



DEPARTMENT OF
TRADE AND COMMERCE



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James Muir,

Editor.

No. 1. -- 2556th Fact about Canada.

As a Fact a Day about Canada enters its eighth year and its swaddling clothes are becoming somewhat hazy in memory, perhaps the Editor may be allowed to say a word or two about how this service began and what we have been trying to accomplish.

The Dominion Bureau of Statistics is a fact-finding and fact-recording institution. It might be called a textbook of Canadian progress and development, within whose pages the whys and the wherefores of practically every phase of Canadian life and work may be seen. No other institution in Canada possesses a greater wealth of positive information.

Some seven years ago, the General Manager of the Canadian Broadcasting Commission sent his publicity director to enquire if the Bureau would supply a daily broadcast, Saturdays and Sundays included, discussing one fact about Canada. The Bureau was happy to do this. Later the General Manager informed the Editor that the British Broadcasting Corporation had picked up many of the Facts, especially when they had a definite relation to other countries, and had re-broadcast them to the countries directly concerned. These, he said, had brought friendships to Canada.

It has been found by experience that, amongst the broadcasts which evoked the greatest response in our own country, were those which spoke interestingly of the countries with which Canada has commercial relations, or had sent many of their sons and daughters to settle in this broad Dominion. We had said the kind things and avoided the others. For example, we wouldn't try to debunk William Tell to a Swiss, William Wallace to a Scot, or Simon Bolivar to a Bolivian.

So, although we are at war, and war activities must be our main topics in A Fact a Day until the guns cease firing, we shall try, when occasion suits, to say something about other countries. An opportunity seems to present itself with the visit of the Canadian mission to South America and the West Indies. It was a diplomatic mission ~~no~~ less than a trade mission.

No. 2. -- Canada's Fighting Men.

"They are too near to be great but our children will understand when and how our fate was changed and by whose hand." -- From a tribute to the Canadian Corps, 1914-18, carved in the Memorial Chamber, Parliament Buildings, Ottawa.

Sailors, soldiers and airmen overseas	More than 100,000
Sailors, soldiers and airmen voluntarily enlisted for service anywhere and at present in Canada, in Canadian waters or in North American outposts	About 238,000
Total voluntarily enlisted for service anywhere	338,000
Navy	25,000
Army	230,000
Air Force	83,000
Reserve Army (given part-time training and liable to be called out for home defence)	170,000

Dead or Missing (to September 20, 1941)	1,553
Navy	401
Army	442
Air Force	710
Wounded (to September 20, 1941)	346
Navy	63
Army	151
Air Force	132

The total population of Canada is less than 12,000,000. Canada's 338,000 enlisted for service anywhere would be equivalent, in terms of population, to a strength of about 3,500,000 in the armed forces of the United States.

Canada drafts men aged 21 to 24, who have not joined one of the active armed forces, for full-time home defence duties with the Active Army. Of the 23,000 who, by September, had gone to camp for four months' preliminary training, a large number have volunteered for active service anywhere. Those who do not volunteer are posted to home defence units. -- October 2, 1941.

No. 3. -- Royal Canadian Navy.

"Seek out and engage the enemy". -- Naval Standing Order.

The Canadian Navy has now more than 250 vessels of all types including 13 destroyers, 3 armed merchant cruisers, a number of corvettes and minesweepers and a large fleet of smaller craft suitable for patrol and anti-submarine work. Many of these are serving around the British Isles and elsewhere overseas. By March 1942 the strength is expected to be more than 400 ships.

The Canadian Navy has assisted in convoying ships carrying more than 30,000,000 deadweight tons, sunk enemy submarines, effected rescues, captured several enemy vessels, and caused others to be scuttled. Nearly 400 men of the Royal Canadian Navy are listed as dead.

In Canadian shipyards 66 corvettes and 35 minesweepers have already been launched and articles in production also include destroyers, merchant ships, naval guns, motor torpedo boats and many types of small naval vessels and supplies. Some idea of the amount of money involved may be gathered from the following approximate costs:-

Destroyer	\$4,000,000.00
Typical Cargo Boat	\$1,750,000.00
Mine Sweeper	\$ 625,000.00
Corvette	\$ 600,000.00
Motor Torpedo Boat	\$ 140,000.00
Torpedo (filled)	\$ 10,000.00
Depth Charge (filled) ..	\$ 75.00

October 3, 1941.

No. 4. -- Canadian Corps.

"The Canadian Corps is a dagger pointed at the heart of Berlin". -- Lt.-Gen. A. G. L. McNaughton, Commander of the Canadian Corps in Britain.

Canadian troops have been in Britain since the arrival of the First Division in December, 1939. Now there are three divisions and a tank brigade overseas. With auxiliary troops, they number scores of thousands of men.

The Canadian Corps in Britain, apart from occasional expeditions, has occupied vital sectors in Britain's front line and acted as a striking force in reserve. Canadian soldiers take their turn on coastal duty, work on coast defences, maintain communications, dispose of unexploded bombs, build strategic roads and help to exploit the timber resources of the British Isles. On September 4, 1941, Winston Churchill, the British Prime Minister, said of the Canadian Corps, "There they stand, and there they have stood through the whole of the critical period of the last fifteen months -- at the very point where they would be the first to be hurled into a counter-stroke against an invader".

Before the end of this year the Canadian Army overseas will be reinforced by the Fifth (Armoured) Division. With the Sixth Division now being mobilized, the Canadian Army will soon have the greatest divisional strength in its history.

Nearly 10,000 American volunteers are serving in the Canadian Army. -- October 4, 1941.

No. 5. -- Royal Canadian Air Force.

"Per ardua ad astra".--Royal Canadian Air Force Motto.

Canadian airmen have been engaged in combat since the outbreak of war. Many had joined the R.A.F. before war broke out. Since early in 1940, R.C.A.F. squadrons have been operating in Britain, and for more than a year the output of the Air Training Plan has been swelling the ranks of Canadians in both the R.A.F. and the R.C.A.F. overseas.

The number of dead and missing in the R.C.A.F. increased from 549 to 710 in the month between August 22 and September 20. This gives some idea of the increasing rate at which Canadian pilots, gunners and observers are reaching the battlefronts. They are now fighting over Britain, over Europe, in the Mediterranean area and over Russia. By the end of this year the number of trained Canadian airmen overseas will be equal to a division of infantry.

Canadian ground crews are operating in Britain, and soon most Canadian squadrons will be serviced by Canadian mechanics. About a thousand radio technicians have for some time been assisting the R.A.F. in detecting hostile aircraft and 2,500 more such technicians will go overseas this year. A third class is now being trained in Canada.

The British Commonwealth Air Training Plan, first announced in December, 1939, has expanded very rapidly to keep pace with the urgent demands of the war. Originally to cost \$600,000,000 for three years, it is now expected to run to \$824,000,000 in the same period; while 83 schools were first called for, 91 are now in operation; the plan which was to have been going "full blast" by March 31, 1942,

has now virtually been completed—seven months ahead of schedule; air crew are being turned out at about twice the rate originally planned. The Plan now operates 131 establishments of all kinds and about 100 air fields. Air Minister Power announced on September 30, that the number of airdromes and schools is to be almost doubled.

The R.C.A.F. provides 80% of the pilots, gunners and observers being trained under the Plan. Of these about 8% are American volunteers. Others come from Australia, New Zealand and from Britain. In the past year a considerable number of British training schools have been transferred to Canada.

