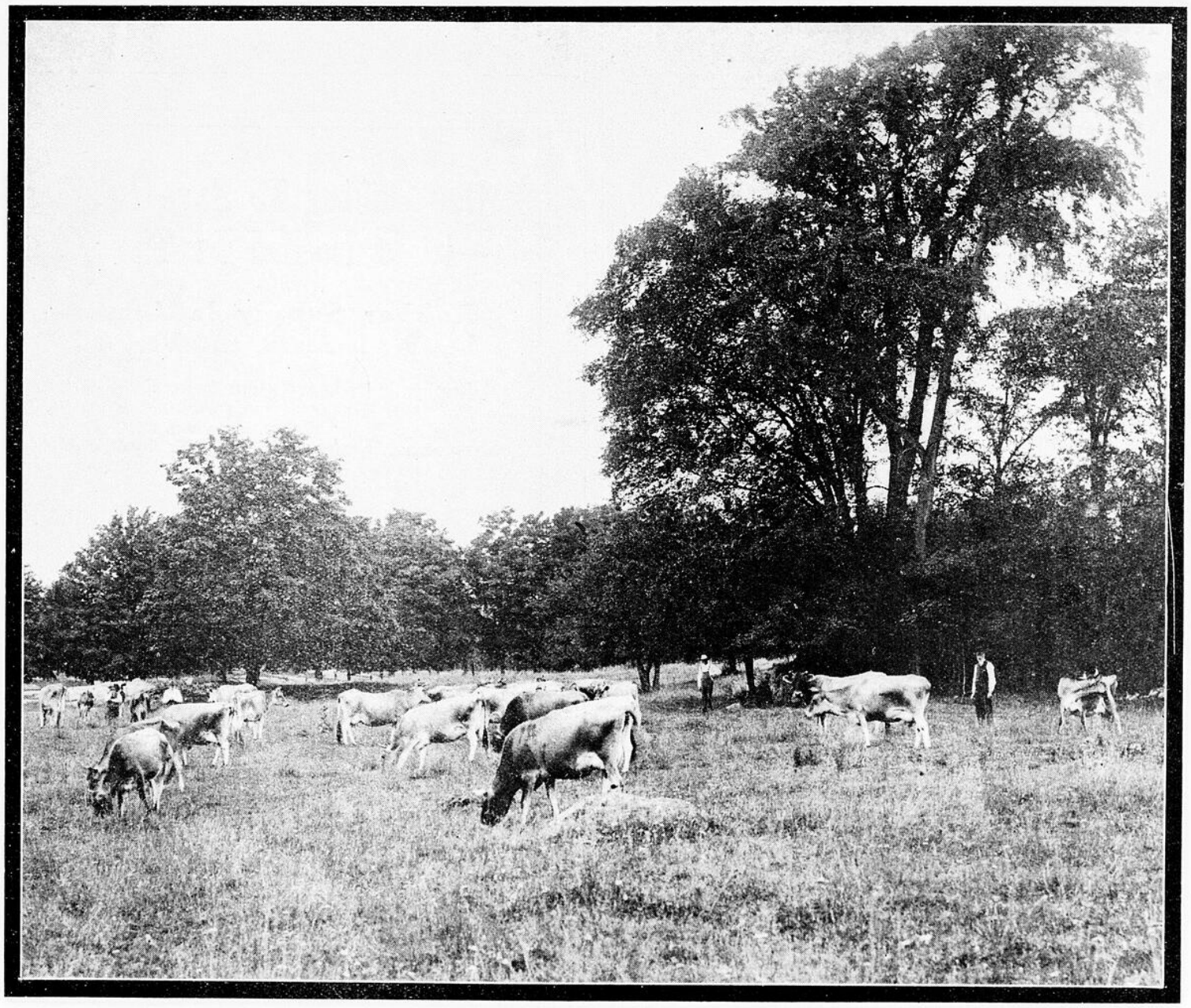
The JOURNAL of AGRICULTURE

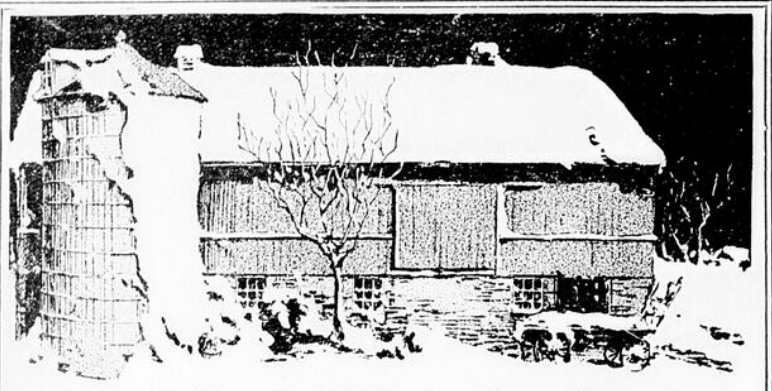
AND HORTICULTURE

Volume 20 *February 1st 1917* *Number 8*



THE JERSEY HERD OF MR. E. H. MORGAN, STANBRIDGE, MISSISQUOI CO.

PUBLISHED BY THE DEPARTMENT OF AGRICULTURE OF THE PROVINCE OF QUEBEC.



Next Winter When the Ground Is Covered with Snow

YOU will appreciate having an Ideal Green Feed Silo full of rich, juicy silage. It will make your cows produce a larger flow of milk right at the time when dairy products are bringing the best price.

Silage increases milk flow 25 per cent, and reduces feeding cost from 15 to 20 percent. Besides, silage is so easy for you to feed. It is compactly stored under cover. No need of hauling feed in bad weather or handling snow covered fodder.

IDEAL GREEN FEED SILO

The name Ideal Green Feed Silo is worth a lot of money to us because we have made it stand for a definite reliable measure of quality in the minds of thousands of Canadian farmers. They know this silo preserves the silage perfectly and gives the longest service. A Company cannot afford to put its mark on an inferior article any more than you can afford to put your corn crop in an inferior silo.

A trade mark to be of any value must be the identifying mark of superior quality, just as silage to be worth anything must be good silage. The man who sells a nameless, unbranded article has nothing at stake; he is not building up a reputation and using every effort possible to sustain his good name.

You have always noticed that when an article is given a name —a trade mark—by its maker, and advertised, every effort is made to insure reliable quality and make it a safe article to buy. You take no chances when you buy an Ideal Green Feed Silo. You have positive assurance that when you open up your silo you will find the silage preserved, that you will get longer service from this silo than from any of the so-called "cheap" silos.

Write to-day for our large illustrated catalogue which shows you every detail of this silo and explains just why you get more in it for your money than in any other.

THE DE LAVAL COMPANY, Ltd.

LARGEST MANUFACTURERS OF DAIRY SUPPLIES IN CANADA
Sole distributors in Canada of the famous De Laval Cream Separator and Alpha Gas Engines. Catalogues of any of our lines mailed upon request.

MONTREAL PETERBORO WINNIPEG VANCOUVER



Gardens Pay Dividends

when they are handled right, particularly now that everything eatable is so expensive.

Nothing is more important than the selection of seeds, and for this the safest guide is our new Illustrated Catalogue of

EWING'S SEEDS

No unworthy variety gets into this Catalogue—and no poor seeds go out to those who order from it.

Ewing's Seeds have produced forty-five successive and most successful crops in Canadian gardens and fields, and are ready now for the forty-sixth. Why not have a share in it?

Write now for this Catalogue, and if your Dealer hasn't Ewing's Seeds, order from us direct.

THE WILLIAM EWING CO., LIMITED
Seed Merchants, McGill Street, Montreal.

Ewing's Detroit Dark Red Turnip Beet

Valuable for its remarkable uniformity and smoothness; size medium; flesh rich red, fine-grained, tender and remaining so for a long time; admirable for either summer, fall or winter use. The tops are dark-colored and vigorous. One of the best varieties for the home garden or market and equally good to store for winter. **Lb. $1.50, ¼ lb. 50c; oz. 20c; Pkt. 5c.** *Sent postage paid — cash with order.*

52

CALDWELL'S

Save Money By Feeding

CALDWELL'S CREAM SUBSTITUTE CALF MEAL

Its rich protein and fat content furnishes a very complete substitute for whole milk and a valuable addition to skim or separated milk.

Prof. E. S. Archibald, of the Central Experimental Farm, Ottawa contributes the following article to a recent issue of the "Canadian Countryman". . .

"Generally speaking it costs to rear calves on whole milk to 6 months of age from $14 to $18 per hundred pounds of gain where milk has a valuation of $1.75 to $1.90 per cwt., whereas had the same calves been fed on skim-milk or buttermilk with a CREAM SUBSTITUTE, gains might have been made at from $3 to $5 per hundred pounds.—For the rearing of good stocker two-year-olds THE LATTER METHOD IS THE ONLY ONE UNDER AVERAGE FARM CONDITION WHICH WILL LEAVE A PROFIT".

Mix CALDWELL'S CREAM SUBSTITUTE CALF MEAL with skim milk, separated milk or water and your calves will gain rapidly and at a minimum cost per 100 pounds.

Order a 100 lb. sack or a larger quantity from your feedman the next time you are down town, or write us.



THE CALDWELL FEED & CEREAL CO., Ltd.,
DUNDAS — ONTARIO

Makers also of

Molasses Meal, Molasses Horse Feed, Dairy Meal and Poultry Feeds of all kinds.

STANDARD FEEDS

Use Rubber To Save Leather —It Is Needed In The War!

