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Editor.

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No. 337. — Refrigeration in Canadian Homes

More than half of the Canadian homes have refrigeration facilities in one form or another. More than a quarter of these have ice boxes and one-quarter have mechanical refrigerators or some other type of cold storage. To be exact twenty-one per cent of Canadian homes have now got mechanical refrigerators.

Refrigeration facilities are much more complete in urban centres than in rural areas. As a matter of fact only 22 per cent of them are on the farms, while 36 per cent are in rural non-farm dwellings. In the cities and large towns 70 per cent of the dwellings have refrigeration equipment. In the cities of 30,000 population and over the percentage is almost 80.

Refrigeration facilities are most general in Ontario and Quebec and least common in Alberta and Saskatchewan and the provincial percentages of dwellings with these ice box facilities will be found interesting: Quebec 65, Ontario 61, Manitoba 47, Nova Scotia 37, British Columbia 34, New Brunswick 32, Prince Edward Island 30, Alberta 28 and Saskatchewan 23.

As stated above, ice boxes are still more prevalent than mechanical refrigerators throughout the Dominion as a whole but the number of mechanical refrigerators exceeds the number of ice boxes in Ontario, Alberta and British Columbia and they are almost equal in Manitoba and Saskatchewan. There is a pronounced margin of ice boxes over mechanical refrigerators in the province of Quebec and the number was substantially higher also in the cities of the Maritime Provinces.

The prevalence of refrigeration equipment in the larger cities appears to be related to climate and type of dwelling as well as the levels of income. For example, Victoria, B. C., with a moderate climate and a high proportion of single homes, has the lowest proportion of refrigeration-equipped dwellings of any Canadian city with more than 30,000 population. In Quebec City, where apartment and flat dwellings predominate, comparatively few households are without some type of refrigeration. In most Quebec cities ice boxes are more common than mechanical refrigerators.

No. 338. — Rabbits

It's quite legitimate to speak indiscriminatly of "bunny hugs" and "rabbit ears" but don't confuse hares and rabbits. They are actually cousins not brothers as most people believe.

The difference is this -- hares are larger, have longer ears and the young are born with fur on their bodies and their eyes open. Rabbits are born without fur and have their eyes closed. Cotton tails are examples of real rabbits.

The term jack rabbit has been associated with hares for over a hundred years, being a contraction of "jackass rabbit", the original colloquialism. Hares are common in most northern sections of the globe. In Canada we have several kinds, including the Arctic Hare and the Snowshoe Rabbit. The former has ears sometimes four and one half inches long, is pure white in winter and brownish grey in summer. It feeds mostly on moss and twigs. The snowshoe rabbit got its name because it has extra large hind legs and feet which leave tracks like snowshoes.

The old sport of hare and hounds has been a favourite pasttime in Europe for centuries. A real hare can keep up a good speed in a long race. In Canada we "go shooting jackrabbits" but seldom bring any back either dead or alive. The target they present is neither large nor stationary.

Rabbit meat is not considered such a delicacy here as in the Old World, where in normal times rabbit pie and hare soup are highly prized dishes. This is probably due to the fact that here in the late fall and early winter when the meat should be at its best, the rabbits are feeding on the bark of trees and shrubs, especially cedar, with the result that the meat has an unpleasant taste. Before the snow covers the ground is the time to get rabbits.

The practice of raising rabbits for fur is steadily increasing. Rabbit fur can be dyed and clipped to resemble almost any of the more costly furs on the market. As a result it goes to market under dozens of different glamorous aliases. A recent government order, however, made it compulsory to include on the sales tag the name of the "original wearer" of the fur.

In the 1941-42 fur season over 9 million rabbit skins were taken having a value of some $938,000. This was a very marked rise from the previous season when only 778,000 pelts were taken recording a value of about 173,000.

No. 339. -- Rayon

Man is a wonderful mimic. He has soared into the skies like the bird; with the submarine he has invaded the briny haunts of fishes; in the field of synethetics he is daily stealing the show from Mother Nature. But one secret she tenaciously witholds from the bold, searching and insatiable curiosity of the home genus is the production of silk.

Especially since the war we have feverishly sought an effective substitute for silk but it has been found impossible to copy nature's product. All the man-made immitations have some fault that makes them grossly inferior to the subtle handiwork of the simple silk worm. Since our supply of the raw material has been cut off, hosiery mills have been particularly active in trying to evolve a threat that possesses the same elasticity. Of all the silk substitutes rayon is the most widely used and is the most satisfactory for general purposes.

Although there are different kinds of rayon, the basic ingredients are the same for all qualities. As you know, it is a product of our forests, being made from spruce and other soft woods. From the layman's point of view the process is long and rather involved. But the final step is particularly interesting. The wood is reduced and goes in as pulp. After passing thro innumerable baths, being shredded, churned and chemically treated it finally emerges as a thick substance not unlike maple syrup. This is called viscose.

The liquid viscose is forced under pressure through a solution of sulphuric acid which causes it to solidify enough to be drawn out into threads of different sizes. The different size threads are wound onto cakes and bleached ready for dyeing. The cakes are then dried and the thread is rewound onto cones ready for shipment to the weaving plants and knitting mills.

No. 340. — More About Rayon

Women have mourned the loss of silk with all the devotion of a true love now departed. Perhaps they have even fancied themselves as martyrs to the inexorable gods of war. But on the whole they've accepted the inevitable and though even the most expensive rayon hose is apt to wrinkle at the ankles and bag at the knees, Canadian women stride out with a gallant air of "grande dame."

Rayon is quite satisfactory for underwear, dresses and other types of clothing, but it requires pure silk to make perfect fitting stockings. One of the most important developments in the use of rayon yarn has come through its adaptability to blending with other yarns in producing fabrics that are suitable for many different purposes. Women's clothing exhibits a wide range of fabrics whose basic thread is rayon. They range all the way from simple afternoon frocks to lovely dinner dresses which may be worn anywhere with the calm assurance that one is well dressed. Some of our finest gabardines are made from spun rayon and the fabric woven from this particular yarn has proved its serviceability so well that it is a favourite material for back-to-school and college dresses where utility is the all important feature.

For a time dyeing of rayon fabric presentsquite a problem. Modern dyes and methods, however, have overcome most of the obstacles encountered, and now pure rayon will take fast dye just as well as pure cotton or wool. As far as wearing qualities are concerned, rayon fabrics will wear quite as well as wool or cotton if they receive proper treatment. They are immune to moths unless blended with wool. Pure rayon fabrics will crease and wrinkle, but spun rayon when blended and specially woven can be made into a garment that is really crease-resisting and almost wrinkle proof.

Wool yarn is animal matter, cotton yarn is vegetable matter, but rayon yarn is a man-made fibre produced from chemicals. It is now the second most widely used fibre in the world, with cotton holding first place.

No. 341. — New Uses for Rayon

Since the war began many new uses have been found for rayon yarns and fabrics. Canadian research has developed a new three-in-one glove for those who fly and fight in winter.

This glove is really three gloves, one over the other. The inner one is of rayon, the middle of wool and the outer is the finest of soft horsehide that stays soft even after being wet and dried. Each glove has its place in the scheme of things.