Enlistment of volunteers for the R.C.A.F. is accelerating. About 16,000 were taken on in September—an increase of 24% in total strength. -- October 5, 1941.

No. 6. — Canada: Arsenal and Storehouse.

"Inventiveness and thoroughness in the supply of materials will win this war". -- Lt.-Gen. A. G. L. McNaughton.

Two years ago Canada was incapable of equipping an infantry division; to-day she can do it in six weeks. Two years ago the Dominion imported most of what little war equipment she had; to-day she exports war equipment to every battlefield in the world—Britain, the Middle East, China, Russia—and to British Dominions and the United States.

The following is a list of the war equipment Canada is now manufacturing:

Ships -

Cargo boats
Minesweepers
Corvettes
Motor torpedo boats
Patrol boats
Small boats

Guns -

25-pounders
Bofors anti-aircraft guns
3.7 anti-aircraft guns
Anti-tank guns
Two-inch mortars
Three-inch mortars
Bren machine guns
Browning machine guns
Boys anti-tank rifles
Lee-Enfield rifles

Chemicals and Explosives -

Chemicals - 12 types
Explosives - 8 types

Planes -

13 types including:
Harvard trainers
Avro-Anson trainers
Hurricane fighters
Catalina Flying boats

Tanks -

Cruiser tanks
Infantry tanks

Vehicles

Universal Carriers
Field Artillery Tractors
Trucks, etc.

Ammunition -

Shells (complete)--22 types
Bullets (complete--several types
500-pound bombs
Depth charges
Anti-tank mines
Rifle grenades

Miscellaneous -

Uniforms, boots, etc.
Personal equipment
Bomb throwers
Instruments
Radiolocators
Gas masks
Parachutes
Minesweeping gear
Naval stores.

Here are some typical costs in round figures:

Cargo boat	\$1,750,000
Corvette	550,000
Catalina flying boat	100,000
Cruiser tank	100,000
Hurricane fighter	25,000
25-pounder gun and carriage	25,000
Bren gun	325
Depth charge	75

Articles on order include naval and land guns and mountings, some of which are in production, armoured scout cars, small arms, predictors for anti-aircraft guns and certain secret weapons.

Canada exports to Britain, the United States and other countries large quantities of the raw materials in which she is so rich -- timber, and nickel, aluminum and many other metals and minerals. Food, too, she produces, and to Britain she has sent large quantities of wheat, flour, bacon, cheese, eggs, canned goods and other foodstuffs. --- October 6, 1941.

No. 7. --- Aid to Britain.

"Come the three corners of the world in arms,
And we shall shock them". --- Shakespeare.

Canada, as Britain's ally, has sent more than 100,000 soldiers, sailors and airmen overseas. These troops are equipped and maintained at the Dominion's expense, with the exception of service craft for the Air Force, which are provided by Britain as part of her contribution to the Air Training Plan.

Most of the equipment and supplies sent from Canada to Britain are "lease-lent" by the Canadian people. Of \$1,155,000,000 Britain needed to pay for Canadian supplies up to August 31 of this year, Canada provided \$905,000,000 mainly by accumulating Sterling balances -- i.e. lending Britain money. In the present fiscal year Canadians will raise at least \$900,000,000 to finance British purchases in Canada.

To help Britain to "deliver the goods" to Canada, the Dominion has materially reduced tariffs on imports from Britain.

Canada has taken charge of a considerable number of prisoners of war. This partially relieves Britain of an arduous responsibility.

More than 6,000 British children have been given homes in Canada for the duration. Canadian homes are prepared to accommodate at least 100,000

Canadian citizens have voluntarily contributed several millions of dollars to provide money and comforts for the victims of enemy bombing in Britain, for Canadian troops overseas, and to purchase planes and other war equipment. Blankets, clothing, food, mobile kitchens, first aid supplies and ambulances have been provided, and Canadian volunteers have been active in many centres in administering these services. There are several Canadian hospitals in Britain staffed by Canadian doctors and nurses.

Since January 1, 1941, Canadians have given 18,700 blood donations for serum being shipped to Britain.

The Canadian Red Cross sends some 15,000 parcels a week to British, Canadian and Australian prisoners of war. About 400,000 parcels have been shipped since the outbreak of war. Each parcel costs about \$2.50. The Australian Red Cross pays for boxes going to Australian prisoners.

Several prominent Canadians hold important posts in Britain's civilian war staff, and thousands of others are rendering valuable service in a variety of capacities. October 7, 1941.

No. 8. --- Canada and Western Hemisphere Defence.

"Remoteness from the immediate scene of conflict has ceased to be a safeguard for men and nations that cherish their freedom". -- Prime Minister Mackenzie King.

"The war is approaching the brink of the western hemisphere itself. It is coming very close to home". -- President Roosevelt.

When Canada went to war two years ago she took immediate steps to ensure the defence of her territory and, subsequently of key points in the western hemisphere. Since the Ogdensburg Agreement of August, 1940, these defensive measures have been co-ordinated with those undertaken by the United States and the two countries have now worked out joint plans for the defence of their part of the western hemisphere. Both Canadian coasts are constantly guarded by large concentrations of troops and by coastal and anti-aircraft guns located at strategic points, as well as by naval and air patrols operating along 2,000 miles of coast line and far out to sea. In the west Canada is building a string of staging airdromes so that military planes from both Canadian and United States centres can be moved into northern British Columbia and Alaska without delay. In the east, United States troops have replaced Canadian forces in Iceland, and they have joined Canadian troops in Newfoundland where the two countries are building extensive defence facilities. Canada and the United States are in full agreement concerning defence measures in Greenland. Both United States and Canadian troops stand guard in the West Indies.

Civilian defence and A.R.P. units are organized in many parts of Canada and blackout practices have been held in several cities. The Army and the Royal Canadian Mounted Police guard vital points and operate to prevent fifth column activities and sabotage.

Canada and the United States are co-operating in the production of war materials for the nations actively resisting aggression and for the defence of this hemisphere. Since going to war Canada has bought increasingly large quantities of war supplies from the United States. In the present fiscal year her total imports from the United States will be about twice as great as in 1938. At the same time the United States has increased her purchases of certain Canadian materials vital to defence. Since the Hyde Park Agreement of April, 1941, this interchange of defence supplies has been increased: with Canada's war industry turning out substantial quantities of both war equipment and essential raw materials, each country is concentrating on the production of the defence articles it is geared to produce best and most quickly.

Canada is not obtaining supplies under the lend-lease plan. She pays cash for purchases in the United States on her own account.

Co-operation between the United States and Canada in all economic matters important to defence is now being worked out. Among such matters are Canada's shortage of United States dollars (because she buys more in the United States than the United States buys in Canada), raw material supply, priorities, prices, shipping, export control, and civilian consumption restrictions. The Material Co-ordination Committee and the Joint Economic Committees of Canada and the United States are the most important agencies dealing with such problems. -- October 8, 1941.

No. 9. -- The Home Front.

"Our soldiers, sailors and airmen must be able to feel that they have the collective effort of the nation behind them". -- Rt. Hon. Ernest Lapointe, Minister of Justice.

Canadians now pay three times as much in taxes as they did before the war. Five times as many people pay income taxes, which have been sharply raised, and taxes on goods and services have been increased and extended to cover a wide variety of commodities from soft drinks to travel fares. Business income is subject to a minimum tax of 40%, and 79½% of all "excess profits" are taken by the Government.

Since the outbreak of war Canadians have loaned the Government nearly \$1,500,000,000 in return for war bonds and savings certificates. In terms of the relative national incomes of Canada and the United States, this sum is the equivalent of about \$23,000,000,000.