Rubber Supply Is Ample— Leather Is Scarce and Very High

Leather is being worn out faster today than ever before in the history of the world, while production is considerably less than a few years ago. While the consequent shortage is keenly felt by the civilian who has to pay half as much again for his own and his family's shoes, it is even more serious for the Government, which must supply hundreds of thousands of soldiers.

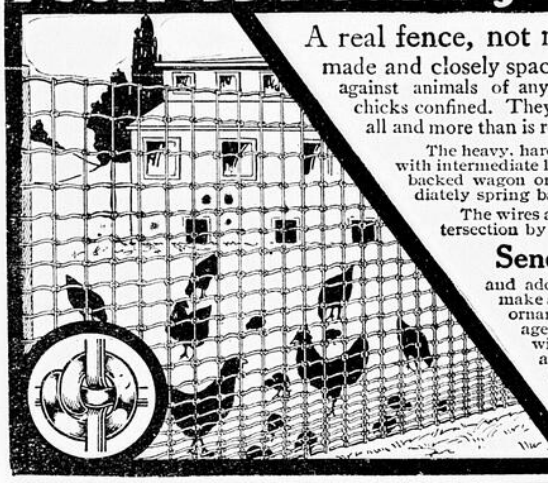
Rubber, too, is being used in enormous quantities on account of the war—one British manufacturer, for instance, is working on a rubber boot order for the army which will take 14,000,000 pounds of rubber, fabric and chemicals. But the supply, thanks to the great rubber plantations in Britain's tropical Dominions, is easily keeping up with the demands, and raw rubber, despite a war tax of 7½%, is actually cheaper today than before the war. So, though the fabric and chemicals used cost nearly double, rubber footwear has not gone up very much in price.

These conditions naturally are leading thoughtful, thrifty, patriotic Canadians to save leather just as much as possible by wearing rubbers, overshoes, high rubber boots and heavy farm rubbers. In addition to the very substantial saving in cost, rubber footwear has decided advantages for wet or cold weather around the farm or in the woods. The men like its warm, dry comfort under all conditions, and the women like the way it sheds the dirt instead of bringing it in to melt and track around the house. For the children, too, particularly if they are walking a long way to school, rubbers and overshoes mean a great deal in warmth, comfort and protection against colds.

"Doing Without" Rubbers or Overshoes Is Simply Thoughtless Extravagance

18

Peerless Poultry Fencing



A real fence, not netting. Strongly made and closely spaced, a complete barrier against animals of any kind. Keeps the small chicks confined. They can't get through. Does all and more than is required of a poultry fence.

The heavy, hard steel top and bottom wires with intermediate laterals will hold a carelessly backed wagon or unruly animal and immediately spring back into shape.

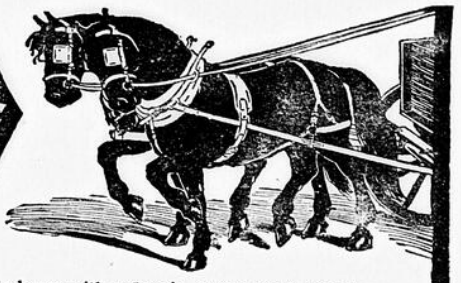
The wires are held together at each intersection by the Peerless Lock.

Send for Catalogue

and address of nearest agent. We make a complete line of farm and ornamental fencing. We now have agents nearly everywhere, but will appoint others in all unassigned territory. Write for catalogue today.

THE BANWELL-HOXIE WIRE FENCE CO., Ltd.,
WINNIPEG, MAN. HAMILTON, ONT.

KEEP YOUR HORSES IN PRIME WORKING CONDITION



SOUND legs pull big loads. No horse with a Spavin, Splint, Curb, Ringbone, Bony Growth or Sprain, can do itself justice. Thousands of horsemen have been keeping their horses sound by using Kendall's Spavin Cure—the old reliable, safe remedy. Mr. Maurice Wayville, Amherstburg, Ont., wrote on April 20th last—"I cured a jack spavin with two bottles of your Spavin Cure. I am just taking off a bog spavin. It is the best liniment for sprains you can get for man or beast. I would like to have a copy of your "Treatise on the Horse".

KENDALL'S SPAVIN CURE

acts quickly, leaves no scars or blemishes, and costs little—$1. a bottle—6 for $5. Get our valuable book—"Treatise on the horse"—free at your druggist's, or write us 111

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WONDER WORKING CLOTHES WASHER $1.75

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Washes anything from finest laces to heaviest blankets, without wear or tear—saves rubbing and washboard drudgery. Used equally well for rinsing, blueing or dry cleaning with gasoline. Lasts a life time. Satisfaction guaranteed or money refunded. Send your order to-day.

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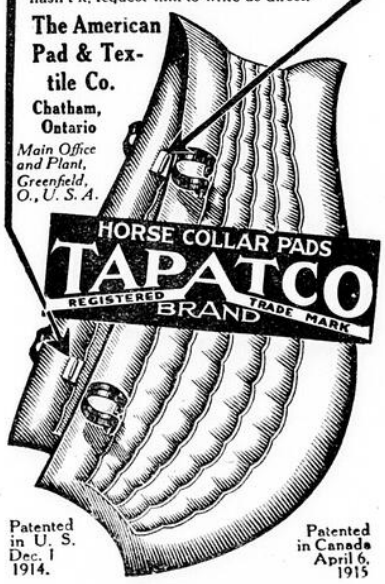
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Ask your dealer for free Tapatco booklet. Shows pads in colors and contains valuable horse remedies. If he hasn't it, request him to write us direct.

The American Pad & Textile Co.
Chatham, Ontario
Main Office and Plant, Greenfield, O., U. S. A.



Patented in U. S. Dec. 1 1914.

Patented in Canada April 6, 1915



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When accident occurs---or sickness comes---sudden and treacherous---what would'nt you give to save the life of that dear one?

¶ In such a crisis, fortunate is that man who can turn to his Telephone and instantly summon the assistance he needs so quickly.

¶ Nothing on your Farm will give so much value and constant pleasure to you and your Family as the Telephone. It will enrich your home life—enlarge your social circle—broaden your vision and make you a bigger and better business Farmer. It creates neighborliness and unites a community. And be it summer or winter, noonday or midnight, stormy weather or calm, your faithful Telephone is there, always ready for an emergency.

¶ Many letters have come to us from Farmers all over Canada, telling of their varied experiences with the Telephone. These have helped us to prepare a most fascinating Booklet, a copy of which should be in the hands of every Farmer without a Telephone. Clip and mail the Coupon to-day, there is no cost or obligation.

WE SUPPLY everything a Telephone Company needs from the organization of a Company to the complete plant—inside apparatus and batteries as well as line construction material and tools. Our business is the telephone business.

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Makers of the Nations' Telephones

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Please send me your Free Book on "How the Telephone Helps the Farmer" J.A. 712

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THIS BT Barn Book shows you how to build your barn from start to finish; tells how to lay the cement floors, foundations, and how to build the walls. It shows you how you can frame your barn by a method that saves half the cost of the old way. You can build or remodel your barn yourself with this book.

This new 336-page book

It is the most elaborate book on Barn Building ever published. Contains many full page and double page pictures of the best Canadian Barns and many big blue prints that show clearly every detail of construction. Full of useful tables showing measurements for mangers, gutters, cattle-stands; costs of cement work; sizes for doors and windows. Capacities of silos and mows. Contains 14 working plans of model barns. Also shows BT Galvanized Steel Stalls, Horse Stable Fittings, Steel Hog Pens, Manure, Feed and Hay Carriers, and Water Bowls.

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It cost us thousands of dollars to print this book. Yet, we offer it free to any man who will write and state if he is building or remodelling, when he expects to start the work and the number of head of stock he will keep.

Simply fill in the blanks of the coupon, and we will send the book by first mail.

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Gentlemen: Send me your Barn Book, Free.

Are you thinking of building, or remodelling? .....

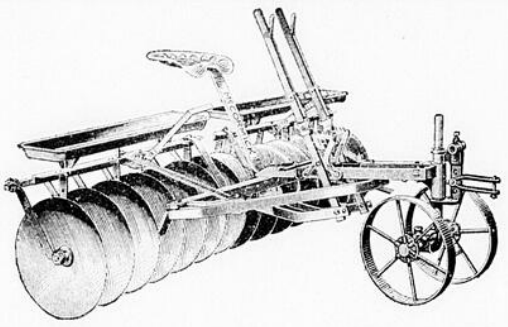
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When will you start? .....

How many cows will you keep? .....

Your name .....

P.O. ..... Prov. .....



One Disking Does The Work

Can you go over a field once with your disk harrow, cutting the full width of the harrow each time, and do a satisfactory job? Is your disked land level, and free from ridges?

It is if you are using a McCormick disk harrow, and that's one of the principal reasons for buying a high-grade, well-designed disk, with bowed set-lever bars, easily adjustable snubbing blocks, and a frame strong enough to hold the gangs level in all kinds of soil. Once over with a McCormick disk, lapping six or eight inches, generally does a first-class job. If your conditions are such that you must double disk, use a McCormick in-throw tandem attachment and do the whole job at once. The time you save in one season is worth enough to pay for the attachment.

The same high-grade quality and design runs through the whole McCormick line of tillage tools the peg and spring-tooth harrows, drills and cultivators. Properly used, they give you a much better chance of harvesting a bumper crop.

Buy your tillage tools this spring from the McCormick locai agent, who will show you how to take full advantage of all their good features. Write the nearest branch house for catalogues.

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EAST Hamilton, Ont., London, Ont., Montreal, Que., Ottawa, Ont., Quebec, Que., St. John, N. B.



