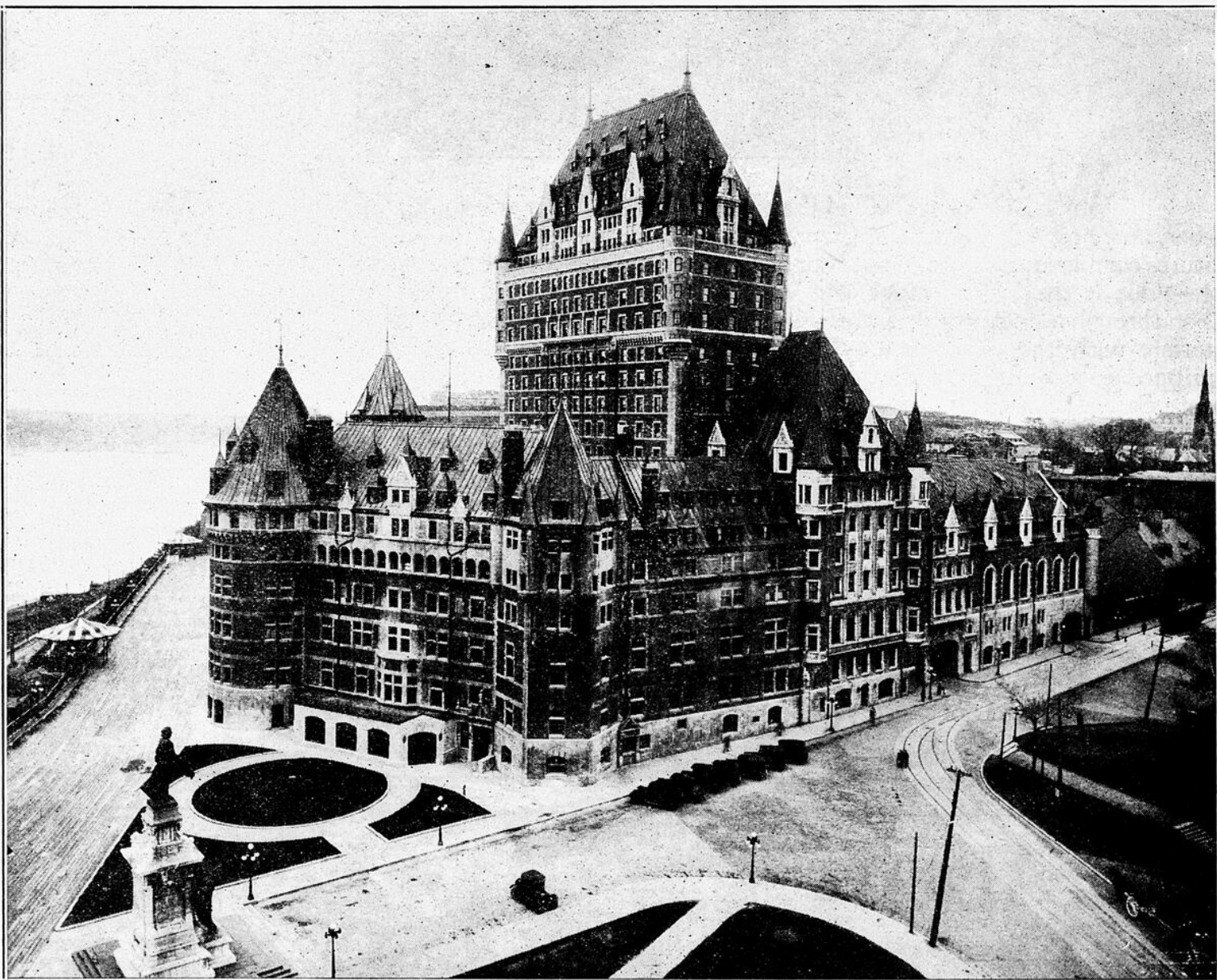


# The JOURNAL of AGRICULTURE AND HORTICULTURE

Volume 31

June 1st 1928

Number 12

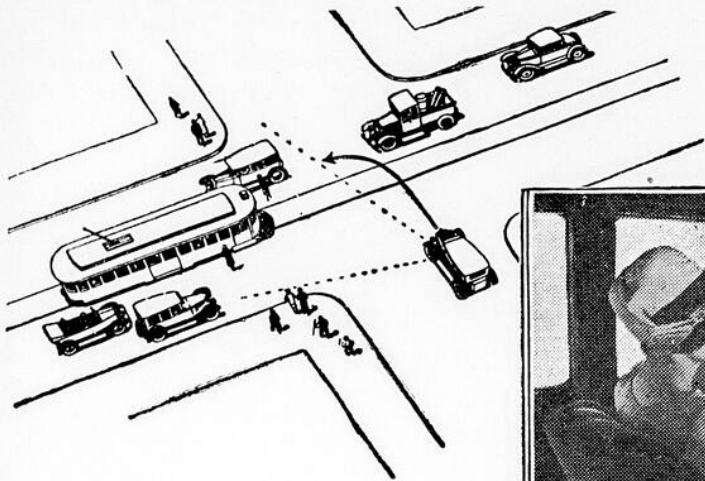


*The Chateau Frontenac, which will be the headquarters for the conventions of the Canadian Society of Technical Agriculturists and the Canadian Seed Growers Association to be held in Quebec in June, is one of the most beautifully situated and perfectly appointed hostelrys in the world. Built upon the foundations of the historical St. Louis castle, residence of the French and English Governors from 1620 to 1834, the Chateau commands a magnificent view of the St. Lawrence River, of Quebec City and of the country round about—a view that has been admired by scores of thousands of tourists who have visited this the most interesting city on the continent.*

PUBLISHED BY THE DEPARTMENT OF AGRICULTURE OF  
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# Clear Vision in *Every* BODY by FISHER

CHEVROLET • PONTIAC • OLDSMOBILE • OAKLAND • McLAUGHLIN-BUICK • LA SALLE • CADILLAC



**W**HEN you sit behind the steering wheel of a car with Body by Fisher, note how unobstructed is the view in front and to both sides.—Two features combined to create this greater safety and greater enjoyment in motor-ing.—One is the Fisher Vision and Ventilating Windshield which affords vision through a single pane of plate glass, without metal or rubber strips to interfere with the clear view.—The other feature which makes Fisher-equipped cars safer and more pleasant to drive is the use of narrow front pillars of unusual strength, which eliminate the “blind spot” in driving.

**The VV Windshield**—This remarkable contribution of Fisher to greater motor car satisfaction not only assures perfect ventilation and complete weather protection—it is also safer and more convenient because it may be raised or lowered vertically with one hand while the car is in motion.

**Plate Glass**—Crystal plate—or thick window glass—is never used in Fisher Bodies. The diamond-like polish of the genuine plate glass used in every Body by Fisher affords perfect clarity of vision—another highly desirable safety feature of every Body by Fisher.

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Green, Black and Japan  
*On sale everywhere. Ask for it to your dealer.*

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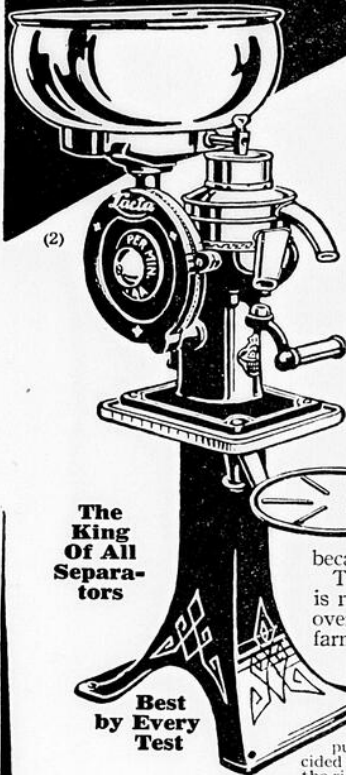
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Costs less per mile

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## The Famous *Lacta*

### Has Never Been Beaten In Open Contest

In purchasing a cream separator there are three essential things you are interested in. First, Close Skimming; Second, Ease of Operation; Third, Durability.

In each and all of these things Lacta excels. It has proved it beyond question during the past 18 years and we are willing to back up these claims by letting you prove it for yourself.

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fill out those deep hollows in neck, cheeks, and chest? Why go on through life with sunken cheeks and narrow chest when you can take advantage of this straight forward offer.

McCoy takes all the risk—Read this ironclad guarantee. If after taking 4 sixty cent boxes of McCoy Cod Liver Extract Tablets or 2 one dollar boxes any thin, underweight man or woman doesn't gain at least 5 pounds and feel completely satisfied with the marked improvement in health—any druggist is authorized to return the purchase price.

## "This freedom" for a few cents a day!

Freedom from the unending drudgery of pumping and lugging water—freedom from unsanitary conditions—freedom from frozen pumps—what a relief! And how cheaply and easily you can have it!

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We also make an Engine-driven System for service where electricity is not available.

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TO realize fully, how much greater value is offered you in the Whippet, ask any number of Whippet owners in your neighborhood what they found when they compared Whippet's features with those offered by other light cars.

When you buy a Whippet, you buy a car which has stood the test of millions of miles of driving in the hands of owners—a car with such features as a drilled crankshaft for full force-feed lubrication, and a silent timing chain as used on the finest custom cars. A car with the only light-car power plant which actually doubles its rated horse-power. Gas tank at rear . . . Big 4-wheel brakes . . . Balloon tires and snubbers . . . Long semi-elliptic springs with all leaves of chrome vanadium steel.

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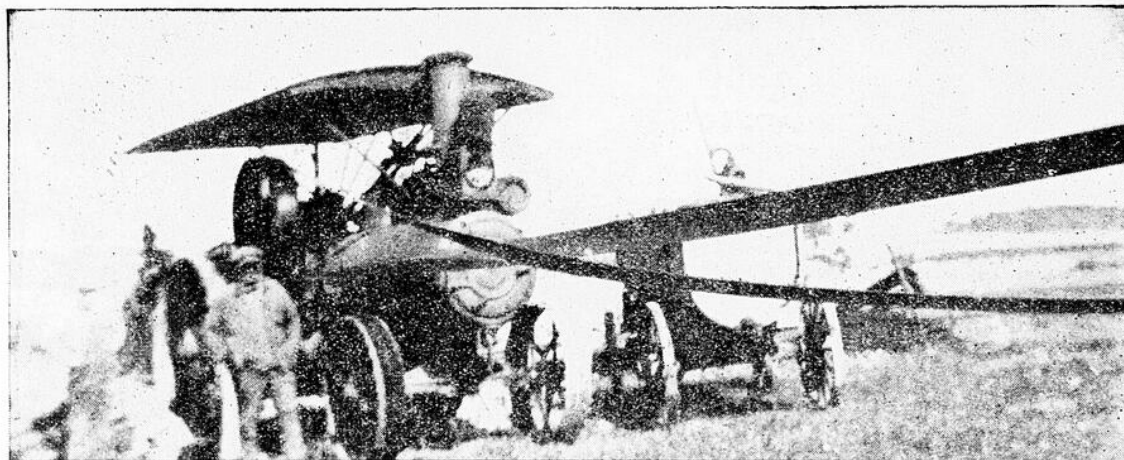


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When kidneys are inflamed or clogged life becomes a misery, as Mr. W. McArthur of St. John, N.B., realized. Fortunately, he also discovered Gin Pills, and gratefully wrote:

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for smooth dependable reception  
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Rub Gentle and Upward Toward the Heart as Blood in Veins Flows That Way

If you or any relative or friend is worried because of varicose veins, or bunches, the best advice that anyone in this world can give you is to ask your druggist for an original two-ounce bottle of *Moone's Emerald*

Oil (full strength) and apply as directed night and morning to the swollen, enlarged veins. Soon you will notice that they are growing smaller and the treatment should be continued until the veins are of normal size. So penetrating and powerful is *Emerald Oil* that even Piles are quickly relieved. All druggists sell lots of it.

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are the ones whose business is properly organized. Using the telephone to save time helps them to sell their labour at about 500% profit—according to statistics.

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Write us for estimate and sample, giving dimensions of roof, including length of ridge and rafter.

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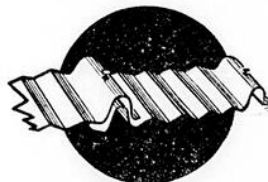
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**COUNCIL STANDARD**  
EXTRA HEAVY COATING

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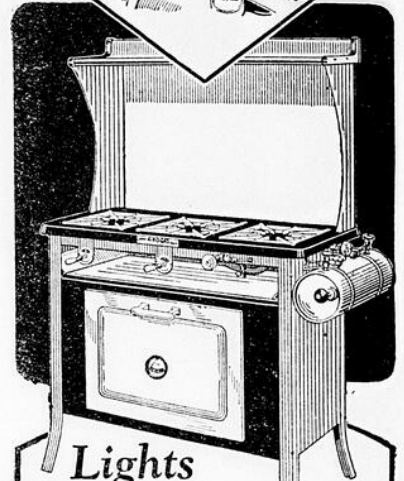
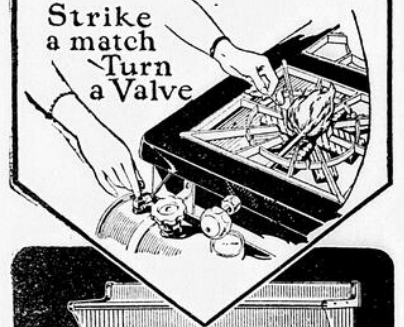
Here is a sheet of ECONOMY "RIB-ROLL" ROOFING with seven ribs. Specify ECONOMY SEVEN "RIB-ROLL" ROOFING, COUNCIL Standard Brand, the roofing with the extra heavy coating of zinc. Council Standard lasts years longer than ordinary roofing. Buy the best. There is no better metal roofing than COUNCIL STANDARD ECONOMY SEVEN "RIB-ROLL" ROOFING. Also made in "Superior" Brand with five ribs—"Economy five."



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New Instant  
Gas  
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PATENTS PENDING

Strike  
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Turn  
a Valve



Lights  
Right Now!

Model  
328

THE new Coleman Instant Gas Starter is standard equipment on all Coleman Air-O-Gas Stoves. Now you can have a stove that makes its own gas . . . and with a starter that lights instantly! Just strike a match, turn a valve and it lights right now. Provides full cooking heat . . . on all burners . . . in less than a minute. Many other new improvements you will enjoy . . .

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## As sweet-running as it looks



Crane Deep Well System  
No. 850

Pumping from depths down to 250 feet. Made in many sizes and capacities to meet all needs.

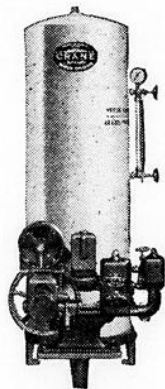
A machine can be so compact, so neat, so efficient-looking that seeing it arouses the admiration one feels at sight of a prize winning cow. Such a machine we have endeavored to make Crane Water Systems.

Farmers have said that we have succeeded. At any rate, exhibited at farm expositions and conventions, these systems have brought admiring "ohs" and "ahs"; and in use on the farm have won warm praise.

Their sturdy, handsome appearance is only the surface expression of the hidden qualities that make Crane systems smooth-running, long-lasting, trouble-proof. Such points, for instance, as the sliding cross-head in Deep Well System No. 850, that takes the jerk out of the lifting stroke and does away with the clatter and bang annoying to hear and destructive to pumps.

Or such points in all Crane systems as bearings machined to .0005 of an inch, positive overhead oiling systems that keep every bearing flooded, simplicity which makes a wrench the entire tool kit.

Let us send you the booklet A. D. 9-R, Crane Automatic Water Systems, giving full information on the complete line of Crane systems, enabling you to select the proper one to supply running water on your farm.



Crane Shallow Well System No. 215-A  
200 gallons an hour capacity, 42 gallon tank, 1-6 horse power. Shallow well systems are supplied in a wide range of sizes and capacities, up to 6000 gallons an hour.

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and you have a horse frantic with terrible pains of acute, spasmodic colic, the first few minutes is the time to check it.

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One to three doses, of a few drops each, in the horse's mouth, will bring prompt, sure relief, in even the most advanced cases.

A wonderful remedy for treating all kinds of Pain, Colic, Fevers, Chills, Coughs, Distemper, Stoppages of the Urine, Indigestion, Scours, Exhaustion, or Tonic for the Appetite. Order a bottle from your dealer to-day, or write—

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6



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LONG ago The Canadian Bank of Commerce developed a form of co-operative banking service. Each branch was to be a "community bank", to serve first in the interests of the district, and, secondly, to place its customers in contact with a nationwide and world-wide service.

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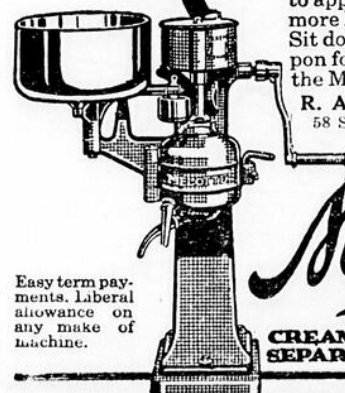
## THE CANADIAN BANK OF COMMERCE

167

## See this New Low Model Melotte

COMBINING all the features that have made the Melotte so popular with Canadian farmers—now a new model with an exceptionally low tank to appeal to the farmers' wives. No more high lifting, no spilling of milk. Sit down to-night and fill out the coupon for interesting particulars, or see the Melotte dealer.

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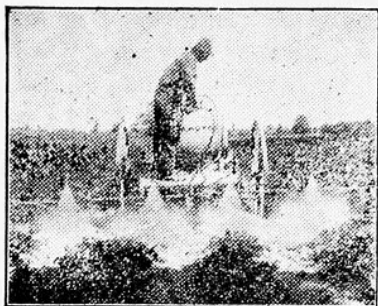
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Easy term payments. Liberal allowance on any make of machine.



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The experience of more than thirty years of manufacturing spraying machines combined with untiring research and field experience, contribute largely to the unsurpassed reliability of the SPRAMOTOR.

Made in all sizes from the small hand operated Knapsack to the large Triplex power.

Write for free illustrated booklet.

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**\$1395**  
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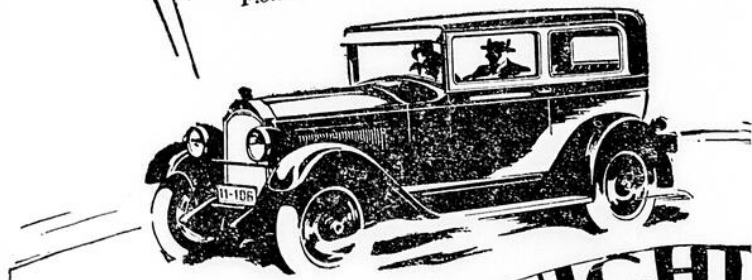
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FROM the moment of its introduction, the Willys-Knight Standard Six has definitely achieved the position of being one of the very few outstanding new cars of the year.

Its price—the lowest in Willys-Knight history—brings this quality car into a great new market. Thousands more may now enjoy Willys-Knight's velvet smoothness, silent power, flashing activity, quick starting, ease of control, simple, trouble-free design and marked operating economy.

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Branches: Toronto, Montreal, Winnipeg.

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~ and now the best of all ~  
Cream Separators**

SINCE Dr. De Laval invented the first continuous discharge centrifugal cream separator in 1878, De Laval Separators have always been in the lead. Practically every detail of separator construction has been De Laval originated. As these features have been imitated, still further improvements have been made.

Each De Laval has in its day been the leading separator. As a result more than four million have been made. They are used in every country of the world, and there are practically as many in use as all other makes combined.

Now the 1928 "Golden Series" De Laval Separators mark another step forward. They are the crowning achievement in 50 years of leadership and service to the dairy industry.

They are the most complete, efficient and beautiful cream separators ever made. They are all that could be hoped for in such a machine and must prove a source of pride as well as profit to every owner.

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# The JOURNAL of AGRICULTURE AND HORTICULTURE

FOR RATES  
OF ADVERTISEMENTS  
ADDRESS TO  
THE CANADA  
PUBLISHING CO.,  
Limited  
73 St. James St.,  
Montreal.  
ENGLISH . . . . . 8,287  
FRENCH . . . . . 63,034  
Circulation - 71,321

Volume 31

JUNE 1st 1928

Number 12

## EDITORIAL COMMENT

### WELCOME TO OLD QUEBEC.

Quebec province, and more specifically Quebec City, is to be honored this month with visits from the members of the Canadian Society of Technical Agriculturists and of the Canadian Seed Growers' Association, for Old Quebec has been chosen as the 1928 Convention City for both of these organizations. To these visitors, who count within their ranks most of the outstanding scientific workers in Canadian Agriculture, we extend a most cordial welcome—*Bienvenue à Québec!*

It is fitting that these apostles of the newer agriculture should visit the birthplace of Canadian farming, and on the trips that have been arranged for the visitors an opportunity will be given of seeing some of the oldest homesteads on this continent—homesteads that are still cultivated by the descendants of the hardy pioneers who won them from the wilderness three centuries ago.

Old Quebec welcomes these scientists—not only because she is traditionally hospitable and rejoices in entertaining strangers, but also in a very special degree because they are working for the betterment of agriculture. Like agricultural workers in all other parts of the world, we in Quebec are coming to have a greater appreciation of the value of scientific research in helping us solve our problems. With three agricultural colleges engaged in the training of young men who intend to farm and in the fitting of others for the carrying on of research in agriculture, with numerous experimental farms and stations devoted to a study of those crops and those methods best suited to the conditions met with in various parts of the province, and with such agencies as the Quebec Seed Board, the Quebec Feed Board and the very extensive Service of County Agriculturist to carry the findings of these experiment stations to the farmers of the province, Quebec is definitely interested in The Newer Agriculture.

The meetings of these organizations are extremely valuable in that they bring together for an exchange of opinions the workers in all phases of agriculture from all parts of Canada. They are made still more so through the series of "advanced lectures" in the science and economics of agriculture that are put on each year by recognized authorities from this and other countries through the courtesy of the Dominion Government. This year's special lecturers include: Dr. A. Volkart, Professor of Agronomy and Plant Pathology at the Federal Polytechnic School, Zurich, Switzerland, and Director of the Swiss Experimental and Control Station of Oerlikon, Zurich, who will lecture on forage crop problems; Dr. E. C. Auchter, Professor of Horticulture, University of Maryland, who will deal with fertilizer influence on the yield and habit of bearing of fruit trees; Dr. John D. Black, Professor of Agriculture Economics of Harvard University, who lectures on the economic status of agriculture in United States; Dr. R. J. Garber, Professor of Agronomy at West Virginia University, who will treat of plant breeding, with particular reference to disease resistance; Dr. E. C. Stakman, Professor of Plant Pathology of the University of Minnesota, who will discuss some of our worst plant diseases; Dr. J. E. Lattimer, Professor of Agricultural Economics at Macdonald College, who deals with the development of this new science; and Prof. H. M. Nagant, Head of the Department of Chemistry and Geology at the Oka Agricultural Institute, who will deal with climate in soil formation and classification.

The arrangement whereby the C. S. T. A. and C. S. G. A. meet during the same week is a happy one. The programmes have been arranged so that the last day's meeting of the former and the first of the latter overlap—thus allowing the members of both societies to attend the special lectures already referred to. Advantage is also being taken of the fact that so many agricultural workers will be in Quebec during this week, to hold the annual meetings of the Eastern Canada Society of Animal Production and of the Horticulture Group of the C. S. T. A.

To all of these organizations we wish success in their meetings—and on behalf of the province we again assure their members of a most hearty welcome to Old Quebec.

### A HOLIDAY FOR THE FARM BOY.

Elsewhere in this issue we carry an announcement concerning "Farm Boys' Week at Macdonald College". This event is in the nature of an experiment. Farmers' sons from the province of Quebec, from 15 to 20 years of age, are invited to be the guests of Macdonald College during the first week of July—in a holiday that will be free of cost. For, apart from transportation to and from the College (which may be reduced to a minimum where a number of boys from one district get together and motor in) there will be no expense to the visitors—board and lodging in the College Residence being free.

The purpose of this Farm Boys' Week is to give the youth of our rural district an opportunity to visit this splendid agricultural institution, to get an idea of the work that is being carried on there, to compare the systems of farming on their own homesteads with those found most profitable by experiment at this college, and to enjoy a real holiday under ideal surroundings. The program that is being arranged for their entertainment has been prepared by a committee who have never lost sight of the fact that this is to be a holiday. Visits will be paid each morning to the various departments of the college, during which the experiments, etc., looked at will be explained, while the afternoons and evenings will be devoted to sports and other social pleasures.

This will be a wonderful opportunity for a real holiday for the farm boy. Coming at a time when he can best be spared (when seeding has been completed and before haying has commenced), it will give him a chance to see something of what is being done on the plots and in the fields at Macdonald, and also to get acquainted with boys from other districts of Quebec.

"All work and no play makes Jack a dull boy," says the old proverb. It is even more likely to make him a discontented boy. There is no farm in Quebec so crowded with work that it cannot spare one of its boys for a week at this time. A holiday of this sort will give the boy new life, new enthusiasm and a broadened outlook on the profession that he has chosen as his life's work.