This fiscal year the Canadian Government is spending about \$2,800,000,000 for war and ordinary purposes. Of this amount about 83% is for war and would be equivalent to an expenditure in the United States of about \$35,000,000,000 for defence and lend-lease aid to Britain in a single year. Forty cents out of every dollar earned in Canada is required to support the war. Canada's war expenditure in the present fiscal year will amount to considerably more than the total spent for war during the whole of the last great war.

To provide comforts and conveniences for the armed forces and to support a variety of war charities, Canadians have so far voluntarily contributed more than \$25,000,000. Soon they will be asked for further contributions totalling \$17,000,000.

Here are some other effects of the war on Canadian civilians. They --

- face a 12.8% rise in the cost of living since the outbreak of war
- can get no new models in automobiles, radios, etc., till the end of the war.
- will have less than half as many new automobiles on the market in 1942
- can get only limited supplies for "non-essential" purposes of machine tools and of essential materials such as iron, steel, aluminum, nickel, zinc, copper, tin, silk and rubber
- have had domestic production of radios, stoves, refrigerators, vacuum cleaners and washing machines reduced by 25%
- cannot buy gasoline or motor oil on Sundays or between 7 p.m. and 7 a.m. on week days and have had their gasoline supply cut 20%
- can erect ~~no~~ new building or additions costing more than a fixed amount unless they are approved as necessary.
- have been asked to eat less of certain foods in order that more may be sent to Britain
- are being urged to save all salvage waste material and to conserve perishable foodstuffs.

In order that war materials and equipment may be bought from the United States in increasing quantities, they can purchase only a few "non-essential" products from the United States, cannot get funds to travel in the United States (except for urgent reasons), cannot hold foreign exchange, and cannot export capital. -- October 9, 1941,

No. 10. -- Eastern Arctic Patrol.

Canada's 1941 Eastern Arctic Patrol was the most extensive ever made. In addition to the regular administrative work, this year's government expedition visited three additional outposts. Altogether the party made 26 calls and travelled more than 12,000 miles in 98 days aboard the Hudson's Bay Company's icebreaker, R.M.S. Nascopie. In compliance with wartime restrictions, the Nascopie, after leaving the Gulf of St. Lawrence, displayed no lights or flags throughout the entire northern voyage.

According to Major D. L. McKeand, who headed the government party, the Eskimos of the Eastern Arctic generally are in good health. Medical examinations were conducted at each port of call, and natives requiring hospital treatment were taken aboard and transported to hospital at Chesterfield or Pangnirtung. Dental care was extended to natives requiring same by a dentist employed by the Hudson's Bay Company.

Game is plentiful, and there is every indication that the white fox, the principal fur bearer of the Eastern Arctic, will reach the peak of its cycle of abundance this season.

Supplies and mail were delivered as the ship progressed from post to post, and the transfer of relief medical officers, radio operators, and Royal Canadian Mounted Police was carried out. A new post office was opened at Fort Chimo on Ungava Bay, where a trading post has been maintained for more than 100 years. Within two hours of its establishment, the first mail from this new post office was on its way to Ottawa by an airplane that happened to be in the area.

During the patrol provision was made for the distribution of identification discs to the Eskimos and the taking of the census of the Eastern Arctic was arranged. In addition victory bonds were purchased and delivered to the white people stationed at northern posts, who oversubscribed the quota allotted them by 15 per cent.

No. 11. --- Abandoned Farms.

During recent years there has been considerable demand in some of the eastern provinces for new land for settlement purposes. At the same time a large number of abandoned farms are scattered through Eastern Canada, some of which could be settled at less expense and less labour than the new land could be cleared. Census figures show that in the five eastern provinces some 12,000 farms occupying almost 1,500,000 acres lie abandoned at the present time.

Attempts have been made from time to time by individuals and by various organizations to resettle some of these farms but these attempts have resulted in varying degrees of success. This variable success can often be closely associated with the reasons for the abandonment of these farms. In some cases the land has been abandoned due to its unproductivity. Such sub-marginal land cannot provide a livelihood for a settler and thus forces him to leave after a number of years of hard labour. Any attempts to resettle such farms ~~are~~ bound to result in failures, says the Department of Agriculture.

Other farms have been abandoned due to financial difficulties and many other reasons. The soil on many of the farms which have been abandoned is just as good, and in some cases better than that of the surrounding successful farms. The resettlement of such farms should meet with a fairly good degree of success if proper methods of farming are adopted.

Before any resettlement of abandoned farms takes place, the individual farms should be carefully examined and particular attention should be paid to the productivity of the soil and its ability to provide a livelihood for the would-be farmer. The soil surveys conducted by the Dominion Experimental Farms System in co operation with the different provinces provide valuable information for the investigation of such abandoned land.

No. 12. --- Halo of Romance about the Lost Plum.

A halo of romance surrounds the story of a foundling Alberta plum seedling which lost itself and after some years of obscurity emerged into prominence. It appears that it had strayed from a consignment of 1,000 plum seedlings of no great inheritance; was found at Brooks railway station, Alberta, and was planted in the vicinity, on what is now the Alberta Provincial Horticultural Station. It grew, it looked like a Sapa bud, and no particular attention was paid to it.

But it was not to be gainsaid. It called attention to itself by being the only one on the lot of what horticulturists call the bush habit. Then, Sapa or no Sapa, it began to produce a distinctive fruit, but it was not until July 28, 1934, that it really came into its own. On that day the attention of M. B. Davis, Dominion Horticulturist who was on a tour of inspection, was drawn to the bush. He doubted that it was a Sapa, and after investigation pronounced that it was not a true Sapa. Thereupon it was definitely determined that it was different from the Sapa in foliage,

seed, and flavour. The plant was then placed under observation. It was propagated by budding and layering and widely distributed for observation and appraisal to Dominion Experimental Stations and observers in Canada, and to the North West Nursery Station, Valley City, North Dakota, from whence the original seedling came.

Later this plum was distributed commercially and the seed for a distinctive name arose. It has been known loosely and variously as Brooks Sapa, Landhill Sapa, Sapa Seedling and others. Application has been made for recording the name of Sapalta.

The total Canadian harvest of plums and prunes of all kinds during the past season amounted to 214,300 bushels valued at \$305,300.

No. 13. --- Protecting our Forests.

The forests of Canada are one of the principal natural resources of the Dominion and as such contribute on a large scale to the national prosperity. Annually this prosperity is lessened through losses by fire, but fire is not the only dangerous enemy. There are other foes working secretly and unceasingly for the destruction of this national asset, and if unchecked would create havoc and heavy economic and physical loss. These insistent enemies are forest insects and fungi and whether in the form of invasion of foreign species or sudden widespread infestations by native pests, the menace is continuous. Ceaseless vigilance is necessary to combat these dangers, either by discovering outbreaks in their initial stages and thus preventing potential losses or by fighting established infestations with all the power at the command of modern science to reduce, if not exterminate, the evils.

Of this eternal vigilance very little is known by the public generally, but Canada has a thoroughly organized intelligence service for the express purpose of keeping unceasing watch over the fluctuations of the insects of the forest. This organization is the Forest Insect Survey which was put into operation by the Dominion Department of Agriculture five years ago. It is a co-operative project and is carried on by the Entomological Division, Science Service, of the Department, in active co-operation with the Quebec Forest Entomological Service, the Provincial Forest Services, the Forest Protective Associations, and by the private forest industries. More than 2,000 observers stationed in all parts of Canada are included among the workers and make regular reports to Ottawa on conditions in their districts.

