different terms have been applied to this system of growing plants, according to the medium employed and the technique adopted. Some of these terms were hydroponics, water culture, sand culture, gravel culture, chemical culture, and soilless growth. These methods could be divided roughly into two groups--growing plants with the root system immersed in water in which the essential plant nutrients or chemicals had been dissolved, and growing plants with the root system supported in a solid medium, such as sand, cinders, or gravel to which the necessary nutrients were added. The Division had adopted the second method, employing a solid medium on account of its greater simplicity and practicality.

In water culture, the method consisted essentially of supporting the plants with their roots dipping into a tank or container of nutrient solution. In the production out of doors by the sand culture method, the beds or benches for the vegetables grown for the Royal Canadian Air Force at Labrador were of roughly built wooden benches, 100 feet long, five feet wide, and 8 inches deep, raised on trestles two feet above ground. Six to eight inches of sand was sufficient for the majority of crops.

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No. 105. Sat. Jan. 13, 1945 -- Canada a "Two-Way" Trader

Commentators upon Canada's trade are prone to stress the remarkable increases in exports which have, year by year, been manifested. Such increases indicate the great expansion in Canadian industry and production generally during the war years, which expansion has been made necessary through the demands of war. It is



generally conceded that an exporting country is a prosperous country, and that a favourable balance of trade is a good sign of financial soundness. However it is also conceded that no country can continue to sell if it does not buy, nor (unless it is self-contained so far as all raw products are concerned) can it uphold and maintain the industrial development now existing in such a country as Canada, unless it imports.

While the total trade of the Dominion for the calendar year 1944 was valued at \$5,242,000,000 as compared with \$4,736,000,000 in 1943, of which domestic merchandise exports accounted for \$3,440,000,000 as compared with \$2,971,000,000 in the preceding year, the Dominion purchased during the same period commodity imports valued at \$1,759,000,000 as compared with \$1,735,000,000 in 1943. This indicates a favourable balance of trade of approximately \$1,681,000,000. It is to be noted that Canada has had nothing to do with Lend-Lease, and that her imports are paid for by her own people. The Canadian dollar is at a premium in every country in the world excepting in the United States.

In analysing import figures, it must be borne in mind that a goodly quantity of the commodities purchased have been needed by Canadian industry for war purposes and war industry. The sources from which the imports have been drawn include practically all friendly countries of the world, and such analysis indicates that, in selecting the sources, the Dominion is not forgetting old customers, even under the stress of war. In this regard a great many of her exports, made under considerable shipping and general transportation difficulties have, in the case of certain countries, been actuated by a desire to fill the immediate needs of all friends of pre-war days.

In connection with imports, the United States was the leading source of supply in 1944, the total from that country amounting to \$1,447,226,000 as compared with \$1,423,672,000 in 1943. The United Kingdom came next, with a total of \$110,599,000 as compared with \$134,965,000. Imports from British India were valued at \$27,878,000 in 1944 as compared with \$17,090,000 in 1943; from Venezuela, \$13,826,000 as compared with \$6,004,000; Colombia, \$13,782,000 as compared with \$5,021,000; Mexico, \$13,119,000 as compared with \$12,503,000; Jamaica \$12,624,000 as compared with \$9,350,000; Australia \$12,540,000 as compared with \$11,453,000; Argentina \$9,564,000 as compared with \$10,199,000 (a decrease); Newfoundland \$9,306,000 as compared with \$7,176,000; Brazil \$7,224,000 as compared with \$4,800,000; Chile \$723,000 as compared with \$596,000; Cuba \$4,229,000 as compared with \$8,552,000 (a heavy decrease); Ecuador \$566,000 as compared with \$261,000; Guatemala \$2,693,000 as compared with \$1,070,000; Portugal \$1,308,000 as compared with \$557,000; and San Domingo \$4,962,000 as compared with \$170,000. Imports from other countries were of lesser importance.

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No. 106. Sun. Jan. 14, 1945 -- European Food Situation -- 1

According to a recent release of the United States Department of Agriculture, the total food supply available in 1944-45 in Continental Europe excluding Russia, will be somewhat smaller than last year. In comparison with the pre-war average, the energy value of food available for Europe as a whole in 1944-45 is estimated to have decreased about 15 per cent.

When the above figure is analysed in the light of information from other sources, the situation appears in much less favourable light. Even if 1944 food production in Europe aggregates 85 per cent of pre-war output in terms of energy value, its quality and composition has considerably deteriorated by large scale replacement of high



protein foods, such as eggs, milk and meat, with potatoes and bread. More serious in its effects will be, however, the disruption of Europe's economic system by military operations. Before the present war, supplies of food from European surplus-producing regions were flowing freely to deficit areas, as supplemented by shipments from overseas. When Germany took possession of the continent, transatlantic supplies were cut, but sections in need of food shipments from abroad could still be supplied from European surplus-producing countries. The Danube Basin countries, parts of Poland and the Netherlands were the most important surplus food areas of Europe from where food-stuffs were obtained under the German rule for shipment to industrial centres.