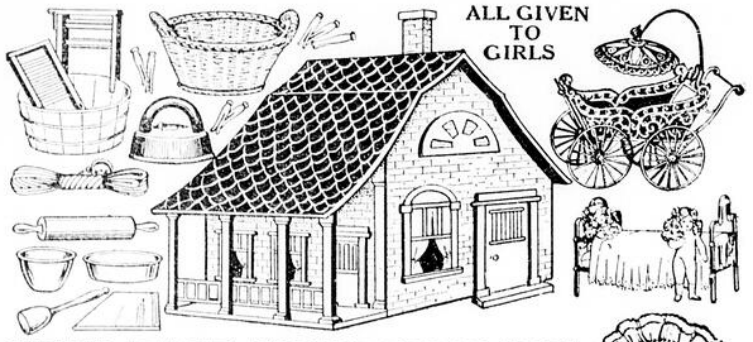
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If ordered together we send both machines for only $14.50 and we pay all freight and duty charges to any R. R. station in Canada. We have branch warehouses in Winnipeg, Man. and Toronto, Ont. Orders shipped from nearest warehouse to your R. R. station. Hot water, double walls, dead-air space between, double glass doors, copper tanks and boilers, self-regulating. Nursery under egg tray. Especially adapted to Canadian climate. Incubator and Brooder shipped complete with thermometers, lamps, egg testers—ready to use when you get them. Ten year guarantee—30 days trial. Incubators finished in natural colors showing the high grade California Redwood lumber used—not painted to cover inferior material. If you will compare our machines with others, we feel sure of your order. Don't buy until you do this—you'll save money—it pays to investigate before you buy. Remember our price of $14.50 is for **both** Incubator and Brooder and covers freight and duty charges. Send for FREE catalog today, or send in your order and save time.

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Write us today. Don't delay. **WISCONSIN INCUBATOR CO., Box 214, Racine, Wis., U. S. A.**



FREE

FAIRY PALACE DOLL HOUSE, 5 BEAUTIFUL DOLL TOYS AND "PRINCESS PAT" DOLL



Just think girls we will give you all these grand presents absolutely without cost. First The Big Beautiful Fairy Palace Doll House, so big and roomy that it will hold a whole family of dolls; then a real Wash Set of 11 pieces, consisting of wash tub, wash board, wringer, iron and stand, big clothes basket, clothes line and a little cease full of dolly clothes pegs; then you get a five-piece baking set, and the cute little French bisc baby doll that you'll just love. Next comes baby doll's lovely enamelled bed with its canopy and the beautiful baby doll carriage you see above, handsome as can be with its incorporated bright metal finish. Last but not least, every girl can get the lovely big "Princess Pat" dressed doll—over 15 inches high. It's a "made in Canada" beauty, with unbreakable head and she is dressed completely from head to foot, real shoes, stockings, underwear, etc., and she has many different styles of dresses.

GIRLS—Write to day and we will send you **Free** a big sample package of Fairy Berries, the lovely new Cream Candy Coated Breath Perfume. We want you to try them and learn how **delicious** they are. With your sample we will send just **30** handsome big packages to introduce among your friends at only **10c** each. That is easy. Open your sample package and ask everyone to try a Fairy Berry. Everyone just loves them—they perfume the breath, purify the mouth and leave a delightful lasting fragrance. Everyone takes a package or two at once, so you will sell them all very quickly. Then return our money only, $3.00, and we will promply send you the big Doll House, complete wash set, baking set, baby doll, doll bed, doll carriage, just as you see them, and the lovely big "Princess Pat" doll you will also receive for simply showing your grand presents among your friends and getting only three of them to sell Fairy Berries and earn our lovely premiums as you did.

Write to day girls—We arrange to stand payment of all delivery charges on your presents and if you can't sell all the breathlets we will take them back and give you presents for what you do sell.

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Plant Fruit Trees; Replace those that are missing In your Orchard

Place your order directly with a nurseryman of experience.

You will thereby save agents' commissions and you will secure trees of quality of the best varieties known and especially adapted to our climate and soils. We offer you

100,000 APPLE TREES 100,000

Three year old, healthy, vigorous stock which will live surely and produce quickly, at

$35.00 per HUNDRED

FOR THE FOLLOWING VARIETIES.

Yellow Transparent, Petofsky, Duchess of Odenburg, Strawberry, Scarlet Pippins, Gano, Baxter, Ben Davis, Scots, Winter etc.

$40.00 PER HUNDRED FOR "FAMEUSE" and "McINTOSH RED".

FREE

WITH EVERY ORDER OF 100 APPLE TREES

We give you your choice of:

6 Shade Trees, or,
8 Plum or Cherry Trees, or,
10 Currant or Gooseberry Plants, or,
50 Raspberry Plants, or,
100 "Everbearing" Strawberry Plants.

One half of this premium given with orders for 50 Apple Trees.
Send your order to-day.
You pay after delivery, when satisfied that the trees are as represented.
Special conditions or terms of payment on demand.

A. FREGEAU & SONS, Nurserymen.

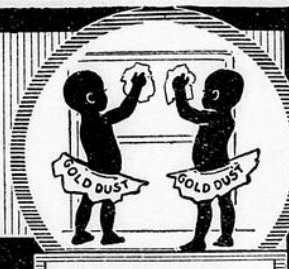
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Montreal Office, 62 ST. JAMES.



GOLD DUST ON THE HARD-WOOD FLOORS; ALSO USE IT ON THE DOORS



GOLD DUST CHANGES WORK TO FUN WHEN YOUR WINDOW CLEANING'S DONE

GOLD DUST

The Busy Cleaner

For every cleaning purpose, in every part of the house, GOLD DUST is *most reliable* and *most satisfactory.* It does its work of cleaning *quickly*—with the least effort.

GOLD DUST has no equal for cleaning dishes and kitchen ware. It is most effective, too, for cleaning bath tubs and other bathroom fixtures, and for cleaning ice boxes, sinks, linoleums, woodwork and windows.

Corners and cracks that cannot be reached with cloths or brushes are cleaned and purified by GOLD DUST, which goes into them and removes the dirt.

GOLD DUST should always be used for cleaning and brightening fine glass, silver, aluminum, plated and copper ware. It does not scratch nor mar polished surfaces.

Follow the simple directions on the package. Put a tablespoonful of GOLD DUST into a pail of hot water, and you have the *perfect* cleaning solution.

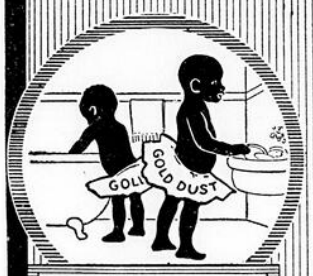
GOLD DUST is sold in 5c and larger packages. Order a package from your grocer today, and see how much *easier* your housework will be.

"Let the GOLD DUST TWINS do your work"

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LIMITED
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Made in Canada





KEEPING BATHROOMS CLEAN AND BRIGHT. GOLD DUST ADDS TO YOUR DELIGHT.



GOLD DUST ON THE KITCHEN SINK CLEANS IT QUICKER THAN A WINK.



GIVEN TO GIRLS

This beautiful stylish muff will keep you lovely and warm this winter and it is so handsome and dressy that you will be the envy of all your friends. It is the very newest pillow shape—extra large in size—lined with fine quality black sateen, and well finished throughout. It is warm and dressy, will give you years of wear and satisfaction and is surely just what you want.

With your muff we will give you this beautiful silver finished imported Mesh Bag with fine chain and finger ring. It is exceedingly fashionable and just the most convenient bag to carry with a muff. Mesh bags like this sell at a very high price in the best jewellery stores.

We are prepared to give away 1000 of these handsome muffs and an equal quantity of these beautiful bags, to quickly introduce "Fairy Berries", the delightful new Cream Candy Coated Breath Perfume that every one just loves. Send your name and address and we'll send you **Free** a big sample package, and just 35 big handsome 10c packages to introduce among your friends. Open your sample package and ask all your friends to try a "Fairy Berry." They'll like them so much you'll soon sell them in an hour. Just two or three Fairy Berries will perfume the breath, purify the mouth, and leave a delicious fragrance. They are irresistible.

Return our $3.50 when the breathlets are sold and we'll promptly forward both muff and mesh bag, all charges paid. Satisfaction guaranteed. Write to-day to

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You may say that, too—if you want more income. Easy to learn. Steady work at home *the year round.* Write Auto-Knitter Hosiery (Canada) Co., Ltd. (Dept. 316.F.) 257 College St., Toronto



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handsomely finished in every detail. Sold in eight sizes. 26

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PURE Bred Single Comb Rhode Island Red and White Leghorn Cockerels. Bred from Prize Winning Stock of good colouring. CECIL G. MEEHAN, Portneuf Station, Que.

WE BUY

Old Artificial Teeth

For particulars write to

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A SCARCITY OF EGGS AND POULTRY

SHOWS THAT THE RAISING OF FOWLS IS NOT SUFFICIENT.

THERE IS MORE MONEY TO-DAY THAN EVER IN THE BREEDING OF FOWLS and to make a success of it, get the "QUEBECOISES". INCUBATORS AND BROODERS, THE ONLY OUTFITS WHICH GIVE YOU A GUARANTEE, hundreds of certificates prove it. Those machines are made by experts in poultry-raising, for our climate; with double wall and isolator, temperature, moisture and ventilation AUTOMATICALLY controled; three different systems, HOT AIR with automatical moisture, HOT WATER and ELECTRICITY. Colony Brooders, Portable Hover, Brooder Stove. We have some small and large machines; with every outfit, we give a GUARANTEE and one of the most complete treatise on poultry-raising, also the way of operating those machines.