In view of the growing appreciation of the importance of animal parasites, Macdonald College is carrying on some special research work in parasitology—the various departments concerned cooperating in the work. For example, poultry parasites are being studied by workers from the departments of poultry, of animal pathology and of entomology and zoology. And, while many

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ISSUED MONTHLY BY

THE DEPARTMENT OF AGRICULTURE OF THE PROVINCE OF QUEBEC

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of the problems are of such a nature that much work must be done before conclusive results can be given out, we are publishing elsewhere in this issue a popular article by one of these workers, Mr. A. D. Baker, of the Department of Entomology and Zoology, on one of the parasites of fowl—Coccidiosis. Since this disease is usually very prevalent at this time of year, the article should prove especially timely for those interested.

## Taxation

By Dr. H. D. Brunt

EVERY year new wealth is created, wealth in the form of commodities and personal services.

This wealth is created only under conditions of organized, settled society, the fundamental purpose of which is to protect life and property. Some thinkers believe that this is not only the primary but the only purpose of society as represented by governmental institutions, and "protection" is considered the limits of state interference. Such a state is often called a "Police State", and the theory of government, "Police Theory."

Other political thinkers and philosophers have a conception of a "Culture State", the functions of which include not only those of police in a wide sense but humanitarianism, education, art, culture, scientific research, culminating in the ideal of the "Socialist State".

Whichever theory be true or expedient, wealth is needed to carry on those social duties — and government creates no new wealth; thus part of the annually created wealth must be handed over to government to carry on such functions; whether limited to "protection" or extended to cultural limits. This proportion of wealth is called "Taxes".

Taxation presents many problems to the statesman, the economist, the politician, as well as to the individual citizens :

1. The amount must be adequate for the needs of the state.
2. It must not strive to take from the annual wealth more than is needed for those needs. Government surpluses are not economically sound.
3. It should try to foresee the "incidence" of any particular tax—that is, who finally pays the tax. Often, a tax aimed at a certain type of property, wealth or person, is "shifted", by various means, to other property, wealth or person. If a transportation company's tax is raised, and it raises transportation charges, the tax is shifted

to travellers.

4. It should disturb as little as possible capital invested in "immovables," that is, machinery, buildings, etc.
  5. The tax should be easily collectable, difficult to evade or to "shift".
  6. Taxes should be so arranged that payment is according to ability to pay, and "usufruct", that is, "How much does the payer get out of the country as his share of wealth" ?
  7. There should be a fair proportionment of taxes for municipal, provincial and federal purposes. As these authorities levy their taxes independently of one another, there is much duplication in types of taxation. Much more thought and scientific analysis must be given to secure adequate and fair apportionment of taxes among these three governing units.
  8. Distinction between taxes that are used to create new wealth and taxes used for non-productive purposes. Taxes are rarely used for the first purpose; the governing power usually issues bonds which are sold in the public market and profits from the enterprise are used to pay the interest on the bonds. Even for non-productive enterprises, the government issues bonds, taxes being used to pay interest on bonds and establish a sinking fund to retire the bonds when they mature.
- In successive issues we shall discuss each of these eight points.

## Banner Oats in Quebec

OATS are the most extensively grown crop in the Province of Quebec with the exception of hay. The cool and usually moist climate of most of the province is particularly suitable for the growing of oats of high quality. Careful tests at the Cap Rouge Experimental Station have shown that oats, under conditions prevailing there, yield more pounds of grain per acre than do barley or spring wheat, and at the same time they produce more digestible nutrients. They are particularly valuable as a feed for live stock.

At the Cap Rouge Station experiments have been conducted to determine the varieties most suitable for Quebec conditions, and the results are now summed up in a bulletin on Banner Oats, which may be obtained from the Publications Branch, Department of Agriculture, Ottawa. Of all the varieties, Banner has proven to be the most suitable, being hardy, productive, easy to grow, and having a good, firm straw. Banner oats are in fact the most popular variety grown in Canada especially in the Eastern Provinces. Victory oats is an excellent variety, now grown extensively in the west, but according to the author of the bulletin, who is superintendent of the Cap Rouge Station, nobody growing good Banner should give it up for the newer variety.

## LIST OF AGRICULTURAL FAIRS FOR 1928 TO BE HELD UNDER THE AUSPICES of the AGRICULTURAL SOCIETIES

SOCIETY.	PLACE.	DATE.	SECRETARY.	ADDRESS.
ARGENTEUIL	Lachute	June 20-21-22-23	J. W. Gall	Lachute, Box 12.
ARTHABASKA	Victoriaville	August 15-16	C. R. Garneau, N.P.	Arthabaska.
BAGOT	St. Liboire	July 4-5	J. A. Lamonde	St. Liboire.
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BEAUCE, Div. B.	St. Ephrem	September 20	J. A. Faucher	St. Ephrem de Tring.
BEAUBARNOIS	St. Louis de Gonzague	September 6	W. Martin, N.P.	St. Louis de Gonzague.
BELLECHASSE, Div. A.	St. Michael	September 6	Caïus Lacroix	Boyer.
BERTHIER	Berthierville	July 3-4-5	J. E. Lessard, N.P.	Berthierville.
BONAVENTURE, Div. A.	Port Daniel	September 18		
	Shigawake	September 19		
	New Carlisle	September 20	Geo. M. Kempffer	New Carlisle.
BONAVENTURE, Div. B.	New Richmond W.	September 20	W. H. Willett	New Richmond-West.
BROME	Brome	September 3-4-5	Edward Caldwell	Brome.
CHAMBLY	St. Bruno	September 19	Alb. Bernard	St. Basile le Grand.
CHAMPLAIN	St. Stanislas		J. T. Jacob	St. Stanislas.
CHATEAUGUAY	St. Martine	September 11	Ls. Patenaude	St. Martine.
CHICOUTIMI	Chicoutimi	Sept. 12-13-14-15-16	J. A. Gobeil	Chicoutimi.
COMPTON, No. 1.	Cookshire	August 14-15-16	T. O. Farnsworth	Cookshire.
COMPTON, No. 2.	Scotstown	September 12-13-14	Geo. F. Cowan	Scotstown.
TWO MOUNTAINS	St. Scholastique	September 17-18-19-20	J. W. Sauvé	St. Placide.
DORCHESTER			Ev. Felteu	St. Anselme.
DRUMMOND	L'Avenir	September 11	J. C. St. Amant	L'Avenir.
FRONTENAC			Ed. Bureau	Lambton.
GASPE, Div. A. No. 1.	Cape Cove		Sydney L. Cass	Cape Cove.
GASPE, Div. A. No. 2.	Barachois	October	Roland Tapp	Barachois.
GASPE, Div. C.	Cap Chat		J. O. Roy	Cap Chat.
HOCHELAGA	St. Léonard		J. A. O'Glema	90 St-James, Montreal.
HULL, Div. A.	Aylmer	September 13-14-15	R. K. Edey	Aylmer, Box 114.
HULL, Div. B.	Maniwaki	September 11-12-13	Palma Joanis	Maniwaki.
HUNTINGDON, Div. A.	Huntingdon	September 5-6-7	W. P. Fisher	Huntingdon.
HUNTINGDON, Div. B.	Havelock		John Small	Hermingford.
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JOLIETTE, Div. B.	St. Jean de Matha		J. O. Leveillé	St. Jean de Matha.
KAMOURASKA	St. Pascal	September 17-18-19	P. W. Levesque	St. Pascal.
LABELLE, Div. B.	Mont Laurier	September 12	A. U. Martineau	Mont Laurier.
LAC ST-JEAN, Div. A.	Hébertville	September 6-7-8-9	J. E. Simard	Hébertville Station.
LAC ST-JEAN, Div. B.	Roberval	August 29 to Sept. 2	J. Ed. Boily	Roberval.
LAPRAIRIE	Laprairie	September 18	Raoul Lussler	St. Philippe.
L'ASSOMPTION	L'Assomption	August 29	P. J. Marsan	L'Assomption.
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LOTBINIERE, No. 2.	Lotbinière	August 30	Jos. Bédard	St. Croix.
MASKINONGE	Louiseville	September 5-6	J. L. Desaulniers	Louiseville.
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MONTMAGNY	Montmagny	August 27-28-29-30	Alex. Proulx	Montmagny.
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MONTMORENCY, Div. B.	St. Famille	September 25	Alb. Faucher	St. Famille, I. O.
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NICOLET, Div. B.	Gentilly	August 16	Lucien Dubois	Gentilly.
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PORTNEUF, Div. A.	Pont Rouge	September 20	L. G. Bussières	Pont Rouge.
PORTNEUF, Div. B.	St. Casimir		J. A. Foley	St. Thuribe.
PORTNEUF, Div. C.	Montauban		Geo. Bertrand	Montauban.
QUEBEC	Quebec	September 26	J. B. Martel, N.P.	47 Notre Dame des Anges, Quebec.
RICHELIEU	St. Victoire	September 18-19	Jos. Vilandré	St. Victoire.
RICHMOND	Richmond	August 21-22-23	W. R. Stevens	Richmond.
RIMOUSKI	Rimouski	September 11-12-13-14	Alf. Dubé	Beauséjour.
ROUVILLE	Rougemont	August 28	Anthime Arès	Rougemont.
SHEFFORD	Waterloo	September 11-12-13	N. O. Rockwell	Waterloo.
SOULANGES	Pont Château	September 3	Geo. R. Vernier	Coteau Landing.
STANSTEAD	Ayer's Cliff	August 23-24-25	Homer G. Curtiss	Stanstead.
ST. HYACINTHE	St. Hyacinthe	August 1-2	Henri Morin	St. Hyacinthe.
ST. MAURICE	St. Barnabé	September 20	Raoul Bellemare	St. Barnabé-North.
TEMISCOUATA, Div. A.	Isle Verte	September 18-19	Jos. Michaud	Isle Verte.
TEMISCOUATA, Div. B.	Notre Dame du Lac	September 11-12	L. J. Dubé	Notre Dame du Lac.
THREE RIVERS	Three Rivers	September 12	Méd. Pothier	Three Rivers.
VAUDREUIL	St. Lazare	September 13	Jos. Denis	Vaudreuil.
VERCHERES	St. Théodose	September 12	Louis Dalpé	Verchères.
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WOLFE, No. 2.	Ham Nord	September 13	J. A. Comtois	Ham North.
YAMASKA	St. François du Lac	August 29-30	Alc. Lacharité	St. François du Lac.

## DISTRICT EXPOSITIONS

- VALLEYFIELD, August 13 to 18.
- THREE RIVERS, August 18 to 24.
- SHERBROOKE, August 25 to Sept. 1st.
- QUEBEC, September 1 to 8.

# The Breeding of Legumes and Grasses--

A Report of Progress Attained at Macdonald College.

By Dr. A. McTaggart, Asst. Prof of Agronomy, Macdonald College.

THE Agronomy Department of Macdonald College have been carrying on for a number of years important work having as its objective the improvement, by breeding and selection, of various farm crops. Part of that work embraces the production and adequate trial of strains of alfalfa, red clover, timothy and orchard grass, principally, that possess as many as possible of such desirable characters as hardiness, high yield, good quality, disease resistance, earliness, good aftermath, proper type of growth, etc. Such work necessarily involves a very large amount of patient, persistent effort applied during a lengthy period; and the work to date has encountered many difficulties, as all work of this nature must encounter. Difficulties such as decimation if not extermination by winter-killing, disease prevalence of varying intensity, reduction in seed production as the result of unfavourable seasons or from continuous in-breeding, the preponderance of self-sterility as found normally in red clover, have been some of the obstacles encountered by the plant breeder. In his work is clearly seen the true force of the saying "obstacles were made to be overcome." Yet, despite discouragements and disappointments of varying kinds, progress has been made, as the below-mentioned methods and results show.

### Alfalfa Improvement.

With a view to obtaining foundation material for the ultimate production, possibly, of strains of alfalfa hardier, better yielding and of better quality than commercial alfalfa, and consequently better adapted for culture in Quebec, seed of regional varieties originating in countries or regions with cold winters was introduced a number of years ago. These were propagated in rows as individual plants, the percentage survival or non-survival of which after 5 years determined which possessed the character hardiness, while the weights per individual plant, periodically taken, indicated the varieties that held productive possibilities. Outstandingly hardy and vigorous individuals amid the best of these preliminarily-tested varieties eventually gave rise to a few desirable strains, as did certain equally hardy and vigorous individuals set out in foundation rows from the original seed that was carefully preserved. Both seed and clonal (from cuttings) propagation of certain of these outstanding foundation plants were resorted to, followed by occasional successive self-fertilization of an outstanding plant within the progeny of the original selection in each case. Of recent years the practice has been followed of continuous self-fertilization within the most promising strains, with a view to purification of these selections. Such continuous self-fertilization, inducing purification, is at present gradually laying the foundation for possible combination (hybridization) work later—the anticipated production of synthetic strains

showing expected immediate restoration of vigour, lost as the result of continuous inbreeding.

Seed produced by self-fertilized individual plants is employed for establishing centgener row plantings, each centgener consisting of 100 (if sufficient seed is available) equally-spaced plants. The most promising and most uniform centgenerers are, after due study, permitted to produce open-fertilized seed, which seed finds its way usually the following season to comparative row tests where yields (both green and dry) are obtained during about 3 years and where the various strains are compared with conveniently placed checks. After due test in replicated rows, the more promising strains find their way into comparative plot tests, where the alfalfa selections are subjected to greater competition. From this test, conducted for 5 years in comparison with conveniently arranged check plots, the elite strain or strains pass to the larger multiplication plots seeded, usually with a nurse crop, under more farm-like conditions.

Where the plants in the centgenerers above referred to are somewhat non-uniform, representative plants therein may be self-fertilized (by tripping the flowers, as before, under specially-constructed wire gauze cages) and the centgenerers repeated—to secure greater uniformity.

The above gives a general description of the various steps involved in the improvement of alfalfa as conducted at Macdonald College. As to the results of selection and testing to date, it can with confidence be stated that the work, which because of its nature cannot be expected to be spectacular and productive of other than slow results, has reached the stage where several highly-promising strains are being finally tested in plots and multiplied for testing under more diversified conditions. These strains belong to the North Sweden, Cossack, Chernob and Grimm varieties. They are all particularly hardy, are of good quality, and show superior yields, in some cases quite striking, as compared with the check (a hardy though unimproved Grimm alfalfa from Alberta). In the year 1925 the average total yield of dried alfalfa per acre from one of these elite strains (Nth. Sweden 87-16) was 9.48 tons per acre. Three cuttings, the usual occurrence on alfalfa plots in a normal season at Macdonald College, were harvested from these strains. A number of other strains that have emerged from the system of improvement above outlined are at present undergoing test both in the comparative row stage and in the comparative plot stage.

The average yields per acre of dried alfalfa, from a 4 year plot test of superior strains, as illustrated in the accompanying graph, are found in Table I, following :

TABLE I

Average yields from a four year (1924-27) Plot Test.

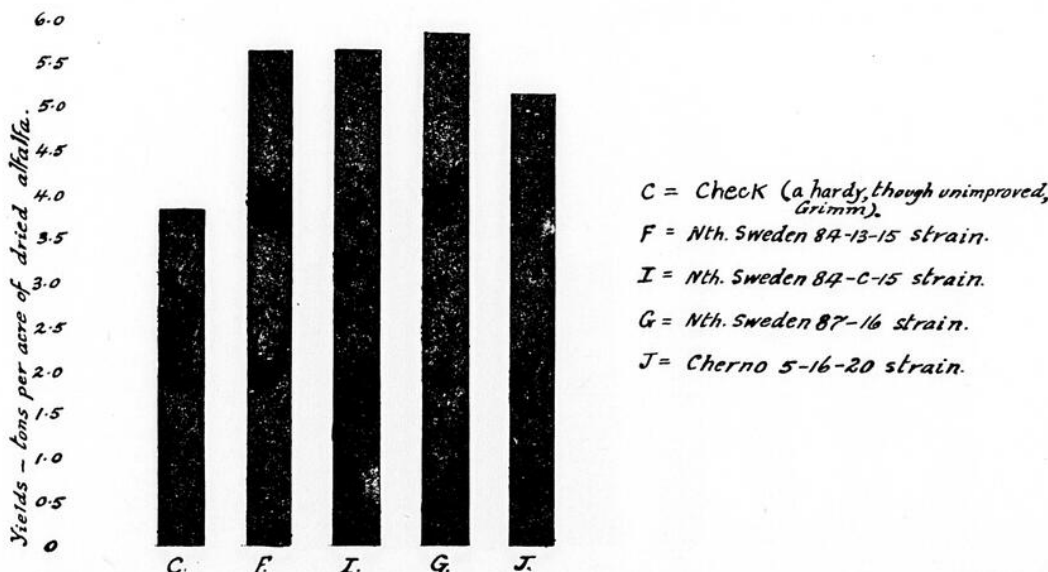
Alfalfa Strain	Designation on Graph	Tons per acre dried alfalfa
Grimm { from Alberta (check)	C.	3.8349
Nth. Sweden 84-13-15.	F.	5.658
Nth. Sweden 84-C-15.	I.	5.662
Nth. Sweden 87-16.	G.	5.871
Cherno 5-16-20.	J.	5.176

### RED CLOVER IMPROVEMENT

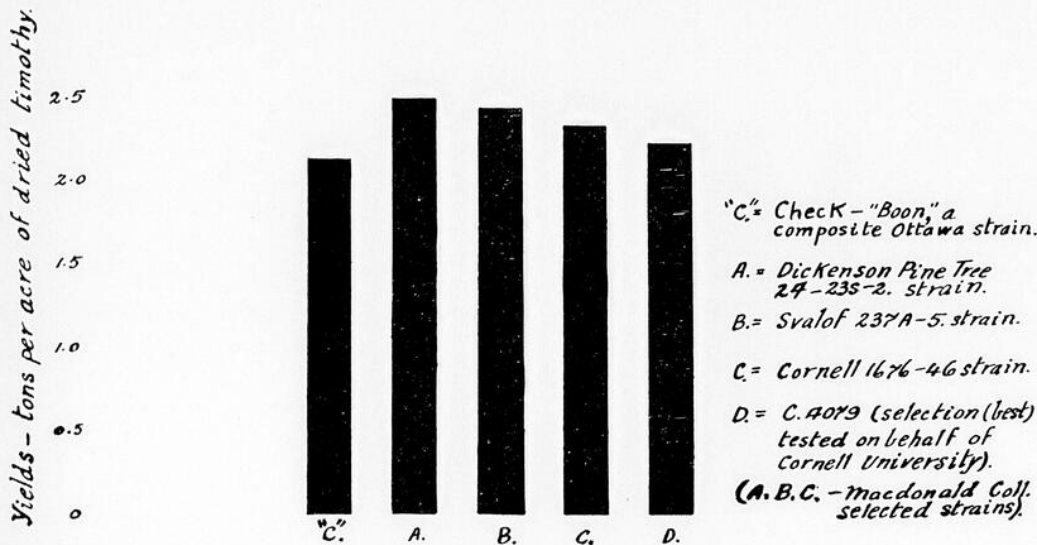
As with alfalfa, foundation material was obtained some years ago as the result of the introduction of seed of promising regional varieties of red clover. Hardiness tests of these in time eliminated a number of the more tender varieties, with the result that only a few survived to provide material for the more recent attempts at improvement work with this crop. These few varieties proved to be Orel, Silesian and Danish. Great difficulty was experienced, as elsewhere, in attempts to improve this open-fertilized crop. This is accounted for by the fact that the red clover plant is normally self-sterile—demanding pollen from another plant of the same species in order that seed may set, thereby promoting the constant appearance of variations of all types. In other words, the obtaining of a pure line in red clover is practically impossible. While self-fertile lines can on rare occasions be obtained, yet their occurrence is so infrequent and is usually associated with such defects as chlorophyll deficiency as to render the phenomenon of little or no practical value. This difficulty, which is not found in the other open-fertilized crops under improvement, together with such drawbacks as heavy mortality from winter-killing in certain more or less open winters and prevalence each year of disease such as mosaic, have greatly retarded progress. Nevertheless, a measure of progress has been made, as is exemplified in the various strains of hardy Orel, Silesian and Danish red clovers now under comparative test in special plots with other hardy improved clovers from other stations and regions in Canada. The accompanying photographic illustration of some of these speaks for itself.

The methods followed in obtaining these strains and in the endeavour still being made, despite the various setbacks above indicated, embrace what might be termed a combination of individual plant selection with a modified form of mass selection. Briefly, this consists of the selection of hardy and otherwise promising individual plants from plantings that have resulted from hardy survivors from initial spacial plantings of more or less hardy vigorous regional varieties. Open-fertilized seed from these promising select plants in turn gives rise to 50-plant rows, each row being the progeny of one plant. Later, following the careful study of these progeny rows and the cutting back prior to flowering of poor-type and diseased plants, further individual selection is made. Similar-type selects are artificially crossed in isolation cages, while others are permitted to form seed from promiscuous cross-pollination by bees. Both the crosses and the open-fertilized select individual plants give rise the following year to centgener plantings of individual plants. The seed from the healthy desirable-type non-selected plants is bulked together within its particular strain to give rise later, after successive eliminations of undesirable type and diseased plants, to a bulk strain representative of the particular variety to which it belongs. In the process of multiplying these and other strains a rigid system of roguing is followed. This process, together with natural selection that is always going on, aims to ultimately evolve hardy, healthy and vigorous strains of clovers; and, as stated above, it has already attained a measure of success. The centgenerers above referred to are carefully studied, rogued, and subjected to further individual plant selection and crossing, for the establishment of further centgenerers, the hardy healthy desirable non-selects being allowed to form seed for successive bulking and mass planting and roguing later. To date, the artificial crossing work has been only partially successful, owing in part to excessive

Macdonald College  
Improved Alfalfa Strains - Average of 4 Years plot test (1924-27).



Macdonald College  
Improved Timothy Strains - Average of 2 years plot test (1926-27)



moisture conditions immediately following the time of making the crosses. The progeny from these crossings, also, have been more or less non-uniform, as might be expected from hybridizing plants which, though outwardly similar, possess inherent differences that ultimately find expression in progeny variations of various types. In view of the difficulties involved it would thus appear as if the most satisfactory method of red clover improvement to follow is in the main a modified form of mass selection. This involves successive individual selection of open-fertilized plants, spacial plantings of seedlings raised from seed therefrom, constant roguing prior to flowering, bulking the seed of desirable nonselects, and repeated spacial mass plantings (for multiplication) followed by further roguing and natural selection among these plants. Select open-fertilized individual plants within the centgener are employed for repeating the process described in the hope that superiority will ultimately emerge therefrom. Final bulking of several lots of bulked seed, within the regional variety under improvement, can be resorted to, if desired. Appropriate comparative row and plot tests would naturally follow this procedure.

The reader will doubtless appreciate from this description something of the nature of the task which the breeder of better clovers has to face.

TIMOTHY IMPROVEMENT

Throughout this work consideration has been given to such characters as hardiness, yield, quality, type of growth, earliness, aftermath and rust-resistance. Foundation material was obtained through the introduction of seed of promising timothies that originated at such stations as Cornell, Minnesota and Svalof (Sweden). Certain commercial sources also supplied material for subsequent selection. After due trial of these stocks in individual-plant rows, outstanding individuals within certain rows were selected. These in turn were divided up vegetatively and planted out as centgener blocks of 25 equally-spaced clones. In due course these clonal plantings were carefully studied and noted, and selfings of select centgeners made. This selfing work involved the isolation in tents, made of good quality cotton, of six plants in the interior of the select block. Blocks not selected for selfing were cut back prior to blooming. Seed from these selfings gave rise to comparative row rows, with convenient checks of unimproved timothy, each strain being replicated five times. For purposes of the study of uniformity transmittance and for purification, twice repeated centgeners were, in certain cases, set out, row tests being thus conducted eventually from third generation seed.

After two or three years of comparative row trials, superior strains were carried to comparative plot tests, from which yields, during two seasons, were obtained (see Table II). After further test in comparative plots for a similar period, multiplication of the strain or strains behaving best in plot tests of such adequate duration is the next logical step. It should be here stated, however, that plot trials for five years, as with alfalfa, is considered desirable to ensure the certainty of adequate testing.

The accompanying graph shows, as far as the short duration of testing will permit, the apparent superiority of three Macdonald College strains in

comparison with the check ("Boon"—a composite strain from Ottawa). Though finality has not been reached in the testing of these local strains, yet the indications are that they possess superiority, and this likelihood is strengthened by the fact that the check itself is a composite strain and thus represents improvement.

In the latter part of the summer of 1927 an epidemic of timothy rust was experienced. This may yet prove a blessing in disguise in that two strains (yet in the centgener nursery stage) showed distinct evidence of possessing a high degree of rust-resistance, while contiguous centgeners were badly affected with rust—a condition that had not previously shown up in the production of these inbred strains. Inbreeding, itself, was doubtless a factor in revealing this weakness—rust susceptibility in many strains under test. A point worthy of notice here, also, is the fact that the two apparently rust-resisting strains were selected out of two strains which, with a third, have shown apparent superiority in yield in the comparative plot test above referred to (table II).