In 1944, military operations by the Allies and the U.S.S.R., and the zoning of Europe into separate, Allied, Soviet, and German-held territories has completely disrupted the flow of supplies from surplus to deficit areas. Thus, while Europe may have produced 85 per cent of the total pre-war supply of foods in terms of energy value, a considerable portion of this supply will not be available to those in need of it in the highly industrialized parts of Europe. The most important agricultural region of Europe, the Danube Basin, is under Soviet occupation and prolonged actual warfare in Hungary will probably have reduced the livestock of that country. In any case, such surpluses as might still be left in that area will probably move eastward to the U.S.S.R. instead of reaching the thickly populated industrial settlements of the West.

The Netherlands and France are the only former surplus producing countries under Allied occupation. The Netherlands are now being devastated by protracted mechanized warfare of great intensity, combined with flooding of large areas of the best farm lands. Premier Gerbrandy of the exiled Dutch Government announced last October that 17 per cent of the national territory was under sea water by that time and all important locks were mined ready to be blown when military needs demand. As a consequence, the Low Countries have become an agricultural deficit area.

The situation in France is much better, but owing to decreased livestock numbers, the fat and protein supply is critical and an increase in oil bearing crops is contemplated for 1945 to replace the former surplus wheat acreage. Thus, France can be expected, at best, to cover her own needs for the coming year. With no surplus food producing countries left under Allied rule, and distribution even inside individual countries disrupted by scarcity of transports, urban populations in Greece, Belgium, the Netherlands and Italy are definitely facing serious difficulties.

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No. 107. Mon. Jan. 15, 1945 -- European Food Situation -- 2

The energy value of total food production in Germany during 1944-45 will be perhaps two to four per cent under the 1943-44 level. If Germany had to live exclusively on its own production this year, the average per capita energy supply for 1944-45 would be reduced by about 15 per cent from the 1943-44 level. The deterioration in the German food situation is attributed in part to the adverse effects on 1944 crops of unfavorable weather and continued fertilizer and labour shortages, and in part to a reduction in net imports and food requisitions abroad, which in 1943-44 accounted for perhaps 12 per cent of the total food consumed in Germany and by Germany's armed forces.

The extent to which Germany may be able to offset reduced crops and losses in supplies from abroad by withdrawals from stocks and by a discontinuance in food shipments to Finland, Belgium and Norway cannot be predicted. Food production



varies greatly in different parts of the Reich. While the area east of the Elbe River is a surplus producer of foodstuffs, southern, western, and northwestern Germany are definitely deficit areas. This will have an important bearing on the food position in the different zones of occupation now envisioned.

In Austria and Czechoslovakia the 1944-45 food supply will also run somewhat below that of 1943-44. Furthermore, supplies probably will be affected adversely in Austria by a reduction in its share of the former German food imports and in Czechoslovakia by an increase in its compulsory deliveries to Germany. An already extremely unsatisfactory food situation in Poland is likely to be aggravated further during 1944-45 by increased requisitions of farm products by the Germans.

Food supplies in Denmark during 1944-45 should be near last year's high level unless the Danes are compelled to increase their shipments to Germany. In Norway, however, consumption will have to be reduced substantially below the low level of 1943-44, unless the decline in output and the cut in imports from Germany are offset by large imports from other areas. In Finland, the difficult situation resulting from the cessation of imports from Germany has been mitigated by relief shipments from Sweden.

Among the European neutrals, Sweden probably has as much home produced food this year as last year when import needs were small. Switzerland, on the other hand, must continue to depend upon imports for substantial quantities of bread grains and vegetable oils. The 1944-45 food supply situation in Spain and Portugal will be somewhat better than last year provided food imports are maintained at the 1943-44 levels. In Egypt and Turkey the food outlook is good.

The food supply situation in the Soviet Union this year is better than in 1943-44 but it will continue to be tight for the civilian population. Among the favorable factors are a better harvest this year, the termination of German requisitions, the possibility of using surpluses available in the Danube Basin countries which formerly went to Germany, and an increase in the number of Victory Gardens maintained by city workers. The shortage of fats, meats and dairy products, however, is expected to continue during 1944-45.

In resumé, it might be said that the 1944 harvest of all crops in Europe was poorer even than the subnormal harvest of 1943. Weather conditions during the fifth wartime growing and harvesting period were not sufficiently favorable to compensate for the increased strain on European agricultural productive capacity caused by continued shortages of labor, fertilizers, draft power, and machinery. Grain production declined compared with last year. A reduction is indicated also for the sugar beet crop. Potato production may be little, if any, larger than last year's low crop. Vegetable oil output is appreciably lower. Production of milk and eggs during the current season probably will show no important change. Meat production, however, may increase slightly. Disruption of transportation and supplies from European surplus producing regions to consumption centers, combined with further probable extension of military operations, definitely spell a year of great difficulties and often actual hunger for the urban populations of many highly industrialized Western and Central European countries.