The Forest Insect Survey has been operating with increasing effectiveness and success from Ottawa since 1936, when only 512 samples were received. In 1940, according to the fifth annual report just published, over 10,000 reports were received, a total of 10,081 samples having been taken in that year as compared with 8,310 in 1939.

Of these samples, 3,384 were handled at the central laboratory at Ottawa; 1,151 at Fredericton, N.B.; 663 at Vernon, B.C.; 169 at Indian Head, Sask.; and 4,734 at Duchesnay, Que., by the Quebec Entomological Service. The territory covered by the survey extends from the Atlantic to the Pacific, and north to the limit of tree growth, including Newfoundland and Labrador. In 1940 samples were obtained for the first time from the Queen Charlotte Islands.

Among the principal forest insects for the year were the spruce budworm, the bronze birch borer, the European spruce sawfly, and the jack pine budworm, and action was taken to prevent their spread and also to minimize the damage already done. In this way invaluable work in the saving of the forests has been accomplished. The Dominion Department of Agriculture maintains permanent forest insect laboratories at

Fredericton, N.B.; Berthierville, Que.; Ottawa, Ont.; Winnipeg, Man.; Indian Head, Sask.; **Vernon, B.C.**; and Victoria, B.C. These laboratories will always welcome special reports on forest insects from any locality and are prepared to give helpful advice on methods of control.

No. 14. -- Nicolas Denys.

Tribute to the memory of Nicolas Denys, one-time Governor and Lieutenant General of Newfoundland, the Islands in the Gulf of St. Lawrence, and the coast of Nova Scotia and New Brunswick from Canso to Gaspe, is paid by a memorial in Cunard Square, Bathurst, New Brunswick erected by the Dominion Government on the recommendation of the Historic Sites and Monuments Board of Canada.

Denys, one of the most picturesque figures in the early history of Acadia, was born in Tours, France, in 1598, but little is known of his early life. It is believed that he went to sea and possibly made voyage to Acadia as a fishing apprentice in his youth. In 1633, in company with de Razilly, Governor of Acadia, and others, he established a fishing station at Port Rossignol, near the present Liverpool, Nova Scotia. This venture proved to be a failure and a little later he moved to La Have, where he prepared various forms of timber for exportation to France. He abandoned this occupation upon the death of de Razilly, in November, 1635, and for the next ten years engaged in fishing and trading in the Gulf of St. Lawrence, in connection with the Company of New France. He operated a post of some importance at Miscou, and another at St. Peters, Cape Breton. These, however, were seized by d'Aulnay, who had been made Lieutenant General of all Acadia. Later Denys went to Nepisiguit, now Bathurst Harbour, but in 1653 his post there was seized by Le Borgne.

In 1654, Denys was appointed Governor and Lieutenant General of Newfoundland, the Islands in the Gulf of St. Lawrence, and the coast of Nova Scotia and New Brunswick from Canso to Gaspe. This appointment also granted him a monopoly of the fur trade and of the establishment of fixed fisheries anywhere upon the coast of Acadia. He located himself at St. Peters, where his chief business enterprises were fishing, trading with the Indians, farming and building small vessels. His establishment, with all its contents, was destroyed by fire in 1668. Three years later he went to France, returning to Acadia about 1685 and again settled at Nepisiguit. He died and was buried there in 1688, being then nearly ninety years of age.

Denys was the author of a classical work on Acadia, published in Paris in 1672, which has been translated, edited, and republished by the Champlain Society.

No. 15. -- Winter Protection of Rose Plants.

While all varieties of rose plants do not require winter protection, most of the most highly-prized kinds in Canada need to be covered up, except in the more favoured sections of British Columbia. So far as hardiness is concerned, the roses usually cultivated in Canada may be divided into four groups, the hardiest group being *rosa rugosa* and hybrids, Austrian briars, Provence or cabbage roses, Damask and moss roses. In the second group of hardiness are hybrid perpetuals, climbing roses of the many flowered kind, and dwarf polyantha. The third group is represented by hybrid tea and pernetiana roses, and the fourth group by tea roses.

Roses of the first group need little winter protection in many parts of Canada, but in the Prairie Provinces where the country is open it is desirable to

bend down even these kinds of bushes, covering them with soil, and, where evergreen boughs can be obtained, to place them over the soil as well.

More protection is necessary for hybrid perpetual hybrid tea, and tea roses. One of the simplest methods is to earth them up six or eight inches or more in the fall. The base of the mound should be made broad as a greater protection for the roots. A light covering of straw, strawy manure or leaves held in position by evergreen boughs is often effective. This prevents sudden freezing and thawing which causes much damage to the plants.

Another method is to bend the bushes down, covering them with a bottomless box, either left empty or filled with dry leaves and having a waterproof cover. Having the leaves dry is a matter of great importance. If they are wet, mould is likely to develop on the approach of spring, causing serious injury to plants. The box method of protection has been followed with success, particularly with climbing roses, at the Central Experimental Farm, Ottawa, famous for its roses and other flowers. There are many other important points in regard to the winter protection of roses and full information on them may be found in pamphlet "Spring and Fall Work in the Rose Garden" which may be obtained free from the Dominion Department of Agriculture.

No. 16. -- 104th New Brunswick Regiment.

The memory of achievements of a famous Canadian line regiment, the 104th New Brunswick Regiment, is perpetuated by a monument and tablet in Fredericton, New Brunswick, erected by the Department of Mines and Resources on the recommendation of the Historic Sites and Monuments Board of Canada.

The history of this gallant military unit dates back to 1793 when, upon the outbreak of war between Great Britain and France, the first New Brunswick regiment, named the King's New Brunswick Regiment, was raised. Upon the cessation of hostilities in 1802 it was disbanded, but when war broke out again in 1803 another and larger regiment with a strength of about 1,000 men was organized and was known as the New Brunswick Regiment of Fencible Infantry. With the threat of war with the United States, the 104th New Brunswick Regiment was gazetted in 1811 as His Majesty's Regiment, and during the struggle of 1812-14 made one of the most notable overland marches in military history.

When war broke out, the 104th Regiment was stationed in New Brunswick until February, 1813, when it was ordered to march to Upper Canada. The departure from Fredericton took place on February 16, and after a 24-day march Quebec was reached. The route followed was up the valley of the St. John River to Edmundston, along the Madawaska River, across Lake Temiscouata, over the Grand Portage, and the old Lake Road to St. Andre, then up the south shore of the St. Lawrence to Quebec, a distance of about 350 miles. After a short delay at Quebec, the regiment continued its march on to Montreal and finally to Kingston, where it arrived on April 12, having completed the journey of approximately 760 miles from Fredericton in 52 days. Owing to heavy snow, intense cold, and the absence of definite roads, the troops suffered severe hardship en route. One man was so disabled by frostbite that he had to be left at a wood-cutter's camp, but he recovered and rejoined his regiment at Kingston six weeks later.

After the close of the war, the 104th, considerably depleted in its ranks, performed garrison duty in Quebec and Montreal until it was disbanded in 1817. Upon their return to civil life, most of the men received grants of land in Upper Canada, Nova Scotia, and New Brunswick.

No. 17. -- Eggs for Britain.

Egg producers in Canada now have a definite war-time objective. Canada has agreed to supply 30,000,000 dozen eggs to Great Britain from September 1, 1941, to May 31, 1942. Of that quantity 770,000 cases are to be fresh eggs produced in the winter and spring months. This extra production is, therefore, the immediate objective before Canadian producers.