If you have not our catalog ask for it with our price list for 1917.

Wanted agents in every locality. Write to-day.

THE J. A. GAULIN CO. LTD. Beauport, Quebec, Can.



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(ENERGY)

Wash clothes in 15 minutes

WITHOUT RUBBING

30 CENTS for a family washings Cannot injure the most Delicate fabrics. Contains no chemical.

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IF you are in need of a good sire, you should get our prices before buying else-where. Bull Calves, from one to twelve months old, sired by "Allancroft Monarch" (Imp) "43091" and out of high producing cows. Also a number of young cows and heifers: Priced to sell. Write JOHN HAMILTON & SON, R. R. No. 2, St. Eustache, Que.

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With bright prospects ahead for good prices on Vegetables and all Farm Products, our farmers should feel encouraged to plant improved varieties of seeds, so as to increase their crops.

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Long known for their superior quality and productiveness, have greatly increased in demand and popularity.

Dupuy and Ferguson's **Grass Clover and Farm Seeds** are of tested germination and superior qualities. Write for prices.

Dupuy and Ferguson's **Descriptive Catalog** gives valuable information about all Seeds for the Farm and Garden.



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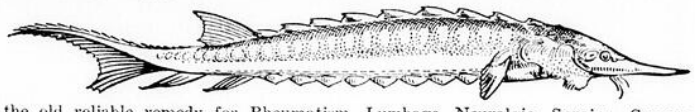
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the old reliable remedy for Rheumatism, Lumbago, Neuralgia, Sprains, Cramps, Burns, Frost Bites, Bruises and Ulcers. It is quick to relieve and sure to cure.

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Dr Wilson's Herbine Bitters is the best Spring Medicine known. 21

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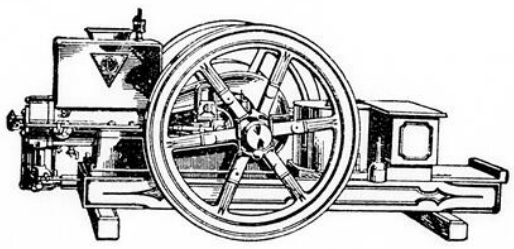
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All matters relating to the reading columns must be addressed to Prof. W. Lochhead, Macdonald College P. O., P. Q.

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EDITORIAL

SHORT COURSES IN AGRICULTURE

SHORT Courses in Agriculture will be given under the direction of the Department of Agriculture, Quebec, at the following places:—

Richelieu, Sorel, January 25th to February 3rd.
Vercheres, February 5th to 10th.
Chambly, February 12th to 17th.
Rouville, Marieville, February 19th to 24th.
Laprairie, St. Constant, February 26th to March 3rd.

Chateauguay, Ste. Martine, March 5th to 10th.

Huntingdon, March 19th to 24th.

Bagot, Acton Vale, March 26th to 31st.

AGRICULTURAL MERIT COMPETITION, 1917

THE Agricultural Merit Competition to be held in 1917 will be open to members of agricultural societies in the following counties:—

THIRD DISTRICT :—

Arthabaska,
Beauce,
Bellechasse,
Bonaventure,
Dorchester,
Frontenac,
Gaspé,
Iles-de-la-Madeleine,
Kamouraska,
Levis,
L'Islet,
Lotbinière,
Matane,
Megantic,
Montmagny,
Nicolet,
Rimouski,
Temiscouata,
Wolfe.

Members desiring to take part in this competition should obtain application forms from the secretaries of their societies, or from the Secretary of the Council of Agriculture, and send them to the undersigned on or before June 1st. After this date no entry will be accepted.

OSCAR LESSARD,

Secretary of the Council of Agriculture.

STANDING CROP COMPETITION

Memo to Secretaries of Agricultural Societies of Quebec

Dear Sir,

TO further encourage the production of high class seed grain, the Honourable the Minister of Agriculture of the Province of Quebec hereby offers a special grant to the Agricultural Societies which have decided to hold, in 1917, competitions respecting standing crops.

The main object of this special grant is:

1. To stimulate the farmers in the growing of choice seed grain;

2. To encourage the practice of growing seed for next year's crop separate from the main crop, using only the best obtainable seed, sowing it on the best prepared land and the cleanest, allowing it to thoroughly ripen, and threshing and storing separately;

3. To obtain pure grain, i. e. free from other varieties, the presence of which can best be detected when the grain is growing;

4. To encourage the use of seed from heavy yielding strains;

5. To promote the sowing of seed from clean, vigorous crops of uniform stand and with bright stiff straw, in the case of smaller cereals;

6. To encourage careful and intelligent farming and the production of grain free from weed seeds.

REGULATIONS GOVERNING THE COMPETITION

1. *Nature of Competition.* Competition shall be limited to one crop, to be selected by the society, which should be one of the most important to the farmers of the district. Entries for competition must consist of a field not less than three acres, and where clover, potatoes and timothy are entered, the minimum plot not less than one acre.

Selection must be made from the following crops, viz: wheat, oats, barley, corn, peas, clover, timothy and potatoes.

2. *Competitors.* Competitions shal be limited to the members of Agricultural Societies. Competitors shall be allowed to make entry in only one society and but one entry can be made by each competitor.

3. Societies desiring to enter this competition must notify the Secretary of the *Council of Agriculture before the first of May*, and must not make more than 25 entries.

4. The list of the competitors shall be transmitted to the Secretary of the Council of Agriculture *before the first of July.*

5. Societies must charge competitors an entry fee of not less than 25 cents and not more than one dollar.

PRIZES

The Department of Agriculture will grant $75. to each of the societies above mentioned; this special grant will be employed in paying prizes not less than $20., $15., $12., $10., $8., $6., $4. The grant will be equal only to the amount paid for prizes, if it is below $75. Prizes will be awarded by the judges only to fields deserving such prizes. The fee received with the entries will be equally divided amongst the successful competitors, besides the special grant above mentioned.

If the number of competitors is less than ten, the prizes will be as follows:—$10., $8., $6., $4., $2., $1.

The plots will be visited by judges appointed and paid by the Department of Agriculture of Quebec, and the Secretaries of the agricultural societies who will organize such competition will advise the Secretary of the Council of Agriculture at least 15 days before the contest will be held, of the dates when the judges will be required.

Yours very truly,

J. ANTONIO GRENIER,

Deputy Minister of Agriculture

Québec, Jan. 1917.

LA BONNE ENTENTE

THE recent visit of representative men from the province of Quebec to Toronto and other cities in Ontario was an event of more than passing significance. It was the natural outcome of a visit made by Ontario men to this province last year. Our people have felt for a long time that the people of our great sister province did not understand them as they were subjected frequently to what they considered unfair criticism by many editors and public men. The two visits will, we feel sure, be most valuable in clearing the way for a closer and more appreciative understanding between the two great races.

The speeches made by both the hosts and visitors cleared up most of the misunderstandings, and should be widely read in both provinces. No doubt the great European War has been one of the chief factors in bringing about this desirable Entente, for the people of both races are fighting together with all their strength in a common cause. The "Entente Cordiale" between the mother lands has been strengthened by "La Bonne Entente" between the people of Quebec and Ontario.

Give fools their gold, and knaves their power;
Let fortune's bubbles rise and fall;
Who sows a field, or trains a flower,
Or plants a tree, is more than all.

WHITTIER

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GENERAL INTEREST:—The sale of Agricultural produce. — Year-round feeding of Dairy Cows.

NOTICE TO SUBSCRIBERS

Subscribers and members of agricultural societies, of farmers' clubs and of the Provincial Dairymen's Association, who do not regularly receive either the English or the French Journal of Agriculture and Horticulture are requested to address thier complaints to the Secretaries of their respective Societies, who will transmit them to the Secretary of the Council of Agriculture at Quebec.

OUR CANADIAN WINTER

WOULD we care to do away with our winter, if we could? The young people would certainly say No, for it is the season of active out-of-doors sports which bring them health and ruddy cheeks. It is the time, too, when indoors the brain can work to the best advantage, and when the details of plans of future work are most thoroughly thought out. Even the older people find amidst the rigors of winter compensations which are worth while. The change of Nature's garb from summer to winter has undoubtedly a tonic effect similar to that produced by a change of residence. Our winter scenes change from week to week and often after a storm the most stolid individual confesses to the rise of deep emotions as he views a landscape, where every shrub and tree is robed in a gorgeous mantle of glittering jewels of snow and ice.

Winter is a time when important changes are taking place in the soil. The freezing process breaks down the clayey lumps which were formed during the late summer, and makes the soil mellow again for spring seeding. Moreover, the thick covering of snow over the frozen ground prevents that excessive leaching of valuable food material from the soil which occurs in districts farther south.

Our winter season is valued by our farm folk for its social and intellectual activities, and fortunate are the communities where these activities are organized to interest both young and old. The more enterprising farmers realize that they must get into touch with the best thought and the most recent teachings of the agricultural world if they are to keep up with the procession. For this reason they attend agricultural shows and conventions, and take part in discussions in the meetings of their own agricultural societies and farmers' clubs. Or it may be that they may find time to attend Short Courses given by the County Demonstrator or the Agricultural College. To such men the winter is a time of mental invigoration, infusing new interest and zest into their life work.