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No. 108. Tues. Jan. 16, 1945 -- Cost of Living Index -- 1

The Dominion Bureau of Statistics cost of living index measures the influences of changes in retail prices and services upon the cost of a representative urban

wage-earner family budget. It has served as a basis of cost of living bonus adjustments from December 1940 to October 1943 under terms of Orders-in-Council P.C. 7440 and P.C. 5963. The cost of living bonus to industrial workers was then incorporated into the wage structure.

It should be clearly understood that the index is a measurement of price change. Many people use the term "living costs" to indicate the total cost of things they buy. Used in this sense, "living costs" may include different things from month to month and year to year, and likewise different amounts and qualities of the same things. A cost of living index based upon this idea would reflect the value of total purchases made by everyone. In normal times it would move closely in line with estimates of national income. The Bureau's index is based upon quite a different idea. It measures changes in the cost of a family budget which includes the same amounts of the same commodities and services for considerable periods of time; it is revised only to take account of important "long-run" changes in consumption. It is essentially an index which measures changes in prices.

Each index figure is a percentage which shows the relationship between the dollar value of the index budget for a specified period, and the corresponding dollar value of the same budget in a reference period. The Bureau's standard reference period includes the five years 1935 to 1939. The average value of the index budget for this period is represented by 100.0. The value of the same budget in August 1939 was 100.8 per cent of the reference budget, and the corresponding value for December 1944 was 118.5 per cent. These figures become the cost of living index numbers for August 1939 and December 1944.

Because August 1939, the last pre-war month, provided the basis for cost of living bonus adjustments, it is used frequently as a reference period. The procedure in this case is essentially the same as that described above. The value of the index budget in August 1939 is considered as 100.0, and budget values for other months are computed as percentages of the August 1939 value. The December 1944 index then becomes 117.6. Indexes related to the August 1939 budget value have become widely known as the "adjusted" indexes. They may be computed by dividing the original August 1939 index of 100.8 into the comparable index for any other period, e.g., the December 1944 index of 118.5 divided by 100.8 gives 117.6.

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No. 109. Wed. Jan. 17, 1945 --- Cost of Living Index -- 2

The cost of living index budget was calculated from annual purchases reported by a group of 1,439 typical wage-earner families in the following cities: Charlotte-town, Halifax, Saint John, Quebec, Montreal, Ottawa, Toronto, London, Winnipeg, Saskatoon, Edmonton and Vancouver. These expenditures covered the year ending September, 1938.

The survey families averaged 4.6 persons and the majority had two or three children. Family earnings in many cases were supplemented by minor sources of income; total incomes for these families were heavily concentrated between \$1,200 and \$1,600. They ranged, however, from as low as \$600 up to about \$2,800 per annum. There were approximately two tenant families to every one home-owning family, and about one family in three operated a motor car.

The general distribution of living expenditures for these families which represented all the principal racial groups in Canada was as follows: food, \$443.0; shelter, \$269.5; fuel and light, \$90.5; clothing, \$165.8; home furnishings, \$125.7; and miscellaneous \$319.4. A breakdown of the miscellaneous group shows the



following expenditures: health, \$60.8; personal care, \$23.9; transportation, \$79.3; recreation, \$82.1; life insurance, \$73.3. Other miscellaneous outlay, including charitable donations, gifts outside the family, brought the total family living expenditure to \$1,453.8.

Adjustments have been made in the index budget to take account of wartime changes in consumption. These have left substantially unchanged the level of living which the budget represents.

The first set of adjustments was made in January, 1943. The index budget after revisions made at that time measured percentage changes in prices from January 1943 forward, but did not show increases or decreases reflecting weight differences. In other words, the value of the January 1943 adjusted budget was exactly the same as the value of the budget it replaced. The same procedure was followed in September 1943 when further adjustments were made.

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No. 110. Thurs. Jan. 18, 1945 -- World Cost of Living Movements.

In the second half of 1944 cost of living index numbers for most countries recorded small increases which were usually less than those in the first half. Series for Canada, Mexico and Newfoundland showed minor declines between June and December.

The Dominion Bureau of Statistics December index of living costs was 0.4 per cent lower than June 1944, and 0.7 per cent below December 1943. The United States Bureau of Labor index rose 1.3 per cent between June and December, and 2.1 per cent for the year. The largest group increases were shown by clothing and house-furnishings.

The cost of living index for St. John's, Newfoundland had risen 52 per cent from October 1939 to December 1944; the December index was 2.3 per cent below the June level and only 0.3 per cent above December 1943. An extension of price controls to cover practically all foodstuffs became effective October 31, 1944.

The Ministry of Labor index of living costs in the United Kingdom has recorded a wartime increase of 30.3 per cent to August 1944. The groups responsible for the increase were foods and fuel and light. The net increase for the second half of 1944 was 0.5 per cent and for the year one per cent. The November level of living costs in Switzerland was unchanged from June 1944 and stood 1.5 per cent above December 1943.