Under the National Poultry Breeding Program, flocks have been developed with the ability to lay heavily. The knowledge of feeds and feeding and of general poultry practice has made steady progress. By combining these two factors through efficient management, the war-time objective of many more eggs for Britain can be attained. The following suggestions will aid in efficient production.

Breeds such as Plymouth Rocks, Rhode Island Reds and Leghorns normally have rich yellow shanks and bay or red eyes. When birds of such breeds, coming off range, have grey eyes and pale shanks, it usually indicates lack of vigor. They may show a higher death rate than birds with typical eye and leg colour. Cull the flock frequently for boarders and birds in poor health.

Keep hens and pullets in separate pens. Pullets require more feed and a different ratio between grain and mash than hens. The ratio of grain to mash should be changed to maintain body weight. If the body weight declines the ratio of grain to mash should be increased--if the body weight increases the ratio of grain to mash should be lowered. A ration which will maintain body weight in a flock of pullets will usually fatten a flock of hens. Consequently it is necessary to keep older hens and pullets separate so that they may be fed according to their requirements.

Avoid overcrowding--it retards egg production. Four square feet of floor space should be allowed for each bird; more in small pens while in very large pens it may be possible to get along with less.

Do not close up the pens too early. Give plenty of ventilation. Avoid draughts, especially near the roosts. Good ventilation is of vital importance not alone in its direct effect upon the health of the birds but in keeping the pens dry.

During the first few weeks the pullets are in the pens, give them all the green feed they can eat. Feed cabbage, kale, rape, or other garden greens or grasses or clovers. Ground cereal grass or alfalfa may be added to the mash. Later in the season when greens are not available, chopped grasses, clovers or alfalfa may be fed dry, or, better still, soaked over night in cold water and fed freely.

Feed a well balanced ration. Grain keeps up body weight, essential for continuous high production; mash containing animal protein stimulates egg production. The percentage of animal protein in the mash will determine the ratio of grain to mash that it is best to feed.

Vitamins and minerals are necessary for health and highest production. A lack of Vitamin D--the sunshine vitamin--results in poor egg shells and loss from broken eggs. Vitamin D must be supplied during the winter or when the birds are confined to their pens. Use cod liver oil or other fish oils at the rate of two per cent added to the mash--or less if a fortified oil is used.

A constant supply of pure, fresh water is absolutely essential. Birds will suffer more from lack of water than from lack of feed. Keep the water warm or free from frost in winter.

Mash, grit and shell hoppers must be kept filled and free of litter and other dirt so that feed is always available and palatable. Provide plenty of hoppers for the mash supply. 24 feet double sided hoppers for each 100 birds.

Keep nests supplied with plenty of clean nest litter. Collect eggs frequently to prevent soiling or freezing.

Change pen litter when necessary to keep the pen in a clean sanitary condition. Wet weather or birds in wet yards may mean cleaning twice as frequently as where dry conditions prevail.

Watch for lice or mites. It is good practice to treat all birds and houses for vermin when the birds are being placed in winter quarters and repeat as often as necessary.

Avoid scaring birds when in production. A bad fright may mean a drop of five to twenty per cent in production.

If handling birds in heavy production never hold or carry them by the feet with heads suspended. It may cause serious and permanent injury to the birds.

No. 18. --- Alfalfa - The King of Hay and Pasture Plants.

Alfalfa is one of the most popular hay and pasture crops where conditions are favourable for its growth. It is not surpassed by any other forage crop in nutritive value, and is probably the cheapest source of protein for livestock rations. It yields more abundantly than most other perennial grasses or legumes.

In pasture tests conducted at Ottawa, alfalfa has yielded approximately four times as much per acre as Kentucky bluegrass; three times as much as timothy, red top or meadow fescue; two and a half times as much as reed canary grass; two times as much as the best strains of white clover, and at least 50 per cent higher than the standard mixture of timothy, red clover and alsike. But total yield per acre is not the only argument in favour of alfalfa for pasture. Of equal importance is the fact that alfalfa remains productive over a longer season than any other grass or legume species included in the tests. Timothy and other grasses normally make their greatest growth during early spring, when pasture is plentiful, and then taper off practically to no growth during the latter part of July, August and September when good grazing is scarce. Alfalfa, on the other hand, starts off rather slowly and produces its greatest growth during late June, July and early August. During late August and September it also is very much more productive than other species. Hence alfalfa gives a high yield of pasture and at the same time a much more favourable distribution of growth throughout the pasture season than other species.

In the production of hay, alfalfa has again led all other species of perennial grasses or legumes. It has outyielded timothy by almost fifty per cent, and red clover by approximately thirty per cent.

Winter-killing, or lack of hardiness, is no longer considered an obstacle to alfalfa production. Hardy, high-yielding varieties are now available which will survive the winters in our most northerly areas. Failures can be attributed often to an acid condition of the soil which can be corrected by liberal applications of lime. All alfalfa seed should be inoculated before it is sown.

Progressive farmers everywhere are growing more alfalfa. It is being used not only for hay and pasture, but also for ensilage. Many are adding it to their regular hay and pasture mixtures in increasing amounts. Certainly, alfalfa has been properly named "the King of Forage Plants" and it was never better understood than it is today.

No. 19. — Beeswax is Valuable.

Although bees are kept primarily for the honey they will produce, the latter is by no means the only product of their labours. Pound for pound, beeswax is worth more than honey, therefore beekeepers are well advised to save every particle produced.

Every apiary will yield some wax, while in large commercial yards, run exclusively for extracted honey, the amount may reach several hundreds of pounds annually. Unfortunately in many apiaries, especially where only a few colonies are kept, pieces of comb taken from the hives during the summer months, broken or discarded combs are too often thrown aside and wasted when they could just as easily be placed in some receptacle and saved. If the beekeeper would only remember the price he has to pay for comb foundation he might perhaps be a little more careful of the wax produced by his own bees.

There is a certain amount of wax in every piece of comb and also in the cappings removed from the combs at extracting time, and while good combs are too valuable to melt down for the wax they may contain, there are always enough broken or discarded combs, brace or burr combs and cappings from which sufficient wax may be extracted to more than pay for the time and labour involved.

Wax as taken from the apiary always contain more or less impurities, therefore some means must be used to separate them. Two methods are in general use, one utilizes heat from the sun while the other requires artificial heat. The solar wax extractor is very useful for rendering small pieces of comb as they are taken from the hives during the summertime, and it may also be used to extract the wax from small amounts of cappings. For large quantities, however, the most efficient method is to first melt the combs or cappings in boiling water and then to submit the molten mass to pressure. Presses, especially constructed for this purpose, are available from dealers in apiary supplies. A large proportion of the wax may be secured from the melting alone by allowing the melted mass to cool. The wax, being lighter than water, will rise to the surface and harden. A small percentage of the wax, however, will be held in the slum-gum beneath while some of the lighter impurities will be imbedded in the lower surface of the wax cake. Where this occurs the wax can be remelted and strained. There are a number of capping melters available which permit the melting down of all cappings as they are pared from the combs at extracting time, but all beekeepers do not have one and therefore must postpone this work until a later date.

Now that the bees are snugly packed away for the winter and the honey crop taken care of, the time is appropriate to recover the wax crop. Before melting down the cappings, however, carefully inspect your stock of drawn combs consigning all those that are broken or distorted to the melting pot with the cappings. By doing this, enough wax may be secured not only to supply the necessary foundation for next summer but also to trade in for other supplies. It is quite possible that the wax crop may be the difference between profit and loss on the season's operations.