FOOD FOR THOUGHT

THERE is need for more correct and charitable thinking nowadays. Many new problems are arising which must be dealt with, and the new and unusual situations demand immediate and earnest attention. First of all is the necessity for greater economy if Canada is to do her share in bringing the war to a successful conclusion. While the tremendous expenditure of money in Canada by the Allies for munitions of war has made money plentiful, and wages high for the thousands of persons engaged in the new industry, economy as a rule has not been practised. The Minister of Finance recently issued a warning that our people are not saving their money as they should in this time of plenty. A time will soon come when the conditions of living will be changed and it will require all the possible accumulated savings to tide the people over successfully.

The second situation—the high cost of living that has been accentuated by the war—is one that is likely to remain long after peace is declared. The city consumer is apt to blame the farmer for much of the increase in prices of food stuffs, but the market price is largely beyond his control. So long as the great food producing countries of Europe are at war, so long will there be a pressing demand for food supplies. But the city consumer says that the prices of articles not sent to Europe has increased, consequently the farmer is responsible for this condition. If our city friend would only study the new situation imposed upon the farmer he would, we believe, be more charitable. Food and clothing cost the farmer much more than formerly; machinery of all kinds is much higher; the food that he must buy for his dairy herd has almost doubled in cost; while hired help is not to be obtained, even at double and treble the old rates.

It may be true that the farmer is making more money than he did in peace days, but is not the average city man faring better also? We consider the farmer is entitled to all the profits that are coming to him, and much thought will have to be given to this problem of high prices before it can be solved satisfactorily. War always dislocates industry and produces restlessness and dissatisfaction, especially in those people who are living on a wage or salary that was fixed before the war.

Our city man is also under the impression that the country is not doing its share in sending recruits to the army, or in contributing to the Patriotic and Red Cross funds. We are of the opinion that the country districts have done remarkably well in providing recruits, and no more industrious women are to be found anywhere, if we may judge by the large numbers of Red Cross parcels that have been prepared. The cities undoubtedly lead in gifts to the Patriotic fund, but it should be remembered that of the total contributions much has been given by wealthy people of whom the country can claim but few.

The *raison d'être* of the foregoing remarks was an address delivered by Mr. A. A. Ayer, the well-known dairy produce exporter of Montreal, at the recent convention of the Dairymen's Association of Eastern Ontario. In general he found much fault with the attitude of the farmer toward the war. He said: "I have no sympathy with the farmer in these times who claims he cannot afford to pay the price for hired help to carry on the farm—there never was a time when he could afford so much as he can to-day." Again he said: "While every other class of people with the exception of the farmers and day laborers have been taxed they have been left severely alone and have not had to bear hardly any part of the financial burden." The slight extra taxes, he said, "do not prevent the farmers from buying automobiles and spending more money for their personal comfort than they have never done before." Again he said—"What is required of the farmers in the way of helping to win is more intensive farming, and to work longer hours than they have ever done before."

Again he said: "I go among the farming community a good deal and I regret to say that scarcely anyone realizes the seriousness of the position we are in to-day."

Mr. Ayer's criticism of the farmers is confuted by a recent letter from J. Lee Alexander of Hillhurst to the *Family Herald and Weekly Star*, by the remarks of H.B. in another column, and by those of our own in the first part of this article. We wonder if he himself is living as economically as most farmers, if his own farming experience bears out his utterances regarding hired help and intensive farming, and if the farmer has not more use for an automobile than many of the city men who run them.

Finally, we believe that Mr. Ayer during his trips in the country has not sized up correctly the general attitude of country people towards the war. Our own impressions are entirely different from his, and we feel that his remarks will do more harm than good. We can depend upon the farmer "doing his bit."

WHAT LEADERS IN ONTARIO ARE DOING AND SAYING

A Commissioner of Agriculture for Ontario

PREMIER Hearst of Ontario has made the following announcement in regard to the changes in the Department of Agriculture of that Province:

"The Prime Minister has decided that for the present he will personally take charge of the portfolio of Agriculture, rendered vacant by the death of the Hon. J. S. Duff.

"This department, always an important one, has been rendered more important still by reason of the war and the consequences thereof, and the conditions that will undoubtedly arise after the war. The Prime Minister is anxious, therefore, to study the situation carefully in close personal touch with the officers of the department, so that such extensions of the work of the department may be made and such foundations laid as will enable it to solve the many new as well as old problems that confront it, and be of the greatest possible service to the people of the Province at this crucial time. and to the Empire in the world's struggle in which we are engaged. He is anxious also to study the means of making the greatest preparation practicable for our soldiers when they return.

"It is recognized by all that the time has come for this Province, in common with other parts of the Empire, to assist to the utmost of our power not only in placing men in the field, but in the development of agricultural and other necessary products, as well as in the conservation of our financial strength, by the greatest thrift and economy in all lines. With the object of helping on this work, the Prime Minister desires to personally give his attention to the organization and carrying on the campaign of the character mentioned.

"It is felt that the time has arrived for the coordination of the agricultural work now being carried on under the Department of the Provincial Secretary, the Department of Lands, Forests and Mines, and the Department of Agriculture, so that the efforts along agricultural lines in these departments might not only be carried on with the greatest possible efficiency, but in such a manner as to give the public the full benefit of the knowledge acquired by the work carried on under these different departments, and it is felt that this work can be done more expeditiously and effectively under the direction of the Prime Minister than under a new Cabinet Minister.

"In order to facilitate the work mentioned, the Prime Minister will call to his assistance the best advice and help available. Professor Creelman, the able and energetic President of the Agricultural College at Guelph, and recognized as one of the most progressive agriculturists in America, will be appointed Commissioner of Agriculture. The Prime Minister will, therefore, have at his command immediately the advice and assistance of Professor Creelman, in addition to that of the many capable officers in the Department of Agriculture and other departments mentioned, in planning and carrying out the work referred to, and such other work as may be thought advisable in the interests of the Province.

"One very important subject demanding, as above pointed out, the most careful attention, is that of the returned soldier, and the placing of as many of these men upon the land as can successfully be done. Professor Creelman will be specially charged with the work of devising the best plans and means for accomplishing this object".

* * *

A WARNING TO FARMERS WHO SELL BOTH STOCK AND FEED

PROF. G. E. Day of the Ontario Agricultural College made the following remarks in the Course of a short address given at the Guelph Winter Fair:

"No doubt there are many men who are compelled, through circumstances, to sell at least part of their stock, and to these we have nothing to say; but what of those who sell their stock merely because the price of feed is high, and they wish to sell their crop? Let us see where such men stand: One, they are disposing of stock under conditions which do not favor securing full value for young or thin stock. Two, they are selling their hay, which is the most abundant crop this year on Ontario farms, at prices which are low in comparison with the prices of concentrates, and the price they are obtaining is less than they could have obtained for it had they fed it to good stock. Three, they are allowing to go to waste a lot of material, such as is to be found on every farm, which can be given value only when fed to stock. Four, they are robbing their farms of fertility, and are reducing the productiveness of their farms for years to come. Five, when Providence once more favors us with an abundant crop, and it is seldom Providence does otherwise in this favored country, their farms will be found bare of this most valuable asset, and to restock these farms will require much more money than was received for a like amount of live stock sold during the fall and winter of the present year.

These men are facing all these disadvantages, and braving all these losses, in order that they may sell a few bushels of grain at a high price, and the most remarkable feature of the case is the fact that, with good stock and any kind of reasonable management, they could have obtained more money from their season's crop had they retained their stock.

Surely that man must be blind indeed who cannot see where the needless sacrifice of his stock is going to place him in the very near future. Live stock will continue to be, as it has always been in the past, the most important factor in successful farming, and it looks as though its importance is likely to be multiplied many times for some years to come, by the war. He who can conserve his live stock will surely reap a reward, and, in addition, will perform a patriotic service for his country and empire."

* * *

A WARNING TO HORSE BREEDERS

JOHN Bright, Dominion Live Stock Commissioner, made the following remarks in regard to the future of the horse market at a luncheon, during the Guelph Winter Fair, last month:

"Although the horse question differs a little from other lines of stock, yet it is relatively in the same position as far as future prospects are concerned. Good horses are absolutely scarce in Canada to-day. I doubt whether real good draft horses were ever as scarce as they are now.

"Horses differ from other lines of stock in that they cannot be converted into beef and they, therefore, do not find the same ready sale as beef cattle. Depend on it, gentlemen, that there is no live stock that you can keep on your farm with more profit for the future market or that you can breed to give better returns than a good horse. You will not have to wait very long to find that out. Horses are going to be alarmingly scarce in the near future.

"We have a number of horses in every province, and a very large number in some provinces that are ill-bred and poorly fed. These horses are of no use for anything. They are not good enough for the purposes of the war. We cannot blame the French or British buyers for not taking these horses.

"The farmer is safe in breeding a good heavy carriage horse and a fair sized roadster. There will always be a sale in Canada for a good horse of that breed, notwithstanding the automobile and the tractor. It will take some time before the tractor will take the place of a good horse. The farmer can always produce his motive power on his own farm by breeding good horses. I am speaking of mixed farming in Ontario, and I do not want to be misunderstood, but this certainly applies to the Province of Ontario."

* * *

AT THE EASTERN ONTARIO DAIRY CONVENTION

MR. G. Rothwell, of the Live Stock Department of the Central Experiment Farm, took the place of Prof. J. H. Grisdale, who was unavoidably absent. In the course of his remarks, he said that if some of the best cattlemen were half as good farmers as they were stockmen they would make a much greater success in the dairy business. The need of a greater appreciation of home grown feeds was a point that he emphasized. "The successful dairyman of to-day," he said, "must be a cow specialist, a feed specialist and a specialist in corn and clover." At Ottawa six makes of milking machines are being tested, three or four are satisfactory, the mechanism of the best of these, said Mr. Rothwell, is correct, yet many dairymen have given up their use in disgust, and the reason for their non success with the machines is their lack of knowledge of their operation. Within a few years the milking machine will be as common on our farms as is the binder now.