Cost of living index numbers for Latin-American countries continued upward in the second half of 1944, with the exception of the Mexican series which recorded its first decline since December 1942. Lower food prices caused a decrease of 1.8 per cent in the second half in contrast to a net increase of 13.9 per cent for the year. A June-November advance of 3.2 per cent for Lima, Peru, was moderate compared with the 13 per cent increase in the first eleven months of 1944. In Rio de Janeiro, living costs showed a slightly accelerating rise, and in Santiago, Chile, the cost of living index mounted with increasing momentum in the third quarter of 1944.

The quarterly index of living costs for Australia remained throughout 1944 below the level of the second quarter of 1943 when new stabilization measures were adopted. The December 1944 index was 0.1 per cent above June 1944 and 0.3 per cent above December 1943. The New Zealand wartime index of retail prices, on the base December 1942=100, was 100.4 in December 1944; this was 0.3 per cent above the level of June 1944 and December 1943.

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No. 111. Fri. Jan. 19, 1945 -- World Wholesale Price Movements

Wholesale price series in the second half of 1944 recorded comparatively small changes. Although the movement continued to be generally upward, occasional small decreases were noted. Mexico and Argentina, where considerable advances were recorded in the first half of the year, showed moderate increases of less than two per cent. Index numbers for Australia and Switzerland showed fractional declines.

Price series for Canada and the United States had registered their steepest wartime rise by the end of 1941, and since then their rates of advance have moderated to a marked degree. The Canadian wholesale index showed no net change in the second half of 1944, and, in fact, ended the year on a par with the December 1943 index. The United States Bureau of Labor index recorded fractional losses during the second half, but ended the year 0.4 per cent above June 1944 and 1.5 per cent above December 1943. In both series, fluctuations were usually caused by changes in farm product prices.

The Board of Trade wholesale index for the United Kingdom reached a new wartime high in August 1944, influenced by seasonal food price increases and higher prices for coal, iron and steel. Subsequent food price declines lowered the index so that the December level was only 0.7 per cent above June 1944. A 1944 net increase of 2.3 per cent, as compared with 1.3 per cent in 1943, was due principally to authorized increases in coal and cotton prices.

The Swiss wholesale series, which has risen only moderately since the end of 1942, recorded small losses in the second half of 1944, resulting in a decrease of 0.6 per cent between June and November, and a gain of 0.9 per cent for the year. The Australian wholesale index for December 1944 was 0.5 per cent below June 1944 and 0.8 per cent above December 1943. Price series for New Zealand and South Africa, after recording no net changes in the first half of 1944, advanced moderately between June and November, New Zealand 0.6 per cent and South Africa, 1.3 per cent.

For Argentina, a slower rate of increase prevailed in the second half of 1944, 1.4 per cent between June and December, as against 5.8 per cent for the year. The Mexican series recorded small intermittent declines in the second half of 1944, the first since August 1942. However, in spite of these, the June-December 1944 period witnessed an increase of 1.4 per cent, which compared with a gain of 18.5 per cent for the year. The wholesale index for Calcutta, India, continued below the levels reached in the latter part of 1943. The November 1944 index was 0.3 per cent below June 1944 and 0.7 per cent below December 1943.

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No. 112. Sat. Jan. 20, 1945 -- Carnauba Wax

It seems altogether improbable that milady would, without a fuss, be willing to substitute her special brand of lipstick for a piece of carbon paper with which to paint her lips. For one thing, it just isn't done. Both of these commodities, however, are related, even though in a distant sort of way. They owe their relationship to the carnauba wax used in their manufacture. This wax comes to us from the forests of Brazil where it is extracted from the leaves of the palm tree of the same name.

Carnauba wax is a versatile product. It is used in the manufacture of floor, shoe and furniture polishes, phonograph records, sound film, electric insulators, soap, candles, and lubricating oils. Wrapping paper, cardboard, textiles, and industrial machinery are waterproofed with it. Carnauba wax goes into various



salves and ointments, artificial fruit, plastics, matches, cable coverings, paints, and varnishes. A coating of the wax enables airplanes to increase their speed.

The palm from which carnauba wax is obtained is truly an amazing tree. In addition to providing materials with which to construct homes and home-furnishings, it provides fuel for heating and cooking purposes. The leaves are woven into baskets, thatch roofs, hats, ropes and mats. The young shoots are used as food and the young palm provides a starch. From the pith comes a coffee-like drink.

The carnauba wax harvest comes largely from wild trees, which operations are carried on by primitive methods during the dry season from September to December. Giving the appearance of a coating of dust, the wax forms on the leaves during the dry season, preventing excessive water evaporation from the tree. Drought increases the yield of wax, but severe drought over a period of several years may kill the tree.