No. 20. -- Barite Production.

Production of barite in Canada, which in 1940 amounted to only 330 tons, is likely to reach an annual rate considerably in excess of one hundred times that figure as an outcome of developments now under way on a deposit of the mineral at Pembroke, Hants County, Nova Scotia.

Discovered in the latter part of 1940 in an area that gave little evidence of containing barite, the deposit lies two and a half miles southwest of Walton on Minas Bay, where there is a wharf and where a mill capable of treating 150 tons of ore a day, or about 45,000 tons a year has been erected. The latter amount is greater than the total Canadian output of the mineral from 1885 to the end of 1940, most of which came from Nova Scotia. Two cargoes of the barite, each of approximately 2,500 tons, have already been shipped by the company operating the deposit to Trinidad, British West Indies, for use in the drilling of oil wells and another 250 tons has been shipped to Peru.

The deposit has been partly explored by sixteen vertical diamond drill holes and a government geologist who has just recently examined it, reports that the portion of the deposit as outlined by this drilling has a horizontal width varying from less than 100 feet to more than 200 feet; a thickness varying from a few feet to more than 150 feet; and a length in excess of 500 feet. He estimates that there is present in the explored part, at least 420,000 short tons of barite of a grade suitable to meet the specific gravity and other specifications set by the Trinidad oil companies, which are likely to provide the chief outlet for the ground product. He reports an estimated additional 321,000 short tons as probably being within the required specifications.

In drilling for oil, advantage is taken of the relatively high specific gravity of barite containing a high percentage of barium sulphate. In ground form, the substance is mixed with the circulating mud used to remove the drillings to give added weight to the mud and thus aid in controlling the gas pressure. Its use for such purpose so far is confined largely to wells where the pressures are above normal. Barite is widely used also as an inert filler or loader in rubber, paper, oilcloth, textiles, leather, and plastics and as a pigment and an extender in paints.

No. 21. -- Shade Trees Need Feeding.

Trees grown under city conditions need feeding to enable them to hold their own in the unnatural environment. The average shade tree must obtain its nourishment from the very limited area of earth between the paved street and sidewalk where reserves of plant food have long since been exhausted. Leaved and grass clippings are taken away and burned so that nothing returns to enrich the soil area.

Therefore, the tree should be fed every few years with chemical fertilizers.

The most generally recommended fertilizer is known as a 10-6-4, that is, 10 per cent nitrogen, 6 per cent phosphorus and 4 per cent potash and a large proportion of the nitrogen should come from some organic fertilizer such as dried blood. Such a fertilizer could be made up as follows, if it cannot be obtained easily: 100 lb. dried blood; 40 lb. ammonium sulphate; 50 lb. superphosphate 20 per cent; and 16 lb. muriate of potash.

The rate of application is approximately three pounds to each inch in diameter of the trunk of the tree at breast height so that a tree 10 inches in diameter will take 30 lb.

The usual method of application is to punch holes in the lawn surrounding the tree with a crowbar. These holes should be 15 inches to 18 inches deep and are made about 2 feet apart in concentric circles of which the trunk of the tree is the centre. The area covered should start about half-way out from the trunk to the tips of the branches and should continue well out beyond the spread of the branches.

The fertilizer is then distributed by placing a good trowelful in each hole and covering it with earth. The grass will close over the holes rapidly. This work may be done any time until the ground freezes.

No. 22. — What it Costs to Mechanize War.

For every dollar spent in the last war on armament and transport, Canada is now spending five dollars. Victor Sifton, Master-General of the Ordnance, has made some revealing comparisons.

Here are a few facts as given by Mr. Sifton: In 1914-18, an infantry division moved on foot at $2\frac{1}{2}$ miles an hour. A division was doing well to cover 20 miles in a day. Today an infantry division moves at a minimum speed of ten miles an hour.

A Canadian infantry division in 1918 had 153 motor vehicles and 4,400 horses. The cost plus upkeep at the front for one year was \$2,000,000. A division today has no horses or wagons, but it has 3,500 motor vehicles of more than 160 different types. The cost of the vehicles used by a modern division plus one year's upkeep is \$12,000,000.

In 1914-18 over-all cost of a division varied from 30 to 48 millions a year, according to severity of fighting. Today's cost of creating and maintaining an infantry division for one year is \$86,000,000. To equip and maintain a Canadian armored division in the field for one year will cost \$155,000,000.

There was no military formation in 1918 to compare with the modern armored division. But the cost of maintaining the whole Canadian corps in France in the full fiscal year 1916-17 was \$143,000,000 or \$12,000,000 less than maintaining an armored division.

One armored division develops 394,237 horse power, as much as the electrical power used in the city of Toronto.

No. 23. -- Sir Howard Douglas.

Long prominent in Scottish song and story, the name of Douglas **also** rings familiarly in Canadian ears. A bronze tablet, placed in the Legislative Buildings, in Fredericton, N.B., pays tribute to Sir Howard Douglas, one-time Lieutenant Governor of New Brunswick.

A distinguished soldier, military author, and inventor, Howard Douglas, son of Vice Admiral Sir Charles Douglas, was born of an ancient Scottish family at Gosport, Hampshire, England, on January 23, 1776. He was educated at Musselburgh School near Edinburgh and at the Royal Military Academy, Woolwich. In 1795 he was sent on an expedition to Quebec, but the transport was wrecked and the castaways were carried by a trader to Labrador where they passed the winter. Douglas spent some time at Halifax, Quebec and Kingston before returning to England in 1799.

After a period of active service in Spain and as Commandant of the Royal Military Academy, he was appointed Lieutenant-Governor of New Brunswick in 1823. A popular and successful Governor, he did much to improve roads, open channels of trade with the other provinces, to extend markets for the fisheries, and to establish trade with South America. He also interested himself in shipbuilding, agriculture, steam navigation and the provision of lighthouses, as well as in the general welfare and happiness of the people. He was the founder of King's College, which later became the University of New Brunswick.

In the serious boundary dispute of 1825 Sir Howard boldly upheld the rights of the province, arresting the leader of the armed filibusters who had crossed the Maine border and taken possession of a New Brunswick village.

After leaving New Brunswick, Sir Howard Douglas served as Lord Commissioner of the Ionian Islands, and later entered public life in England where he died at Tunbridge Wells in 1861.

No. 24. -- Cold Storage Locker Plants.

Progressive Canadian farmers are today leading the way with the latest in safety-deposit boxes. Holding treasures more precious than gold to a hungry man, these boxes were designed primarily for the relief of the harassed housewife at harvest, who, as a rule, spends hours sweltering over canning kettles in the dead heat of Indian Summer. No more struggling to "catch" the corn, peas and beans at their best and preserve them before the full flavor has departed, and no more fussing over steaming jars of meat, game and poultry for the wife of the Prairie farmer who rents a locker in the cold storage refrigeration plants now being established in centres throughout the West.

Locker refrigeration plants started in the United States a comparatively short time ago, where over 3,000 are now in operation in about 40 states of the Union. In Canada, Ontario has outdistanced the other provinces in adoption of the lockers, where it was recently estimated that more than 45,000 were utilizing rented boxes in locker plants. Alberta, however, is the first of the Prairie Provinces to break into this new field of endeavor. Since the first plant was established at Strathmore, over 16 prairie towns served by electricity in that province can now boast a cold storage locker plant. To date Manitoba and Saskatchewan have not reported any in small centres, although Winnipeg has one 500-locker plant serving both city and country customers.