TABLE II

Average yields of TIMOTHY in tons per acre of DRIED forage over period of 2 years (1926-27) (Best strains only shown herein)

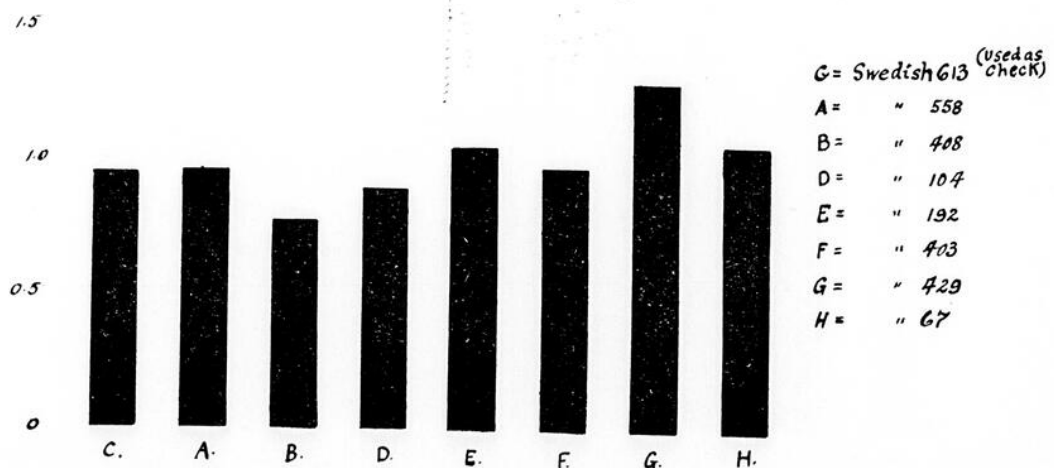
Designation of Strain	Yield
Dickenson Pine Tree 24-23S-2.	2.466
Svalof 237A-5.	2.403
Cornell 1676-46.	2.301
C. 4079 (best of the Cornell Univ. strains in test)	2.200
"BOON" (Check)	2.104

ORCHARD GRASS IMPROVEMENT

Foundation material for orchard grass improvement work, like that of timothy, was obtained from

Macdonald College

Improved Orchard Grass Strains - Average of 2 years plot tests (1926 & 1927)



various sources. The material that came originally from Sweden, however, alone survived, for orchard grass is more tender than timothy, and the various strains under trial, and in some cases showing apparent superiority, represent this variety.

The methods of improvement were practically the same as in the case of timothy, save that the centgeners were for the most part established from seedlings instead of from clones and that the select centgeners (in double rows of 50 plants each) were separated as far apart as possible from each other on account of the greater readiness to cross-pollinate by wind displayed by this grass.

The accompanying graph shows the apparent superiority in yielding ability to date of one, if not three, of these improved strains in comparison with the check, which itself is an improved strain. The apparent superiority shown would show up even greater were comparison made with a check of ordinary commercial (unimproved) seed. Assuredly, the below-mentioned yields of dried orchard grass which represent the averages of two years, are inconclusive on account of the short duration of the period of testing in plots; but here again we have at least one strain that shows distinct promise of being a superior-yielding orchard grass. Various strains, not shown in table III, are undergoing further test in plots.

The above outline of legume and grass improvement being undertaken at Macdonald College shows progress, in the face of difficulties of various kinds, that undoubtedly is being made. The securing for Quebec conditions of alfalfas, clovers and grasses that are hardier, better yielding, of better quality and healthier than their commercial counterparts would seem to be but a matter of a relatively short time, though unexpected setbacks may yet occur to postpone the attainment of the objective.

TABLE III

Average yields, in tons of dried forage per acre, over period of two years (1926-27) from best-yielding ORCHARD GRASS strains.

Designation of Strain	Yield
Swedish 613 (used as Check)	0.950
" 558	0.961
" 408	0.769
" 104	0.882
" 192	1.053
" 403	0.974
" 429	1.297
" 67	1.067

Planting Corn in Drills or Hills in Central Quebec

RESULTS of a thorough test of the relative advantages of planting corn for silage in drills or hills conducted for five years at the Cap Rouge, Quebec, Experimental Station, show a decided advantage in favour of the drills under the conditions prevailing at the Station.

# SOIL NEEDS IN QUEBEC PROVINCE

By Dr. R. R. McKibbin, Chemistry Dept., Macdonald College.

IT has recently been pointed out (1) that a very large percentage of the superficial area of Quebec Province is unfit for intensive agricultural practice. Eighty per cent and over of Quebec soils have too little reserve fertility to give profitable returns from cropping them, under existing market and economic conditions. This large proportion, of course, is due to the fact that Ungava and the Laurentian Plateau are included in the area.

The opinion has been expressed by many observers that present production from Quebec cropped soils as a whole is much under the level at which real farming prosperity can exist.

One suggestion has been that many of the poor farm lands in Quebec now under cultivation should be allowed to revert to forest lands, as has been done recently in a couple of sections of Ontario. If the lands of the Dominion of Canada or of the Province of Quebec were owned by one individual or one corporation, and if the farmers working them were tenants, such a proposition could perhaps be carried out. Under existing conditions, however, upon whom would loss fall? Granting that the farmers involved would go to more fertile farm lands in Canada, Canada would not lose. She should gain, for in the end increased national agricultural production should result. The farmers themselves, after the rather expensive moving operations and adjustment to new conditions were complete, should ultimately benefit, although, as always in success or failure under new conditions, the individuality factor would enter in.

But the Province of Quebec would lose. It is obvious that the farmer who left his low-fertility Quebec farm for more fertile lands outside the Province would not be able to hold the Quebec land also. Who would buy it from him for afforestation purposes? What price per acre could be paid to him for his land? Demand creates supply, and supply regulates price. If the forestation of low-fertility arable Quebec soils were attempted on even a very small scale the price that could be paid per acre for the land would be low. It is illogical to suggest that the Quebec Government should encourage the loss of her people by purchasing land from them to permit of their removal to more fertile soils in, let us say, the Canadian West! It would be much more logical to suggest movement of Quebec people from low-fertility soil areas to higher fertility areas in our Province. The Abitibi region in Northern Quebec has been mentioned as a very promising area for development of this nature.

Reforestation of a part of the farm land on many Quebec farms is entirely feasible. Farm wood-lots are a tremendous asset to those farms possessing them. Rough, stony ground cannot be better occupied in most cases than by a well-tended wood-lot. Insofar as reforestation would include only part of the farm it would seem feasible and advantageous to the farmer. But where the suggestion is made that whole farms should be allowed to revert to woodland, when a considerable part of such farms is arable ground of low-fertility, the reasoning must be regarded as of doubtful soundness.

For industrial conditions in Quebec are not static. Immense new industrial developments are occurring now, and further far-reaching industrial developments are inevitable in the next few years. With industrial development, population increase marches hand-in-hand. Increased local population will mean better transportation and marketing facilities for Quebec farmers, and intelligent farming can be made to pay.

As previously stated, the production per acre of farm crops on many Quebec soils is startlingly low. Unfortunately we have no exact data as to the distribution of soils that give a vanishing margin of profit. If such data existed regarding these poor soils, the taking of measures to increase crop yields from them could be done more intelligently.

To increase production per acre from existing cultivated Quebec soils is the wish of all our agricultural workers. That the task is a difficult one is shown by the results to date. The problems are many-sided, intricate and impossible of complete solution in a few years, or even in a few decades.

It is necessary to let farmers know the results of carefully conducted experimental work on soils

similar to their own and under the same climatic conditions. This involves continuance and extension of the system of demonstration and illustration farms over the Province. It is more important, however, from the soil standpoint, that a system of fertility plots be evolved located on the most prevalent soil classes in different parts of the Province, and that proper rotations be established in these plots. The yields from the plots must be weighed at least in an air-dry state to give information of real value.

Before any sound knowledge of soil conditions and needs in Quebec can be gained, some form of soil survey must be undertaken. Even if but a small area is surveyed each year, the value of such work to the Province will at once be felt.

Residual soils in Quebec are of relatively small extent. Yet it will be of value to know the exact extent of such soils. Within the "great Laurentian plateau" in occupied farm lands a large proportion of the soils are alluvial. The soils in the larger river basins must be studied, even if no attempt is made to map the vast rocky area of the "Bouclier Canadien" in its entirety.

In the St. Lawrence River valley and in that part of Quebec south of the St. Lawrence occurs the largest single area of arable land in the Province. In the Eastern Townships, as in other sections of Quebec, both very fertile and very infertile arable soils are encountered. Exact knowledge of the extent and the nature of these soils must be gained before practical advice can be offered to farmers to help them increase their crop yields per acre.

As illustrations of what may be accomplished by soil survey work, two outstanding examples of national effort in this direction are what has been done in the United States of America and in Russia. Although the soil survey has been undertaken in these two countries for quite different reasons, the result is of great value to the nation in each case. In both the United States and Russia the effects of climate and of the nature of the parent rock upon soil differentiation are considered fundamental. Ecological distribution of native flora is a very valuable aid in the mapping of soils. Samples of soil are taken in the field and forwarded to laboratories for chemical and physical examination.

Soils, the world over, may be defined as mixtures of weathered rock fragments and organic matter of varying composition, teeming with micro-organic life and capable of supporting plant life. This definition in its vagueness is like that of man which states, "Man is a featherless biped". For no definition of soils could be given without writing a book on the subject, and even then the definition would be very incomplete.

Yet the experience of the United States and Russia tells us that over large areas soils may be almost identical in their composition and in their crop response. For example, calcareous soils are invariably good agricultural soils under humid climate conditions such as ours in Quebec. There is a vast area of rich agricultural land in the United States which stretches through southern Pennsylvania, northern Maryland, the Shenandoah valley of Virginia, and down through the blue-grass region of Kentucky into Tennessee. The fertility of this land is due to underlying limestone. If we cannot all have soils derived from limestone rock, at least we can learn the nature of our own soils, their possibilities, extent and response to cropping systems.

In Quebec we have a situation entirely unlike that in either of the countries mentioned which have undertaken extensive soil survey work. Necessarily our methods of attack must be different. With a population occupying but a small area of our total extent we cannot attempt a soil survey on a grand scale. It will be wisdom to utilize the experience gained elsewhere which may be applicable to our case. But under present conditions it would be folly to attempt survey of any but occupied farm soils, or perhaps in some localized areas, the survey of soils which might later be brought under the plough.

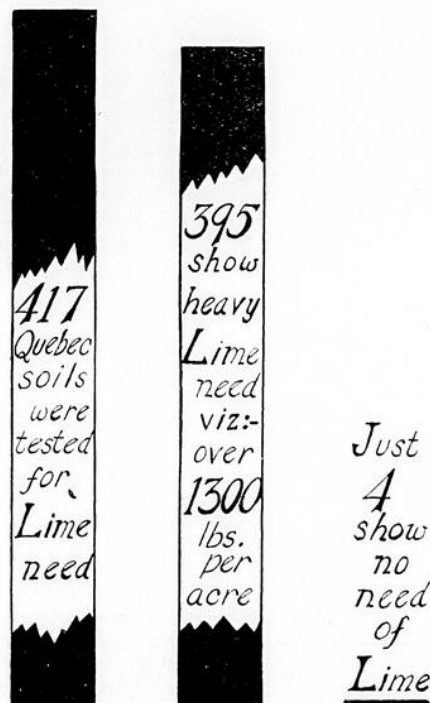
In actual soil classification, field and laboratory data both are important. In the field, observations as to crop growth, the distribution of native flora, the soil texture and colour, at the surface and at different depths, are significant. The geological derivation of soils must be established where possible. In soil survey work existing geological, geodetic and military survey maps are made use of, and soil survey maps are dependent upon these other maps as well as upon the efforts of the soil surveyors.

When soil classification in any section is successfully accomplished, information is gained of immediate practical value to the government, to scientific workers and, above all, to the farmer whose soil has been "classified" as belonging to a definite soil "species".

In the United States system of nomenclature of soils the term "province" is used to define a large area of soils of similar general origin. In Quebec such a term would apply to the Laurentian shield to differentiate it from the Appalachian region and the St. Lawrence plain as geologically defined. The term "series" is applied to soils of similar origin, composition and relationship to environment within a soil province. Thus, the limestone soils in the Phillipsburg, Bedford and St. Armand area might well be considered to belong to the "Phillipsburg" series. "Type" is a term applied to differentiate between gravelly, sandy, loam, silt and clay soils of the same series. For example, we might speak of a Phillipsburg gravelly loam or Phillipsburg clay loam soil, etc. Such a system of soil nomenclature as this would give sufficient definition of the local soil to warrant for it the recommendation of specific cropping and fertilization systems that have proved successful under similar soil conditions.

Lime applications are needed on a very high percentage of Quebec arable soils. More than 90% of about 400 soils of which we have record need from one-half to 4 tons of lime per acre in order to get maximum yields from them with legume-containing rotations. Lime has been described as the "key to soil fertility". Without lime, legumes will not thrive. Either the soil must be of limestone origin or lime must be pulverized, brought from quarries, and placed on it, for best alfalfa and clover yields. The problem in the use of lime is almost entirely an economic one. Sources of limestone rock in the Province are so widely scattered that long freight hauls from quarry to farm are, in most cases, necessary. Information may be gained from the soil survey, coupled with a soil-testing campaign, as to those soil areas of the Province most vitally in need of lime amendment in order that an improvement may be effected in their crop yields.

Application of some form of commercial fertilizer will undoubtedly prove economical on nearly all Quebec soils. Partly because of the lack of phosphoric acid balance in barnyard manure, it is believed that phosphorus-carrying fertilizers are particularly needed by our soils. The lack of phosphorus is accentuated by lime deficiency, for it has been shown that well-limed soils, as a general rule,



*Illustrating Need of Lime  
by Quebec Soils.*

(1) Nagant, H. M., "Geologie et Ressources Agraires", "Scientific Agriculture", VIII, No. 9, p. 532, April, 1928.

have more phosphorus available for plant use than the same soils unlimed and in "acid" condition. In our climate any agency hastening the maturity of crops should be used. Phosphate fertilizers, among other benefits, will hasten the maturing of crops, and in this way alone will well repay their use on general farm crops.

The use of nitrogen and potassium commercial fertilizers will certainly be economical on field crops grown on many of our soils, and they will be more vitally needed on some deficient soils with a given crop than on others. Here again a soil survey should be of value, in pointing the way to the economic use of commercial fertilizers, for these can profitably be used not only on specialized crops but also on general farm crops. In Quebec Province tobacco growers use commercial fertilizers heavily, as also do horticulturists, but they are used to a negligible extent in general farming. That this is the case is due to a lack of knowledge by the general farmer of the fertilizer needs of his soil and of the rotations he follows as much as to a lack of willingness on his part to buy commercial fertilizers, once he is convinced of their economic value to him.

Underdrainage is very highly recommended as a means of bringing low-producing soils into the high-production column. Underdrainage of soils is without question of great benefit to them, it relieves flooded soils, makes cold, late soils earlier, actually it makes the water held within well-drained soils more available for plant use. But its cost is great. The average farmer finds a complete system of underdrainage quite beyond his means. If he can first increase the productivity of his soils by less costly means he will then be in a better economic position to install underdrains.

It would seem that so far as drainage is concerned a middle path must be followed. Extensive underdrainage systems may pay very well in certain fields and with certain farmers. But apparently in the majority of cases some other less costly means of increasing farm production in Quebec must be evolved. It is probable that for most farms open drains, the use of lime to help form soil "crumbs", and thereby better the drainage, application of organic matter in the ploughing under of green manures and barnyard manure, and the use of commercial fertilizers to help the crop directly, will prove more economical than immediate complete underdrainage.

If soils were uniform in composition and in

## The Quebec Provincial Feed Board

By E. W. Crampton, Asst. Prof. of Animal Husbandry, Macdonald College.

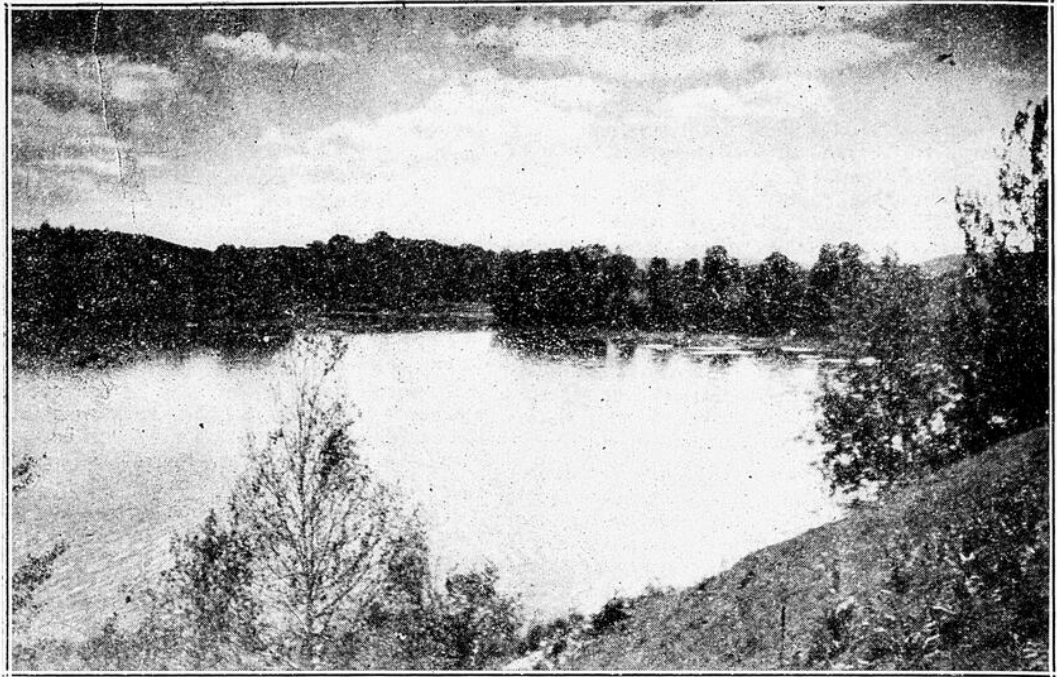
FOR the past few months there has been in existence an organization officially known as the Quebec Provincial Feed Board. As its name implies, it is a Board organized to study and, where possible, make recommendations regarding feed mixtures suitable for conditions as they are found in Quebec.

On this Board are represented: the Quebec Department of Agriculture; each of the Agricultural Colleges of the Province; the Feed Division of the Dominion Seed Branch; and the Dominion Experimental Farms Branch.

The purposes of this Board may be summarized as follows: (1) To co-ordinate the recommendations regarding suitable feed mixtures for use under different conditions obtaining in this Province. (2) To propose mixing formulae for meal mixtures suitable for use under given conditions. (3) To consider and approve, if found satisfactory, mixtures proposed by feed concerns.

One of the outstanding services which it is hoped this Board will offer to the feeders of the Province is the co-ordination and perhaps standardization of recommendations regarding suitable feed combinations for use under given conditions. At the present time, each of the departments mentioned above are called on to advise on feeding problems. In general, the recommendations from these different sources agree, though the detail of the mixtures suggested are various. The Quebec Feed Board, being composed of those parties now advising on feeding problems, will automatically effect a co-ordination in their recommendations.

In proposing meal mixing formulae a service of a somewhat different type is offered to the feeder. It is the intention of the Board to propose a number of feed mixtures which in their opinion are satisfactory for purposes which will be indicated with each mixture. The formulae for these mixtures will be free to any who care to use them. The individual farmer may use them as a receipt for making a farm mixed ration; the local dealer may mix them and offer them for sale, subject to certain condi-



The Laurentian country of Old Quebec is rich in beautiful lakes and streams which in summer are visited by many thousands of visitors.

their effect on crops, the soil survey would be unnecessary. It is unfortunately true that the survey of soils in glaciated regions is more difficult than in non-glaciated; couple with this the heterogenous character of alluvial soils, and one can appreciate the task awaiting the surveyors of Quebec soils.

However, until some systematic soil classification is effected in this Province, hit-or-miss methods of fertilization must be resorted to by most farmers, and the results of soil experimental work can only apply to an individual farmer's case in a general way. Such systematic classification of our soils will, without any doubt, be undertaken sooner or later. If a start can be made now in their classification, the information gained will the sooner be available in order to tell intelligently to farmers the results obtained from experimental work done in cropping and fertilizing soils similar to their own.

ing the activities of this Board should communicate with Mr. S. J. Chagnon, Chief Assistant, Live Stock Branch, Department of Agriculture, Quebec.

### Keep Up The Milk Supply

To The Editor of The Journal of Agriculture.

Sir:

A great many farmers make a great mistake in not supplying the milk cows with food during the hot weather period of July and August. Usually the great flow of milk is in June, and in order to keep that flow up farmers should have a plot of green feed to supply the dried up pastures.

I have used a combination of grain to sow an acre of ground—1½ bushels oats, ½ bushel of peas, and 1 bushel of vetches. Now, half an acre, if the soil is in good heart (I mean fairly rich), is quite enough to feed 25 or more cows for the hot weather period. The farmer should choose a piece of ground not far away from the barnyard, large enough for his dairy. Sow one half of the intended plot as early as possible in the spring and the other half, say, two or three weeks afterwards, and if the season is at all favorable you could cut at least twice; and if it should happen that you did not require it all for green feed it could be cut and cured for hay, or it makes food excellent to put in the silo. If any farmer will try this plan, I feel sure he will not feel sorry, and he will not have any part of his farm to give him more profit than the piece.

The cows should not be allowed to drop too much for want of sufficient food to keep the supply up. Should any farmer neglect this piece of advice they will find it will cost quite a lot of money to feed the cows, to gain the loss that would occur.

I found it was always a good idea to cut the feed a few hours before giving it to the cows, and let it wilt just a little. The cows seem to enjoy it better, and they eat it much more readily than if cut fresh and green.

Farmers, try this and see if you will not be pleased with your trial plot this year.

Yours very truly,

PETER MacFARLANE.

New Glasgow, N. S.

### Pasture and Green Feed for Hogs

FOR brood sows and young breeding pigs pasture provides not only the cheapest but the most healthful method of feeding. It favours the growth of both bone and muscle and the development of a vigorous condition. For hogs that are fattening pasturing has its disadvantages, particularly with the active bacon hog which will use up an undue amount of energy in excessive exercise. The subject of feeding swine, dealt with in Circular No. 61 of the Department of Agriculture at Ottawa, recommends for breeding hogs a pasture of red clover and alfalfa, or fine grass, with accessible water and shade.

Any persons wishing further information regard-

# A Message to Milk Producers

From The Inspector-General of Butter and Cheese Factories.

Gentlemen :

WILL you permit us to draw your attention, for a moment, to a few matters which touch very closely your interests and which should perhaps be better understood.

We are now commencing a new season of butter and cheese making.

There are makers who have done good work during the past year. Others have been in the "neither good nor bad" class; they have remained stationary. Lastly, there are a certain number of others who, unfortunately, have registered only bad results.

Why these differences ?

For three reasons, which may be listed as follows:

1. Poor quality of products brought to the factory;
2. Poor supervision of the factory operations;
3. Indifference, negligence (and sometimes incompetence) of the maker.

We are confident that you prefer to produce good milk rather than poor. Also, the department is pleased to help you in this by offering you in future, at your home, the free services of their inspectors. Because of their technical knowledge and of the fact that they judge your conditions on the spot, they will be able to give you particularly valuable advice. Is it necessary to tell you that we strongly advise you to make use of their services? Receive them with courtesy and they will be more than glad to fulfil their task. You can count, in return, on their friendliness and interest.

Like ourselves, all the inspectors are your employees. It is our duty to inform you concerning the facts in your factory. But how much more eager we would be if we found, in each district, a board of directors, composed of serious members, who would question us and show as much interest as we do ourselves in securing the best results. Indeed, is it not you who lose when you have poor results? Further, it may be necessary, in some cases, to accompany the inspector to the factory and to make the inspection with him. How many things which cannot easily be explained in a verbal report

and which are even more difficult to gather from a written report, may be observed and judged on the spot? Why, for example, should not the board of directors make it its duty to examine the official certificate of classification of each shipment? When the certificate shows that the products are poor, there must be a cause. This cause should be searched out immediately and remedied as soon as possible. In order that a lot of butter or of cheese may be placed in the first class, it must score at least 92 points out of a 100; but do not forget that if this shipment obtains only just the 92 points required, it may be said to approach closely to the second quality. It is at this point that you should check up on the matter. Otherwise, take care that the shipments which follow do not fall into the second class.

The chief grader addressed to all factories at the end of last season a report showing the quantity of cheese of first, second and third class made in each. Have you studied these reports? It is to your interest to do so. If you did not shine in column No. 1 last year, try harder this year.

Before the season is well advanced, if the inspectors ascertain that already the results obtained are poor, they should inform you of it. Further, they should tell you whether that is due to the poor milk delivered to the factory or to the negligence of the maker. We hope that if it is the milk furnished which is the cause, you will look to it at once. On the other hand, if it is the maker who is at fault, co-operate with the inspector to help him correct it.

There is a prejudice which exists against little factories and which is justified up to a certain point; but we must not wait until all the factories are large before trying to improve the quality of the products in all.

If the factory which you patronize does not receive much milk, but if it has a reason for its existence, you should be more strict with the maker, since it is easier to control the manufacture of a small quantity of milk than of a large quantity. What happens in the factories receiving little milk is that the makers are less strict in what they take in so that they may not decrease the revenues. We believe that in such a case it would be a wise move on your part to increase the salary of these makers, to require from them choice products and force them to refuse milk that is not suitable for manufacture. This is the only way to correct these troublesome patrons, who are the exceptions, not only in the small factories but in each district, and who are very often the cause of poor quality products.

We trust that these observations will be taken in good part by all interested. We have, however, the right to expect your co-operation because it is especially necessary for the progress of our dairy industry—in other words of your own interests.

Yours very truly,

(Signed) GEO. CAYER,

Temporary Inspector General of Butter & Cheese Factories.

Quebec, 18 May, 1928.