Carnauba wax has been listed among the exports of Brazil for more than a century. Canada imports large quantities from that country.

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No. 113. Sun. Jan. 21, 1945 -- Meteorology in Canada

In 1872, the Dominion Government authorized the organization of the Meteorological Service with headquarters at Toronto, in line with similar action being taken by other nations. This required the establishment of weather stations that could report observations to headquarters three times a day. These stations were located along the lower lakes, the St. Lawrence Valley and the Maritime Provinces. At the same time, arrangements were made to receive observations from a number of stations in the United States, Canadian observations being sent in return. This reciprocal agreement has been maintained ever since and has continued to grow and expand with the expansion of both Services. By 1876 the Canadian meteorologists had acquired sufficient experience in the movements of high- and low-pressure systems to enable them to issue forecasts for the general public and for storm warnings.

Over the next fifty years or more, the problems were: to increase the area from which observations could be obtained; to explore the atmosphere to find out its physical conditions; to investigate the physical processes operating in the atmosphere. The enlargement of the area from which observations could be obtained depended, in the early days, chiefly on the telegraphic facilities, and later on wireless; stations are now established over the North American Continent up to the rim of the Arctic where the number of stations has been gradually increased.

It was early recognized that it was necessary to obtain a knowledge of the physical conditions prevailing in the upper atmosphere before it would be possible to explain the processes operating therein. This exploration was commenced about the beginning of the century by sending up instruments attached to kites, which gave a record of the pressure, temperature and humidity. However, kites could not reach very great heights. To overcome this limitation, balloons were released with self-recording instruments attached and these gave a continuous record of pressure, temperature and humidity at all levels through which the balloon passed. Many of these instruments were recovered and from them the meteorologists were able to obtain a record of actual conditions in the upper atmosphere.

Such records, however, could not be used as a basis for forecasting since they were not recovered for several days - in some cases, months or even years.

The advent of the aeroplane made it possible to obtain this information at once for forecasting purposes. Further progress was made with the development of short-wave radio and it was not long before a meteorograph with a radio-transmitter was designed. This instrument was sent up by balloon and signalled back the temperature, pressure and humidity of the upper atmosphere as the balloon travelled through space. Thus upper air data could be obtained up to much greater heights than was possible by aeroplane and provided the basis for determining the physical conditions in the upper atmosphere for forecasting purposes.

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No. 114. Mon. Jan. 22, 1945 - Physical Processes Operating in Atmosphere

Until twenty five years ago, the general principle underlying forecasting was based on the movements of the high- and low-pressure systems as they were first recognized when the Canadian Service was established. The exploration of the upper atmosphere and the general extension of the area over which observations could be obtained then enabled two Norwegians to show that instead of the wind circulation associated with these high- and low-pressure systems being continuous and passing from one to the other in an uninterrupted flow, there was a very marked discontinuity. This discontinuity was so well defined that it indicated that these two pressure systems were in reality two distinct air masses with very different properties, depending on their origin. These masses came to be known as cold air masses or warm air masses depending on whether they had their origin in the Arctic regions or in the tropics. Also, it was discovered that the line of separation of these two air masses was very distinct and is now called a front. If a warm air mass is advancing against a cold air mass, the line of separation is known as a 'warm front'; conversely, a 'cold front' is a line of separation of a cold air mass advancing against a warm air mass.

The principle of operation in the warm front is that the warm air mass overruns the cold air mass, thus lifting the warm moist air from the surface, gradually cooling it until the moisture contained therein is condensed into cloud and finally falls as rain. Along the cold front the cold air advances as a great bulging mass and undercuts the warm air, forcing it up to great heights and producing great turbulence, cloud, frequent thunder-storms, hail storms, line squalls and heavy rain. As the system passes, the cold air mass enters the region and the weather clears.

Meteorologists are making intensive investigations of the many problems involved in this new conception in order to improve the accuracy of forecasting and to increase the period for which the forecasts can be made.

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No. 115. Tues. Jan. 23, 1945 - Meteorology and Aviation

With the development of aviation, new problems were presented to meteorologists and very great demands were made upon them; it was felt that at last meteorology had come into its own. Since the atmosphere is the realm in which the aviator operates, the success and safety of flying, in the final analysis, depends on meteorology.

The problems that aviation presented to the meteorologist were very different from those to which he had been accustomed for land and sea operations. In the latter case the principal information required was in regard to winds, gales, storms, fog, etc., and, while these are of important for landing conditions, they are



not the only vital problems the aviator has to face. He wants to know, in addition, what is going on in the regions where he is flying, such as icing, clouds (their height and thickness), visibility, thunderstorms, etc., all of which are vital to the success of airline operations. Fortunately, the discovery of the actual processes that are in operation in the atmosphere have enabled the meteorologist to supply this vital information.