The idea of cold storage lockers is definitely new. So new, in fact, that data concerning them is all but outdated by the time it is available for distribution. But it is not so new that the future and continued success of the plan cannot be readily foreseen, even at this early date. Designed essentially for the benefit of the rural populace, it is truly one of the most revolutionary and timely contrivances yet to emanate from this inventive age of machines. Farmers, as we suggested, comprise the largest percentage of the customers. They are the ones who will reap the greatest returns in the form of convenience, economy and improved living standards. Farmers in the immediate districts surrounding the plants form the nucleus of those already established.

No. 25. — Inside the Locker Plants.

Let us look inside one of these new cold storage locker plants out on the Prairies and see just exactly what procedure is followed when a patron rents a locker.

The particular plant we will visit was originally an automobile showroom in a small western town. Today, however, it is an attractive, modern, quick-freezing refrigeration plant, complete with a comfortable waiting room for patrons. Operated entirely by electricity, insulation to insure constant, controlled temperature, and protection against moisture, is one of the prime factors in the successful operation of the plant. The walls of the lockers are lined to a thickness of about 12 inches with a redwood product called palco wool, which is both fire and insect proof.

There is a chill room, kept at a temperature of from 34 to 36 degrees F., where freshly killed beef, mutton, pork or fowl is hung to cool and age properly. This service costs the patron one cent a pound. Next there is the process-room. Here the manager and his young assistant make sausages, hamburger and cut the meat into convenient sizes of roasts and steaks, etc., as the patron desires. Each cut is wrapped in heavy wax paper that is both moisture and air proof. A ticket is attached to each parcel denoting the weight, size and type of cut, together with the date and the number of the owner's locker.

After being chilled, cut and wrapped, the meat goes into the quick freezing compartment, where it is placed on shelves or trays. Here the temperature is kept at a steady 30 degrees below zero. The time the parcels are left in this compartment varies, of course, with the type of product. Generally speaking, however, it is 10 hours for meat, 2 to 3 hours for poultry, and 3 to 4 for fruits and vegetables of all kinds. For cutting, wrapping and quick-freezing there is also a charge of one cent a pound.

Coming from the quick-freezing process, the parcels are put directly into the patron's locker. In most plants the lockers are of sanitary metal, air tight boxes or drawers with a capacity ranging from 250 to 800 pounds, and renting from \$12 to \$25 a year. Many plants also have a bulk storage room, in which the overflow of a patron's produce is placed at no extra charge, if he has more than his locker can hold. Then, as he uses up the food in the locker the overflow is gradually put in the drawer by the manager of the plant.

In connection with the chilling and freezing rooms, the plant has a curing room, where meat is smoked or pickled at the rate of 4 cents per pound. Because there is so much meat handled in these plants, the establishments are often run in conjunction with butcher shops or general stores.

Each patron has a key to his own locker which is left in the office of the establishment. The manager has a master key and access to all lockers. He gives each owner a list of the produce he has in his drawer and checks it off as it is used, so there is no danger of using someone else's food.

No. 26. -- What Happens to the Contents?

Now, just what happens to the meat and vegetables etc. in this quick-freezing process that insures their safe-keeping? Well, this system differs from ordinary slow freezing refrigeration in that the vitamin and mineral content of the food is almost completely maintained. In meat, for example, the muscle tissue is frozen so quickly that the moisture content is retained in the form of tiny crystals throughout the muscle substance, and is separate from the protein and other materials in the meat.

No food may be placed in the lockers without first going through the regular processes of chilling, ageing, wrapping and quick-freezing. Fruits and vegetables must be fresh, in good condition, clean and prepared for table use before they are brought to the plant. They may be dry frozen, in which case they will keep very well for a limited time only, or vegetables may be packed in brine and kept perfectly for a year or longer. Fruits are easier to do than vegetables, and may be packed in a sugar syrup or with a light sprinkling of sugar over them, and come out looking and tasting fresh as the day they were picked.

The advantages to the farm family especially, of the new quick-freezing process, may be readily appreciated when one considers the time and labour alone that is saved. A farmer may have his own choice animals slaughtered, cured and stored for a nominal charge, while he is left free to harvest his grain, plough, or do any of the other endless tasks that await a farmer the year round.

In addition, he is farther ahead of the game financially, even after paying the locker rental and service charges, than he is after selling his select animals and buying them back again from the butcher. Besides, he is assured of a variety of fresh meat, vegetables, and fruit all through the year, without the bother and expense of preserving and storing it at home. Even pies, biscuit dough and cookies may be frozen and placed in storage against the day when threshers arrive or unexpected company drops in for a visit. So, you can be sure the cold storage locker system has already won the unanimous approval of the ladies.

Cold storage locker plants are becoming increasingly numerous out on the Western prairies. The cost of establishing a plant runs anywhere from \$5,000 to \$40,000 or \$50,000, depending upon the type of building equipment installed. Canadian plant owners, having a late start, have the mistakes of the American pioneers in that field to profit from.

A whole new industry is springing up around cold storage locker plants -- an industry requiring above all, sound, efficient business management and the intelligent handling of food for complete and lasting success.

No. 27. -- Prevention of Thin Shelled Eggs.

The revenue obtained from the farm poultry flock is influenced by the number and quality of eggs produced. The occurrence of soft or thin shelled eggs causes a considerable loss to the flock owner, especially during the winter months. The cause of faulty shelled eggs is usually due to the ration. With a large proportion of eggs required for export, it is particularly important that the shells are sufficiently strong to withstand the additional handling and shipping. Eggs with strong shells of good texture are also superior for hatching purposes.

Egg shells are made almost entirely of calcium carbonate and the first essential in avoiding thin shells is to provide an adequate supply of calcium to laying stock. The most common method of supplying this is to keep a small self-feeder in the pen filled with oyster shell or other high calcium feed. Sometimes laying stock refuse to consume oyster shell or other mineral in sufficient quantities for high egg production. When this occurs, two or three pounds of pulverized oyster shell can be included in each hundred pounds of dry mash. Bone meal is also good for the same purpose. The addition of one or both of these minerals to the dry mash is a means of compelling the birds to consume more calcium.

To insure the efficient use of the calcium supplied to laying birds during the winter months, it is now considered essential to provide an adequate amount of vitamin D in the ration. This is accomplished by including cod liver oil or other feeding oil in the dry mash. About two per cent by weight is a suitable amount.

More recent investigations show that the addition of a small amount of manganese sulphate to the ration will improve the quality of egg shells. The amount recommended is very small, being only four ounces per ton of feed, and the cost is only a few cents. To obtain an even distribution of manganese in the dry mash it is necessary to mix it first with one of the ingredients such as the meat meal and then add the meat meal to the main mixture. Thorough mixing is necessary.

No. 28. -- Home-Made Electric Fence Units.

An electric fence unit can be made from a coil of a well known make to operate temporary fence lines on the farm. These units are easily made, inexpensive, and are operated from a six volt car battery or a six volt dry cell.

The home-made electric fence unit constructed at the Central Experimental Farm, Ottawa, consists of a coil, a light strap iron standard and a swinging bar to make and break the electric circuit. The standard is made of 1/8 inch strap iron, is mounted on the posts of the coil which ordinarily hold the brass vibrator cover plate, and extends above the coil to support a swinging bar or contact pendulum. This unit on a six volt battery will operate one to five miles of fence.