## Permanent Permits Required To Ship Milk and Cream to the United States

AS forecast, the United States Department of Agriculture has announced that temporary permits under the Import of Milk Act will be cancelled as of May 31st, and permanent Permits issued as on June 1st after complying with the regulations as per said act. The work of inspection under the Department of Agriculture at Ottawa to decide what shippers can obtain permanent permits is progressing, but in several areas shippers have decided that they cannot hope to reenter this market at present—these being creameries whose patrons have not shown a willingness to go to the expense of building milkhouses and making other changes in herds and premises to meet the United States requirements.

It is impossible to say exactly how large a proportion of our exports will be cut off on May 31st, but competent authorities say 75%. That is a serious matter, especially as the United States market was the highest priced one open to Canadian dairy products.

It is certain that there is a market in the United States for Canadian milk and cream, and despite the fact that the inspection imposed on Canadian

producers is more severe than that on United States dairymen, it would be unwise for the Canadian dairy industry to decide not to cater to that market. We are making great strides in the eradication of tuberculosis, and there will soon be a much larger supply of milk and cream available from disease free areas than the Canadian market can use in fluid form. In order to obtain the reward for the heavy expenses of creating these areas we must make a concerted effort to make sure that, in at least those areas, the cleaning up of stables and the making of other necessary improvements, is finished, for that will at once reopen the United States market to our products.

In the end the effect of the action of the United States Government should be of great value to the Canadian dairy industry, by making the reputation of Canadian milk and cream higher than ever.

We have the chance to profit by our present hardships and we should not neglect it.

NATIONAL DAIRY COUNCIL of CANADA,

Journal Building, Ottawa, Ont.

Keep a little oxide of zinc ointment on hand. It is good for scratches and sores.

## Quebec's District Agriculturist Service

Director Narcisse Savoie Inspector Roger Gagnon

F. Champagne, Dist. Insp., Dist. No. 1, Rimouski, Que.  
L. Therrien, " " " " No. 2, Louiseville, Que.  
L. C. Roy, " " " " No. 5, Cookshire, Que.  
J.-Alf. Leclerc, " " " " No. 6, Laprairie, Que.

District	County	Agronome	Residence.
—	Abitibi-East,	France Brien,	Amos.
—	Abitibi-West,	Alex. J.-Rioux,	Macamic.
—	Argenteuil,	Alex. Bothwell,	Lachute.
5	Arthabaska,	Henri Lauzière,	Victoriaville.
6	Bagot,	Raphael Rousseau,	Acton-Vale.
5	Beauce No. 1,	Alphonse Laflamme,	Beauceville-East.
5	Beauce No. 2,	Rolland Brassard,	St. Georges.
6	Beauharnois,	Sauveur Gosselin,	Valleyfield.
1	Bellechasse,	J.-Ulric Brown,	St. Raphael.
2	Berthier,	Elphège Marseille,	Berthierville.
1	Bonaventure,	Hector Leblanc,	Maria.
1	Bonaventure-	Gaspé, André Paris,	Grande Rivière.
5	Brome,	L.-D. McClintock,	Knowlton.
2	Champlain-North,	Chas. Eug. Rioux,	St. Tite.
2	Champlain-South,	J.-A. Fortin,	Batiscan.
—	Charlevoix,	J.L. Langevin,	La Malbaie.
6	Châteauguay,	P.-N. April,	St. Martine.
—	Chicoutimi,	Avila Charbonneau,	Chicoutimi.
5	Compton,	Joseph Bergeron,	Cookshire.
6	Two Mountains,	Nelson Cossette,	St. Eustache.
5	Dorchester No. 1,	P.-A. Brunel,	St. Hérodine.
5	Dorchester No. 2,	Ernest Massé,	St. Germaine Sta.
5	Drummond,	William Houde,	Drummondville.
5	Frontenac,	Fred. Pothier,	Lac Mégantic.
1	Gaspé,	Rodolphe Gauthier,	Gaspé.
—	Hull No. 1,	J.-W. Delaney,	Hull.
—	Hull No. 2,	Marcel B. Bonnier,	Maniwaki.
6	Huntingdon,	L.-de G. Pelletier,	Huntingdon.
—	Iles de la	Maximilien	
	Madeline,	Lemieux,	Cap aux Meules.
2	Joliette,	Anthime Char-	Joliette.
		bonneau,	Joliette.
1	Kamouraska,	Pierre St. Hilaire,	St. Pascal.
6	Labelle,	Geo. E.oucher,	Nominungue.
—	Lac St. Jean		
	No. 1,	Gustave Foucher,	Hébertville Sta.
—	Lac St. Jean		
	No. 2,	Irénée Paré,	Roberval.
6	Laprairie-		
	Napierville,	Arthur Lamarre,	Laprairie.
2	L'Assomption,	Arthur Landry,	L'Assomption.
6	Laval Jacques		
	Cartier,	J.-Willie Lemyre,	Ahuntsic, (1)
—	Lévis,	Edouard Brisebois,	St. Romuald.
1	L'Islet,	Bruno Potvin,	St. Jean Port Joli.
5	Lotbinière,	Emile Roy,	St. Croix.
2	Maskinongé,	J.-E. Roy,	Louiseville.
1	Matane,	J.-Bte. Milette,	Matane.
1	Matapédia,	Jules Rinfret,	Val Brillant.
5	Mégantic,	Armand Gélinas,	Plessisville.
5	Missisquoi,	Paul Gingras,	Bedford.
2	Montcalm,	L.-J. Sylvestre,	St. Jacques.
1	Montmagny,	Paul Carignan,	Montmagny.
2	Montmorency,	A.-P. Pelletier,	Château Richer.
5	Nicolet,	Josaphat Joyal,	Nicolet.
—	Papineauville,	Thomas Rollin,	Papineauville.
—	Pontiac,	T.-Ed. McOuat,	Campbell's Bay.
2	Portneuf No. 1,	J.-C. Magnan,	St. Casimir.
2	Portneuf No. 2,	J.-A. Plante,	St. Basile.
2	Québec,	Emile Gauthier,	Charlesbourg.
6	Richelieu,	J.-A. Filion,	Sorel.
5	Richmond,	J.-A. Proulx,	Richmond.
5	Rimouski,	Ulyni Phaneuf,	Rimouski.
6	Rouville		
	Chambly,	Geo. E. Mayrand,	Richelieu Village.
6	St. Hyacinthe,	Lorenzo Hamelin,	St. Hyacinthe.
6	St. Jean and		
	Iberville,	J.-R. St. Arnaud,	Iberville.
2	St. Maurice,	J.-A. Parenteau,	Yamachiche.
5	Sherbrooke,	W.-G. MacDougall,	Lennoxville.
5	Stanstead,	J.-R. Belzile,	Lennoxville.
5	Shefford,	Oscar Descotes,	Waterloo.
—	Témiscamingue,	J.-Joseph Bégin,	Ville Marie.
1	Témiscouata		
	No. 1,	Domina Fortin,	L'Islet Verte.
1	Témiscouata		
	No. 2,	Philippe Lambert,	N.-D. du Lac.
6	Terrebonne,	Alphonse Lafrance,	St. Thérèse.
6	Vaudreuil		
	Soulanges,	Henry Reid,	Vaudreuil Sta.
6	Verchères,	Jules Auger,	Verchères.
5	Wolfe,	Emile Lemire,	D'Israeli.
5	Yamaska,	Eugène Boivin,	Pierreville.

(1) 10830, St. Denis St., Montreal.

## A Profitable Holiday for the Farm Boy.

Macdonald College—July 2nd to July 6th—1928

The first week of July will be Farm Boys' Week at Macdonald College—a week during which the farm boy will have an opportunity to get acquainted and exchange ideas with boys from other sections of the province; a week to get acquainted with Macdonald College; a week in which to spend a profitable holiday.

Through the generosity of some kind friends, board and lodging at Macdonald College will be free of charge. Transportation therefore will be the one important item of expense. Special railroad rates of fare and one-third will be available on the certificate plan. Groups of boys may arrange to motor.

The program being arranged will include visits to the College farms and opportunities to see something of the College equipment, excursions to neighboring stock farms and organized sports.

Boys between the ages of fifteen and twenty who speak English, and who are living on farms, are cordially invited to be guests of the College for this Farm Boys' Week.

To take advantage of this outing it will be necessary to make application. Forms for this purpose are provided and may be obtained locally from any one of the following—

1. The Minister,
2. The School Teacher,
3. The District Agriculturist,
4. The Officers of the Women's Institute.

These applications should reach the College on or before June 25th in order that the applicant may benefit by the reduced railroad rates.

Applications will be accepted to the limit of our accommodation facilities. In the event of these being over-taxed, selection will be made on the basis of age of the boy, and the order of receipt of application.

The boys will be accommodated in the College Residence. They will be enrolled for the week and they will be under College supervision and discipline during their visit.

Further information may be obtained from the Farm Boys' Week Committee, Macdonald College, P. Q.

# Organization for the Protection of Crops

By Dr. W. H. Brittain, Professor of Entomology, Macdonald College.

THE fact that crops, as well as man and his domestic animals, are subject to attack from various parasitic enemies, is one of which everyone who reads the newspapers is well aware. Such names as those of the Cotton Boll Weevil, Gypsy Moth, European Corn Borer, Japanese Beetle, etc., are almost as well known as those of Gene Tunney or Mary Pickford. Indeed a recent survey by Science Service revealed an interesting fact. It was that, while scientific subjects generally held a much lower place in public esteem than such topics as murders, divorces, or the sayings and doing of the mayor of Chicago, where scientific articles only were considered, those dealing with insects came second on the list with respect to space occupied in the daily press. Another significant fact is that in a list of agricultural research workers in the British Empire, recently published, the number of entomological workers exceeds that of any other science, while the list of workers in plant diseases is next largest.

This represents a condition of affairs quite different from that which existed 25 years ago, and shows how clearly it has come to be realized that greater and more economical crop production does not necessarily mean planting more seed, or cultivating a greater acreage, or even adopting new cultural practices, but, in very many cases, it does involve the giving of more intelligent attention to problems connected with the control of insect and fungous pests. Today, whenever farmers and fruitgrowers or planters are gathered together to discuss their business, whether it be the growing of cotton or apples, of oranges, wheat, sugar cane or potatoes, it will be found that a considerable proportion of their deliberations will be devoted to a discussion of the control of the pests affecting those particular crops. It will also usually be found, that the more specialized the agriculture and the greater the extent to which a particular crop is grown to the exclusion of other, the more trouble is likely to be experienced from parasitic enemies. The reason for this is simple enough. Introduce a verminous individual into a lumber camp, a barracks, or a trench, or elsewhere where men must live crowded together, and it will not be long before his companions are equally verminous. Similarly where large acreages are devoted to wheat, or apples or cotton, the pests of these crops find ideal conditions to increase and multiply.

Had there been no development in our knowledge of the habits and life histories of injurious insects and no improvement in methods and materials used for the control of such pests, modern agriculture, as we know it today, would have been impossible. Even with all the advances that have been made, it is a question whether the pests have not, on the whole, obtained somewhat the upper hand. Down to the early eighties of the last century the methods used by farmers on this continent and in Europe were similar to those used today by the cultivators of India or China. About that time the use of Paris Green began to come into general use, and since then progress has been rapid and has gained acceleration with the passing years, until, at the present time, the number of materials used for the destruction of insect life is very great. Coincident with the development of materials, there has been a corresponding evolution in the development of machinery for applying these materials either in the spray or dust form. From the early days when liquid material was applied with a small brush made from a handful of grass, or dusted on in dry form through a piece of sacking or wire cloth, we have now large power outfits that will treat large acreages a day and, in special cases, the aeroplane is beginning to assume an important role in applying poisoned dust mixtures over large areas. With the still greater development of specialized agriculture and the introduction of new pests, the problem is becoming increasingly difficult for individuals to handle, and it is not at all surprising that, in some cases, growers have become bewildered by the complexity of the situation with which they are faced. The imperative need of organizing their forces against the attacks of insect and fungous enemies has forced itself on the attention of governments, of associations and of individuals. Governmental activities usually follow the following lines:

1. Plant quarantine to prevent or render more difficult the introduction of new pests.
2. Measures to prevent, restrict or retard the spread of already introduced pests.

3. Investigation and research into the problems of insect pests and their control, the information secured being later disseminated among the growers in various ways, such as through pamphlets, bulletins, meetings or in a more personal way through the extension service of departments of agriculture.

Actual control operations are only rarely carried out directly by governmental agencies. This method is, however, employed in certain of what we usually regard as backward countries, where the work is unlikely to be done otherwise, or where the authorities are unwilling to trust the people with the poisons needed for the work. The citrus acreage in Egypt is fumigated each season by a government department, and the same principle is applied to the control of certain pests in parts of India, the grower being assessed a definite sum for the work. Such methods are unlikely to commend themselves in Western countries. On such crops as citrus, where the period for treatment may extend over several months and where the equipment for fumigation work represents a considerable investment, the work may be carried out by commercial organizations. In northern countries, however, where the season for treatment of most crops is short and where applications, to be effective, must be timely, the method of company operation has rarely been successful. The tendency is for each grower to provide his own apparatus and to do his own work.

Considering the large number of organisms involved, their small size, and the difficulty of every grower becoming acquainted with all the details necessary in planning a suitable programme of control, there has gradually developed a greater

and greater tendency to depend upon expert advice in these matters. Mention has been made of certain of these agencies for the dissemination of such knowledge. Literature is freely available almost everywhere on this continent giving the most up-to-date information regarding the control of all major pests, to such as can use it. In most cases where the situation demands it, there are laboratories of entomology or plant pathology in existence, and there is usually some form of organization for bringing the results of their investigation to the attention of the grower. The various "Spray Services" that have been inaugurated in many fruit growing sections in the United States and Canada are good examples of such organizations. The laboratories connected with these services keep an accurate check on the different pests concerned and are in a position to advise when treatment should be made. This is done by cards, by press notices, or sometimes in emergency cases, by telephone relay. Meetings may also be held of groups of growers whenever circumstances seem to require it. Individual visits are rarely a part of these services, except where groups of growers definitely arrange to pay for such a service.

In some cases the work of the spray service is financed largely by the growers themselves through their county farm bureaux or corresponding bodies, though the agricultural college may pay a small part of the salary of the "spray specialist". In some cases growers pay from five to twenty-five dollars per season for this service, and it is a notable fact that few counties have discontinued such a service once it has been started. In other cases the service is largely free to the growers, except that they furnish the organization and, usually at least, provide the secretarial work. Some sort of organization appears to be necessary in order to secure prompt and effective action at critical periods. Hence, such "Spray Service" organizations are likely to become more numerous and to play an even larger part than they have in the past.

## Methods of Potato Disease Control

By H. N. Racicot, B. A., Dominion Laboratory of Plant Pathology, Ste. Anne de la Pocatière, Que.

PREVENTION is the most effective way of controlling potato diseases. There are five main methods of prevention: cultural practices tending to reduce diseases, seed selection, seed disinfection, spraying or dusting, and roguing. Growers should plan their work so as to include these methods with their cultural practices.

Good drainage, underground or surface, will remove excess water and allow better aeration of the soil. This will help to prevent the rotting of sets in the soil, and assure a better stand. It will also eliminate damp spots in the fields, which are sources of infection for late blight.

Proper fertilizers should be used. Common scab of potatoes is increased by applying fresh manure. It should be well decomposed. Lime also increase common scab. If the soil requires lime, apply it at another time in the rotation. Clover and other green crops ploughed under make the soil more acid and less favorable to common scab.

Keep the weeds down. They harbour diseases. Common scab and rhizoctonia live on weeds and other plants. Weeds also stunt the growth of plants and increase the humidity of the air near the soil, predisposing them to diseases.

If potatoes are grown in the same field for more than one year, the amount of diseases is likely to increase, as these overwinter on plant refuse. Crop rotation will aid in starving out diseases. A four years' rotation is good, but a longer one may sometimes be necessary.

A seed plot will aid in increasing the yield and in reducing disease. Its small area permits one to cultivate, spray, and rogue it thoroughly. Harvesting it by hand enables the selection of high yielding, disease-free strains.

Select good size seed potatoes free from diseases, dry rots and mechanical injuries, and that were produced in fields free from virus diseases. Diseased seed usually produces a diseased crop. Dry rots and injuries may look harmless, but they usually harbour diseases that cause the sets to rot. The culls should not be planted. The small tubers were largely produced by weak and diseased plants, especially by plants affected with virus diseases.

Seed disinfection with Formalin will aid in controlling black leg, and under certain circumstances common scab also. Corrosive sublimate will give good results in reducing potato rhizoctonia. These disinfectants destroy the diseases that overwinter on the surface of the tubers.

Sprays and dusts are applied to plants as a pro-

protective coating poisonous to diseases. Therefore the spraying or dusting should be done thoroughly in order that every part of the plant may be covered, and before the disease has made its appearance. Spraying with Bordeaux mixture will control the early and late blights and tip burn of potatoes.

Roguing is the only effective control for virus diseases such as leaf roll, mosaic, curly dwarf and spindle tuber. The roguing must be done early in the season before the agents of transmission, usually insects, have had a chance to spread the disease to healthy plants. Newly inoculated plants will not show the symptoms for some time after inoculation, and cannot be detected.

Some diseases are controlled by the application of one of these methods, while others require the use of several. For example, late blight of potatoes is controlled by timely and thorough spraying with Bordeaux mixture, while black leg will require seed selection, seed disinfection, and roguing. For more information about potato diseases and their control, growers may apply to the Dominion Botanist, Central Experimental Farm, Ottawa, or to the Laboratory of Plant Pathology of their respective province.

## Mosquito Control

THE females of the majority of species of mosquitoes drink blood, and warm blooded animals and man are the sources of this particular form of mosquito food. This makes the mosquito an interesting subject for study, and a circular, just published by the Department of Agriculture, entitled "Mosquito Control in Canada", is most timely.

While some of these predacious insects only live for a few days others live for several weeks, and the best way to control them is to make an attack upon their breeding grounds. The Entomological Branch advocates in this circular the draining and filling in of low places where water accumulates, and the screening of receptacles holding water such as water barrels. Temporary bodies of water formed by melting snow, rain and floods are common breeding places for mosquitoes.

'Mosquito Control in Canada', which may be obtained on application to the Publications Branch, Department of Agriculture, Ottawa, deals at length with the life history, permanent and temporary control measures, procedure in control campaigns, and protection from mosquito bites.

### Control the Onion Maggot

THERE has been developed during the past few years, a very satisfactory control for the onion maggot, in Bordeaux oil emulsion. This insect does a tremendous amount of damage every year, and until comparatively recently, all efforts to control it met with anything but promising results. Corrosive sublimate, it is true, at the rate of one ounce to ten gallons of water gives fair results occasionally, but even then the loss is considerable.

In the manufacture of Bordeaux oil emulsion, the first procedure is to make the Bordeaux which is used in the 4-4-50 formula. The quickest way to do this, even when only small amounts are required, is first to make up stock solutions. Dissolve in one container, any given number of pounds of bluestone in as many gallons of water. Take a similar weight of stone lime and as many gallons of water as there are pounds and slake in a second container. For use, take four gallons of each stock solution, dilute each with 25 gallons of water and pour the two together.

The oil emulsion is the same as that used for the control of scale insects, and is made by boiling together, one gallon of a light grade lubricating oil, having approximately 90 percent viscosity and .88 specific gravity, with two pounds of potash fish oil soap and one quart of water. This is added to the Bordeaux mixture at the rate of 1½ gallons to 48½ gallons of Bordeaux. The mixture should be violently churned and pumped back into itself, so that a smooth emulsion is formed.

The spray should be applied to the young onions, beginning when they are an inch in height, with four additional applications at weekly intervals. Those who have used this material find that it gives excellent results, and where applied properly, a 100 percent control can be obtained, thereby increasing the yield very appreciably.

W. E. W.

### The Cabbage Root Maggot

GROWERS of cabbages and related plants in many districts are familiar with the injury done by the cabbage root maggot. When the plants are beginning to head, or earlier, they will wilt and die, and upon examination it will be found that the roots are infested with whitish maggots. These hatched from small, white eggs, laid at the base of the plants by the adult fly, that emerged from its overwintering pupa in the soil about the middle of May. There are two broods a season anyway, and considerable overlapping takes place between the first and the second, the latter usually doing less damage as the plants are stronger and therefore better able to withstand the attack.

Corrosive sublimate (mercury bichloride) is now used by many growers and is found to be a very successful means of control. This material should be dissolved in water at the rate of one ounce to ten gallons, and about two-fifths of a pint applied at the base of each plant; if the soil is hard and dry, use more, if moist, use less. The ideal time to make the first application is just after egg-laying begins, followed by a second in a week's time. For safety, especially in cases where plants are set out early in the season, a third application a week later may be given, but if the first is applied at the right time it is not necessary. It is not difficult



Infested Cabbage Root. Cabbage root infested with maggots.

to recognize the eggs and it is of considerable advantage if this can be done, but to those who are unable to do this, the best advice is to make the first application four days after the plants are set out, followed by two more treatments at weekly intervals.

If seed beds are unprotected, the young plants are just as liable to attack as those set out in the field. This may be remedied by watering the seedlings with corrosive sublimate as already explained, making three applications, the first not sooner than four days after the plants come through the soil. The seed bed may also be screened with cheesecloth, but this has a tendency to draw the plants.

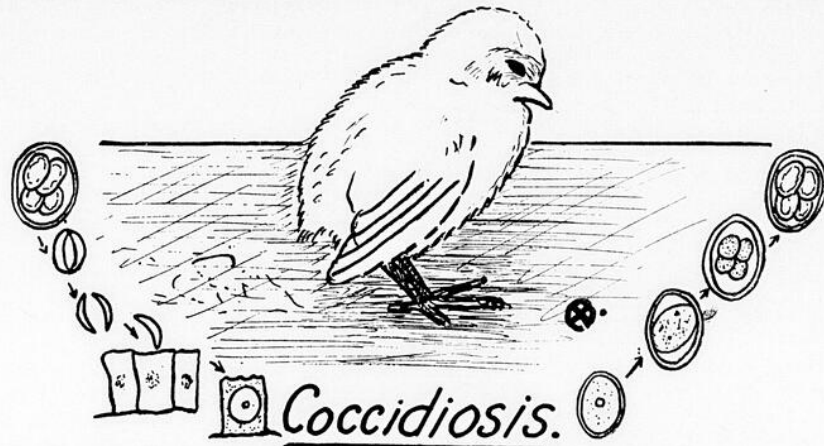
The cabbage maggot also attacks radishes. If treated in time, however, the foregoing directions are satisfactory, but once the maggot gets into the

radish, it is impossible to control it.

It should be remembered that corrosive sublimate is a deadly poison. When mixing it, wooden containers should be used, as if allowed to stand in metal vessels, it quickly eats through them. Metal containers, such as the ordinary watering can with the sprinkler removed, are usually used in making the application, and they will last much longer if the insides are treated with equal parts of tallow and rosin, mixed together and applied hot.

Corrosive sublimate not only controls the maggot, but acts as a stimulant to the plants. Treated and untreated plots, growing side by side, can be distinguished from some distance away, in that the plants in the former are of a darker colour, and the heads are of a greater weight when harvested.

W. E. W.



## Coccidiosis

Alex. D. Baker, Department of Entomology and Zoology, Macdonald College, Que.

COCCIDIOSIS (of all domesticated birds, and particularly of growing chickens and pigeons) is rightly regarded as one of the most important infectious poultry diseases occurring in the United States and Canada. The greatest loss occurs in chicks up to 4-6 weeks of age, and in young infected flocks the mortality sometimes reaches 100%. This disease is quite prevalent in this province.

The cause of this disease, which is variously known under the names of coccidial enteritis, bloody diarrhea, avian coccidiosis, etc., is a microscopic parasite called *Eimeria avium* (or *Coccidium avium*). It is round to ovalshaped, invisible to the naked eye and reproduces by simple division as well as by sexual processes. It is a parasite which locates itself within the lining cells of the intestinal walls. When chicks develop bloody diarrhea this trouble should always be suspected. Affected birds stand with wings drooping, do not eat and stand with their eyes closed for long periods unless disturbed. Microscopic examinations of the droppings or scrapings made from the bowels of killed birds are necessary in order to make determination certain, as the parasites are extremely small.

The heaviest mortality occurs in chicks, and in such birds the parasite is found located chiefly in the caeca (or blind sacs of the intestine), the walls of which often become considerably injured. Occasionally the liver is involved, as indicated by the presence of small whitish-yellow specks on its surface. So far as is known, the species of coccidium attacking poultry is not capable of living in other farm animals.

Older birds also suffer from this disease where, when present, it usually appears in a chronic form, and the mortality is not so great. In these older birds the coccidial lesions are confined mainly to the small intestine. The caeca rarely show any marked change. While the death rate is much lower than with younger birds, general physiological disturbances are often evident.

Infection of a bird occurs through ingestion of the "egg" of the parasite. This must have reached the infective stage before infection can occur. On being taken up with the food, etc., crescent-shaped bodies (the sporozoites) are set free within the intestine. These pierce the cellular lining of the walls of the alimentary tract, chiefly those of the cecal lining in young chicks.

A sexual reproduction (or schizogony) occurs later, and the parasites may migrate from cell to cell, greatly damaging the walls of the caeca, which become discolored, and the inner lining may slough off. Blood stained droppings are usually in evidence at this time.