After analyzing 1,500 hands it was found that the old type of glove either did not provide for absorption of perspiration, or it was too tight or too loose and clumsy; leather outers became stiff and useless for grasping knobs and dials with which the flying crew are surrounded. But most outstanding discovery of all was that glove fingers should not be straight. Take a glance at any old pair of gloves you have lying around. See the friendly curve of the fingers? They are comforable because they match the way you normally hold your hand. If they are very new they are apt to pinch and that's where the main trouble lay with the airmen, especially when other gloves were worn underneath. They cut the circulation of blood to the fingers.

Painstaking study, tests and retests under extreme sub-zero temperatures finally resulted in this three-part unit which seems to have everything. The rayon inner has thumb and forefinger treated with latex, giving a surface which enable the wearer to handle papers, pick up small objects and so on without any difficulty. If necessary it will even keep his hand reasonably warm for three minutes at zero. The middle glove is wool with a leather thumb pad to aid in gripping. This middle glove is interchangeable from hand to hand. The curved fingers are the big feature of the outer glove. The inside of the leather has also been treated to make the woolen one adhere so both can be pulled off together. The gauntlet zipper is long and runs along the top in a stiffened section of the cuff to prevent jamming.

All three parts of this new protective equipment are made in Canada, and are a tribute to the ingenuity and patience of Canadian research workers and manufacturers. As soon as the United States Army Transport Command saw the glove they put in an order.

Statistics show a big increase in rayon business during the past few years. The value of rayon fabrics, yarns, etc. produced in Canada last year is about double what it was in 1939 and employment and wages are up almost 50 per cent. In rayon fabrics alone Canada produced well over fifty million yards carrying a value of nearly twenty-five million dollars, about doubling the industry in four years.

No. 342. -- Sweet Harvest

Just north of the 49th parallel Alberta harbors an 18-year old industrial giant of which she's exceedingly proud. And if ever pride in accomplishment was justified these Albertans really have something to talk about. It is one of those $100 an acre crops which this year should gross closer to $125 an acre. What else could we mean but sugar beets?

In sharp contrast to the grain, sheep and cattle raising that surrounds it, the sugar beet crop is one of the most important in the concentrated area in which it is carried on. Having just recently completed the grain harvest, south Albertans have started already on their sugar. The resulting finished product will sweeten the lives of 2½ million people in the Prairies and probably provide about 50 million pounds for shipment to eastern Canada.

Mechanization has entered the sugar beet industry to a degree thought impossible a few years ago. The saving of segmented seed, cross-blocking by machinery, stand-up thinning requiring only one-third the hand work in that operation, and loading of beets with mechanical loaders all combine to speed up production and will help beet sugar renew its competition with imported cane sugar after the war. The sugar beet crop is really a two-in-one crop -- sugar for human consumption and beet tops, silage, and molasses for livestock. The by-products of sugar beet raising will eventually play a great part in stabilizing the industry.

This year thousands of men and women are busy harvesting Alberta's 30,000 acre sugar beet crop. Some 250,000 tons will go to the huge factories at Raymond and Picture Butte where it will be processed into one of Canada's most strigently rationed foods. The resulting product will represent more than $8 million of the consumers' food costs by the time it passes over the counter. Including by-products, the sugar beet crop is a $10 million contribution to the Dominion's agricultural wealth.

To livestock, coarse grains and coal already in the list of necessities she ships to Eastern Canada, Southern Alberta has now added sugar -- a small part of Canada doing a big job well.

Last Spring several rows of sugar cane were planted in Nova Scotia. They grew to a height of eight feet, despite unfavourable weather conditions and its extracted juice was said to compare favourably with West Indies molasses in flavor and color. Who said Canada wasn't a swell country to live in!

No. 343. -- Earnings and Employment at the Census

The average earnings of 2,080,883 male wage-earners in Canada reporting earnings over the census year period ended June 2, 1941, was $998 as compared with $927 for the 1931 Census. The corresponding figures for 691,195 female wage-earners reporting earnings were $492 and $559 respectively. In urban centres average earnings of male wage-earners was $1,108 and only $746 in rural areas. Moreover, the average earnings of male wage-earners was $1,141 in urban centres of 30,000 population and over, falling off to $1,136, $1,005 and $811 in urban centres having a population of 5,000 to 30,000, 1,000 to 5,000, and under 1,000 respectively. Female wage and salaried workers living in urban areas averaged $530 while in rural areas their average was $354. Average earnings for females, like that of males, shows a downward trend according to the urban size group, being $572, $485, $410 and $349 in urban areas of 30,000 and over, 5,000 to 30,000, 1,000 to 5,000 and under 1,000 population respectively.

Lack of full employment during the census year ended June 2, 1941, largely accounted for the fact that 27 p.c. of all male wage-earners and 52 p.c. of all female wage-earners in Canada reporting earnings earned less than $450 over this period. About 54 p.c. of all male wage-earners and 89 p.c. of all female wage-earners earned less than $950 during the census year. Almost 91 p.c. of the total male wage-earners and just over 99 p.c. of all female wage-earners earned less than $1,950. Only about 188,000 males in wage and salaried occupations in Canada earned over $1,950 during the 12 months' period ended June 2, 1941. During the corresponding period in 1930-31 about 33 p.c. of all male wage-earners in Canada earned less than $450, 61 p.c. less than $950 and 91 p.c. less than $1,950, leaving approximately 169,000 who earned over $1,950 during the census year. For the same period ended June 1, 1931, about 48 p.c. of all female wage-earners in Canada earned less than $450, 83 p.c. less than $950 and 99 p.c. less than $1,950.

Average earnings of wage-earners reporting earnings varied considerably as between provinces. Wage-earners in Ontario reported the highest average earnings, $1,119 for males and $577 for females, while P.E.I. wage-earners were at the other extreme, males averaging $596 and females $294. Average earnings for males and females in the other provinces were $1,051 and $561 for British Columbia, $988 and $459 in Manitoba, $922 and $477 in Alberta, $922 and $429 in Quebec, $864 and $379 in Nova Scotia, $773 and $375 in Saskatchewan, and $767 and $366 in New Brunswick. For each province wage-earners in rural areas showed considerably lower average earnings than those in the urban centres. This tendency varied from a relatively small difference in British Columbia where the average earnings for males was $971 in rural areas as compared with $1,107 in urban centres to a rather large difference in Saskatchewan, where the averages for males were $372 and $1,028 respectively.

In all the provinces, except Prince Edward Island and Quebec, average earnings among males during the census year ended June 2, 1941, was higher than in the corresponding period ten years ago. Average earnings of male wage-earners in Prince Edward Island dropped from $679 in 1931 to $596 in 1941, while in Quebec the averages showed only a negligible difference between the two years. The average earnings of female wage-earners was lower in 1941 than in 1931 in all provinces. This was due primarily to the rapid expansion in female employment towards the end of the 1941 census year; the consequence being that for a considerable number of females with short periods of employment earnings were low.