Electric fence units must for the sake of safety be operated from batteries. Never attempt to operate a fence unit from a 110 volt or 32 volt line as such a unit is very dangerous. A six volt car battery will operate almost any type of fence unit for more than eight weeks, but charging of the battery is recommended at 60 day intervals.

For cattle, horses and hogs, electric fence has proved very satisfactory but is sometimes not considered suitable for use with sheep, goats, or young calves. The height of an electric fence wire should be about 2/3 the height of the animals.

in the enclosure or about 30" above the ground for cattle. Standard knob insulators are suitable mounting units for electric lines. Occasionally, however, farmers use pieces of rubber hose or pieces of old inner tube for insulators, but such insulators may not prove satisfactory in wet weather. Due to falling branches, which short the electric fences cannot be recommended in bush lots.

Complete details on "Home-made Electric Fence Units" fence construction, and batteries can be obtained free of charge, from the Field Husbandry Division, Central Experimental Farm, Ottawa.

No. 29. -- Sir Leonard Tilley.

In tribute to the memory of Sir Leonard Tilley, one of the Fathers of Confederation, the Department of Mines and Resources has recently erected a bronze tablet on the Post Office building at Gagetown, New Brunswick.

Sir Leonard was born in Gagetown on May 8, 1813, and received his education in the grammar school there. In 1833 he went into business for himself and subsequently was elected to the Legislative Assembly for New Brunswick, serving in this capacity from 1850 to 1851; from 1854 to 1856 and from 1857 to 1865. In 1854 he held the portfolio of Provincial Secretary in the Fisher administration and from 1861 to 1865 was leader of the government. In 1864 he was a delegate to the conferences at Charlottetown and Quebec to discuss Confederation and in 1866 was a delegate to the London Conference at which the British North America Act was drafted. The ministry of which he was a member was defeated in 1865 on the issue of Confederation but was returned to power in 1866.

In 1867 Tilley resigned from the New Brunswick cabinet and became Minister of Customs in the first cabinet of the Dominion of Canada. He retained this portfolio until 1873 when he was appointed Minister of Finance. When the government was defeated a few months later, he was appointed Lieutenant Governor of New Brunswick and his tenure of office coincided with the period of office of the Mackenzie government. In 1878 he again became Minister of Finance in the second Macdonald government and it fell to him to inaugurate the National Policy. Poor health compelled him to resign this portfolio in 1885 and for the second time he was made Lieutenant Governor of New Brunswick. Long the dominant political figure in the Province of New Brunswick, Sir Leonard Tilley died in Saint John on June 25, 1896.

There is quite a humorous story in connection with Sir Leonard when he was a Cabinet Minister at Ottawa. One of his critics on the opposition side in the House of Commons had made a long, bitter and very critical speech against Tilley's administration of his department. He was expected to make an elaborate and forceful reply. All he said was: "Mr. Speaker, there ain't nothin to it." The criticism collapsed.

No. 30. -- Popcorn for Hallowe'en.

Tomorrow night is Hallowe'en, and it won't be long now before the thundering herd is pounding up to your door, wolf or no wolf.

As in years past, normal, eager youngsters, replicas of you, and yes, you too, will come "begging" and expecting to "receive". You can't disappoint them! Not alone because their boundless enthusiasm awakens fond memories in your own secret

heart, but because the next morning while judiciously applying elbow grease and soapsuds to your be-waxed window panes, you'd call yourself all kinds of unprintable names for having been so undiplomatic. And with ample reason, for Hallowe'en is that time of year when youth truly has its fling. Revenge tastes mighty sweet where principles are involved.-- and after all it is the principle of the occasion that matters.

What we've been trying to say these last two paragraphs, is feed them popcorn and save yourself a peck of trouble!

Incidentally, do you know why popcorn pops? Well, you're not alone in your ignorance of this particular subject, for the same thing had research workers baffled for a long time. It was generally agreed, of course, that there must be some expansive force held under pressure within the kernel in order for the explosion to take place. Just what that force was, and what constituted the retaining medium for that pressure was something else again.

Many theories were brought forth and subsequently discarded as positive proof eliminated their possibility. It was finally discovered by investigators that the moisture content in the tiny cells of starch goes to make up the force which, when changed to steam by the heat, is directly responsible for the miniature explosion of the kernel. In the spaces surrounding these grains of starch is a flinty textured material that holds the pressure in check until it has gained sufficient force to explode the whole kernel. The popping itself results from the blowing up of the tiny starch grains, increasing them in size and dispelling much of the moisture in the form of steam. That is why popped corn weighs so much less than the original kernels. So now you know.

Almost as far back as the days of Christopher Columbus popcorn was found growing in both North and South America. It is only during the last fifty years or so, however, that popcorn cultivation and marketing has developed into a national industry. Now, practically every country in the world has its "popcorn men" in their funny little carts selling popcorn in some form or another. Production on a commercial basis is mainly restricted to the United States.

Nevertheless, because popcorn is so closely related to other types and the same soil and growing conditions are required as for ordinary field corn, many farmers in Canada are growing it for home use with a greater or less degree of success. Extensive experiments conducted by the Ontario Agricultural College at Guelph list Large Spanish and White Flint as two of the most reliable varieties for this country, just in case you intend to take up popcorn cultivation as a hobby.

So, after all that, why don't you just make some popcorn balls to hand out to those expectant youngsters with the funnyface masks tomorrow night?

No. 31. — Appeal to Potato Growers.

From time to time, officers of the Dominion Department of Agriculture have observed that the regulations governing the importation of potatoes from countries quarantined by the laws of Canada are sometimes evaded by persons who evidently are unaware of these regulations. Because potato diseases, so far unknown in Canada, exist in many countries and nowadays considerable traffic is taking place between countries (for example, between the Dominion and Newfoundland where the dangerous potato wart disease is found), it is obvious that a serious situation

may arise from introducing disease by means of promiscuous importations, unknown to the authorities until too late.

Usually the original quantity concerned is small, but occasionally ships' stores of potatoes are brought in by all kinds of coasting and ocean-going vessels to be dumped on Canadian wharves. Sometimes people pick up an odd potato and pass it on to friends as more or less of a curiosity. This potato is planted and soon a variety may become established whose origin and source are unknown, and a new disease may appear in Canada.

So far Departmental officers by their persistent efforts to protect commercial producers have been able to avert serious consequences by prompt action. But as long as the possibility of casual importations exists there is danger to the potato crops of Canada. An urgent appeal is therefore made to all Canadians to be constantly on the look-out for any new trouble affecting potatoes. Any suspicious potato tuber, whether grown commercially or in a private garden, may be sent free of charge to the Dominion Botanist, Science Service, Central Experimental Farm, Ottawa, for identification. Such co-operation will be appreciated and will constitute a valuable service to Canada.

Among the especially serious diseases is the notorious wart disease (formerly known as potato cancer) prevalent in most European countries and in Newfoundland. While it is unlikely that European potatoes may reach Canada under the present circumstances, there is an increase in Canadian trade with Newfoundland. In view of the fact that usually only a few tubers are brought in, it will be realized that it may take some years before this dreaded disease may be noticed in the soil of Canada. The disease is most prominent on the potato tuber, which may show a curious cauliflower-like growth at one or more eyes (usually at the eye-end), or the tuber may be transformed entirely to a lumpy warty mass.

The strongest possible appeal is therefore made to all growers, large and small, for assistance in the Department's efforts to prevent the establishment of any potato disease that may cause disaster to Canada's efforts in the production and conservation of urgently needed food supplies now and in the future.

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