At some time after the above cycle has become well established, sexual products are formed which

lead to a different cycle of development. The male parasite can be differentiated from the female. These are the sexual individuals, which, after fertilization of the macrogamete, (female) result in the oocyte (new individual). These latter bodies become encysted and pass out with the droppings of the host. This is the stage which has been previously referred to as the "egg" stage. Subsequent development depends on conditions encountered, but generally within a week (or a minimum of 24 hours) the small crescent shaped bodies (the sporozoites) have been formed, and the parasites are ready to continue their activities in some other bird. Previous to this latter stage the eggs are non-infective.

This disease is self-limiting. If the birds could be protected from re-infection they would gradually clear themselves of the parasites, i.e., the coccidia. After going through the changes described above, these complete their life cycle and pass out of the bird with the droppings. It is interesting to note that this also occurs quite frequently when a bird is on the point of death. Postmortem examinations may not disclose any coccidia, even though it is quite plain that the bird has died through their activities. For this reason, exact determination of the cause of death may often be difficult.

No certain cure of practical value is known for coccidiosis. Maintenance of dryness and the frequent removal of droppings will save a considerable percentage of the chicks, however. The parasite "eggs" are destroyed by exposure to direct sunlight, and heat above 45° C is fatal. The majority of birds that survive the first ten days of the disease may be expected to recover, and those that do survive are often resistant to subsequent infection. This applies particularly to young chicks. It has been found that practically all losses from this disease occur between the 6th and 15th day after inoculation (Corl and Beach). Experiments in Ohio showed a death rate of healthy chicks exposed to infection of 42% when they were kept on a cement floor and of none when kept on a netting floor (droppings would pass beyond the reach of the chicks). This showed clearly the chief agency of infection.

Other investigators (Beach and Davis) recommend feeding chicks a mash containing 40% of dry skim milk for about two weeks during an outbreak of this disease. The effect of the milk feeding is to change the degree of acidity found in the contents of the caeca. This appears to be entirely due to the lactose found in milk products. Buttermilk has also been recommended, and whole milk may be of value. Change the ranging ground and cages frequently when this disease appears, and quarantine infected birds. The infection of older birds is not as severe, but their possible role as carriers must be borne in mind.

# GREEN DUCK PRODUCTION

By W. A. Maw, Poultry Dept., Macdonald College.

THE green duck is a delicacy much preferred to adult duck as a product for roasting for the table. A green duck is the duckling properly fed for rapid maturity in size and fleshing at an age of from ten to twelve weeks. In order to attain such development, proper feeding and management is necessary.

The duckling is timid and will not eat when being watched by the feeder. Ducklings are shy and do not come forward to eat and drink as they should. This point is very important, as our method of feeding is to feed only that amount which will be taken quickly in a certain given time. The balance is then removed from the troughs, thereby keeping the ducklings slightly hungry in order to ensure a keen appetite at the next feeding period.

The ducklings, when hatched in incubators, are handled much the same as baby chicks, in that they are not fed for at least forty-eight to sixty hours. Ducklings, being water fowl, naturally take to water, but if rapid growth is wanted no water is allowed for swimming purposes, although an abundance of fresh drinking water is kept before them at all times. Always make sure that the drinking pan is deep enough for the duckling to get the full face and bill into the water, as it wants to keep the nostrils clear of food which may fill them when scooping up the moist mash. Fresh water is given at each feeding period.

The following method of feeding is one that is used extensively by the commercial duck producers and which has proved to be the best known, and used, on the Macdonald College Poultry plant.

Feed five times daily for the first three weeks. All rations are fed in a moist condition, only an amount given such as the ducklings may clean up eagerly, never allowing any to remain on the boards or in the troughs between feeding periods. Feed boards are used when the ducklings are under two weeks of age. A flat board with an edging about one inch high, and having sufficient space for all the ducklings in the lot to feed at one time, is found to be most satisfactory. Later, a small trough is used. Have the drinking founts close to the feeding boards, as the ducklings will take a mouthful of mash and then go for a drink of water, repeating this over and over as they feed. Since they puddle in the water, it soon becomes dirty and must be refreshed at each feeding period.

Ducks consume a great quantity of green food. It is very essential that we put the green food in the ration to ensure them getting sufficient. The same holds true with the grit.

The rations which follow contain the proportions of each ingredient by weight as well as by bulk so that they can be made up by anyone if scales are not at hand.

*Method of Feeding:* Feed five times daily for first three weeks, all mashes fed in a crumbly state being moistened with water.

No. 1 Feed — Fed first two days.

By Weight	By Measure	
4 lbs.	1 part	Rolled oats.
6 lbs.	1 part	Bread crumbs.
½ lb.	5%	Chick grit.

No. 2 Feed — Fed from 3rd. to 8th. day.

By Weight	By Measure	
2 lbs.	1 part	Rolled oats.
2½ lbs.	1 part	Bread crumbs.
1½ lbs.	1 part	Bran.
4 lbs.	1 part	Cornmeal.
½ lb.	5%	Grit.

No. 3 Feed — Fed from 8th. day to 8th. week.

Beginning 4th. week — feed four times daily

By Weight	By Measure	
6 lbs.	1 part	Bran.
16 lbs.	1 part	Cornmeal.
2 lbs.	10%	Wheat middlings.
—	10%	Green food.
1 lb.	5%	Beef scraps.
¼ lb.	1%	Grit.

No. 4 Feed — Fattening Ration

By Weight	By Measure	
12 lbs.	3 parts	Cornmeal.
4 lbs.	1 part	Wheat middlings.
3 lbs.	¾ part	Beef scraps.
½ lb.	3%	Oyster shell and grit.
		Green food.

Feed three times daily.  
First two feeds light and last one heavy.  
Water before feeding.

Change water often.

Moisten all feed with water until crumbly.

Ducklings mature in body and feather for killing at an age of from ten to twelve weeks. Just as soon as the feathers are mature and the new feathers are ready to start their growth, it is time to kill and dress the ducklings. If they are held after this period in their development they will lose quality in flesh, and weight in body. It is equally as important to know when they are ready to market as it is to know how to feed for rapid growth and development. If the ducklings are marketed at the proper time, they will yield a good profit on the feed and labour spent in rearing them, but if kept after that time of maturity all feed consumed is a direct loss. If some ducklings are being kept for breeders they are separated from the fattening stock at the beginning of the eighth week and allowed free range.

Ducklings should be hatched early, fed carefully, and marketed at the proper stage of maturity if they are to show a profit on their cost of production.

## A Simple Method of Eliminating The Cull Hen

W. A. Maw

THIRTY percent of the hens on the farms of Quebec are culls. The percentage varies from six to nearly fifty percent. Which class is your flock in? Are you making any attempt to get rid of the non-layers, or are you allowing them to eat up the profits made by the good layers? The majority of the farmers are unable to call. Yet a little practice, following the simple rules outlined below, will enable one to readily distinguish between the good layers and the culls.

Culling should be practised throughout the entire year for best results, while the most satisfactory time for a general flock culling is July and August. Prices for poultry are always higher in July and August, and, in addition, the sooner the flock is culled the greater will be the saving in feed costs, etc.

In general, cull out all weak birds or sick birds; birds with crooked beaks, blind birds, and birds with overhanging eyelids so that they cannot eat properly. In fact, get rid of all abnormal birds.

The following chart serves as a guide for all culling.

### CULLING GUIDE FOR FALL

Indications	High Producer	Low Producer
Plumage	Ragged, worn, not moulting before October 1.	Moulting in July and August.
Pelvic bones	Wide apart, soft, pliable.	Close together, hard and rigid.
Vent	White, dilated, moist.	Shrunken, dry, yellow.
Eyes	Bright, prominent, set well apart.	Dull, sunken, turning in toward back.
Eye ring	White.	Yellow.
Beak	White.	Yellow.
Face	Lean, free from yellow colour.	Fleshy and yellow.
Shanks	White, thin and flat.	Yellow, round and full.
Skin	Thin, soft and pliable.	Thick, dry, underlaid with fat.
Body	Deep, both front and rear.	Shallow and round.
Abdomen	Deep, full, soft.	Shallow or full of hard fat.

Allowance must be made for hens which have been broody or have raised a brood of chicks during the year.

The housing and management of the flock must be known to cull successfully.

The age of the bird is a determining factor in culling.

Do not use any one point as a positive indication, but by combining these points and studying the birds one will soon be able to pick out the culls quite easily.

### ADVANTAGES OF CULLING

1. Reduces the cost of feed, or, in other words, the cost of egg production.
2. Eliminates poor layers and increases the flock average production.
3. More housing space is afforded for the layers.

4. Enables the farmer to select for breeders the continuous and heavy laying females.
5. Individual handling and examination of the females is available in making up breeding pens later.
6. Reduces the danger of disease outbreaks by noting and removing sick birds from the flock.
7. Economy in production should be our motto.

## June Poultry Suggestions

*Producing Summer Eggs:*

THE poultryman who is building up a trade for quality products must have a continuous supply of fresh eggs. The problems connected with furnishing these eggs vary with the season. The producer who must furnish a stated number of eggs weekly finds that there is often trouble during the late summer in obtaining a supply large enough to fill his orders. One method of avoiding this is to hatch some early chickens that will come into production in August. These birds lay heavily until the cold weather commences and then go into a molt which gives them a rest during the winter. The following spring they can be used for the production of hatching eggs. By the time these early pullets cease laying the later birds that will be depended upon for winter eggs are coming into production, with the result that there is a steady supply of eggs throughout the later summer, fall and winter.

When the problem of quantity has been solved, care must be taken to assure high quality in the eggs sold. During the warm weather deterioration quickly takes place in eggs that are produced and handled carelessly. The first step in the production of high quality eggs in the summer is the removal of all males from the laying pens. A fertile egg will deteriorate much more quickly than an infertile one, since development of the embryo takes place whenever the temperature is over seventy. Warm weather and other hens laying in a nest where there is a fertile egg will start the growth of the embryo. For this reason broody hens should be penned up as soon as they are found, to prevent their setting on eggs that have been laid by other hens.

Clean eggs keep better and look better than dirty ones. An egg that has been washed will spoil much more quickly than one that it has not been necessary to wet or rub. Dirty eggs are best used at home, but by proper management of the henhouse it is unnecessary to produce many such eggs. When the weather is wet, the feet of the hens become muddy and unless the litter on the floor of the henhouse and the material in the nests are clean this mud soils the eggs. If the hen has to walk through clean litter before reaching the nest her feet are cleaned and soiled eggs prevented. Change the nesting material before it becomes dirty.

Finally, gather the eggs twice a day and market them twice a week. When holding eggs, put them in a cool, dry place. The cellar is usually the best place to hold eggs if it is not too damp or musty.

*Storing Feed:*

The effect of spoiled feed upon the health and production of hens is sudden and very harmful. Heating and wetting are two of the most usual causes of the spoilage of feed. By placing two rows of two by fours under the tiers of sacks, the grain is held away from the floor, thus allowing the air to circulate and reduce heating. Holding the grain away from the floor helps to prevent wetting, especially on earth or concrete floors, since moisture often seeps through floors of this type. Each tier of sacks should be separated from the next one by a few inches to let the air circulate. A leaky roof will naturally cause wetting and should be attended to at once.

If grain is held too long, it is more liable to spoilage than fresh feed, consequently care should always be taken to put the oldest grain where it will be used first.

Rats cause considerable damage in grain store houses but a good cat will help to eliminate this trouble. If you leave room under and between the rows of sacks, the cat can follow the rats when they are on their marauding expeditions. A family of rats will eat and destroy enough grain in a year to support fifty hens or more.

*Extension Poultry Husbandman,*

*Macdonald College, P. Que.*

There are several hens in America which have laid over 1,000 eggs.

A good dust bath does much to maintain the health of fowls by keeping the vermin in check.

# Among Farm and Village Home Plantings in June

By C. E. Russell, Dep't of Horticulture, Macdonald College.

IT is important that much care be given the plantings during this time of the year. It is about the time when work previously done is beginning to yield its beauty in flowers. To carry the home grounds on to a successful fulfilment of its possibilities there is much to do in June.

**Lawns.** Lawns divide themselves into two groups—those which have been planted this past spring, and well established ones. In the case of the new lawn, it will be doubly necessary that water be supplied in time of drought. The correct way to apply water to any lawn (either young or old) is to give it a good soaking about once a week. So often people sprinkle a little every night and consider they are giving sufficient water. Such a treatment causes new roots to be grown near the surface of the ground at a place where a few days of drought will do great damage. If occasional good soakings have been given, new roots will have developed well down in the ground and a few days of drought will do no harm.

The first cutting of the new lawn should be made when the young grass has made a growth of about four inches. At this cutting a scythe is the preferable tool. A lawn mower—especially a dull one—is apt to pull the young plants from the soil. The best interval to allow between mowings of both new and established lawns is one week. This gives fine enough clippings that they may be left on the ground, and the fertility will not be decreased so rapidly.

The lawn should be rolled frequently—this applies to both young and established ones. In case that operation was neglected last month, it should be begun immediately and carried on throughout the remainder of the season.

**Watering and Cultivation.** These two operations are quite alike in effect, as each increases the moisture content. As cultivation gets rid of weeds, it preserves moisture by preventing weeds taking up the water and by establishing a mulch which prevents evaporation.

In times of drought the hoe should be kept busy among the flowers and shrubs. A rake does not establish a deep enough mulch to pay for using that implement. The flowers in the border should have the earth about them stirred frequently.

If water is available, the same rule of application holds as in the case of the lawn—one good soaking a week. For most plants (except roses) the best time to water is in the late afternoon. Then by morning the surface will be dry enough to begin hoeing. Roses should be watered in the morning that they may dry off before night. This decreases the danger from mildew.

The Dahlia should not be allowed to suffer from lack of water, as it is among the plants which particularly need water. The iris is another plant too frequently neglected. So often it is forgotten as soon as it has gone out of bloom. It should get frequent and thorough waterings after that time.

Trees and shrubs which were planted this spring should have careful attention given to their water requirements. They, also, should be cultivated regularly or mulched with well rotted manure, leaves or straw. Newly set evergreen trees are especially difficult to bring through a dry spell unless much attention is given. Even with a mulch it may be necessary to supply them with water.

**Flowers.** This is the time for bedding out such plants as Snapdragon, Pink, Phlox, Stock, Verbena, Balsam, Begonia, Petunia and Zinnia. If such have not been raised in the greenhouse or window box, one may be able to get them from some one who raises them to sell. In placing these in the border or beds, the plants of each species may well be arranged in natural clumps of about two feet in diameter. This will give a natural effect in contrast to the formal bed shown in Figure 1.

As soon as the early flowering bulbs have become dormant, the unsightly dead growth should be removed from the border. It is well to stake or label the locations of the bulbs that they will not be injured by future cultivations.

The young annual plants in the border which have grown from seed planted last month should be thinned,

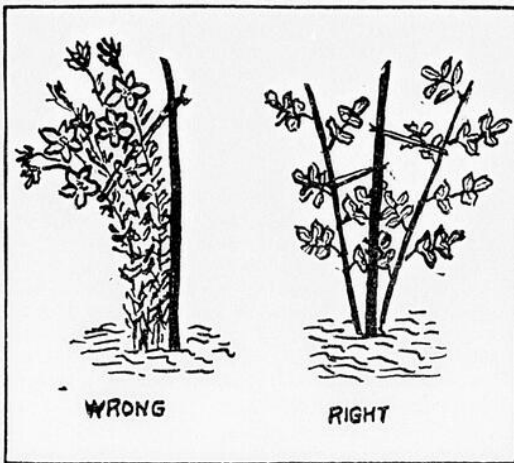


Fig. 2. The wrong and right way of staking herbaceous perennials.

weeded and cultivated. So often the thinning is neglected, and the plants, suffering from over crowding, are unable to produce the best blooms. Plants which will eventually be tall should be thinned to a distance of 9 to 12 inches apart. Smaller ones should be proportionally closer together. At this time the cultivation and weeding should be thoroughly done, for soon the plants will be too close to permit these operations.

In case no annuals have been sown in the borders and none are available for bedding out, there are a few quick-growing annuals which could be planted immediately. These would still grow from seed and produce late summer and fall bloom enough to pay for the trouble. Those which are suitable for planting now are: Mignonette, Candytuft, Zinnia, Late Flowering Aster, Balsam, Annual Lupine, California Poppy, Calendula, Cosmos, Everlasting (Straw Flower), Nasturtium, Annual Poppy and Marigold.

June is the month for out-door sowing of the seed of hardy perennials for flowering next year. At the time of planting the seed a thorough watering should be given. As soon as the seedlings are up, shading should be furnished them by a covering of cheese cloth. Later in the summer these should be transplanted and then fall-set to their permanent positions in the border.

**Pruning.** There are many shrubs (Lilac and Spirea as examples) which, after their flowering season, should be pruned. The pruning of the shrubs whose fruits are ornamental should be delayed until spring; however, those whose fruits are unsightly should be pruned immediately after the flowering season. This not only gets rid of the unsightly fruits but opens up the plant and gives the sun a chance to produce more vigorous growth. Pruning at this time of the year should follow the established rules: removal of oldest, weak, crooked and crossing woods.

**Staking.** Many herbaceous perennials of considerable height will need supporting. Dahlia and Larkspur are examples of these. Figure 2 shows the correct and incorrect ways of staking. The stake should be painted green so to be as inconspicuous as possible. The Gladioli should also be given support, especially if they are in a position exposed to winds. A single wire will be sufficient.

To get the most satisfactory results with annual climbers such as Runner Bean, Morning Glory, Tall Nasturtium, Canary Creeper and others, they also should be furnished support of some kind. If such has not already been given them, it should be done at once.

**Fertilization.** Many flowering plants show quick responses to fertilizers, especially nitrogen. As Roses begin to bloom, a liquid fertilizer made from stable drainings diluted with water will give good results. An application a week is recommended. If the drainings are not available, nitrate of soda may be substituted at the rate of one tablespoon per bush every few weeks. After the blooming period of the Iris is over an application of bone meal or wood ashes causes increased growth. One tablespoon of the bone meal per square yard is considered a good application.

**Spraying and Dusting.** The Snowball bushes should be watched for infections of aphids. If present they should be sprayed with nicotine sulfate (Black Leaf 40) before the leaves curl. Later applications may also be necessary.

While the roses here are not overly susceptible to mildew, yet in some seasons this fungus causes trouble. A sudden change from warm to cool damp weather is especially favorable for the development of mildew. If it begins to appear, dust with flowers of sulfur or dusting sulfur. If no dust gun is available, merely place the sulfur in a piece of cheese cloth and sift on the plants. The foliage need not be wet. Sulfur is only a preventative of mildew, so it is necessary to get the disease in its very early stages.

## Diseases of Roses and Their Control

ROSES are subject to several fungous diseases, the two most serious being blackspot and mildew. To control these diseases it is necessary in the first place to supply the plants with the best possible conditions of growth. All affected plants should be removed and burned, and the soil in which diseased plants have grown should either be avoided for roses in the future, or sterilized with steam or formalin. The next step is the application of fungicides in order to protect the plants from infection or to control any disease which may have appeared. The kinds of fungicides to use and the methods of applying them form the subject of a section in a Dominion Department of Agriculture bulletin entitled Hardy Roses. According to the bulletin it is important that the fungicide used be a substance which is efficient as a protection against fungous attack and at the same time is as inconspicuous as possible. The fungicide that best fills these requirements is a dust composed of flowers of sulphur and arsenate of lead made up in the proportion of nine parts of flowers of sulphur to one part of arsenate of lead. These constituents should be sufficiently fine to allow 98 per cent of the mixture to pass through a 200-mesh sieve. A hand duster may be used to apply the fungicide.

Early in the morning, when the dew is on the plants, is the best time to dust. The first application should be made before the appearance of any disease, that is, soon after the first leaves have expanded. In some seasons one or two dustings will be sufficient, but in others, when disease is prevalent, it may be necessary to make five or six applications some of them at intervals of 9 days or oftener. The bulletin, which contains a great deal of information on rose growing, may be obtained from the Publications Branch, Department of Agriculture, Ottawa.

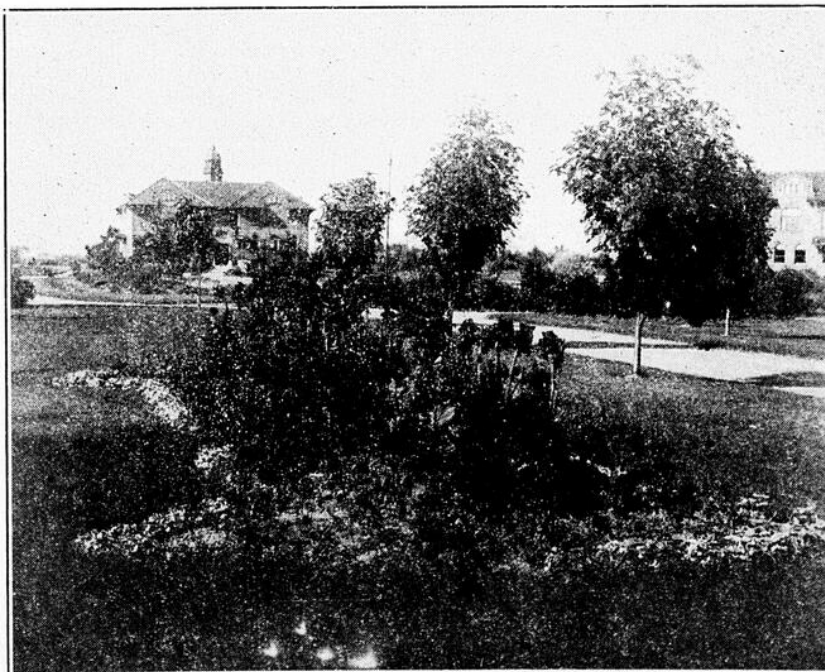


Fig. 1. Coleus, Geranium and Canna used for bedding out in a formal bed.

# LAUNDERING SUMMER DRESSES

By Jeanette Babb, School of Household Science, Macdonald College.

IS there anything more beautiful on earth than a lovely old-fashioned flower garden with its variety of gay color? The summer frocks of today with all their beautiful pastel shades are just as lovely, provided they are kept that way. Flowers must be carefully watered and looked after to have their beauty continue; likewise frocks must be perfectly laundered if they are to remain a delight. If improperly done, they can be just as unattractive as a garden full of weeds and shrivelled up from lack of moisture.

The variety of materials as well as the colors make the problem of renewal quite a varied one to-day. We have gingham, chambrays, muslins and Peter Pan cloth, fugi silks and the new artificial silks among them. The latter require quite different treatment from the former.

Our aim is to remove the soil and preserve the natural appearance. One great essential is rapidity of work. To insure this, have all the supplies on hand before beginning to launder these dainty dresses. Is the color fast or loose? Fast colors do not require such careful handling as loose colors.

Fast colors, such as good gingham, chambrays and Peter Pan materials, may be washed together in the washing machine provided a mild melted soap (such as Castile or Ivory), borax for softening the water if hard, and lukewarm temperature is used. The water should never be over 100° F. Follow this by three or four rinses in clear cool water. These materials may be stiffened slightly, if so desired, by the addition of thick starch in the last rinse water. Hang in the shade to dry, and when almost dry iron on the wrong side of the garment with a moderately warm iron. Finish all seams, hems, trimmings, pockets, etc., on the right side with a cooler iron.

If the dress is trimmed with buttons, fold a bath towel in several thicknesses—the larger the buttons the thicker the fold place the fold under the buttons and iron over the back of the buttons until dry. Bias folds should be ironed straight with the threads to prevent wrinkles. Tucks should be stretched out and held firmly with one hand, placing the point of the iron on the other end and ironing towards the hand without lifting the iron. Iron the sleeves first, then the shoulders, upper part of back and front over the pointed end of the skirt board. This part of the garment may then be left loose over the end of the skirt board while the other part of the garment is finished. This prevents creasing. To look well when finished, dresses must be ironed until dry; otherwise they wrinkle and look unironed in the end. Place on a hanger to air.

Fugi silks are usually quite fast in color and are easily washed. They are more easily ironed if hung up until nearly dry. These rarely ever require the use of a mordant.

Colored garments should never be rubbed or have soap rubbed directly on them. Use a good live suds for them. They should not be soaked but washed and dried as quickly as possible. They should not be allowed to become very soiled before laundering. If very soiled they will require two wash waters. All new garments should be put in cool water for ten or fifteen minutes before washing to remove the dressing. Otherwise it wastes the soap and prevents it from removing the soil. Thorough rinsing insures the removal of every trace of alkali left from the soap. If not removed, it may be responsible for the fading of color when the garment is again worn in the sun.

It is wise to remove grease spots with benzine, gasoline or Carbona before washing, particularly in the case of delicate and loose colors. For fast colors one may use warmer water and more soap on the grease spots before wetting the whole garment. If this is not done before washing, they cannot be found when the garment is all wet and will not be removed, as the water for loose colors is not warm enough to remove grease. Soiled spots on the collars and cuffs may be removed by placing them on a flat surface and rubbing them with melted soap and the tips of the fingers.