Male wage-earners in Canada were employed on an average of 41.29 weeks and females 40.67 weeks during the 12 months' period prior to June 2, 1941. Average weeks employed by wage-earners in urban centres was longer than in rural areas. The fact that average weeks of employment were less in rural areas than in urban centres does not necessarily mean that more unemployment prevailed in the former. Many persons living in rural areas who were following wage-earning occupations at the 1941 Census were likely to have been engaged in gainful employment on their own account in fishing, farming, trapping, etc., during part of the census year.

Although the proportion of male wage-earners with short periods of employment as wage-earners during the 12 month period prior to the Census date was much the same as at the 1931 Census, -- about 12 p.c. in both years having worked less than 20 weeks -- it is unlikely that there was as much extended unemployment in 1941 as in 1931. The most recent census year was one of expanding employment with the result that a considerable number of persons were drawn into wage-earning jobs during the course of the census year, from agriculture and other non-wage-earner occupations and, to some extent, from school. New entrants into the labour market in 1941 were especially common among females. Almost 15 p.c. of all female wage-earners at the 1941 Census had worked less than 20 weeks during the 12 month period prior to the date of the census, while in 1931 only 5 p.c. reported less than 20 weeks of employment.

The average family earnings for 1,215,730 wage-earner families in Canada reporting earnings was $1,419 for the 12 months' period ended June 2, 1941, as compared with 1,104,483 wage-earner families, averaging $1,366 for the corresponding period a decade ago. These figures cover wage-earner families with male head, -- or about 95 p.c. of all wage-earner families. Wage-earner families living in rural areas reported average family earnings of $1,106 while those in urban centres averaged $1,530 during the census year. Family earnings varied from province to province with Ontario wage-earner families averaging $1,557 and reaching the high average of $1,725 for urban centres of 30,000 and over combined.

At the 1941 Census a tabulation of family earnings in families with wage-earner heads showed that in approximately one-third of these families aggregate earnings of all members of the family earning was less than $950. In approximately 80 p.c. of these wage-earner families total family earnings was less than $1,950, and in about 93 p.c. total family earnings fell below $2,950. In the Census the family was understood to include husband, wife and children, but not other relatives or lodgers.

No. 344. -- Raising Vegetable Oils in Canada

"The farmers of Canada have come across in the matter of raising vegetable oils" says a prominent government official. It seems that the value of products turned out by the Canadian Vegetable Oils Industry last year was about nine and one-half million dollars, which was considerably more than a million greater than the year before. As a matter of fact the value of the product of this industry, which has risen to great importance during the war, has increased no less than 128 per cent since 1939.

The principal item of production is linseed oil, of which the output last year amounted to 7,390,000 gallons, of a value of five and one-quarter million dollars. The next most valuable item of production was oilcake meal with an output of nearly sixty thousand tons. Coming down to gallons the increase in the production of linseed oil over the year before was considerably over 800,000 gallons and the selling value increased by $727,000. Linseed oilcake meal also had a sharp increase.

The most important material used by the industry was flaxseed and it accounted for about 74 per cent of the total value of materials used. The outstanding feature of this development is that before the war this industry used large quantities of imported flaxseed. For example in 1939 the importation was 53 per cent, however, last year every single bushel of flaxseed was of domestic origin.

A great deal is being said these days about sunflower seed oil and we are told that considerable progress is being made in developing varieties of sunflowers that are best suited for oilseed production under Canadian conditions. An intensive breeding program is in progress.

Sunflower oil is one of the finest edible vegetable oils and in recent years it has been widely used in Canada in manufacturing shortening. Also after refining and deodorizing, sunflower oil makes excellent salad oil and is also widely used as a canning oil. In other countries it is being used as a component of margarine.

It is felt here by our Agricultural authorities that there is every reason to believe that Canada's edible oil requirements can be met partially through the extensive production of the crop, particularly in the Prairie areas where land is relatively cheap and cash crops other than wheat are required.

No. 345. -- Four Years of War

Today, September 9, 1943, marks the close of four years of war for Canada -- four years in which the nation has grown in stature as a world power in its own right. With only about one-half of one per cent of the world's population, Canada has become the world's third trading nation, and among the United Nations the fourth largest producer of war supplies and the fourth greatest military air power.

Canada has progressed far as a warring nation since the days of peace. In the words of the Prime Minister, its armed forces "have grown in numbers to three-quarters of a million men, exceedingly well trained and magnificently equipped . . . In addition to our own, thousands of airmen from our sister nations of the British Commonwealth have been trained on Canadian soil."

During the stirring month of August, the war-long dream of the Canadian Army Overseas was fulfilled. Its First Division, serving with General Montgomery's famed Eighth Army, had a vital part in the fighting which drove the enemy out of Sicily. With the British 78th Division the Canadians broke the German-held Etna defence line.

Then before the Sicilian campaign had ended Canadian troops were on the offensive on the other side of the world in the Aleutian Islands. There they joined with United States forces in occupying Kiska and freeing the last vestige of North American territory of Japanese forces.

The Quebec Conference -- what may become known as the most momentous conferences of all time -- was the second war-strategy parley in which Canadian leaders and chiefs of staff took part. They were present as well for certain discussions at the Churchill-Roosevelt meeting in Washington in May. At Quebec, however, for the first time the United Kingdom war cabinet and the war committee of the Canadian cabinet met in joint session.

Among the extensive machinery that Canada maintains for continuous consultation with the other United Nations is a Canadian joint staff mission in Washington. This mission has offices in the building which houses the combined chiefs of staff, composed of the United States chiefs of staff and representatives of the British chiefs of staff, and it is represented whenever the discussions are of direct concern to Canada.

No. 346. -- The Canadian Navy

Since the outbreak of war when it had 15 ships, the strength of the Royal Canadian Navy has increased 36-fold to more than 550 ships of all types, including destroyers, frigates, corvettes, auxiliary cruisers and minesweepers. Building up a sea force in a hurry where there was virtually none before possesses this advantage -- it may be adapted to fulfil a specialized purpose.

The Canadian sea force has been designed for the particular purpose of safeguarding the "jugular vein" of the United Nations between Canada and the United Kingdom. Convoy work requires many small, fast ships, and during four years of war Canada has built an impressive fleet of such vessels which have done much in breaking the submarine power of the Axis.

The corvette, which has become the trade mark of the Canadian Navy, is built for U-boat fighting, and it is the prize of Canadian sailors. The sea forces responsible for keeping safe the North Atlantic lifeline to the United Kingdom are the Royal Navy and the Royal Canadian Navy.

Ships of the Canadian naval service have served in many battle theatres of this war -- in the Allied landings on North Africa and on Sicily, in the Caribbean, in the North Pacific, in the occupation of Kiska. Some sailors of the Canadian Navy are serving with the Royal Navy. Canada's Tribal class destroyers are among the heaviest, swiftest and best armed combat ships of the destroyer type.

Between the two great wars Canada had constructed no naval vessels, but now from long idle or new Canadian shipyards have come ships by the hundreds for men from Canadian farms, cities and fishing villages to sail to the Seven Seas.