Mr. A. Leitch, manager of the Ontario Agricultural College Farm, gave a most interesting and instructive address on cheapening the cost of milk production. He outlined the history of the development of the dairying industry in Eastern Ontario, and pointed out that the farmers were forced into dairying on account of the fertility of their soil being depleted through continuous grain growing. Through following dairying consistently, the farms at the present time were twice as productive as they were twenty-five years ago. Although prices for daily products had advanced within the last few years the cost of production had advanced too, and not in the same proportion, so that at the present time dairying was not so profitable as it was formerly. There were three ways to cheapen the cost of production: (1) have better cows to feed the crops to; (2) use mechanical means to cut down the cost of labor on the farm; and (3) grow crops which would produce the most feed at cheapest cost.

From about July 1st to September 15th of every year the milk flow of the cows out on pasture usually dropped anywhere from 10 to 30 per cent. on account of the drying up of the pastures. It became necessary, then, at this time to supply some kind of green feed to make up for the shortage of pasture. There were two ways of doing this, by feeding soiling crops and by feeding silage. Both of these ways were preferable to letting the cow go down in milk flow, for if she once did she would never give the same amount that she would have done if she had received sufficient succulent feed all the time. Instead of feeding either soiling crops or silage, Mr. Leitch recommended sowing an annual pasture mixture which will provide abundance of pasture and green feed during even the hottest weather. The mixture recommended was one bushel each of oats, wheat and barley, and from 5 to 7 pounds per acre of red clover. This mixture should be sown immediately after the other seeding is done.

In experiments at Guelph, where the pasturing of this mixture was compared with feeding soilage crops in the usual way, it was found that during the months of June, July, August and September, the cows that were fed soiling crops produced 100 pounds of milk at a cost of 86 cents, while those that were pastured on the special pasture mixture produced 100 lbs. of milk at a cost of only 46 cents. During a whole year's feeding period the cows that were fed on this special pasture during the hottest months of the summer gave $2.10 worth of milk for every $1 of feed, while those that were fed in the ordinary way gave only $1.72 worth of milk.

"At the Agricultural College Farm last year we pastured 77 head of cattle on seventy acres," said Mr. A. Leitch. "Thirty-six acres of the seventy were in permanent pasture and thirty-four in one season pasture. The cattle were on these fields from the 1st of June to the 16th of September. And this was in the driest year we have had at Guelph in twenty-eight years. In an average season sixteen or seventeen acres of the seventy could have been cut for hay and still have enough left to pasture the seventy-seven head. We fed some grain in August, but the pasture supplied all the roughage needed. It would be well if many farmers who are growing $20 to $24 worth of oats per acre with an expenditure in labor of $10 to $15 would instead give up some of their land to

this one-season pasture. They would have a greater revenue and spend less in labor in producing it.

"At the College farm in 1915 we produced 58½ bushels of oats per acre, at a cost of 35 cents per bushel. We could have bought oats at 38 cents. In the same year we produced nearly two tons of hay per acre at a cost of $7 per ton, when it would have cost us $13 to buy it. Ontario farmers are not acting wisely in trying to grow grain in competition with the West. Our grain growing should be confined to a sufficient area to allow for seeding down".

THE DUTY OF THE FARMER

Extract from an Address given by the Hon. J. Ed. Caron, Minister of Agriculture for Quebec, at the Dairy Convention held at St. Jerome, 29th November 1916

"THE events of the past two years, which have upset the whole world, have given to agricultural industries an importance previously unknown both in our own country and throughout the world. In spite of the fact that a large number of our young men have gone overseas, in spite of an unfavorable season and the scarcity of farm labor, agricultural industries have made considerable progress, and this year the dairy production of our province has reached the enormous sum of $37,000,000. The total production of the soil is $110,000,000. This is a great increase over the last few years, and this good work should continue not only in the dairy industry but also in the improving and increasing of our herds. We have a formidable obstacle to face owing to the fact that agricultural produce, meat in particular, is being sold on the markets at unusually high prices, due to the increased exportation to England and other countries now at war. We must not let our herds be drained by the United States; those who sell to-day are selling the goose that lays the golden egg. We do not wish to refuse our Allies, but we should not pass the 45th line with herds from the province of Quebec. I say this deliberately, for it is a matter of life and death for us. For many years our efforts have been directed towards improving our herds; these efforts will be wasted if our best animals cross the frontier and help to make our neighbors in the United States rich.

I would ask the interest of the press in this matter, that they intercede with the proper authorities for the guarding of the herds that are left to us."

Mr. Caron fears that the long duration of the war will mean a severe shortage, and recommends that economy be practised by the poor as well as the rich. "There is", he says, "enormous wastage in foodstuffs, and this wastage must be prevented if we are to help to counterbalance the destruction now taking place in Europe, where the producers of yesterday are the destroyers of to-day.

"The crisis has had its good side, however. The high cost of living has forced the man who had deserted the farm to return to the soil which formerly nourished him". Mr. Caron described the fortunate position of the farmer who in time of crisis can stand upon his own land and say: "This is my home, and I shall always have enough to live upon when others famish."

He concluded with a splendid eulogy of the work of the Society of Dairy Industry.

QUEBEC AGRICULTURE IN 1916

Review in Annual Report of the Canadian Bank of Commerce

THE CROPS

HAY, the principal crop in this province, did well, and although the acreage this year was slightly less than in 1915, the yield was excellent, and the total crop is said to be the largest on record. The value of the hay and clover crop in 1915 was $58,507,000 and it is thought that these figures have been exceeded this year. Oats were one of the poorest in yield of any crop sown, as, owing to continued hot weather during the ripening season, the grain did not mature or fill in. The total yield is estimated at 24,580,000 bushels, as compared with 42,182,000 bushels in 1915. Barley fared rather better than oats, but neither quantity nor quality was up to that of the previous season. Wheat, little of which is grown in this province, was considerably below the average in yield. The root crop was also below the average, potatoes being almost an entire failure in many districts owing to the cold, wet spring. The orchards produced large crops of apples of good quality, but the earlier varieties brought very low prices and in some districts the farmers fed them to cattle and hogs, or allowed them to go to waste. Winter apples, however, commanded good prices, although the quality in some cases was not up to standard. Small fruits were plentiful and sold at average prices. The production of honey was about 2,300,000 pounds for the year.

DAIRYING.

In all probability the dairying industry never has seen, a more prosperous year, and the high prices of butter and cheese have greatly stimulated production. Pasturage has been excellent and conditions generally have been favorable, resulting in a satisfactory yield of milk throughout the season. The price of butter varied from 27½ cents in April to 44¼ cents in November. Cheese sold at 18 cents to 19½ cents early in May, declined to 14 cents in July on an irregular market, and advanced later to 25 cents. Although the export of milk and cream to the United States still continues, it is reported that a noticeable decrease has taken place during the past season. The shipments of milk to the cities of Montreal and Quebec increase steadily. The killing of very young calves, and the failure to raise young stock to replenish the dairy herds, evidence a serious lack of prudence and foresight on the part of our farmers, and as a result the number of milch cows in the province shows a large decrease this year.

It is satisfactory to note that more attention is being paid to improving the grade of live stock, and the Government is doing good work in distributing thoroughbred animals throughout the country. Cattle have done well during the summer, owing to the excellent condition of the pastures.

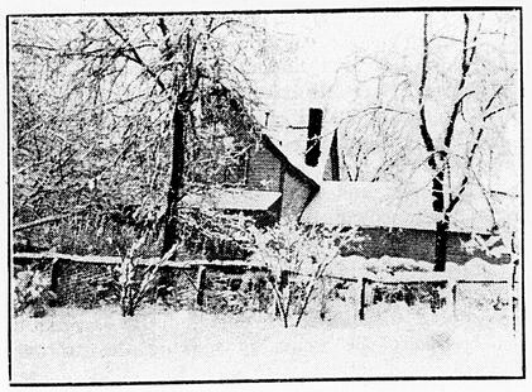
LIVE STOCK.

The number of horses on hand is large, but as a rule the quality is inferior. The Government has been in the market for military purposes, but has made very few purchases, being unwilling to pay high prices for the class of horse offered. Farmers in some districts have improved their stock of heavy draught horses during the last few years, but they have raised very few colts this year owing to the limited demand.

The following figures from the Census and Statistics Monthly, issued by the Department of Trade and Commerce, show the live stock on hand as at 1st July:

	1915.	1916.
Horses	372,567	332,628
Milch Cows	720,420	639,805
Other Cattle	612,500	535,693
Sheep	554,491	497,711
Swine	632,729	531,303

The great scarcity of labor is becoming a serious drawback to farming and it has no doubt in many cases been the cause of a smaller acreage being cultivated this year than last. The trouble is being overcome to some extent by the greater use of modern farming machinery, and also by the assistance given to each other during the busy season by farmers living in the same neighborhood, and it has not been an unusual sight this year to see women and girls working in the fields.



There is nothing more beautiful than a winter landscape, where everything has its coating of snow.