Loose colored garments should be soaked in a mordant of either salt, vinegar, alum or Epsom Salts—the looser the color the stronger the mordant. If possible, soak in the mordant for twenty to thirty minutes, wring out and hang to dry before washing. If they cannot be dried, rinse thoroughly in cold soft water to remove all traces of the mordant. After the garment has been washed and thoroughly rinsed it may have a second mordant put in the last rinse water to again set the color. Then put through the wringer several times and

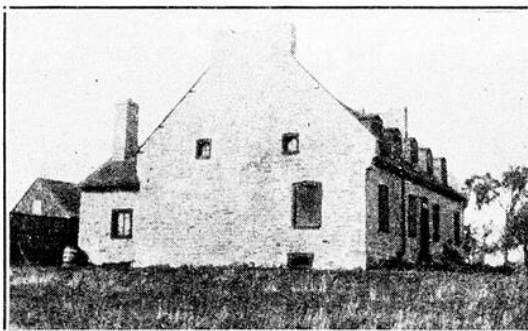
roll sandwich fashion in an old sheet or flannelette blanket or bath towel. Remove as much moisture as possible by patting, and dry in a good breeze. Hang the garments as nearly as possible in the way they are worn. Each garment should be washed separately.

Colored linens respond much better to a bran wash. In this case take one quart of bran to four quarts of cold water, put in a saucepan, bring to boiling point and simmer for twenty minutes. Strain through a sieve and then through a double thickness of cheesecloth. Make enough to wash and rinse the garments. The bran water may be made the previous day, and ordinary feeding bran may be used. It should be diluted with an equal amount of water for rinsing. If the garment is very soiled a small amount of mild melted soap may be added to the wash water. Wash in lukewarm bran water and rinse in diluted bran water.

For loose and delicate colors one may use soap bark in place of soap. It may be purchased at any laundry house or at a drug store. Put the soap bark in a saucepan, using one cup of soap bark to one gallon of water, and make as bran water.

Starch water is also good for loose colors, especially voiles and thinner materials. Make a thick starch, using one cup of starch to two quarts of boiling water, let cool to the proper temperature and wash the garment in it by squeezing. A little mild melted soap may be added, as in the case of the bran water.

Rice water has the same effect on the color. Boil one pound of rice in one gallon of water, but do not let the rice kernels get soft. When sufficiently cool to use, turn the rice water into a basin without straining and wash the articles in it. The kernels supply the friction which removes the soil. Rinse in clear water.



Old Quebec.

The new artificial silks, such as rayon and celanese, have one peculiar characteristic—the fibres are weakened when wet although very strong when dry. If stitches are dropped in the weave they must be mended at once. Like silks they wear well, look well and the colors are quite fast and attractive. They do not soil easily, are comfortable and convenient. They can also be bought in so many different weights, weaves and fabrics as knitted or woven, ninon, georgette, etc. The fibres are so smooth that they shed the soil easily. In washing these materials, like silks they must never be rubbed. Squeeze them in good live suds in lukewarm soft water, supporting the whole garment in the hands at one time. Remove all possible water by gentle squeezing in the hands, then roll sandwich fashion in a bath towel or flannelette blanket and pat out as much water as possible. After gently shaping, spread on a flat surface to dry. A screen is a good thing to place them on, or they may be placed on a clean sheet on the grass in the shade. When almost dry, press on the wrong side with as cool an iron as possible. Do not allow rayon garments to become too soiled but launder frequently. Iron straight with the weave of the material. If thoroughly dry, cover with a damp smooth cotton cloth and iron with a hotter iron.

Summary:—

1. Avoid high heat in washing, drying and ironing.
2. Use only a mild soap and in the melted form.
3. Wash quickly, and dry quickly.
4. Use only borax for softening the water.
5. Rinse thoroughly to remove all traces of alkali.
6. Do not rub or twist but squeeze gently and pat.
7. Use a moderate iron and iron on the wrong side of the garment, finishing on the right side with a cooler iron.
8. Rayons, etc., must be supported while wet and dried on a flat surface.

9. The looser the color, the cooler the water and quicker one needs to work; also use a mordant in the last rinse water and dry as quickly as possible.

## Pie Plant

WHILE it is really a vegetable, pie plant or rhubarb is served as a fruit. But it belongs to Nature's tonics just the same. It can be served in so many ways that it need never become monotonous. Stewed, baked with raisins, as a gelatine, combined with tapioca, or in the form of a shortcake, pie, or dumplings, it is delicious.

### Rhubarb Tapioca

6 tablespoons tapioca 1½ cups sugar  
2½ cups boiling water 3 cups diced rhubarb  
½ teaspoon salt

Add the boiling water and salt to the granulated tapioca, and let it cook over direct heat about ten minutes, then in a double boiler until transparent. Place the rhubarb, tapioca, and sugar in a buttered baking dish, and bake in a hot oven until the rhubarb is soft.

### Rhubarb Gelatine

2½ cups stewed rhubarb 2 tablespoons gelatine  
1 cup granulated sugar ½ cup cold water  
1 cup whipped cream

Soak the gelatine in the cold water about five minutes. Heat the rhubarb with the sugar, and in this dissolve the soaked gelatine. Let the mixture cool, stirring it at intervals. When it begins to stiffen beat it with a Dover beater. Fold in the whipped cream. Pour it into a serving dish, or into a baked pastry shell.

### Rhubarb Pie 1

2 cups diced rhubarb 2 tablespoons flour  
1 cup sugar ¼ teaspoon salt  
2 eggs 1 teaspoon lemon juice  
1 cup milk 2 tablespoons powdered sugar

Without adding any water, cook the rhubarb in a double boiler. When soft, add three quarters of the sugar and let the mixture cool. Make a paste of the flour and milk. Beat the remaining sugar with the yolks, add the flour and milk, lemon juice, and rhubarb. Pour it into a deep rimmed pie plate lined with pastry. Bake at 450° F. (hot oven) for ten minutes, and at 325° F. (moderate oven) for twenty-five minutes. Cover with a meringue made with the egg whites and powdered sugar, and return it to the oven until brown.

### Rhubarb Pie 2

1¾ cups rhubarb 1 egg  
1 cup sugar 2 tablespoons flour

Wash and cut the rhubarb in one-inch pieces before measuring. Sift the sugar and flour together, and add to the beaten egg. Combine the mixture with the rhubarb, and make into a pie with an upper crust.

### Rhubarb and Raisin Pie

3 cups rhubarb 4 rolled crackers  
1 cup raisins 2 eggs  
2½ cups sugar

Combine the diced rhubarb, sugar, raisins, crackers, and beaten egg. Pour the mixture into a pastry lined pie plate, cover with pie crust in lattice fashion, and bake. This recipe makes enough for two pies.

### Dumplings

Roll a rich biscuit dough to about one-quarter inch thickness. Cut in four inch squares, and on each place a combination of chopped sweetened raw rhubarb, and cooked pineapple. Fold up the edges, press together, and bake for about thirty minutes. Serve with any desired sauce.

### Rhubarb Sauce

There are various ways of making sauce, but the following two can be recommended.

Wash the rhubarb and cut it into one inch pieces. Cook these in the top of a double boiler until soft, stirring occasionally. When cooked, sweeten to taste. About one-third to one-half cup of sugar to each cup of sauce is a good proportion.

Another method is to use one-third cup of sugar for each cup of uncooked rhubarb. Sprinkle the sugar over the rhubarb and let it stand until the sugar is moist with the juice. Cook slowly on the back of the range until tender.

### Baked Rhubarb and Raisins

1 cup raisins 2 cups boiling water  
2 lbs. rhubarb 1½ cups sugar

Cut the rhubarb in pieces, combine with the raisins and water, and bake in a covered dish. When about half done add the sugar.

### Spiced Rhubarb

5 cups diced rhubarb 3 cups sugar  
1 cup cider vinegar 1 teaspoon cinnamon  
1 teaspoon cloves

Cook the rhubarb in the vinegar until soft. Add

the sugar and spices, and let the mixture simmer until the consistency of marmalade.

*Rhubarb Conserve*

- 2 lbs. rhubarb      ½ cup water
- 2 oranges          ¼ lb. raisins
- 2 lbs. sugar        ½ lb. walnuts.

Wash the rhubarb and cut it into small pieces. Slice the oranges rind and all. Mix the rhubarb, oranges, sugar, raisins, and water, and let it boil over a low fire until the consistency of marmalade. Scald the nuts, chop them and add to the conserve ten minutes before removing from the fire. Pour into hot jars and seal at once.

*Rhubarb Catsup*

- 1 lb. rhubarb      1 tablespoon salt
- 1 qt. chopped onions   1 teaspoon ginger
- 1 pt. vinegar      1 teaspoon cinnamon
- ½ lb. brown sugar   1 teaspoon allspice
- 1 teaspoon cloves

Cook all the ingredients together until the desired consistency is obtained. Pour into hot jars and seal.

*Rhubarb Marmalade*

- 3 cups rhubarb      3 oranges
- 1½ cups sugar

Cut the rhubarb in inch pieces. Slice the pulp and rind of the oranges. Boil all the ingredients together until of the desired consistency.

M. H.

**On My Way**

I have, for the time being at least, said good-bye to the city, and to the country I have again returned. It was evident, I am sure, to any one who followed me on my travels and kept in touch with me from month to month, that this was but an expected and almost inevitable happening. Not that it could be truly said that I was not happy there, for who is there that cannot find the breadth and variation of city life sufficient to recompense him for loss of many other things? Rather was it my nature, or to speak more correctly, my upbringing that took me constantly back to the environment which in the city I could not find. There was nothing in my city experience that could cause me to be ungrateful or that would allow me to speak in a belittling way of anything I found there. I was comfortable—and we humans are not so very different from the farm animals that inhabit our barns and stables, who seldom murmur or complain if consistently well cared for. Too often the humans who provide this animal comfort are themselves without the most essential creature comforts, and for this reason I appreciated the city and its ways much more.

It is well to state here that I did not leave the city of my own accord, for I know that more than one toiling farmer man, weary of the open places, would think but little of my wisdom; besides, it is a matter of some satisfaction to have position and be so situated as to obtain from pleasant work that money requirement which very few of us may not be concerned about. Yet when the change had to be made, it was with a sense of gladness that I came back to the quiet of country, and my material loss did not weigh upon me as it might otherwise have done.

Thus it has been my pleasure to walk again in restful places, along narrow brown roadways, none too smooth, by the side of which grew delicate flowers in lavish abundance. All my vision was filled with the new creation that was breaking forth upon the world. I could not look to the right or left, far or near, without seeing the new adornment. It was to me as the solace of a great cathedral, whose walls so strong, and doors that folded close, shut out the tumult of the street. Likewise was this a temple, though without the walls and doors, that remained always beyond the wearying clamour, full of restoring calm. Perhaps my return would not have been so pleasant had it not been springtime. In this respect I know I was fortunate, for the inclinations of most city dwellers turn eagerly to the joy of summer and the refreshing life by lakes and rivers at this time of year. So I left behind me those whom it had been by pleasure to be associated with for a time, sitting at their desks a little regretful that the business of making a living kept them there.

I was able to enjoy the country at this most pleasing time of year as few are privileged to do, for I had no occupation and little concern. I saw the ready fields calling for the sower, but none of these belonged to me. From my window I saw an eager husbandman work with haste such as one might employ in putting out a threatening fire, for the sky was dark and he raced with the elements. Following him with unhurried pace his helper came, but to me this meant no toil. I saw the cattle in little feeding groups spread out across the countryside, but none of them were mine, and

I could not say that I was sorry. To do nothing and to have nothing to do, some writer has said, is an ideal state to be in sometimes, and I think it is an especially pleasing experience in the country at this time of year.

Only a year ago I left the farm—it seems much longer than that. In that little time I have lost in a measure that homestead habit that used to be so strong in me, though I still wish for a permanent abode that might become through years of association an endeared spot. To add little by little to some old house and the bit of ground around it some attraction of a nature that will make it more pleasing, that will make it above all other places the most to be desired, is surely an unquenchable flame flickering in the hearts of many men. Yet though the world is large and spacious, the habits of men are small and cramped so that the very desires of which they are so conscious and which stretch apparently so free around them may never become realities.

So I have learned that one may live 'most anywhere' and enjoy a surprising measure of contentment as long as it is home. My choice as it is plain to see, is neither in the city nor yet altogether in the country, so I have gone back to that margin of which I wrote some time ago that lies between these two. I have become somewhat of a transient and live again in a new place. It is a quiet town through which on a number of occasions I had passed but never before had I reason to become acquainted with it, nor even to be interested in it. To me it seems strange now that I should call it home and think of it as such, but the shifting

effects of time change all circumstances, and destiny has no beaten track. So here I am.

Yet it is an old town, and it is only I that am new. Some of the marks that make this place have been here a long long time, so long that no man may say when first they came. There is the winding river, serpent-like in its course, still flowing towards the sea, coming from the same unchanging source among the hills. Strange old wooden bridges span this river, built long ago by the pioneers of the land. On the banks nearby stand graceful walls whose windows look out upon the waters, and within are halls of learning where ardent youth seeks to discover what hidden truths it may not already know. They are dignified with age these things, almost ancient and antique in the modern life that sweeps about them, but how little the pleasant town would be without them, and I am glad that they are here.

H. H.

If you want to be miserable think about yourself.—Chas. Kingsley.

Modesty is to merit as shades to figures in a picture; giving it strength and beauty. La Bruyere.

It is our business, as well as our civic duty, to give our forests adequate protection and provide for a systematic and scientific renewal of a forest growth on all soil mainly valuable for growing trees.—Gifford Pinchot.

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### Treating, Cutting, and Planting Seed Potatoes

THE noticeable increase in yields of seed potatoes produced in Canada during the past decade as well as the marked improvement in their quality have been brought about largely by the employment of improved methods for all necessary operations in connection with this important industry. Among the operations requiring special attention at this season of the year, are, treating, cutting, and planting seed, which will be dealt with separately, as follows:—

**Seed Treatment.**—Seed treatment ensures a good stand by destroying organisms existing on the surface of the tuber, which would otherwise cause sudden decay of the seed piece, or rotting of the sprouts during cool, damp weather in the early spring. Such treatment, however, will not always prevent *Rhizoctonia* and scab from affecting the new crop, for the organisms causing these diseases may be already present in the soil and will attack new tubers, regardless of how well the seed is disinfected. Many experiments and demonstrations have shown, nevertheless, that the treated seed often results in a cleaner crop with larger yield than that obtained from untreated seed. Potatoes requiring treatment should be carefully graded to insure removal of all badly-shaped, mechanically damaged, or partially rotted tubers, and should be thoroughly washed to free them from particles of soil. Potatoes should be treated only while dormant and before they are cut, because the chemicals commonly used for disinfecting purposes have a destructive effect upon the emerging sprouts and cut surfaces of tubers. The most effective method for seed treatment is to soak the tubers for one and a half hours in a solution of corrosive sublimate (bichloride of mercury) consisting of four ounces of the chemical to thirty gallons of water. No metal vessel or instrument should be used during the operation, because metals weaken the strength of the solution. The treating solution also loses strength because the potatoes and soil adhering to them react with the corrosive sublimate, and so destroy its disinfecting qualities. As the solution is materially weakened in this way after each batch of potatoes is treated, it is necessary to keep it up to strength by adding one and a half ounces of the chemical for every thirty gallons of liquid, after each third lot is treated. Owing to the fact that corrosive sublimate is a deadly poison, the used solution should never be poured away where live stock or poultry can get at it; nor should treated potatoes be used for eating. After the potatoes have been treated they should be spread out in a cool, shady place, and allowed to dry thoroughly before planting. All sacks and barrels, used for holding potatoes after treatment, should be soaked in corrosive sublimate solution in order to prevent any possible reinfection.

**Cutting.**—The old method of cutting seed by hand is a rather slow but, nevertheless, certain way to ensure best results. There are now on the market a number of cutting machines which are capable of doing the work rapidly and in large quantities in a short time, but none of these are entirely satisfactory. The use, however, of a two-edged knife a thin blade set firmly in a narrow board attached to a box or some portable happer has given good results with many growers. Small whole tubers from Certified Seed can be used to good advantage, but small potatoes from commercial stock should never be used, because of the possibility of their

being infected with diseases such as leaf roll, mosaic, and spindle tuber. When cutting large potatoes for seed, an effort should be made to secure seed pieces of uniform size having two or more eyes. Seed pieces of whole tubers ranging from one and a half to two ounces prove quite satisfactory when the soil in which they are to be planted is supplied with an ample amount of plant food and moisture. Any tubers showing discoloration in the flesh, particularly near the stem end, should be avoided, because such discoloration is frequently due to disease. After cutting, the seed should never be left, even for a short time, in sacks or barrels, unless the cut surfaces are thoroughly dry, or they will heat. Weak stands have been caused from time to time by making this mistake; it is, therefore, a wise plan to plant seed as soon as it is cut.

**Planting.**—The time of planting depends largely on the weather and soil conditions and remains to a certain extent a matter of personal choice and convenience. In the case of late maturing varieties, planting should be early

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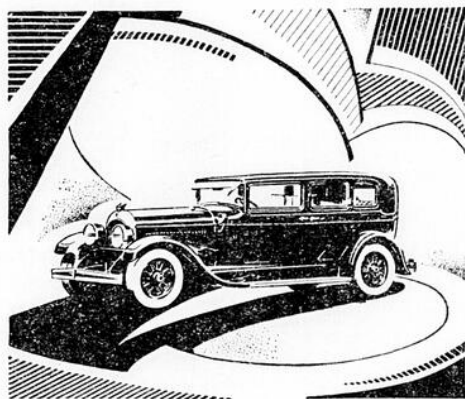
enough to permit maturity with a growing season of average length. The method of planting is also to a great extent a matter of convenience or equipment. Mechanical planters save time, cost of labour, allow closer planting, economical distribution of fertilizer, and straighter rows, and place the seed at a uniform depth. The type of fertilizer distributor is very important, and mechanical planters which deposit the fertilizer in rows at the sides of the seed furrow are most desirable, because placing the fertilizer in direct contact with the seed piece frequently results in serious injury to it. The spacing interval is also important. In order to produce the largest quantity

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of tubers ranging from three to twelve ounces, as required by the Dominion standards for certification—a size which is also suitable for table purposes—the plants should be spaced as close as possible, but far enough apart to permit efficient roguing for diseases; ten to twelve inches is the most satisfactory interval.

D. J. MACLEOD,

Plant Pathological Laboratory,  
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To Encourage The Breeding and Sale of Hunters Only Event of Its Kind in America.

Given in conjunction with the Canadian National Exhibition

THROUGH the instrumentality of those interested in the Canadian Hunter, Saddle & Light Horse Improvement Society, and those interested in light horses, Field Trials will be held on the 8th day of September, 1928, on "Hazelburn Farm" Yonge Street, near Aurora, the event being to encourage the sale of hunters and light horses and the breeding thereof. This is a method long practised in England but has never been attempted on this continent. North York has evinced great interest in the horse breeding industry, and have subscribed \$1,000.00 added money to a \$15.00 sweepstake. On the basis of 50 entries:—

1st Prize — \$500.

2nd " — 400.

3rd " — 300.

4th " — 200.

5th " — 100.

And 5 prizes of \$15.00 each.

Aside from the usefulness of this event, which will undoubtedly encourage breeding and sale of horses, it will be an exceedingly interesting event as they will be sent over a mile of typical country—water—rails—gates which must be opened from the horse—stump fences—a real in-and-out, crossing a lane, and a bank and can be viewed from the high land.

That the Municipality of Aurora and the Townships of King and Whitchurch have grasped the importance of these Trials to their district, not only shows their far sightedness so far as the light horse industry is concerned but also their sportsmanship. This is no sense a trial of speed, a race or a horse show but a movement by the Canadian Hunter, Saddle & Light Horse Improvement Society to aid the Government in their desire to reestablish the light horse industry throughout the Dominion of Canada, as branches of the Society will be established in each province.

In addition, there will be a \$50.00 prize offered by the Canadian Hunter, Saddle & Light Horse Improvement Society, for the best mare suitable to produce light horses. The entrants for this prize need not take part in the Trial and it will be exclusively for farmers in York County.

At the Aurora Horse Show, Aurora, Ontario, June 2nd, 1928 a similar class will also be put on which will be known as the Brier Cup competition. In addition to a cash prize of \$50, the owner of the 1st Prize mare will be given a silver trophy. Each entry must have a 1925 certificate of registration issued by the C. H. L. H. I. Society. Mares weighing from 1,100 to 1,400 pounds are the type which are recommended for crossing with approved stallions for the production of hunters.

## Historic Features of Quebec Make It Unique Canadian City

LET us for once avoid the more insistent guidebook glories of Quebec, and especially those which are most commonly megaphoned at rubbernecking tourists whose main object is to see the greatest possible number of the most stridently advertised stock sights in the shortest possible time. And having decided upon seeing only that which really is unique, let us begin by noting down some of those first or last or only things which have combined to make Quebec unique; sometimes unique in Canada alone, sometimes in America, sometimes within the British Empire, and sometimes even in the world at large.

Beyond this mere preliminary noting down we cannot go today, because

you can no more tell the story of Quebec within a single page than you could compress within a single volume the history of those three great people, Americans, British and French, whose arms and arts have made unique Quebec a place of most appealing pilgrimage for all.

Down in the loop of the St. Charles the first white man's winter in any part of French-speaking or English-speaking America was spent in 1535-6 by Jacques Cartier, who, on the previous Oct. 16, was the first white who ever saw any northern inland part of the United States. This was from what he called le Mont Réal (now Montreal). The first French overseas constitution, and the only French) has

lasted to the present day, was embodied in the commission granted by King Francis I to Roberval on Jan. 15, 1540.

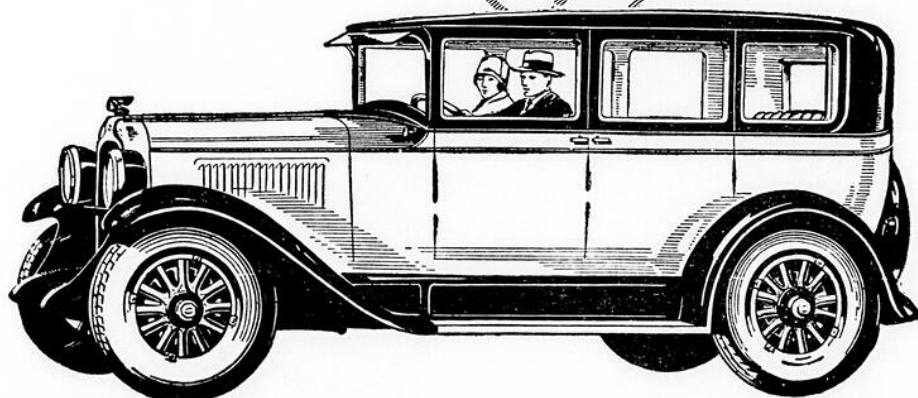
### COLONY A FAILURE

Roberval's colony near Quebec was a failure. But the constitution then granted lived on, with its feudal tenure, rights, and very carefully defined seigniorial duties. If you go out to the northern end of the Quebec Bridge (where the greatest central suspension span in the world was placed in 1917), you will see the red-rocked Cap Rouge, where this oldest and longest-lived of all New World constitutions was first enforced by Roberval nearly 400 years ago.

If you go into Hébert Street, and the precincts of the City Hall, you will see the first and oldest surviving street in North America (probably laid out

# Leads Its Field in Style and Refinements

a Successful Six



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NEW FISHER BODIES  
NEW CARBURETOR  
NEW STEERING GEAR  
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NEW FUEL PUMP  
NEW WATER PUMP  
NEW GASOLINE GAUGE  
NEW CROSS-FLOW RADIATOR  
NEW STOP LIGHT  
**LOVEJOY SHOCK ABSORBERS**

**THE** New Series Pontiac Six was designed and built in the belief that *everybody* admires style in a motor car.

So, in Pontiac Six, *everybody* can enjoy it!

Beautifully-proportioned bodies that tell their Fisher craftsmanship at a glance . . . Long, low lines and deep, massive radiator design . . . Rich harmonies of color in exterior Duco and in-

terior trim . . . Delightful evidence of luxury in upholstery and appointments . . . PLUS the smoothness of Pontiac's powerful "Six" engine . . . the safety of Four Wheel Brakes and the comfort of Lovejoy Hydraulic Shock Absorbers.

No wonder the New Series Pontiac Six literally leads its field in style and refinement. Prove it all for yourself by a demonstration.

P. 26-5-288

Your Pontiac dealer will be glad to furnish full details and prices and to demonstrate the car to you

GENERAL MOTORS PRODUCTS OF CANADA, LIMITED

PONTIAC DIVISION

Winnipeg

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Vancouver

The New Series  
**PONTIAC SIX**



PRODUCT OF GENERAL MOTORS OF CANADA, LIMITED

by Hébert's meditative cow, and the statue commemorating the first of all the habitants. Hébert, 1617, was the first man who ever raised a crop upon a Canadian farm of his own.

If you want to see the first real seigniory, look across the mouth of the St. Charles and "down along" to Beauport. On New Year's Eve, 1635, Robert Gifford did homage for his fief of Beauport to Champlain's Lieut. Bras de Fer du Châteauaufort, on the very spot where the Château Frontenac Hotel stands now. Entering without spur or sword, Gifford made obeisance, swore fealty, received investiture, was given spurs and sword, and there went forth a seigneur, ready to colonize and manage his seigniory in peace, or fight all foes of France in war.

Now reverse the process, and listen to any lawyer who, in the Province of Quebec today, quotes the Coutume de Paris, which was itself the great legal centralizing force gradually supplanting the various local coutumes of sixteenth-century France. The Coutume de Paris was recognized at the Confederation of Canada in 1867, by the Quebec Act of 1774, at the cession from the French to the British Crown in 1763, and all through New France, right back to the original constitution first enforced four centuries ago where the famous modern bridge stands now.