The first attempt to establish a meteorological service in Canada for aviation was made in 1930-31 for the visit of the R-100 and for the air-mail service from Montreal to Windsor and from Winnipeg to Edmonton. This was discontinued in 1932, owing to the economic depression. The small technical staff was retained and, in anticipation of further developments, some of the meteorologists were sent to Norway to study the new technique of weather forecasting according to air-mass analysis methods. On their return, an intensive study was made of air masses on the North American Continent in anticipation of the resumption of a regular air service. There were only a very few regular forecasters in the Service and they were fully occupied with forecasting for the general public and issuing storm warnings, so that it was necessary to begin at the very bottom and build up a forecasting staff for the airways. For this purpose highly trained meteorologists were required and the problem was met by the University of Toronto, which established a one-year post-graduate course in meteorology leading to the M.A. degree. This was open to honour graduates in mathematics and physics from recognized universities and most of the meteorologists for the new service, when it was established, were recruited from these graduates.

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No. 116. Wed. Jan. 24, 1945 -- Meteorology and Transatlantic Air Service

The actual beginning of a meteorological organization for aviation dates from 1936, when it was decided to undertake experimental flights to test the feasibility of commercial flying across the North Atlantic, considered the most hazardous and difficult route for flying in the world. The work was done in conjunction with the United Kingdom, Ireland and Newfoundland, Canada assuming responsibility for forecasting and supplying weather information for the flights west of 30 degrees W. Longitude.

A small forecasting staff was recruited and a forecast centre established at Botwood, Nfld. Experimental flights carried out in 1937 by Imperial Airways from the United Kingdom and Pan American Airways from the United States proved the feasibility of using the northern route, during the summer months at any rate, for a passenger service that was commenced by Pan American Airways in 1939 but discontinued on the outbreak of war. Shortly afterwards it was decided to test the practicability of flying bombers across the Atlantic. The prime requisite for this operation was the providing of accurate forecasts and, fortunately, the experience gained during the experimental flights proved invaluable even though weather reports from ships at sea were naturally no longer available. It was soon found that it was perfectly feasible to fly bombers across the Atlantic throughout the whole year and this service has grown and expanded enormously since that time.

The main forecast centre originally set up at Botwood but later at Gander, Nfld., was shifted to Dorval (Montreal), the centre of the R.A.F. Transport Command, with other forecast centres at Gander, Nfld., and Goose Bay, Labrador. These centres provide forecasts and weather information for all R.A.F. Ferry Command operations west of 30 degrees W. longitude and extend to all routes over the Atlantic.

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No. 117. Thurs. Jan. 25, 1945 -- Weather Service for Trans-Canada Airlines

In 1937, the Meteorological Service was called upon to provide the weather service for the Trans-Canada Airways. This required the establishment of forecast centres at the main terminals and provision of meteorological equipment at all the radio range stations from which observations could be made throughout the whole twenty-four hours, seven days a week. This necessitated the recruiting of a large forecasting and sub-technical staff, as well as the organization of rapid communication by teletype connecting all the radio range stations and terminals along the airlines.

The teletype service permits the transmission of hourly weather reports throughout the twenty-four hours and additional reports when weather conditions are changing rapidly. Thus, the forecasters at the various centres are kept in constant touch with all weather changes taking place along the route. It is the duty of the forecaster to issue regular forecasts for the airlines and to keep their personnel informed of important changes taking place in the weather or in the forecasts.

The service was first established between Vancouver and Winnipeg in 1938 and extended to Montreal by 1939 just before war broke out and was put through to the Maritime Provinces shortly afterwards. There are now seven forecasting centres from Vancouver to Moncton providing the airlines with weather information and forecasts.

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No. 118. Fri. Jan. 26, 1945 -- Meteorological Service for Armed Forces

While weather has always played a very important part in war operations, in the War of 1914-18 North America was not affected and, throughout that period, the Meteorological Service of Canada carried on its usual activities. During the present war, however, with the great development of aviation and communications, weather has become a most vital factor in aerial warfare. Since it was important that, so far as possible, weather information should be denied to the enemy but at the same time made available for the United Nations, one of the first acts was to suppress all broadcasts in clear of weather information in Canada. This, however, was not completely effective until the United States entered the War, when broadcasts in clear of weather information were suppressed over the whole continent.

Soon after the outbreak of war, the R.C.A.F. and Naval authorities of the Eastern Air Command requested a forecast centre at Halifax to advise the personnel concerning operations being carried on from there. This was immediately organized and shortly afterwards a similar organization was set up on the West Coast at Victoria, later transferred to Vancouver.

Forecasting service is now provided to all the operational units of the R.C.A.F. and Naval authorities in Newfoundland and on the Atlantic and Pacific Coasts. One very important duty of the forecaster is to discuss with the operational personnel meteorological situations and expected developments, and to brief the pilots before they set out on their patrols or navigation exercises. In this case, the weather situation likely to be encountered is very fully explained by means of blackboard sketches and the men are provided with forecasts and maps showing the weather conditions prevailing on the route.