In addition to the Women's Royal Canadian Naval Service, there are three personnel components of the Canadian Navy: The Royal Canadian Navy, the Royal Canadian Naval Reserve and the Royal Canadian Naval Volunteer Reserve. The R.C.N. is the permanent core of the organization. The R.C.N.R. is composed of persons who have followed the sea as a profession. The R.C.N.V.R. is made up of civilians who, in peacetime, were not employed in occupations connected with the sea, but who have been given training to serve afloat.

No. 347. -- The Canadian Army

The story of the Canadian Army overseas has been one of vigilance. During all the days when the mighty strength of the Nazi war machine stood on the French coast of the channel, when at times it seemed that the land battle for freedom might be fought on English soil, the Canadian Army was stationed in Britain, as Prime Minister Churchill has said, "at the very point where they would be the first to be hurled against the enemy invader."

Contingents of the army had their chance in battle at Hong Kong, Dieppe, Spitzbergen; but none of these could be called a full-fledged campaign. During

August, the last month of Canada's fourth year of war, Canadian troops were in action on two widely separated fronts -- in the North Pacific and in Sicily. In the Sicilian campaign Canadian soldiers won many commendations for the quality of their training and for their eagerness to join battle.

The Allied conquest of Sicily took 39 days. The British-United States-Canadian force landed before dawn on July 10; by the early evening of August 17 all the Axis defenders of Sicily had been killed or captured or had fled across the two-mile-wide strait of Messina to Italy.

On the other side of the world on August 15 other Canadians joined with United States troops in occupying the last North American territory held by the Japanese Empire -- the Island of Kiska in the Aleutians. Troops from districts all across the Dominion were represented in this operation. A large proportion of soldiers called for service under the National Resources Mobilization Act were among the troops.

The Canadian Army Overseas is made up of two corps, one of three infantry division, the other of two armored divisions. Besides these there are large numbers of ancillary or corps troops. Corps troops are concerned with communications, repairs to equipment, transport of supplies, medical and hospital services and many other functions. The Canadian Army has more than 170 such units.

No. 348. -- Canadian Air Power

The four years that have passed since September 1939 have seen the strength of Canadian air power grow tremendously. The call of the air is irresistible to the youth of a young country. Even before the war broke out, many young Canadians had gone overseas to join the Royal Air Force. When war was declared the Royal Canadian Air Force immediately found itself with waiting lists which would have kept even the great British Commonwealth Air Training Plan busy at its peak capacity for many months.

During the epic days of 1940, when the incredibly daring and skilful handful of the Royal Air Force were keeping at bay the great German Luftwaffe, the Canadian Government, at the request of the planners of Allied war strategy, was concentrating its efforts on the British Commonwealth Air Training Plan -- the greatest scheme of its sort ever inaugurated. The first pupils were graduated on October 28, 1940.

This effort has paid dividends in air victories. In a large measure because of the plan the air superiority of the Luftwaffe has become a thing of the past. Allied air power has shifted its emphasis from defence to attach -- from fighters to bombers -- and Canadians are in the forefront of the offensive.

A quarter of the flying strength of the Royal Air Force is made up of Royal Canadian Air Force air crew serving with squadrons of the Royal Air Force. This does not include Royal Canadian Air Force squadrons operating in the United Kingdom and in other parts of the world. There are 32 specifically Royal Canadian Air Force squadrons already organized, and six squadrons in the process of organization.

The Canadian bomber group, organized at the beginning of this year, has been in every European raid of the war since its inception. Air protection of Canada's Atlantic shores and of convoys arriving at and leaving east coast Canadian ports is the responsibility of aircraft of the eastern air command. Anti-submarine squadrons of the eastern air command flew more than five million nautical miles during 1942. While engaged in this work, R.C.A.F. aircraft have made more than 50 attacks on enemy U-boats.

No. 349. -- Commonwealth Air Training Plan

Although the British Commonwealth Air Training Plan is essentially Canadian, young men from all the United Nations learn the art of air combat in its schools. A joint enterprise of the Canadian, Australian, New Zealand and United Kingdom governments, the plan is administered by the Royal Canadian Air Force, and more than 80 per cent of the graduates are Canadians.

An ever-growing proportion of air crew required to man to planes on the fighting fronts is trained in the British Commonwealth Air Training Plan. The more than 50,000 air crew trained in the plan would be more than enough to man 15,000 combat planes. Peak outturn of air crew on a monthly basis will not be reached for several months. Although the final stages of training of some classes of air crew cannot be completed on this side of the Atlantic, the larger part of the training is done in Canada.

The plan is based on a proposal made to the governments of Canada, Australia and the United Kingdom in September 1939 to set up a common air training system. The proposal was accepted in principle by the Canadian government shortly afterwards. The first agreement was signed about the middle of December of the same year, in fact on the same day the first contingent of the Canadian Army landed in Britain. Immediately the project of building airfields and training instructors began.

Under the terms of the original agreement Canada paid more than $600,000,000 of the total cost of $900,000,000. This original agreement was intended to continue until March of this year, but a new agreement was signed on June 5, 1942. It became effective July 1, 1942, and operates to March 31, 1945. Under the new arrangement the plan is considerably enlarged. It will cost $1,500,000,000, 50 per cent of which will be paid by Canada. The United Kingdom will pay the remaining half, less deductions representing payments by New Zealand and Australia for the cost of training air crew.

The average miles flown each day in the plan, amounting to 2,006,626, is a distance equal to 80 times around the earth at the equator. More than 10,000 training aircraft are in use by the B.C.A.T.P.

No. 350. -- Man Power Situation

As Canada completes four years of war it faces a critical manpower situation. As a result the Dominion Department of Labour is appealing to all Canadian women not engaged in essential jobs to give full or part time to war work. There is no reserve of men and very little reserve of women, and it is considered necessary for every woman to make an extra effort to serve where the aid will be most beneficial.

The number of women employed in factory and industrial work alone has increased from 144,000 in 1939 to 419,000 and 255,000 of these are engaged directly or indirectly in war industry. Almost 34,000 women have enlisted in the armed forces, and about 64,000 more are needed.

The Women's Royal Canadian Naval Service, organized about the middle of 1942, had hoped to recruit 3,000 members during its first year of organization. This was more than realized and by the end of August this year 3,683 had been attested and 3,005 called up. By March next year the service hopes to have a strength of 5,500. There is urgent need for cooks, laundresses, mess stewards, supply assistants and sick berth attendants.

The Canadian Women's Army Corps celebrated its second anniversary on August 29. It was established by order-in-council in August 1941, and commenced training on September 1, 1941. More than 13,257 had enlisted by August, 1942. The Royal Canadian Air Force (Women's Division) was established in July, 1941, and had enlisted more than 13,500 by August 15, 1943.

Canadian women in nursing uniforms totalled more than 2,611 by the end of August, with more than 1,866 in the Royal Canadian Army Medical Corps, 196 in the Royal Canadian Navy nursing service, and 299 nurses in the R.C.A.F. There are also about 250 Canadian nurses serving with the South African military nursing service.

There are 40 women doctors in the armed services, four in the navy, 22 in the R.C.A.M.C., and 14 in the R.C.A.F.