CONTACT WITH THE WEATHER

A great writer in describing the virtues of one of his characters names his health, his capacity for hard work, his tolerance, his poise, and explains the possession of all this excellence by saying that he had "the English faith in daily contact with the weather." The attitude of mind begotten by actual outdoor contact with the weather differs as much from the frame of mind induced indoors by the same weather as does good cheer from sour gloom. We say that the rain and the heavy clouds make us "blue," and we may really believe it, until we get outdoors in actual contact with the day's weather. In fact, there is a lively satisfaction in a ride or even a walk in the rain; while there is a keen exhilaration in breasting a snow storm. Daily contact begets a belief that all weather is good in its turn; it stimulates a faith in goodness in everything. Politics seems not so rotten to the outdoor man as it does to the office man; religion is less a sham to one in daily contact with the weather than it is to the indoor reader of homilies. "Wisdom keeps school outdoors," says Stevenson, and he further declares that it is outdoors that little things seem big enough.

How many have felt personal worries and perplexities slip away or else resolve themselves into endurable forms when the outdoors has worked its charm on mind and heart? Then comes a courage that is serene, a resolution to endure that is almost a joy, which springs from a contemplation of nature's eternal patience, her sure return to sunshine, her sure unlocking of the gentle and reviving rains, her tremendous wrath of bolt and flash and then—calm. It is good to watch the behavior of the birds of the air, the flock in the barnyard, the homecoming of the herd before the first autumn storm and its later indifference to the rigor of winter weather. The flowers and the foliage show the seasons with no more fidelity than do farm animals indicate the day's weather. Is there a better promise of a fair day than the leisurely loafing of the cows early on a spring morning, when they lie down to stretch and in ease to meditate? What is there so serene as the noontime drowse of the cattle when the weather and the world are just right?

And not without reward and delight is contact with the weather of "the huge and thoughtful night." For huge it is when clouds destroy proportions and suggest infinite spaces. One who has not been often outdoors between midnight and dawn has missed an experience that exalts the soul. The radiance of the sky and the sounds not audible in daytime unite in creating a new world. Even "the gladness of the wind that shakes the corn" appears an elemental good. In the open country daily contact with the weather has a double blessing to bestow: health of mind and health of body.

Breeders' Gazette

THE GARDEN AND ORCHARD

PROGRESSIVE FRUIT GROWING IN QUEBEC

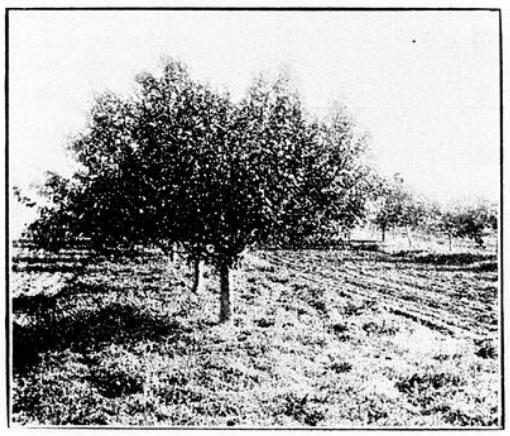
THE following resolutions were unanimously passed at the December meeting of the Quebec Pomological Society:

Whereas, it has been proven that the experiments carried on in the demonstration orchards are the best means of promoting progress in fruit growing in the province of Quebec, and, therefore, more demonstration orchards should be established throughout the province and more field meetings be held in connection with these orchards; and,

Whereas, experts in plant pathology and entomology, whose services can easily be obtained during the summer months, should be engaged to study the many diseases of our orchards, and,

Whereas, our province suffers from a lack of knowledge by the general public of our best fruits, so that a "publicity campaign" should be carried on during the season in order to popularize and promulgate the excellency of our fruits, by advertising in the public press of our cities, by holding an annual exhibition in the city of Montreal during the fall; and by publishing for the benefit of the fruit-grower, such information as the Society may obtain from time to time.

Therefore, it is unanimously resolved that a delegation of this Society should meet the Hon. Minister of Agriculture, and place these views before him, so that this Society may be given a larger grant to carry out the above programme.



A Macdonald College Orchard in its winter year producing a fair crop of fruit. Crimson Clover used as a cover crop.

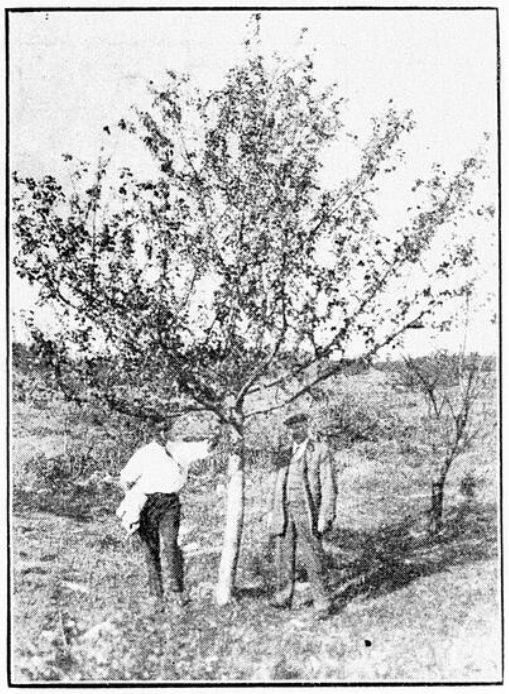
PLANNING THE ORCHARD

FROM present indications a large quantity of apple and other fruit trees will be planted this year over a wide area of the province. Some of these plantings will be quite extensive, while many will merely be the filling in of vacancies in the older orchards.

Conservative estimates from time to time made by competent authorities show that not more than 25 per cent of the trees planted ever come into profitable bearing. At first sight this seems a very low percentage, but when we consider the large number of trees planted yearly in Canada and the United States (several firms sell millions of apple trees yearly), if all the trees planted should come into profitable bearing overproduction on a large scale would take place in a comparatively short time. However, overproduction of apples is not a live topic to-day, judging by the scarcity of apples and their consequent high prices. Even in past years of good crops, well cared for orchards have shown a good profit.

For those planting new orchards in the spring it is necessary, in order to obtain the best results, to pay particular attention to the early planning of the orchard in regard to the choice of varieties and grade of stock. Many mistakes in fruit-growing are made in these two points, and once made cannot easily be corrected.

No brief list of varieties can be expected to answer the needs of all, but the varieties under consideration should be carefully studied before a choice is made. A few years ago several fruit-growers in this province ordered a large quantity of trees of a variety that had not been tested thoroughly under local conditions and one that is not considered adaptable to our conditions, simply on the word of a distant nurseryman who was chiefly interested in the sale of his trees. We have plenty of well known varieties to choose from, and until the new or little known varieties are sufficiently tested if is often a mistake to plant them. No mistake can be made in planting a large percentage of McIntosh and Fameuse, two varieties



High-headed tree. Expensive to prune, spray and harvest

pre-eminently suited to Quebec conditions. The apples are widely and favorably known and sell at the highest prices in their season.

In ordering nursery stock the orders should be placed early to ensure reasonably early delivery, for most firms ship their stock in order of their bookings. Local or well known nurserymen should be patronised rather than the tree agents who frequently come into a section for a few weeks to sell stock, often at the highest prices.

The stock should be clean, free from insects or disease, straight and well grown for the variety. A two-year-old apple tree is the most satisfactory for local conditions, and should be from four to seven feet high and about ¾ inch diameter, with the head formed not higher than 2½ to 3 feet. The size will depend on the section and conditions under which it has been grown. Some Quebec nurseries practice the cutting back of the first season's growth to several buds, one of which is allowed to grow and these trees at three years old look similar to other two-year-old trees not cut back. Provided these three-year-old trees have been well grown and are straight they are just as good for Quebec conditions as two-year-old trees, and in addition are likely to be free from black heart injury.

Young trees should not be allowed to dry out even for a few hours, and where they have partially dried out it is necessary to soak them thoroughly and then heel them in moist earth if planting is not to be done at once.

A well planned orchard on good soil properly drained, with trees of the right varieties and properly cared for, should upon coming into bearing be one of the most profitable parts of the farm. An analysis of fruit conditions prevailing in the province of Quebec would indicate very clearly that the present is an opportune time to plant a young orchard.

T. G. BUNTING

THE McINTOSH APPLE

(Experimental Farms Note.)

EVER since the first orchard was planted at the Central Experimental Farm, Ottawa, in 1888, the McIntosh apple has been under test by the Experimental Farm System and during that time much useful information has been obtained in regard to this fine variety. In very severe winters when the Fameuse apple was injured, the McIntosh remained unharmed, thus proving that it is hardier than that old variety from which it is supposed to have sprung. For a long time the McIntosh apple had the reputation of being a shy bearer, but in nearly thirty years' experience with it at Ottawa, it has been found to be one of the most productive varieties under test. The tree does not often bear very heavily, or overbear in any one year and then fail to bear the following year, but it is an annuel bearer, as a rule, giving a good and medium crop alternately, the number of small crops being few. Following are the yields of one McIntosh tree planted at Ottawa in 1890, the first yield being recorded in 1898, the 8th year after planting. Some trees of this variety will begin to bear in the 6th or even in the 5th year after planting. The yields are recorded in gallons, but if it is desired to reduce them to barrels there are 24 gallons in a standard barrel. Yield of one McIntosh apple tree from the 8th year after planting, in gallons,—17½, 26, 37, 6½, 71½, 94, 12, 109, 3, 109, 41½, 184, 50, 166, 55, 145, 112, 44, 149½, a total of 1432½ gallons for 19 seasons or an average of a little over 3 barrels per year, from one tree.

It has been found by experiment that in Ontario, at least, the McIntosh is self-sterile, or, at least, practically so and to ensure a good set of fruit there should be another variety or varieties, blooming at the same time, growing near it.