The first of purely New-World embassies was appointed at Quebec (1651) in the person of Father Deullette, the fully accredited Canadian envoy who was so courteously treated by General Gibbons, Governor Dudley, Governor Bradford, and other New England leaders, but who failed to persuade the United Colonies at Boston to sanction reciprocity at the price of war against the Iroquois.

**QUEBEC UNIQUE**

A few other things may be mentioned here that make Quebec unique.

(1) Architecture—The oldest stone work still in its original state (1639) is that of the Jesuit Mission House, just outside Quebec; while what is probably the only single building with perfect pieces built in four different centuries is the general hospital.

(2) Settlement—Near Quebec, at Charlesbourg, you can see the sole remaining vestiges of Talon's defensive settlements, which were laid out like a wheel. The hub was a fortified mill. The fences ran out like the spokes. And this enabled the armed habitants to concentrate against Indian raiders in the shortest possible time.

(3) The first play (probably in the whole New World) was Corneille's "Le Cid," which was performed before the Governor and Jesuits in 1646.

(4) The Intellectual Life—Quebec must be unique throughout the world for having both French and English intellectual life together for parts of three different centuries and French alone for yet one more. The Literary and Historical Society of Quebec is the oldest learned society in the whole British Empire overseas (1824). It was preceded by a Quebec Library Association (1779). This was preceded by the Académie des Sciences founded by La Galissonnière (1747), whose claims to the Ohio Valley were resurveyed by Washington. Frontenac (1672) was also a great patron of arts. It was at his favorite sister's house that Molière first read "Tartufe."

(5) Quebec is unique in way. It is the only New World city refortified in five successive centuries. The Ursuline Chapel is said to be the only place of worship in the world containing souvenirs of two commanders who fell in one world-famous battle. There stands the tomb of Montcalm; and from its pulpit a British chaplain preached the "mourning sermon" over Wolfe.

Finally, Quebec is the only place in the whole world where French, British and Americans have met in war and peace so often. After two British invasions (1629, 1759) and two American (1690, 1775), all three peoples united in celebrating the Quebec Tercentenary (1908) and all three used Quebec as comrades-in-arms during the Great World War.

(From Canadian Number of Christian Science Monitor).

**Screenings as a Feed**

**S**CREENINGS, when finely ground, make an excellent and safe feed for live stock. Complete elevator screenings consist of broken and shrunken grains, wild buckwheat,

wild oats weed seeds, chaff, fine straw and dust which are removed from practically all grain delivered to the terminal elevators. They are now easily available commercially to Canadian stockmen. After the screenings have been removed from the grain they are put through a cleaning process and classified as re-cleaned elevator screenings, oat scalplings and refuse screenings. A fourth grade, called elevator screenings is used, if the percentage of weed seeds is above the prescribed amount, and for screenings that do not fall into the three above classifications. In view of the fact that these screenings are being fed fairly extensively to live stock, a series of experiments to ascertain their feeding value have been conducted at several experimental

farms and stations. The results of these experiments are summed up in a new pamphlet on Screenings as a Feed for Live Stock, available at the Publications Branch, Department of Agriculture, Ottawa. It has been provided that re-cleaned elevator screenings is an excellent feed for growing and fattening pigs. It produces rapid gains economically. For fattening steers this feed has been shown to be the equal of good mixed meal. Oat scalplings is of considerably less value, having a feeding value in the rations of growing pigs of not more than half that of a good mixed meal. Refuse screenings have little or no feeding value in swine rations. Complete screenings have proved to be a valuable addition to the meal ration when they comprise about one-third of it.

**Oil facts for farmers**

(No. 3)

**World-wide proof of Mobiloil economy**

Mobiloil is used by the majority of experienced motorists and tractor-owners in these countries:

**Europe:** Great Britain, Ireland, Norway, Sweden, Finland, Denmark, France, Holland, Germany, Poland, Spain, Portugal, Italy, Switzerland, Austria, Hungary, Czecho-Slovakia, Roumania, Jugo-Slavia, Bulgaria, Greece.

**Africa:** Egypt, Sudan, Algeria, Morocco and the west coast of Africa, Union of South Africa and east coast.

**Asia:** Turkey, Syria, Persia, Afghanistan, India, Burma, China, Japan and the Straits Settlements.

**Australia and New Zealand.**

**North America:** Alaska, Canada, United States, Mexico, the West Indies.

**South America:** Venezuela, Colombia, Guiana, Brazil, Paraguay, Uruguay, Ecuador, Peru, Chile, Argentina.

**Actually Cheaper to Use**

Mobiloil could never have become so well known and so widely used if it were not for the economy of Mobiloil quality.

Farmers everywhere have discovered that Mobiloil is a cheaper oil to use. That's why they are willing to pay a few cents more per gallon for Mobiloil and even to make special trips to town for Mobiloil when necessary.

Mobiloil users tell us that Mobiloil frequently cuts oil consumption 15% to 50%. Carbon expense, repair and replacement bills are held down to rock bottom.

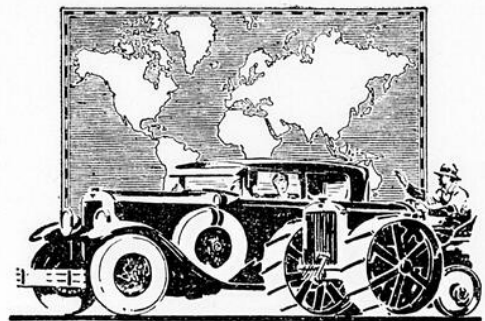
In just one year's running you will find that Mobiloil's slightly extra price is returned to you many times over through marked cuts in operating expenses.

**How to Buy**

Most farmers buy a season's supply of oil at one time. We recommend the 55-gallon or 30-gallon steel drums with faucets. Any nearby Mobiloil dealers will give you a substantial discount when you buy one of these.

Other Mobiloil containers are: 10-gallon steel drums with self-contained faucet, 5-gallon cans packed in easy-tipping rack. Also 1-gallon and 1-quart cans.

Your dealer has the complete Mobiloil Chart. It will tell you the correct grade of Mobiloil for your tractor, your truck and your car.



**Make this chart your guide**

If your car is not listed below see the complete Mobiloil Chart at your dealer's. It recommends the correct grades for all cars, trucks and tractors, etc.

NAMES OF PASSENGER CARS	1928		1927		1926		1925	
	Engine		Engine		Engine		Engine	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Buick	A	Arc	A	Arc	A	Arc	A	Arc
Cadillac	BB	Arc	BB	Arc	BB	Arc	A	Arc
Chandler Spec. 6-cyl.	A	Arc	A	Arc	A	Arc	A	Arc
"    other models	A	Arc	A	Arc	A	Arc	A	Arc
Chevrolet	A	Arc	A	Arc	A	Arc	A	Arc
Chrysler 4-cyl.	A	Arc	A	Arc	A	Arc	A	Arc
"    Imp. 80	BB	Arc	A	Arc	A	Arc	A	Arc
"    other models	A	Arc	A	Arc	A	Arc	A	Arc
Dodge Bros.	A	Arc	A	Arc	A	Arc	A	Arc
Durant	A	Arc	A	Arc	A	Arc	A	Arc
Essex	A	Arc	A	Arc	A	Arc	A	Arc
Ford, Model A	A	Arc	A	Arc	A	Arc	A	Arc
"    Model T			E	E	E	E	E	E
Franklin	BB	Arc	BB	Arc	BB	Arc	BB	Arc
Hudson	A	Arc	A	Arc	A	Arc	A	Arc
Hupmobile	A	Arc	A	Arc	A	Arc	A	Arc
Nash	A	Arc	A	Arc	A	Arc	A	Arc
Oakland	A	Arc	A	Arc	A	Arc	A	Arc
Oldsmobile	A	Arc	A	Arc	A	Arc	A	Arc
Overland, all models	A	Arc	A	Arc	A	Arc	A	Arc
Packard	A	Arc	A	Arc	A	Arc	A	Arc
Pontiac, all models	A	Arc	A	Arc	A	Arc	Arc	Arc
Reo, all models	A	Arc	A	Arc	A	Arc	A	Arc
Star	A	Arc	A	Arc	A	Arc	A	Arc
Studebaker	A	Arc	A	Arc	A	Arc	A	Arc
Vellie	A	Arc	A	Arc	A	Arc	B	Arc
Willys-Knight 4-cyl.			BB	Arc	BB	Arc	BB	Arc
"    6-cyl.	BB	Arc	BB	Arc	BB	Arc	BB	Arc

The correct grades of Gargoyle Mobiloil for engine lubrication of prominent passenger cars are specified above. Follow winter recommendations when temperatures from 32° F. (freezing) to 0° F. (zero) prevail. Below zero use Gargoyle Mobiloil Arctic (except Ford Model T, use Gargoyle Mobiloil "E").



**IMPERIAL OIL LIMITED**

Marketers of GARGOYLE MOBILIL  
in Canada

Manufactured by  
**VACUUM OIL COMPANY**

**Asparagus and Rhubarb,  
Two Important Early  
Spring Crops**

THE production of early maturing perennial spring crops that yield profitable returns per acre is without doubt one of the best paying undertakings within the reach of many of the market gardeners and home gardeners of this country. There are probably no two crops so much in demand as asparagus and rhubarb during the early part of the season, and if produced in quantity before the general supply is available will prove very profitable.

One of the first considerations is the type of soil available for this work. It has been found by experience that a well enriched sandy or loam soil will produce excellent crops and at the same time be easy to till and maintain at all seasons. In locating the asparagus and rhubarb plantations, it should be borne in mind that since both of these crops are very persistent and can be relied upon to last in a plantation for upwards of twenty years, that the best and most convenient piece of land for the purpose should be selected.

Since there are many varieties of asparagus offered at present, it may seem difficult to decide upon the most desirable one to plant, but since there has been considerable effort made to eliminate inferior varieties and those subject to asparagus rust, the Mary Washington has been found to be least affected by this fungous pest, with the result that many fine disease-resistant plantations are to be found throughout the country to-day. Pedigreed seed should be used that has been produced under careful supervision and that is traceable to known parent plants. One to two pounds of good seed should produce enough plants to plant an acre. Use one-year-old seedlings, selecting those plants that have a large number of large well-formed buds, discarding those that show a large number of small buds. The third spring after planting cutting may be commenced. Serious damage may result if the crop is harvested too late into the season. As a rule around the first week in July should see the last cutting, after which the tops should be allowed to develop so as to store

up energy for the production of the next season's crop.

The yield from asparagus will range around 350 dozen bunches per acre. This, at current market prices, certainly means an attractive proposition.

To have asparagus on the market early in the season means obtaining a higher price than for the crop grown under ordinary conditions. By planting a few beds closely with roots eighteen by twenty-four inches apart, having these beds just large enough that they may be covered with a cold frame, it is possible to have a crop ready at least two weeks earlier than the field crop. During very warm days the glass may be opened a little if necessary, and closed again at night time. This has been tried and found very satisfactory and it is therefore recom-

mended that growers try it in a limited way.

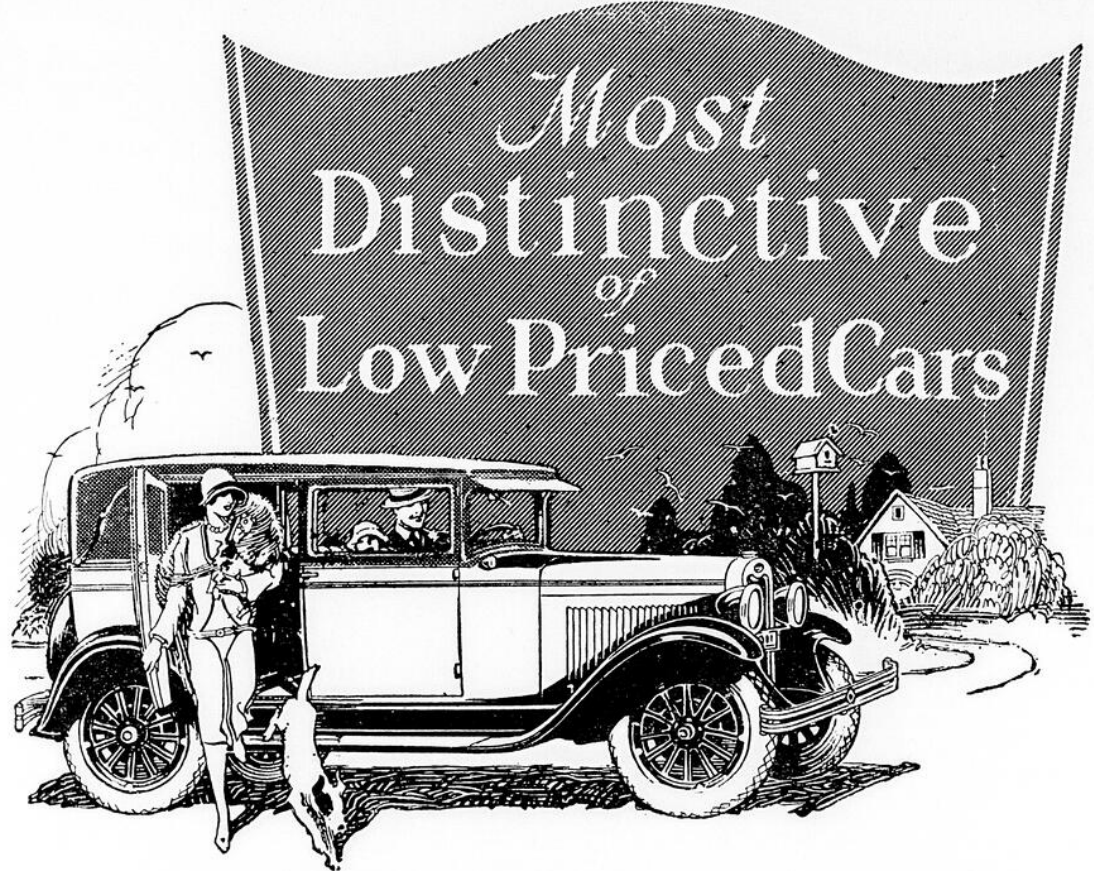
The old standard varieties of rhubarb still are considered quite satisfactory in some localities. Both Linnaeus and Victoria have a place in connection with market gardening but since there have been improved strains obtained that yield better and produce a much more attractive product it would seem advantageous to market growers and home gardeners to obtain these sorts and use them to the exclusion of all others, propagating from piece roots from the best plants.

Rhubarb can be forced rapidly in the field by using forcing boxes, specially made for the purpose. These may be made of boards and with four sides only. Put one around each hill and place a loose cover over it that

has a few small holes bored through to allow for ventilation. Old plaster or apple barrels that have had one end knocked out will serve the same purpose. Place one over each hill or root. It will be found that a crop will be ready for pulling prior to the regular field crop, thus getting the price for early truck. In addition the stalks will be a delicate pink colour, resembling winter forced rhubarb.

Ruby rhubarb has proved to be one of the outstanding varieties of recent origin, having proved under most conditions to produce the reddest fleshed leaf stalks, with an absence of stringiness. This variety was originated in the Division of Horticulture, Central Experimental Farm, Ottawa.

To maintain the fertility of the land, liberal fall application of well rotted manure should be made, which



**B**UILT on a wheelbase of 107 inches—four inches longer than before . . . swung low to the road . . . and with its hood streaming back in graceful, unbroken lines to blend with contours of the Fisher bodies—the “Bigger and Better” Chevrolet is everywhere hailed as a car of outstanding distinction.

The new radiator is higher and narrower, and embellished with a large, flat, all-metal radiator cap. The hood is longer and deeper—vividly interpreting the greater stamina, staunchness and

fleetness of the new chassis. Windshield posts are slender and graceful, bodies are beautifully beaded and paneled, hardware is of period pattern, and roof-lines are smartly low.

Interiors, too, are impressively rich—with new upholstery, wide, restful seats, and a beautiful enclosed instrument panel—indirectly lighted.

Come, see this great new car—and you'll know why thousands have acclaimed it the world's most luxurious low-priced automobile.

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The G.M.A.C. . . . General Motors' own deferred payment plan affords the most convenient and economical way of buying your Chevrolet on time.

See the “Bigger and Better” Chevrolet at your nearest dealer. A personal demonstration will be gladly arranged.

CHEVROLET MOTOR COMPANY OF CANADA, LIMITED

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of 10 cents  
will clear  
your house of  
FLIES**

These obnoxious pests, annoying, germ laden, can be easily destroyed.

A Ten Cent Package of WILSON'S FLY PADS will do the job, simply, easily. NO SPRAYING, NO OBNOXIOUS ODOURS, NO STICKINESS, just five minutes' preparation and WILSON'S FLY PADS start their work of killing flies.

Three pads in each 10 cent package. Each pad will kill flies all day and every day for 2 or 3 weeks. Get them at your Grocers or Druggists to-day.



At all Grocers, Druggists and General Stores  
10 CENTS PER PACKAGE

should be worked into the soil in the early spring with shallow tilling machinery. In addition to this, a moderate application of nitrate of soda should be made at the rate of from 150 to 200 pounds per acre directly after the plantation has been cultivated in the early spring. Where the supply of manure is limited, a 4-8-0 fertilizer may be used, that is to say 4 per cent nitrogen and 8 per cent phosphoric acid, leaving out the potash. The application of such fertilizers will have to be regulated by the quantity of manure previously applied, but since humus is essential to the soil, some manure must be applied each season.

T. F. RITCHIE,  
Central Experimental Farm,  
Ottawa, Ont.

**Canadian Record of Performance**

Ayrshires in R. O. P.

**D**URING the month of April the secretary received in his office 109 reports of cows and heifers that qualified in the R. O. P.—35 in the 365 day test and 74 in the Honor Roll or 305 day test.

In the 365 day test, 9 qualified in the mature class; 7 in the four year old; 5 in the three year old and 14 in the two year old.

The leader in the mature class was Primrose of Beaver Meadow 4th. -68589- owned by Glen Campbell Farms, Dundas, Ont., with 14,271 lbs. milk and 640 lbs. fat. Lassie of Gala Bank -71889- owned by W. E. Symington, Camlachie, Ont., gave 13,592 lbs. milk and 555 lbs. fat. Primrose of Bridgeview -45304- owned by Melvin Begg, Moose Creek, Ont., gave 13,024 lbs. milk and 538 lbs. fat.

Lennoxville Roxie 3rd. -82180- owned by Director, Experimental Farms, Lennoxville, Que., led the four year old class with 11,354 lbs. milk and 512 lbs. fat. Blanche -82074- owned by Napoleon St. Laurent, Luceville, Que., gave 11,747 lbs. milk and 466 lbs. fat. Thorndyke Flossie -85817- owned by W. R. Younker, Charlottetown, P. E. I. gave 10,142 lbs. milk and 443 lbs. fat.

The three year old class was led by Ivy Lodge Baroness -85322- owned by J. G. Wilson, Lacolle, Que., with 11,678 lbs. milk and 489 lbs. fat. Willowbank Spicy 2nd. -90783- owned by Andrew Stark, Huntingdon, Que., gave 9,385 lbs. milk and 420 lbs. fat. Rougette -86074- owned by Honore Dionne, Sacre Coeur de Marie, Que., gave 9,435 lbs. milk and 414 lbs. fat.

Mousette -90682- owned by Eugene Leclerc & Sons, Riviere Trois Pistoles, Que., came first in the two year old class with 9,442 lbs. milk and 405 lbs. fat. Brookside Sarah -92605- owned by John McKee & Son, Norwich, Ont., gave 10,142 lbs. milk and 397 lbs. fat. Des Pins Rosette Ald 3rd. -102852- owned by M. Ste. Marie & Sons, Compton, Que., gave 8,748 lbs. milk and 397 lbs. fat.

In the Honor Roll Class 26 qualified in the mature class; 11 in the four year old; 10 in the three year old and 27 in the two year old.

The leader in the mature class was Auchenbrain Piccadilly -68266- owned by Glen Campbell Farms, Dundas, Ont. with 16,261 lbs. milk and 604 lbs. fat. Susie of Geneva -43963- owned by John P. Bradley, Lachute, Que., gave 13,226 lbs. milk and 579 lbs. fat. Auchenbrain Beauty -70828- owned by Glen Campbell Farms, Dundas, Ont., gave 13,439 lbs. milk and 528 lbs. fat.

Pindeale Betsy -86481- owned by Melvin Begg, Mose Creek, Ont., came first in the four year old class with

11,701 lbs. milk and 472 lbs. fat. Thorncroft Merry Miss -82642- owned by E. C. Budge, Beauharnois, Que., gave 10,044 lbs. milk and 401 lbs. fat. Flores -86394- owned by Ecole d'Agriculture d'Oka, La Trappe, Que., gave 9,786 lbs. milk and 379 lbs. fat.

The three year old class was led by Maplewood Jessie -89110- owned by Wm. C. Strong, West Brome, Que., with 9,240 lbs. milk and 436 lbs. fat. Farouche -86003- owned by Joseph Lessard, St. Leon, Que., gave 8,777 lbs. milk and 364 lbs. fat. Maplecrest Gretta -99100- owned by Ernest Pouliot, Boyer, Que., gave 8,580 lbs. milk and 355 lbs. fat.

Bridgeview Anna -99956- owned by Melvin Begg, Moose Creek, Ont., led the two year old class with 10,295 lbs. milk and 407 lbs. fat. Mignonne -96377-

owned by Adelard Morin, St. Hyacinthe, Que., gave 9,018 lbs. milk and 387 lbs. fat. Glengarry Pansy Star -90303- owned by Cumming Bros., Lancaster, Ont., gave 7,353 lbs. milk and 364 lbs. fat.

old and 11 in the two year old class. The leader in the mature class was Woodlea White Rose -70926- owned by Rodger Bros., Lachute, Que., with 12,246 lbs. milk and 518 lbs. fat. Thornhill Effie -75731- owned by Rodger Bros., Lachute, Que., gave 11,980 lbs. milk and 514 lbs. fat. Ephigenie de St. Arsene 2nd. -75702- owned by Eugene E. Pelletier, St. Fabien, Que., gave 11,149 lbs. milk and 504 lbs. fat.

Fleur de la Vallee -90167- owned by Jos. Ouellet, St. Prime, Que., led the four year old class with 10,703 lbs. milk and 475 lbs. fat. Clover Ridge Silverbell -82414- owned by R. T. Brownlee, Hemmingford, Que., gave 10,246 lbs. milk and 441 lbs. fat. Mons -81708- owned by Azellus Lavallee, Berthier, Que., gave 10,499 lbs. milk and 404 lbs. fat.

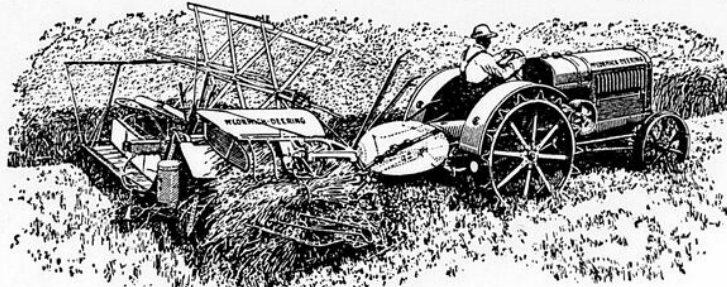
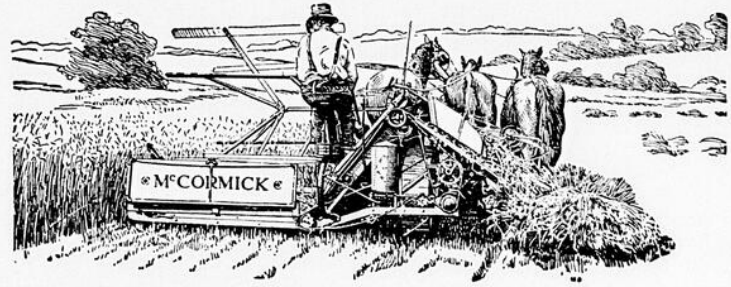
**Canadian Record of Performance**

Ayrshires in R. O. P.

**D**URING the month of February the secretary received in his office 82 reports of cows and heifers that qualified in the R. O. P.—23 in the 365 day test and 59 in the Honor Roll or 305 day test.

In the 365 day test, 8 qualified in the mature class; 4 in the four year

**M**CCORMICK-DEERING Grain Binders are built in 5, 6, 7, and 8-foot sizes. The many improvements made in recent years add to their efficiency, ease of handling, and length of life. Light-running binders, with nearly a century of harvest machine experience back of them.



**T**HE 10-foot, power-driven McCormick-Deering Tractor Binder enables you to cut from 30 to 40 acres a day. A highly efficient binder of special interest to McCormick-Deering Tractor owners.