No. 351. -- Munitions of War

Certain of Canada's major production objectives have been reached, but there will be no slackening of the over-all effort, only a change in emphasis. Some programs will be reduced, others expanded. Because of heavy reserves and altered needs abroad there have been cuts in ammunition orders which have reduced the over-all demand for certain components and explosives.

The adandonment of certain types of anti-tank guns, the completion of aircraft machine gun contracts, reduced orders for anti-aircraft ordnance and heavier demands for naval guns and army rifles have meant adjustments in the gun production program. Stress has been placed on the expansion of aircraft output, naval ship construction and heavier production of signals and communications equipment.

At the end of June work was in progress, and in most instances far advanced, leading to the production of the following equipment: Special gun parts, secret equipment and weapons, new type high explosive shell, two types of fuses, seven types of small arms ammunition, four types of drill cartridge cases, tank gun barrels, universal gun mountings, anti-tank gun barrels, Oerlikon gun mountings, Polsten machine guns, Browing automatic pistols, new ground bombs, land torpedoes and new type of tank.

Some idea of the great efficiency of the Canadian munitions industry may be gained when it is stated that in an average week munitions of war valued at the stupendous total of $55,000,000 roll out of Canadian factories. From the start of the war to the end of June this year the value aggregated $4,500,000,000.

One week's output of Canadian munitions and war equipment includes six or more escort, cargo or patrol ships, 80 aircraft, 4,000 motor vehicles, 450 armored fighting vehicles including tanks, 1,200 guns, barrels or mountings, 525,000 rounds of heavy ammunition, 13,000 small arms, 25,000,000 rounds of small arms ammunition and 10,000 tons of chemicals and explosives.

To the end of June this year expenditure on plant expansion and defence products had totalled $1,200,000,000, while the total value to the first of July of contracts and commitments, including plants, plant extensions and airport construction had grossed about $9,000,000,000.

No. 352. — Seasickness Remedy

The Canadian Navy has developed a secret formula for sea-sickness, found effective in three cases out of four. The remedy is a simple pink capsule, resembling the ordinary capsule for colds. It is effective for eight hours. It produces no harmful effects and does not reduce fighting efficiency. The capsule is now being manufactured in quantity and will be issued to ships at sea.

Experimental data thus far obtained indicate that it will be equally valuable in reducing air sickness which is of particular importance to airborne troops. But the greatest service of the remedy, it is expected, will be in protecting invasion troops who must be ready for intense fighting before they set foot on land.

As the result of thousands of position experiments and other research, it is now known that the basic cause of seasickness is maladjustment of the equilibrium apparatus in the inner ear by its inability to adjust itself to rapid changes in position. In some individuals, psychological factors may also be a contributing cause.

Two internationally famous research workers, Surgeon Capt. C. H. Best, a co-discoverer of insulin and Dr. Wilder Penfield of the Montreal Neurological Institute headed the group of research scientists who produced the remedy. Work in Toronto was done by the Royal Canadian Naval Medical Research Unit of which Surgeon Capt. Best is director. In Montreal, famous neuro-surgeons experimented with the balance mechanism of the ear — Dr. McNally, Professor of Otolarynology at McGill; Prof. Boris Babkin of the Department of Physiology, McGill, known also for his work with the famous Russian scientist, Pavlov, and Dr. Guy Morton neuro-surgeon.

For experiments, a huge electrically-driven roller-see-saw machine was built. In a rocker chair at one end, a man could be thrown up and down through a space of twelve feet. Independently controlled rollers tossed him from side to side. Agonized sufferers dubbed it H.M.C.S. Mal de Mer.

In post-war sea and air travel this sea-sickness remedy willplay a prominent part.

No. 353. — Keep Your Homes in Good Repair

One of the duties carried out by the Dominion Bureau of Statistics is to survey the homes of the people in order to find out whether or not repair jobs are being carried out, for a house can go to rack and ruin very quickly if the little things that need attending to are neglected. This survey is made at census-taking time.

Here is an individual case which came to the notice of the Bureau. A widow lady in one of our large cities had carried out no repairs on her quite beautiful home for a number of years after her husband's death. She had let things go. The outside walls remained all right, but the posts which held up the centre of the house began to rot at the base and the whole interior began to sag. The doors had continually to be planed off so that they would shut, and so the locks would not fit. The plaster walls cracked, the ceilings gave way and the whole thing was in a bad mess. A builder was brought in and he estimated that the repair job would be very little short of $2,000. One hundred dollars would have been the total cost if the repairs had been carried out a few years before.

The 1941 census showed that 27 per cent of all homes in the Dominion were in need of external repairs. This meant that dwellings so classified had one or more of the following defects: foundations in obvious need of repair, roofing in dilapidated condition, chimney in need of repair, stairways or steps approaching main entrance in need of repair.

The proportion of homes in need of repair was considerably lower in the large cities than in rural communities. Forty per cent of farm homes and 20 per cent of urban dwellings required attention. This proportion declined steadily in the larger communities. For those with less than 1,000 population, the proportion was 28 per cent, and for cities of 30,000 population and over, it was 17 per cent. It is of interest that the proportion of owner-occupied homes also declined consistently as the size of community increased.

Provincial percentages of dwellings in need of external repair were as follows: Saskatchewan 40, Alberta 37, New Brunswick 37, Manitoba 32, Nova Scotia 27, Prince Edward Island 26, Quebec 25, Ontario 23, and British Columbia 23.

In 14 of the 27 cities with more than 30,000 population, at least 20 per cent of dwellings required external repair. This proportion was generally higher in the smaller cities of Ontario than in the largest ones. All Maritime and Prairie cities in this group showed external repairs needed for more than 20 per cent of dwellings, but percentages of both British Columbia cities of this size were under 20. Quebec cities showed the widest variation in proportions of dwellings needing external repair.

No. 354. -- Feldspar

Feldspar is a versatile mineral of which Canada has an abundance. By far the greater part of the feldspar produced in the Dominion is used in the ceramic industries, of which the glass trade is the largest consumer, followed by the pottery, enamel, and sanitary wareindustries. In the United States, these industries used 98 per cent of the total sales in 1940.

Minor amounts of feldspar are used in the manufacture of soaps and cleansers, abrasive wheels, and artificial teeth. A novel use recently proposed for feldspar is the smothering incendiary bombs and has been patented by the United States Government. It is claimed that feldspar has extinguishing properties superior to common sand or any special mixtures recommended for such purpose.

Production of crude and ground feldspar in Canada in 1942 amounted to 22,270 net tons valued at close to $214,000 dollars. To be perhaps a trifle technical, most of the feldspar mined in this country is of high-potash grade, though some operators also produce small amounts of high-soda spar. The latter type is rather uncommon as large deposits.

Most of the recorded production comes from adjacent sections of western Quebec and eastern Ontario, in the general Ottawa region, with small amounts from scattered properties in Ontario as far west as the Parry Sound and Sudbury districts. Manitoba also formerly had a small production from the Winnipeg River district, but operations ceased there about six years ago.

In years gone by a considerable part of the supply of feldspar came from a number of small, scattered, and often intermittent operations, but in recent years most of it has come from a few larger deposits, the production being about equally divided between Ontario and Quebec. In 1942, however, the Ontario output declined to only about 30 per cent of the total.