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No. 119. Sat. Jan. 27, 1945 -- Preserving Fruits and Vegetables

At present there are four main methods for preserving fruits and vegetables; storage of the fresh product; canning; dehydration; and freezing. The first two methods, storage and canning, preserves the bulk of fresh fruit and vegetables not used immediately after harvest. Dehydration, with the possible exception of apples, has been largely a war emergency measure. The fourth preservation method, freezing, is the most recently developed, but, the freezing industry has made such rapid strides in Canada, the United States, and elsewhere that it has undoubtedly come to stay. The reason for this expansion is that freezing gives the greatest opportunity for the highest quality and palatability, thus approaching the fresh product more closely than other methods now in practice.

Up to date, the bulk of fruits and vegetables used in the frozen fruit trade has been used by commercial processors for distribution to hotels, restaurants and bakers, and in a more limited degree to the retail trade. Because the product must be stored at zero temperatures, its shelf life is of short duration, but nevertheless the consumption of frozen fruits and vegetables had reached the comparatively high level of 17.2 million pounds in 1943. In other words, while there has been no marked advance in the consumption of canned goods, the frozen product in Canada has more than doubled in the past five years.

At the present time there is another angle that is attracting much attention, namely, the possibility of providing freezer space in the home. The day is not far distant when a freezer in the average home will be as much a necessity as a washing machine or household refrigerator. The advent of the household freezer will undoubtedly be a tremendous factor in increasing the consumption of home-grown products. The preparation of the fruit and vegetables is so simple and takes such a short time that it offers special attractions to the home owner. In addition, the resulting products are so superior that the possibilities are beyond imagination. One freezer unit established in a small home in Ottawa is the object of much interest. Already the family's consumption of strawberries, raspberries, peaches, cherries, blueberries, peas, corn, beans and broccoli has been increased many fold and all this has been done at a total cost not greater than was formerly paid for an elaborate 9 cubic foot household refrigerator.

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No. 120. Sun. Jan. 28, 1945 -- Postal Services

As early as 1721, there was postal service between Montreal and Quebec - letters being carried by official messengers and other travellers. Benjamin Franklin, Deputy Postmaster for the American Colonies, placed the Post Office on a solid footing and opened post offices at Quebec, Montreal and Three Rivers, and established courier service between Montreal and New York. Since 1755 Halifax has had a post office and direct postal communication with Great Britain.

The first exclusively Canadian postal service, a monthly courier route from Halifax to Quebec, was established in 1788, involving a seven weeks' trip and expenses of about £200 of which only one-third was met by postal charges. Up to 1804 the postal facilities of Upper Canada consisted of one regular trip by courier each winter and whatever mail might reach Montreal during the season of navigation. Charges were necessarily high, \$1.12 being paid on ordinary letters from London to York (now Toronto) via Halifax.

The first post office in York (now Toronto) was opened about 1800. By 1816

there were 19 offices in the two Canadas and by 1827 this number had increased to 114. At that time the system consisted primarily of a trunk line of communication between Halifax, Quebec, Montreal and Amherstburg, over which couriers travelled at varying intervals. Branching off this line were routes to Sorel, Sherbrooke, St. Johns, Hull, Hawkesbury, Perth and Richmond, with most deliveries made once or twice a week.

Today the Post Office Department, in addition to the several administrative branches at Ottawa, is divided into fifteen districts each in charge of a District Director or Superintendent of Postal Service. The territory it serves is more extensive in area than that of any other country save the U.S.S.R. or the United States, with a relatively small population compared with the vast area served. Its railway mail service is one of the largest in the world - the rural mail delivery service operates over 4,000 rural mail routes - and in its air-mail system it has answered the problem of supplying a widely scattered population with postal service in the shortest possible time.

Although not listed as a war-time Department, the Canadian Post Office holds a key position in the national war effort, not only in maintaining ordinary postal services under extremely difficult conditions, but in the field of the military mails and in its co-operation with other Government Departments. Because of the nature of its service, it is filling an indispensable role in the maintenance of the morale both of civilians in this country and of the Armed Forces here and abroad, to whom "letters from home" are of utmost importance. In 1943 there were 12,313 post offices in operation in Canada.

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No. 121. Mon. Jan. 29, 1945 - Facts of Interest

Accidents take a heavy toll of life in Canada every year, according to figures compiled by the Dominion Bureau of Statistics. The year 1942 will serve to illustrate. In that year, 7,202 persons died as the result of accidents throughout the Dominion - enough people to populate a community the size of Portage la Prairie, or the approximate equivalent of the number of children born alive in Canada in an average 10-day period during the year. One fact stands out prominently. It is the relatively small number of fatalities that occurred in industry, of which there were 1,872. In 1942 there were 2,937 accidental deaths in public places and 2,237 in and around homes.