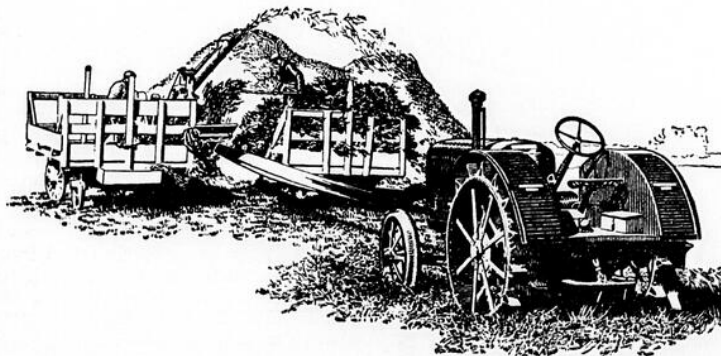
**Headquarters for Harvest Progress!**

**T**HE McCormick-Deering agent in your community is in close touch with harvest machine developments. He can tell you about the latest refinements that have been made in horse-drawn McCormick-Deering Binders. He can point out the advantages of owning the fast-working 10-foot McCormick-Deering Tractor Binder that operates from the power take-off of the McCormick-Deering Tractor. He can give you interesting information concerning the McCormick-Deering All-Steel Thresher, and point out the savings in power effected by the ball

and roller bearings. And he can discuss the McCormick-Deering Harvester-Thresher with you to your complete satisfaction.

Note the complete harvesting and threshing equipment service offered by your neighbor, the McCormick-Deering agent. He is in position to offer you exactly the machine required by your acreage, crop, or climatic conditions. We suggest that you discuss harvest machines with him as soon as possible; you may need new equipment or repairs, and it is always to your advantage to make your selection and place your order as early as possible.

INTERNATIONAL HARVESTER COMPANY  
HAMILTON of Canada, Ltd. CANADA



**McCormick-Deering All-Steel Threshers**

**T**HESE famous all-steel threshers, with the worry-proof ball and roller bearings, are built in two sizes; 22 x 38, and 28 x 46. Ask us for further information and the nearest address at which you can see these threshers on display.

**McCORMICK-DEERING HARVESTING MACHINES**

The two year old class was led by Sunny Spring Daisy 2nd. -92990- owned by J. C. Coulter, Huntingdon, Que., with 10,506 lbs. milk and 442 lbs. fat. Walnut Lodge June -105119- owned by J. S. Knapp, Galt, Ont., gave 9,179 lbs. milk and 402 lbs. fat. Humeshaugh Fairy Queen -94218- owned by Alex. Hume & Son, Campbellford, Ont., gave 9,089 lbs. milk and 395 lbs. fat.

In the Honor Roll Class 12 qualified in the mature class; 7 in the four year old; 13 in the three year old and 27 in the two year old class.

In the mature class Clover Ridge Silver Lady -78494- owned by Jos. P. Beauchemin, Vercheres, Que., came first with 11,524 lbs. milk and 446 lbs. fat. Lucette d'Oka -67864- owned by Seminaire de St. Sulpice, Oka, Que., gave 10,044 lbs. milk and 426 lbs. fat. Brownie of Pine Grove -56953- owned by Harold Reeves, Hawkesbury, Ont., gave 9,920 lbs. milk and 417 lbs. fat.

The leader in the four year old class was Lawndale Perfect Lady -90799- owned by Adelard Ouellet, St. Felicien, Que., gave 9,269 lbs. milk and 408 lbs. fat. Eveline of Compton -84966- owned by F. Audet, Compton, Que., gave 8,472 lbs. milk and 403 lbs. fat. Suzanne of Compton -84965- owned by F. Audet, Compton, Que., gave 7,662 lbs. milk and 371 lbs. fat.

Championne of Compton -84967- owned by F. Audet, Compton, Que., led the three year old class with 8,141 lbs. milk and 410 lbs. fat. Lighthouse Katherine -87695- owned by W. A. Callaghan, Prescott, Ont., gave 9,278 lbs. milk and 406 lbs. fat. Fairvue Clarice -85792- owned by Director, Experimental Farms, Charlottetown, P. E. I., gave 8,174 lbs. milk and 394 lbs. fat.

In the two year old class Sunny Spring Daisy 2nd -92990- owned by J. C. Coulter, Huntingdon, Que., was the leader with 9,728 lbs. milk and 408 lbs. fat. Houde 2nd. -96997- owned by Jos. Houde, St. Felix de Valois, Que., gave 7,747 lbs. milk and 400 lbs. fat. Des Pins Blandine 2nd. -93642- owned by M. Ste. Marie & Sons, Compton, Que., gave 9,039 lbs. milk and 395 lbs. fat.

**Marketing of Wool is on Stable Basis**

*Pool Idea Has Been Successfully Applied in Co-operation Wool Growers*

**A**LTHOUGH the rugged climate of Canada produces wool equal to any in the world, and superior to much of that from warmer countries, for a long time the sheep industry languished in this Dominion. In the eastern half of the country the number of animals fell off each year, and even with high war time prices the industry continued to go back; but there was every reason for such a condition. Sheep were at best looked upon as an indifferent sideline, a necessary evil to keep weeds in check on poorer farms, and wool was sold with other junk to the first peddler who came along in early spring.

**Wool Pool Succeeds**

Then in 1918 came the pool idea and the formation of the Canadian Co-operative Wool Growers. Preaching quality and grading this Dominion-wide organization of producers was successful from the start. Wool was raised from the status of junk to an important crop. Farmers were urged to pay more attention to their sheep, to clip carefully, and tie the fleeces in a modern way. The wool was graded according to Government standards and sold on a pooled basis. Naturally, wool dirty with clots of manure, weed seeds and chaff brought a low price, and this was clearly shown on the statements sent back to shippers. For

the first time farmers were able to see where they were losing money, and steps were taken, by the provision of feeding racks, clean floors for clipping, and other means, to raise the standard of Canadian wool. Domestic woollen mills soon realized the change in the quality of the local clip and began to buy with confidence.

**Returns Are Higher.**

That the new system of wool handling was a change for the better from the producer's standpoint is indicated by the market trend of the past few years. The pre-war prices were much behind those to-day, and while wool with every other farm product suffered deflation in value after the war period, it was the first to come back. "This association of producers" stated Live Stock Commissioner H. S. Arkell a few weeks ago, "which allowed the producer to hold his product, grade it and feed it to the market gradually, has saved farmers probably 10 cents per pound this year."

Substantial progress has been reported by the Canadian Co-operation from year to year. The season just closed was no exception, when almost 4,000,000 pounds, or about half the total commercial clip of Canada, was handled.

Besides handling a large volume the wool growers' organization has opened up the United States and European markets as well to the producer in this country. Never before has wool gone direct from the farm to foreign countries.

*Reprinted from Toronto Globe May 21, 1927.*

**Canadian Jersey Notes**

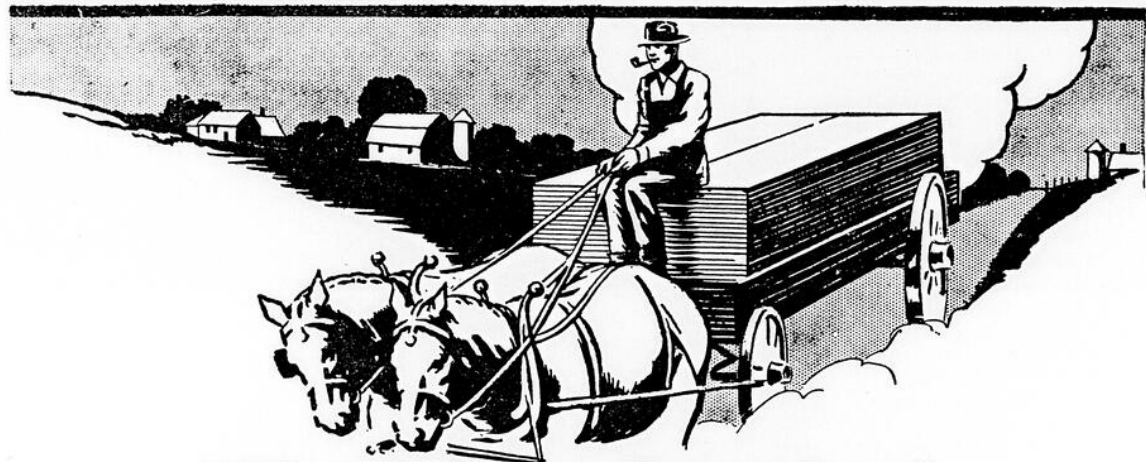
**Another Great Jersey for Oxford County**

**O**XFORD County of Ontario has long been known as the great dairy cattle county of Canada. It is rapidly becoming one of the great Jersey centers of the Dominion. The latest addition to Oxford Jersey herds is the cow Noble's Foxy B. -13072- recently purchased by E. W. Nesbitt of Woodstock from F. H. Silcox of Iona, Ont. This cow's record of nearly 15,000 lbs. of milk credits her as being the highest producing Jersey in Canada in the mature class of the 305 day division. She was born on Feby. 22nd. 1918, and this record was made last year in the herd of F. H. Silcox, President of the Canadian Jersey

Cattle Club. This cow is now on test again and has produced more than six times her own weight in milk in less than four months. She calved on Dec. 8th., and in that month produced over 1000 lbs. In January her production exceeded 1800 lbs. In February she gave over 1800 lbs. again and in March 1988 lbs. She was only milked twice a day for the first two months, but when put on three times a day milking jumped up to over 70 lbs. a day. Her best day was 73 lbs. The sire of this great cow is the bull Noble's Castor of Woodview -6522- and the cow was bred by Rock Baily at St. Thomas so she has been developed in the county of her birth. Her dam, now in her teens, is as sound and healthy as the daughter. The purchase price was \$1000. This is the first Jersey to be sold from Elgin for this much money and the highest priced Jersey to go into Oxford. Mr. Baily, Mr. Silcox, and Mr. Nesbitt are all to be congratulated. Canadian Jerseys should benefit through the use of sons of this cow in the herds of Mr. E. A. Smith of St. Thomas and Mr. F. H. Silcox.

**NEW JERSEY HERDS IN CHATAM DISTRICT**

The Chatam district of Ontario has



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**O**NE haul will do it. One load of TEN/TEST insulating Building Board is sufficient to insulate most of the important portions of your farm home and buildings, to protect them against the hot summer sun. Then, when cold weather comes round again, you will be thoroughly prepared for it, because TEN/TEST means permanent insulation against every change of weather.

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not been much known for its Jerseys. In the last short time several fine herds have been established however, and the product from these herds goes to the citizens of Chatam at very attractive prices. Good-sized herds have been established by J. C. Stewart, Bruce Bedford, A. G. Bedford, and H. Smith. Mr. A. G. Bedford got the foundation for his herd with the purchase of 20 females in Indiana a few weeks ago. The product from these herds is meeting with such favor in the city of Chatam that all four owners will materially increase their number of purebreds. Until a couple of years ago Jersey milk and cream had not been offered to the public in this district. The adventure has been such a success that the supply does not take care of the demand.

W. ELMO ASHTON.

Waterloo, Que.

### New Canadian Apple Receives High Award

Melba Apple, Originated at Central Experimental Farm, Wins Wilder Medal

NEW varieties of apples originated at the Dominion Experimental Farms of the Department of Agriculture continue to attract world-wide attention. The Melba apple, the most recent product of the work carried on at the Central Farm, at Ottawa, has been awarded the Wilder (silver) Medal, the highest award of the American Pomological Society. This follows closely on the high award gained recently at the International Horticultural Exhibition at Brussels, Belgium, and is the eighth medal received by the Horticultural Division of the Central Farm for meritorious varieties of apples.

The Melba apple is an open pollinated seedling of the famous McIntosh. Seed of the McIntosh was saved at Ottawa in 1898 and sown in the autumn of that year. The seed germinated the following spring and the young trees were set out in fruiting rows in the spring of 1901. One of these trees, afterwards called the Melba, fruited in 1908 and, as it was so exceptionally promising, it was named in 1909.

Propagation was begun in the winter of 1908-9 and trees were sent out to experimenters for test in 1911 and since that time. It has now fruited in many parts of Canada and some parts of the United States and has proved very promising under different climatic conditions.

The Melba is a summer apple of handsome appearance, in season before the Duchess of Oldenburg and quite as high in quality as the McIntosh. In colour it is a pale waxy yellow, well washed with bright carmine and crimson, the former being the predominant colour. It has a marked perfume which adds to the attractiveness of this variety, and the tree is hardy in climates as severe as that of Ottawa, bears when young, and is productive.

### Advertising Canada

PROFESSOR HARRY R. Lewis, Secretary for Agriculture for the state of Rhode Island, and President of the United States National Poultry Council was one of the most enthusiastic delegates to the World's Poultry Congress last July. He is now giving evidence of his impressions after participating in the Congress trans-Canada tour.

Since his return to the United States he has addressed poultry associations, banquets and clubs, among the latter being the Frenchtown Community Club, the Rhode Island State

Grange, the Lions' Club Rhode Island, the Southern New England Textile Club, and the Varnum Continentals, the chartered military command of Rhode Island.

He has given these people of his state details of his trip through Canada illustrated by maps, photographs, and motion pictures.

Mr. Oscar Brown of Scunthorpe, Lincs, England also participated in the trip, and he writes that he has had the pleasure of broadcasting his impressions of Canada. Mr. Percy A. Francis of the British Ministry of Agriculture has been busy lecturing since his return to England, his subject being 'Canada'.

Italy is also actively advertising Canada. One of her chief delegates to the World's Poultry Congress. Prof. A. Ghigi of the University of Bologna is writing a book entitled from 'Niagara to Mexico'. This will contain many views of Canada, and will cover the country from coast to coast.

Canada is being advertised as a result of the World's Poultry Congress. The advertising is of the best kind, it is first hand information given by people who returned to their homes saturated with Canadian sunshine, hospitality, and achievement.

Further it is being given by instructors to students, to agriculturists and others, and by the representatives of the press who accompanied the Congress train. Among the latter is the editor and owner of the 'Feathered World' Mr. Sydney Lewer whose paper carried a running article through nine issues giving details of the trans-Canada tour.

The 'Report of the Congress Proceedings' a splendid volume of 558 pages is now ready for distribution. It contains over 160 technical papers presented at the Congress, together with a verbatim report of the general meetings. Full particulars regarding this volume may be obtained from the World's Poultry Congress Secretary, Ottawa.

### The Swine Industry in the Maritime Provinces

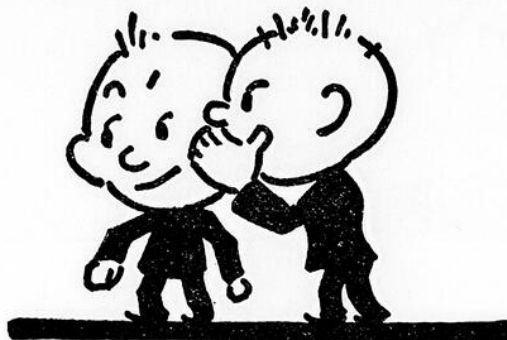
A close analysis of statistics published by the Department of Agriculture, Ottawa, reveals a number of interesting factors in connection with the growth of the swine industry in the Maritime Provinces. In 1925 the swine population of Canada was 4,426,148 and in 1927

this was 4,694,789, a gain of 6%. In the same period, however, we find that the hog population of the Maritime Provinces had made a gain of 22%. These figures are exceedingly pleasing. However, there is still great chance for further gains in the Maritime Provinces when it is considered that the proportion of hogs to cows is much lower in the Maritimes than in any other part of Canada, and that the industry up to 1923 made very little progress.

This is well borne out by the following statistics: the hog population of Canada gained 27.7% from 1913 to 1923. In the same period the hog population in the Maritimes Provinces decreased 16.3%. From 1923 to 1927, however, while Canada gained 6.5%, hogs in the Maritimes increased 19%.

The quality of the hogs has also been greatly improved. We find that in 1927 44% of the hogs marketed through the co-operative live stock shipping clubs, which constituted the bulk of the live hog shipments, were in the "select" class. This is exceedingly high, considering that for Canada 16.9% of the hogs marketed last year were "selects."

The present pleasing situation regarding the hog industry in the



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MADE IN CANADA

Maritimes has been largely brought about by the work performed by the Boys' and Girls' Swine Clubs which work is being followed up by the co-operative live stock shipping clubs and the Maritime Live Stock Marketing Board which at the present time markets the bulk of the live hogs offered for sale.

Great credit is due the Departments of Agriculture and the Canadian National Railways who so ably assisted and promoted the Boys' and Girls' Swine Club work in Eastern Canada and present indications point to continued gains in this important phase of mixed farming.

known Bridge Builder and has bought a farm near Woodstock. He recently purchased a cow, eight heifers and a bull calf in the Howick-Huntingdon Club district. The bull calf is a grandson of the famous Canadian record long distance cow, Springburn Lucky Girl.

H. A. Swart, Simcoe, Ont., recently sold 5 head of Ayrshire females to Fred Buber, Sumner, Ia., and 10 cows and a bull to W. C. Legtmeier Land Co., Westgate, Ia.

The farmers who purchased these are contemplating going in for dairying on a more extensive scale and so are to make a trial of Ayrshires.

R. R. Ness of the firm of R. R. Ness & Sons, Howick, Que., and G. C. P. McIntyre of McIntyre Bros., Sussex, N. B., recently visited Scotland

and purchased some 35 head of Ayrshires between them, and a report has just come to hand that the cattle have been released from Quarantin with a clean bill of health, not a single animal having reacted.

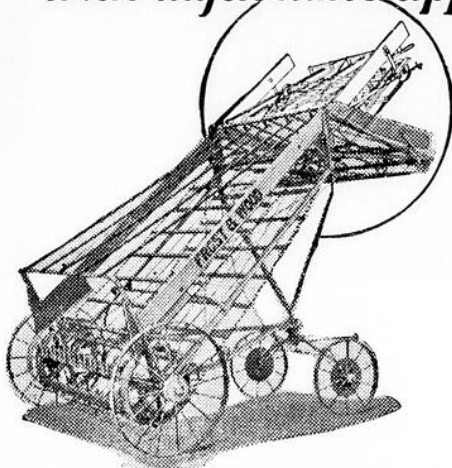
The Ness lot included a sister of Howie's Top Grade, that sensational

**Ayrshire News Notes**

ONE of the latest recruits to Ayrshires is Jas. A. Vance, Woodstock, Ont. Mr. Vance is a well-

A shipment of 21 grade and 2 pure bred Ayrshire females and a bull were recently made from Howick, Que., to the Borden district of Saskatchewan.

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*with adjustable upper Elevator*



**New Features**

Easier loading—prevention of "slobbering" when turning corners—regulation of delivery of hay to the load and reduction in the headroom required when storing away after haying — are features which the adjustable elevator adds to this hay loader.

**Frost & Wood Haying Equipment**  
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Frost & Wood dump rakes and side delivery rakes give long, trouble-free service. Built of practically all steel and rigidly braced, these dependable haying tools pay for themselves in a surprisingly short time.

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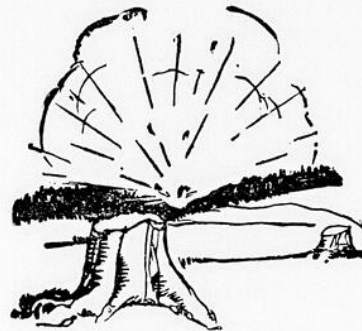
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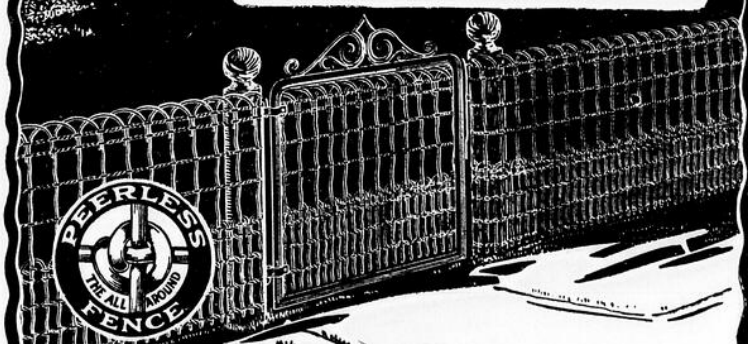
The lawn, with Peerless Ornamental Fence, "stands out" distinctively. It "sets off" the house just as a good frame sets off a picture.

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**Peerless**  
LAWN FENCE

yearling which was imported last year. Several notable old country winners are also included, and several of the lot are by such noted famous bulls as Lucky Boy, Craigton Here's Luck, Hobsland Milk Boy, etc.

The McIntyre lot include Whitehill Mayflower, a great producing and show cow; Hobsland Lucy IV, a 2 year old that was a noted winner last year, and Hobsland Merry Monarch, a prize winning son of Hobsland White King, who was imported last year and was grand champion at the National Dairy Show.

J. H. Black, Lachute, Que., President of the Canadian Ayrshire Breeders'

Association; Gilbert McMillan, Huntingdon, Que., and William Green-shields, Manager for W. W. Skinner, K. C., are at present in Scotland selecting an importation of Ayrshires.

C. A. Archibald, Dominion Live Stock Promoter, Truro, N. S., recently filled an order for St. Kitts, Barbadoes, Trinidad and South America which was one half Ayrshire, the other half being made up of Holsteins with one Jersey. Included in the lot was a very fine cow from the Government Farm, at Truro, N. S.

Eleven Ayrshire heifers went to a firm in Trinidad whilst another lot

went to another firm on the same Island. Six two year old in calf heifers went to the Ste. Madeline Sugar Estate.

That part of the herd of A. S. Turner & Son, Ryckman's Corner, Ont., which belonged to A. S. Turner, the senior member of the firm, was dispersed on March 30 and brought in a total of almost \$10,000. Five bulls and bull calves averaged \$190; 19 cows averaged \$240, and 21 heifers and calves averaged around \$180. Altogether some 53 head made an average of just around the \$200, mark and 28 animals made an average of \$245.

During the period commencing January 1, 1928 and ending March 31, 1928 an amount of \$13,377.55 had been received in membership fees, registration and transfer fees, etc., by the Canadian National Live Stock Records on behalf of the Canadian Ayrshire Breeders' Association. During the same period in 1927 the total receipts were \$9,183.35 this means an increase of \$4,194.20.

*Canadian Ayrshire Breeders' Association.*

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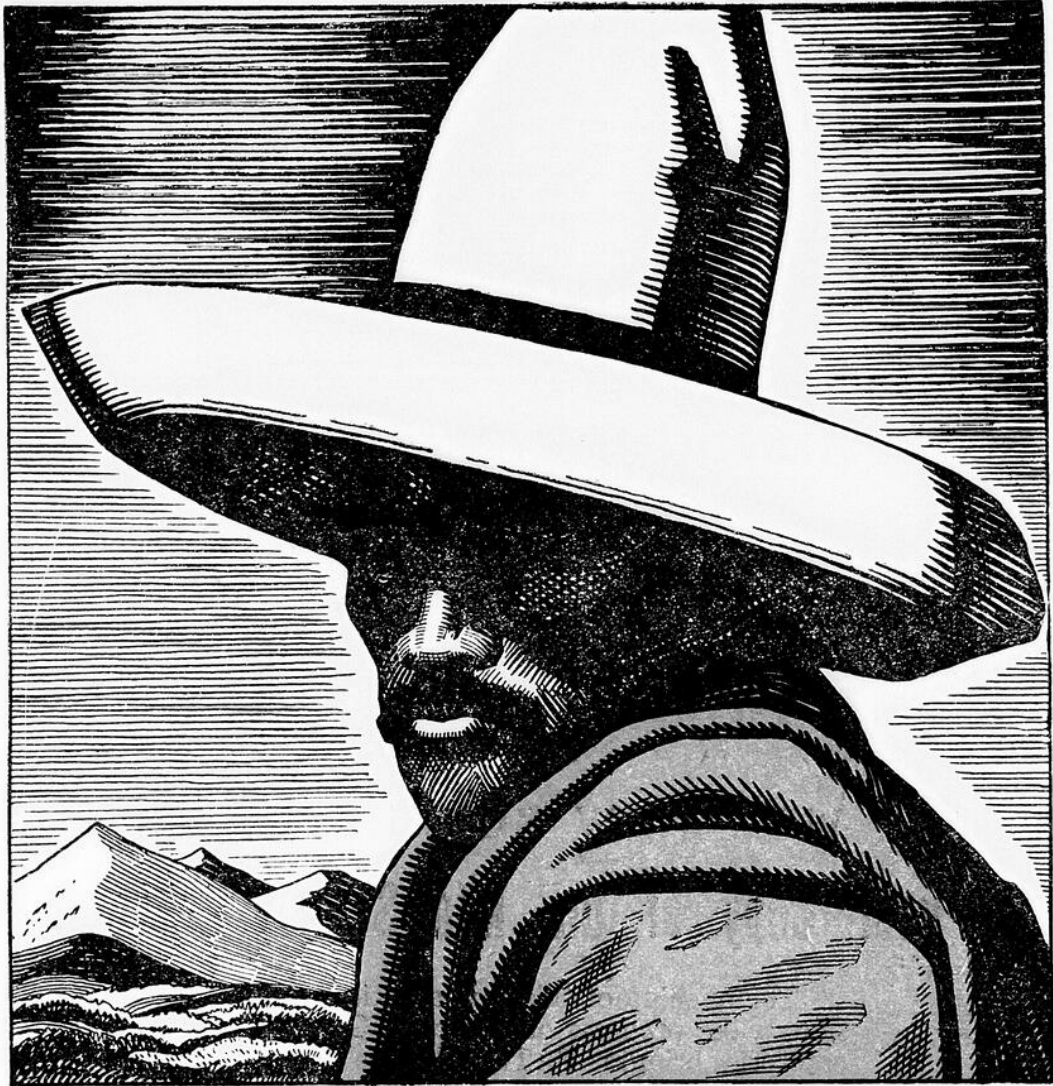
If you do not receive your copy of this Bargain Book by June 16th., send us your name and address, and a copy will be mailed to you promptly.

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