All of the feldspar used in industry is crushed or finely ground material usually prepared either in mills operated by producers of the crude mineral or in merchant mills supplied from independent mines. Some manufacturers of ceramic products mine and grind spar for their own use.

No. 355. -- Wartime Gardens

Wartime gardeners have reaped the last of the harvest and are laying plans for next year. But if the results of the patriotic labours of Wartime garden and allotment keepers is to be carried to a logical donclusion, the question of household storage, particularly of vegetables, is important. All vegetables to be stored must be in a sound, unblemished condition. To store diseased or bruised vegetables is to invite disaster. They will cause spoilage of the adjacent vegetables, and perhaps of the whole storage.

When harvesting, careful handling is necessary. A fine day should be chosen and the vegetables allowed to remain on the surface of the ground until dry. Where necessary, tops should be cut off at once to prevent excessive loss of moisture through the leaves. Beets, carrots, swede turnips, and parsnips should have the tops cut off to within a half inch from the shoulders of the roots, says a prominent government official.

In the second place, a proper storage place must have been prepared for the reception of the vegetables. A small storage room may be partitioned off in the basement of the house. The room should be as far as possible from the furnace. As the main object is to protect the vegetables from high temperature and loss of moisture during the storage period, the materials used in construction need not be expensive. Ordinary lumber or insulation board will do. It is desirable to have a window in the outside wall of the house for ventilation and temperature control, which may also be aided by the door of the partition being opened or shut when necessary.

An earthen floor in the storage space is best, but a covering of sand of three or four inches on the concrete floor of the cellar will be a good substitute. The vegetables may be placed in bins or crates made of lumber slats, one inch thick by four inches wide, with half an inch between the slats for air circulation. The temperature of the store room should be kept as close as possible to 35 degrees F., and not higher than 38 degrees.

No. 356. -- Planning for Next Spring

In yesterday's "Fact a Day" some useful suggestions on the proper storage of vegetables that were garnered from the Victory Garden were given. Now, most of us are even now planning to have a garden next Spring, perhaps on a larger scale. With this in view it seems timely to raise one or two points that may be of interest.

Be sure to remove all weeds that might go to seed this fall. As each crop is harvested the inedible portions such as carrot tops and cabbage leaves should be piled on the compost heap and carefully covered with soil. As soon as the harvest is completed the whole garden will be better if ploughed or spaded deeply for next spring's planting. If good manure is available plough it under. If not, the material which has been accumulating since early summer as compost may be spaded under where it will be well rotted by next spring.

In some gardens where the ground was poorly prepared last spring much can be done to make next year's garden more satisfactory. If the soil is heavy it can be loosened up by the addition of vegetable matter. If barnyard manure is not available green material such as lawn clippings can be spaded into the soil. Piles of leaves burned each autumn make splendid soil builders, provided some nitrogenous fertilizer is mixed with them to hasten decomposition.

Dig the garden deeply -- at least six inches and allow the frosts of winter to mellow the lumpy soil and release plant materials. Such crops as peas and onions must be planted early for best results. The soil should not be cultivated too finely in the fall but it should be so prepared that a good raking is all that is needed in the spring. Fertilizers may be applied during the winter if desired, although many gardeners prefer to apply fertilizers at planting time when they can be placed along side the rows where they will do most good.

Before winter sets in clean up all garden tools, oil them lightly to prevent rusting and put them away where they can be found easily next spring.

No. 357. -- Radio Communication and Quartz Crystals

It is amazing to those of us who have full use of our vision to watch a blind man making his way along the street with little difficulty. It is a common sight. Nature has taken care of this affliction. To supplement the loss of sight she has sharpened other sensibilities -- hearing and the sense of touch for instance. Through the medium of the sense of touch and of hearing signals are flashed to the brain -- the blind man sees.

Our navy, army and air force would also be blind without signals, but unlike the blind man would move ineffectively in battle, facing defeat at almost every turn. But our scientific workers have developed very efficient systems of transmitting vital information and have outfitted every ship, plane, tank and armoured car with signals equipment which takes second place to none. The fact is that Canadian signals equipment is among the finest obtainable.

Most of us are quite familiar with the systems used on the home front, such as the telephone, radio and telegraph. However, on the battlefronts much depends on instantaneous two-way radio communication, which to be effective must rely upon accurately ground wafers of quartz crystal. Dozens of these are needed for a single tank or airplane.

So far as is known Brazil is the only commercial source of quartz suitable for radio-frequency control. In that country the annual production jumped to over 1,000 short tons in 1940 -- almost four times as heavy as in a peace-time year. One-fourth of the output is consumed as radio quartz, and the remainder is used as optical, instrument, or fusing quartz. Before 1941 Japan's purchases were the backbone of the Brazilian crystal industry.

Radio quartz crystal has been classified as a strategic mineral and in 1941 the governments of the United States and Great Britain agreed to buy all stocks of Brazilian quartz remaining after their nationals had made purchases for private industry. The United States has established an inspection laboratory in Brazil for the selection of suitable quartz crystals.

Veins are located by independent pick-and-shovel prospectors who mine the crystals by crude hand methods. No commercial production has ever been officially reported in Canada. However, imported crystals are now being cut and dressed in the Dominion.

No. 358. -- The Herring Family

Canada's sea herring and Canada's freshwater herring don't belong to the same clan. They're not related.

Sea herring, taken on both coasts of the Dominion and in much greater numbers than the freshwater herring or ciscoes, belong to the scientific family Clupeidae while ciscoes, on the other hand, are members of the Coregonidae family. Such fish as the shad and the gaspereau or alewife are "cousins" of the sea herring, so to speak, and whitefish "cousins" of the ciscoes. The ciscoes, by the way, come nearer to relationship to the salmon than to sea herring and they carry with them, like the salmon, a little adipose fin on the posterior part of the back.

Ciscoes range from Quebec and the State of Vermont westward to Lake Superior, and perhaps northward to the Hudson Bay region and Labrador. The great bulk of Canada's catch of them is taken by Ontario fishermen, although there are some landings in Quebec. In 1941 -- complete figures for 1942 are not at hand at the moment -- the total Dominion catch was slightly less than 45,700 hundredweights, with a total marketed value of close to $220,500. There were millions of fish, of course, in those 45,700 hundredweights but they would have been lost out of sight if dumped in with the year's total production of sea herring.

The quantity of herring landed by sea fishermen of the two coasts in 1941 was nearly 2,740,000 hundredweights and the fish had a marketed value of more than $6,482,000. (In 1940, incidentally, the total landings were even greater than in 1942, substantially greater). More than half of the Canadian catch is taken in British Columbia waters but the herring fishery is important also in the salt water areas of all four Atlantic provinces, with New Brunswick ranking first in size of production.