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The sex distribution of the Canadian people is characterized as is that of any 'young' population, by a preponderance of males, although this condition has been greatly modified in recent times. In 1666, during the early years of settlement by the French-speaking immigrants, 63.3 per cent of the population were males. In 1784, when the English-speaking immigration to Canada was commencing, there were 54,064 males and 50,759 females, and by the middle of the nineteenth century there were 449,987 males to 440,294 females in Lower Canada, and 499,067 males to 452,937 females in the more newly-settled Upper Canada. From 1871 to 1941, for Canada as a whole, the percentage of males never dropped below 51 per cent of the total population. In 1941 the males outnumbered the females by 294,417, the proportion having been 5,900,536 to 5,606,119 females.

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The beet is an important source of sugar in Canada. In 1943 the Dominion's refineries produced nearly 871,000,000 pounds of sugar, including 741,289,000 pounds made from cane and 129,268,000 from beets. The production of beet sugar



reached an all-time high in 1941 with an output of 215,879,000 pounds. The percentage of beet sugar to the total produced was 23.6 in 1942, and in 1943 it was 14.8.

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No. 122. Tues. Jan. 30, 1945 -- Facts of Interest

The Eskimos of Canada are found principally on the northern and Hudson Bay coasts 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 who 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 migration of these animals. The Decennial Census of Canada in 1941 established the Eskimo population at 7,205, including 5,404 in the Northwest Territories and 1,778 in northern Quebec.

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The introduction of cattle into Canada followed closely in the path of immigration from France and Great Britain. Jacques Cartier brought a few cows with him on his third voyage. Champlain imported milk cows from France in 1610. It is an interesting fact that a dairy farm enterprise located a short distance below Quebec City was established at the time the first herds were imported from France. In Acadia, cattle were introduced in 1632. In 1783-85 the United Empire Loyalists brought large numbers of milch cows into the country. The total number of cattle on the farms of Canada on June 1, 1944, was 10,346,000, according to the Agricultural Branch of the Dominion Bureau of Statistics.

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Despite the fact that from the earliest times in the history of Canada the males have outnumbered the females, more women than men reach and exceed the age of 90 years, according to records maintained by the Dominion Bureau of Statistics. The increase in the population over 90 years of age since 1901 was 110.4 per cent, or from 3,871 to 8,145. Women over 90 years of age increased from 2,092 in 1901 to 4,809 in 1941, and men in the same age group from 1,779 to 3,336, the percentage increase amongst those of the 'weaker sex' over 90 years of age since 1901 having been 130, and amongst the men, 88. Since the turn of the century to 1941, the population of Canada increased 114.2 per cent, or from 5,371,315 to 11,506,655. It thus is revealed that the women in the 'over 90' group have, during the 40 years since the census of 1901, increased their numbers at a faster rate than the general population, whereas in the same respect, the men have fallen short of the mark.

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No. 123. Wed. Jan. 31, 1945 -- Facts of Interest

Mention of fruit growing in Canada is to be found among the earliest records of what was then known as New France. De Monts is reported to have sent the first apple trees to Quebec City in 1608-9, while at a somewhat later date - about 1632 - d'Aulnay de Charnesay brought either trees or seeds from Normandy to Acadia. The trees did well in their new surroundings, for the census of Acadia in 1698 showed that at Port Royal alone 1,584 apple trees were growing in orchards ranging from 75 to 100 trees in size. The census of Canada in 1941 records a total of 8,841,000 apple trees in the Dominion.

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The first news of the Klondike - a name which will probably remain ever outstanding in the history of Canadian gold mining - certainly the most colourful and romantic -

came to the outside world in 1896. Some of the Klondike creeks were exceedingly rich, with single pannings known to have run into the hundreds of dollars. The great rush reached its peak in 1898 when Chilcoot, Skagway, White Horse and Dawson became world-known names. The Canadian production of gold from all sources in the year 1900 amounted to 1,350,000 fine ounces valued at \$27,908,000. An estimate for the calendar year 1944 has been placed by the Dominion Bureau of Statistics at 2,885,000 fine ounces valued at \$111,091,000.

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It is not so long ago that the word 'tuberculosis' sent a chill through the hearts of men, for in years gone by this disease took a heavier toll of life than all others combined. But today, through the determined efforts of public health authorities and medical men, progressive steps are being taken toward its elimination. The reduction in the number of deaths from tuberculosis amongst the citizens of Canada during the past 17 or 18 years has been truly remarkable. In 1926 the death rate from this cause for each 100,000 of the population stood at 86; 10 years later it had fallen to 61.9; and by 1943 it had been reduced to 52.3.

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The foundation of hospitals in Canada dates back to the French regime. The first hospital in New France was the Hotel Dieu de Quebec, founded in 1639. In Upper Canada, the earliest hospital recorded was founded in 1790 at Sault Ste. Marie for the care of the Indians. At the present time hospitals are to be found not only in every city and town of any size throughout the Dominion, but also at strategic points in many rural districts. There were 597 public hospitals in Canada in 1942, with a capacity of 50,197 beds and 6,733 bassinets.

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