All of the ciscoes taken by the freshwater fishermen are sold either fresh or frozen but sea herring are marketed in a number of different forms. There are sea herring sold fresh, sea herring smoked as bloaters, kippers, and smoked boneless herring, pickled herring, canned fresh herring, canned kippers and canned kippered snacks. In times of peace large quantities of the fish from the British Columbia catch were dry-salted and shipped to the Orient, and some were mild cured, but war conditions have temporarily changed that state of affairs. Large quantities of herring are used in the manufacture of fish meal and fish oil, with the bigger part of the output of these by-products coming from the Pacific coast. Scales of the sea herring are also collected in some areas nowadays, for use in manufacturing certain fire extinguishing material instead of for use, as in other days, in the manufacture of "pearl essence" which in turn was utilized in making artificial pearls, pearl knife handles, and so on.

No. 359. -- Nepheline Syenite

Nepheline syenite is a rock mineral closely related to the feldspar family, consisting mainly of the mineral nepheline. It often contains varying amounts of iron-bearing minerals in the form chiefly of black mica and magnetite. It is high in alumina content -- a most important ingredient in the manufacture of aluminum. Because of other qualities it has found favour with the ceramic industries, most especially in the manufacture of glass. Of course for ceramic use the rock must first be freed of its iron-bearing constituents.

Nepheline syenite is more widely used in the glass trade than straight feldspar. In fact most Canadian glass plants now use the material and it is also employed by a number of American establishments. Research has been proceeding steadily on applications for nepheline syenite in other branches of ceramics and it has been found of advantage as a body ingredient in a variety of products including pottery, semivitreous ware, sanitary and electrical porcelain, floor and wall tile, and structural clay products, as well as enamels.

Interest also has been shown in the possibility of employing nepheline syenite as a source of alumina for the aluminum industry to replace bauxite -- all of which has to be imported. An intensive geological and diamond drilling program was conducted in 1941 on syenite occurrences in Ontario. Test work was proceeded with in the laboratories of the Bureau of Mines in Ottawa on methods of treating the rock for recovery of the contained alumina, potash and soda.

The fine dust product resulting from the processing of syenite is used as a substitute for pumice, for grinding and polishing and in the cleanser, enamelware and heavy clay industries. Although commercial production of nepheline syenite in Canada is confined to Eastern Canada at the present time, large deposits are known to exist on the North shore of Lake Superior. Producers' sales were valued at $247,000 in 1942 as compared with $226,000 in 1941.

No. 360. -- For the Returning Men who will Farm

The indications seem to be that a great many of the men in the Armed Forces will go on the farm when they come back. Here then is a thing worth thinking about, when rounding out the plans.

The fertilizer most commonly used on the farm is barnyard manure. It is the most useful of the fertilizers for soils low in organic matter, It is especially valuable in vegetable gardens and, when spread on the fields on hill tops suffering from water and wind erosion, it adds organic matter and reduces soil losses. Ten tons of manure per acre ploughed under adds 100 pounds of nitrogen and 50 pounds of phosphoric acid to the soil. As a 30 bushel crop of wheat only takes up 30 pounds of nitrogen and 12 pounds of phosphoric acid, there is a residual effect from barnyard manure that is not obtained from light applications of commercial fertilizer.

Commercial fertilizers, on the other hand, can be applied with little labour cost. Usually they stimulate early season growth which has a tendency to aid the crop in smothering weeds. Frequently fertilized crops mature earlier and on the average, there is an increase in crop yields. Commercial fertilizers are particularly beneficial on soils where the moisture retaining capacity is fairly high and the spring growth backward.

Grass built up the original fertility of the prairie soils of Western Canada. It has been found that farm lands put down to grass for a period of years and pastured increase in soil fertility and in soil fibre.

While long leys are necessary in order to obtain increased fertility from grasses, legumes on the other hand may in two seasons improve the nitrogen content of certain soils as they take nitrogen from the air and rebuild a portion of it in the earth. The large fleshy roots of alfalfa and sweet clover decay slowly in the soil but eventually add useful fertility to rundown soils.

No. 361. -- Portable Pipe Lines

The smashing of the Axis armies in North Africa has added a glorious chapter to the history of the struggle of the United Nations against Axis tyranny and aggression. Sicily has been taken, so too has Sardinia, and a portion of the Italian mainland has fallen into the hands of the Allies. The Italians have capitulated and Mussolini has fled the country. In forming a picture of how these brilliant successes were achieved, our fighting men, our generals, our superiority in air strength and in ships on the seas must all be drawn into the scene. It was success achieved by coordinated action -- each contributing an essential share.

Transportation was one of the big problems that had to be overcome in the drive in North Africa. Huge quantities of vital fuel and water supplies had to be rushed to the fast-moving front. The answer lay in steamlined "portable" pipe-lines. These pipe-lines may be installed by unskilled or regular Army personnel. Even when war broke out transportation difficulties in a "Blitz" war were contemplated and an improvement on the relatively slow-moving oil trucks used, which by the way furnished fine targets for air attacks, was necessary.

The pipe lines used in the North African campaign were light and flexible. They were made in 20-foot sections, and each section, weighing only ninety pounds, was easily handled by one man. It was a comparatively easy task to lay these lines at the rate of from 20 to 30 miles a day. Being flexible, they were not nearly as vulnerable to bombing as rigid pipe-lines, and damage caused by bombing, sabotage, or other mishaps were rectified quickly.

At least four portable pipe-lines were in use in the North Africa campaign. These varied from 75 to more than 300 miles in length, keeping pace with the advancing troops. Total weight per mile, including pumping stations, was about 13 tons. Separate lines were used for each type of product.

No. 362. -- Spurring World Trade

In a message delivered through Brooke Claxton, parliamentary assistant to the 30th National Trade Convention in New York, the Prime Minister, Mr. Mackenzie King, said "Our aim should be that every man will have security because he is more prosperous than he has ever been before and every man will have prosperity because he is more secure than he has ever been. Security and prosperity are indivisible. The security of nations will make trade among nations flourish. As trade flourishes we shall add to the prosperity of our own and all other peoples."

The message gave the four following conditions as necessary to develop world trade and bring prosperity and employment:

"1. Nations must not be driven by fear of attack to cut themselves off from trade. We in Canada would like to see extended throughout the world the kind of relationship that exists between Canada and the United States and between members of the British Commonwealth of Nations. Security is a form of insurance which depends on the pooling of risks. International security can be attained only by nations working together.

"2. We need commercial stability and the progressive removal of barriers to trade. We need stability to enable business to look ahead and plan with confidence. We need a ceiling on tariff and trade restrictions. A further step of advantage to all would be an agreement among nations for progressive annual reduction of tariffs until agreed levels were reached.

"3. We need functional machinery to carry on necessary arrangements between nations including maintaining of international monetary stability and the provision of credit. To accept representation on an international agency authorized to make decisions which would ensure their security and prosperity is not to be regarded as a surrender of sovereignty. If that's a surrender of sovereignty, the common people of the world are looking for more surrenders of sovereignty.

"4. We need domestic policies to provide employment and production and to prevent inflation. People are more ready to accept far-sighted policies of co-operation if their own immediate needs are met."

"These four conditions can be realized," the Prime Minister added. "What a boon it would be to mankind if they were. The government is prepared to work to these ends with other nations."

No. 363. -- Wheat Trading Suspended

A remarkable thing happened today which will have a far reaching effect especially on the Prairies. The Hon. James A. MacKinnon, Minister of Trade and Commerce announced the suspension of wheat trading on the Winnipeg Grain Exchange. The Minister said that a change in wheat policy was necessary because of the unusual circumstances surrounding the marketing of Canadian wheat under present conditions.

Simultaneously Mr. MacKinnon announced payment to producers of wheat of an initial advance of $1.25 a bushel, Northern No. 1 at Fort William with participation for the crop years 1943-44 and 1944-45 together with an early distribution of payments on participation certificates outstanding in the hands of producers in connection with the 1940-1941 and 1942 crops. Mr. MacKinnon said the Canadian Wheat Board was taking over at today's closing prices and until the board had completed the necessary arrangements the closing out of future contracts would be at those prices. The Board's initial payment to producers on authorized deliveries beginning September 28, and for the remainder of the crop year 1943-44 and for the full crop year 1944-45 will be $1.25 a bushel, at Fort William, Port Arthur, or Vancouver.

"Under this new arrangement the government intends to meet requirements under the mutual aid plan and to provide wheat to subsidize domestic purchasers out of the government-owned wheat, rather than out of wheat in which the farmer has a participating interest," the statement continued.

"The government will thus be able to avoid the position of being both the farmers' agent and, in effect the ultimate buyer of the wheat. Other export sales, including sales to the United States, will be made out of wheat delivered to the Board during the 1943-44 and 1944-45 crop years in which producers have a participating interest."

The Canadian Wheat Board will be empowered to purchase for government account all unsold wheat stocks in commercial positions in Canada, including wheat held in the 1940-41, 1941-42 and 1942-43 Canadian Wheat Board crop accounts, at today's closing prices on the Winnipeg grain exchange.

No. 384. -- Wind Erosion on Prairie Soils

Any one who has lived in the prairie provinces for the last ten years or so will remember the dust storms which swept over the open plains. Dust and soil drifting are familiar to many, but the implications of the whole situation have not been generally realized. In the semi-arid region including southwestern Manitoba and southern parts of Saskatchewan and Alberta west to the foothills of the Rocky Mountains many millions acres of land have been severely affected by wind erosion and abandoned. This land is now lying in waste, but was once cultivated and produced abundant wheat crops.

The removal of top soil by wind has caused the removal of large quantities of the three essential plant food elements, phosphorus, potassium, and nitrogen. Studies show, however, that our subsoils are just as rich in phosphorus and potassium as the surface soil, hence any removal of top soil will not limit the supply of these elements. Nitrogen is more or less concentrated near the surface, but in no case has it been found to be lowered beyond the requirement of a crop. Except in the more humid sections of the Prairies, there has been no indication that crops were at any time suffering from the lack of nitrogen. The nitrogen fixing bacteria are abundant and active enough to replace the nitrogen removed by crops and erosion by the amounts fixed from the atmosphere.

But there is another type of damage which has been far more injurious than the loss of soil fertility. Wind erosion is a sorting process causing fine materials such as silt and clay to be steadily removed from the coarser fractions. This phenomenon acting on the soils for many years has caused them to be sandier than they were originally.

The greatest change has taken place on the originally sandy soils which once produced good crops but have since been changed to virtual sand dunes. The originally good sandy loams have within the last 50 years or less of cultivation, lost from 15 to 50 per cent of their silt and clay content and the sand content has been increased proportionately. Provided we continue to exploit these lands for wheat production as in the past and provided the change in texture continues at the same rate as during the last decade or so, these soils will change to virtual sand dunes within the next 50 to 150 years. Within the next 150 years at the same rate of exploitation Saskatchewan alone will have a sandy waste covering an area of at least 6,000 square miles, unless these soils are taken out of cultivation and sown to grass.

Much has been learned on how to control soil drifting yet the problem is by no means entirely solved, for methods now in use are evidently not wholly effective. It is evident that complete control of soil erosion cannot be accomplished so long as wheat continues to be the principal agricultural product. Yet the alternate type of agriculture that would tend to build rather than destroy our soils is at present difficult to find, and it is doubtful whether another type of agriculture will ever be adopted so long as there is a continued market for wheat and so long as our soils continue to produce reasonably well. It is at least certain that a heavy price is owing for soil deterioration and the sooner payment is enforced the less burdensome it will be.

No. 365. -- Canadians as Meat Eaters

Canadians are eaters of meat -- quite definitely so, as northern peoples are generally supposed to be. Last year we ate more than 175 pounds of meat per capita, which is a little more than two and a half pounds every week for every man, woman and child in the Dominion. This is a lot when one remembers that there are plenty of babies around who are not fed beefsteak.

Canadians eat more beef than pork. Last year we got away with slightly more than 63 pounds of beef per capita and 49 pounds of pork. If we add veal to the beef it would make almost 78 pounds.

The Canadian people have never taken much mutton and lamb, which is at variance with the propensities of their ancestors, for the average consumption is only something over five pounds per annum and that is about the same as in the last number of years.

By the way the consumption of beef mentioned does not include heart, liver, tongue, tripe and other edible products. Also as to meats generally the Christmas turkey is not included, nor the chicken dinner after the christening of a young hopeful and the minister joins in the feast that follows the event.

Nor are included the bear steaks, buffalo humps, venison, , rabbit and all the other delicacies that our friends the hunters bring us as a goodwill offering. This is a reminder that Canadians have never turned to the wild rabbit for food as our European ancestors have done. Many of us, visiting the Old Country, have been amazed at the long rows of rabbits hanging in the meatshops of a Saturday ready for the toothsome Sunday dinner pot. We have nothing comparable with that in this country.

Before we leave the subject of meat eating it is interesting to note that we are consuming about 25 pounds more a year than we did before the war, and the Agricultural Branch of the Bureau remarks that this is "largely as a result of the greater purchasing power in the hands of the Consumers."

No. 366. -- Another Series Ended

Today brings to a close another year in the series "A Fact a Day About Canada." For nine years now these facts have continued. As some will remember the Fact a Day series was begun at the invitation of the Canadian Broadcasting Corporation which asked for an interesting daily story from the Dominion Bureau of Statistics illustrating the progress of Canada via all the vast factual material which passes into the hands of the Bureau.

It was intended that after three years, the full extent to which the C B C allowed for such a feature, the issue would discontinue, but there were so many requests for a continuation, especially from western school teachers, that it was decided to carry on. The Facts were used as a supplementary study in their class rooms. A number of independent radio stations, particularly those broadcasting a School Hour also sent requests for continuance. Some school boards ordered copies "en bloc" for their teachers.

During the past four years the war has changed considerably the complexion of A Fact a Day. We have tried, so far as such a publication can go, to tell readers something about Canada and its conditions, its war needs. We hope that before another year goes by the hordes of Hitler will have been conquered and Hirohito's forces routed.

Meanwhile these Facts are being used also by the Educational Services in Canada's armed forces in the United Kingdom, and the United Nations Information Office in New York for Press and Radio.

Therefore in drawing to a close the ninth year of A Fact a Day, may the Editor be allowed to conclude that it has been a labor of love and express the hope that not only the thousands of readers at home, but the men in uniform who are serving the nation so nobly, will find in the contents something useful and informative about this beloved land of ours.