The McIntosh apple is subject to the Apple Scab Fungus, and in some seasons if the trees are not sprayed the proportion of No. 1 fruit will be very small. This year, at Ottawa, it was found necessary to spray the trees six times with lime-sulphur wash to ensure clean fruit, but the reward was a large proportion of No. 1 fruit in a year when there was, in many quarters, a very small proportion of No. 1 grade on unsprayed or poorly sprayed trees. As a rule, three or four sprayings are sufficient.

Owing to its high quality and the great beauty of the fruit, it is believed that the demand for McIntosh apples will be an ever increasing one. There are many relatively poor apples of the same season still being grown which will in time, have to give place to McIntosh. To-day there is no other apple which commands as high a price in Canada, No. 1 fruit being worth between seven and eight dollars a barrel, and in years of plenty the price of McIntosh apples is relatively high. Although it is in good enough condition to be eaten in October, at Ottawa, it is not in its prime until November. Unlike the Fameuse which has a relatively short season when it is at its best, the McIntosh remains in fine condition until February, and in good cellars keeps even until March. In parts of Canada where the autumn is warmer than it is at Ottawa it ripens earlier and does not keep so late.

Following is a detailed description of this apple:

Originated with John McIntosh, Dundela, Dundas Co., Ont. in 1796, the first tree remaining alive until 1908. Fruit above medium, roundish, slightly ribbed; skin pale yellow, almost entirely covered with crimson, dark on sunny side and brighter on rest of fruit; dots few, small yellow, distinct but not conspicuous; cavity of medium depth and width; stem short, stout, somestimes medium length and moderately stout; basin narrow, almost smooth, medium depth; calyx partly open; flesh white and yellow, springtly with a pleasant aromatic flavour; core of medium size, open; quality very good to best; has a strong aroma; season November to February, or later, and earlier in the season in the warmest parts of Canada; tree hardy, and a strong moderately upright grower.

THE FARM AND FARM CROPS

A WORD FOR THE FARMER

Editor, Journal of Agriculture.—

"DO with less help and increase your output" are the farmer's operation orders for the war.

Some of his city friends very glibly tell him that this is a very simple problem. If labor should be required at a particular time, simply pay more for it so that farm work may become more remunerative than munition making. To increase the output, plough more land, sow more seed and conduct the farm on business methods. In any case the farmer's contribution of food products is a selfish one because he accepts all he can get for it, and he is one of the really big "war profits" men. He tells him further that in the giving of money and men he has not done his duty.

The latter charge is one that few men can intelligently make or refute because few men are in possession of the facts. Confirmation of this is readily found in the usual type of charge, characterized as it is by an absence of fact.

The late Dr. C.C. James, who no doubt possessed the facts, stated in an address in Toronto a year ago that the farmer was not given due credit in all three forms of contribution — men, money and food. The city too often took the credit for the men from the surrounding country, and he expressed the opinion that the recruiting officer should then exercise the greatest care lest Canada's first industry suffer a serious set back. In regard to money he instanced among others the case of York County, Ontario, including as it does Canada's greatest contributing city; and showed that the contributions of this county to the Patriotic Fund, etc., exceeded those of Toronto city.

He also stated that the increase in the produce output of the farms exceeded in value the entire munition output for the year.

Every one who knows anything of farm conditions knows that the past year presented many aggravating difficulties over which the farmer could exercise little or no control. Natural conditions were most unfavorable. Farm labor, the biggest factor in production, was not available at any price, and in this difficulty the present year already promises to add to the farmer's plight. The farmer is left pretty much to do the best he can under the circumstances, and while the whole situation is undoubtedly a complex one it would seem that something more might be done to help him in this predicament.

There are probably shirkers among the farmers. Too many farmers unfortunately are not as keen students of their country's affairs as they should be. Others are slow to respond to any appeal and merit criticism for not making more of their possibilities. Others still are answering only the call of increased price for produce.

With these men, however, nothing can be gained by abuse and something may be lost. Moreover, they all have their prototypes in other ranks.

The patriotism of the intelligent and representative farmer needs no comment, and, if we mistake not, his interest, generosity, and sacrifice will bear favorable comparison with that of the city man. This is no time for dissension. The farmer, in spite of the apparent enormous produce prices from the much distributed receipts of which he receives a share, is entitled to every consideration and help that can be given him at this time, and no good purpose can be served by misconstruing his position.

H. B.

THE CHOICE OF ROOT CROP VARIETIES

Value of Roots. Differences in their Habits of growth. Best varieties

NOW is the time to make all necessary preparations for a supply of satisfactory seed for the coming season. With reference to the root crops, this fact is particularly true as the class of roots and the types within the class which will be chosen should depend, to a large extent, upon the soil conditions of the field set apart for the root crops.

Growing any kind of root on any kind of soil is poor management. Such a system leads but to failure. Each of the different classes of roots—swedes, turnips, mangels and carrots — has its particular characteristics which recommend it to special conditions. The question resolves itself firstly to the choice of the class of root.

Choice of Types and Varieties

Though it is a comparatively easy matter to decide upon the class of roots which would be desirable in a given field, the choice of varieties is a difficult one. To begin with, we find that there are different types such as *long, intermediate* and *globe*, and that these types vary considerably as to yield of actual feed per acre. Not only do the types vary but varieties within the types show considerable differences. This is particularly true as most varieties, especially with the mangels, are not pure, i.e., they are not true to type. As a rule practically every type will be found in most of the commercial varieties.

Swedes

With swedes the difficulty is not as great as with mangels. The seed on the market is much purer and also usually of better germination. We have with the swedes three types (Fig. 1) Tankard, Globe and Flat, of which the first two are the most

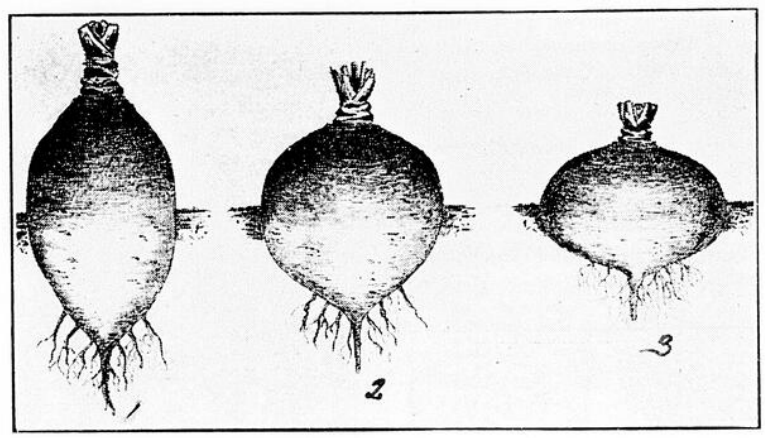


Fig. 1.—Types of Swedes, 1—Tankard, 2—Globe, 3—Flat.

Owing to the poor keeping quality of the soft turnip and the expense of harvesting of the carrot, these two classes of roots should be grown to a limited extent only. However, both should be grown—the turnip to supplement the pasture from the latter part of August on and for regular feeding during November and December, and the carrot for spring feeding particularly for the horses. For carrots the Champion White Intermediate can be recommended, while for turnips the Imperial Green Globe gives the best yields.

Mangels and Swedes

The larger part of the root land will, then, be given to the production of swedes and mangels. In the past by far the largest proportion of the root area has been for swedes. However, every year the area devoted to mangels is increasing, a fact which indicates that better cultural methods are being followed. Although swedes may be grown under very ordinary conditions mangels never can, but under good conditions mangels will outyield swedes materially. It is advisable to grow both. With good soil and proper cultural methods the larger part of the root land should be producing mangels, with a smaller area, say one third, producing swedes. Where the conditions are more satisfactory for swedes the proportion should be reversed. It should be remembered that owing to the differences in root systems of these two classes, they have different adaptations to moisture conditions. While an overabundance of water will not injure the swede crop to a very great extent, it will greatly reduce the yield of mangels. On the other hand, the mangel crop will resist considerable drought which would cause a very marked injury to the swedes. The question resolves itself then to growing mangels in the larger proportion on land that has a tendency to be dry, while on land that has a tendency to be wet swedes should be given the preference.

common. Of these the Globe is to be recommended. The Tankard (Elephant and Kangaroo are examples) gives every indication of poorer quality, longer necks, more multiple crowns and often greater pronginess. In addition, the yield of actual dry matter per acre is much lower. Since the actual feeding value of the roots depends upon the dry matter content this fact is very important. This importance is much more easily realized when it is remembered that feeding tests have shown that in a mixed ration one pound of dry matter in roots is worth one pound of grain. Of the varieties tested at Macdonald College the best Globe varieties have been Bangholm, Magnum Bonum and Hall's Westbury.

Mangels

With mangels we have several types (Fig. 2) some of which are markedly superior to others. The common types of mangels and representative varieties are:—

Type	*Variety*
Long	Long Red
Intermediate	Yellow Intermediate
Ovoid	Golden Tankard
Cylindrical	Ideal
Globe	Giant Yellow Globe

The Long type, which is grown to a considerable extent in this province, is not really a desirable one. It is coarser, more prongy, more difficult to harvest than the others, and since this type does not yield as high as some of the varieties in other types, there is really nothing to recommend it. The type which has generally given the best results is the Intermediate. For this a fairly deep soil is necessary as is indicated by the diagram. On shallow soils the Cylindrical or Globe will necessarily have to be grown.

Unfortunately varieties within these types vary considerably, some being extremely poor. In many cases they are misnamed, really belonging to an in-

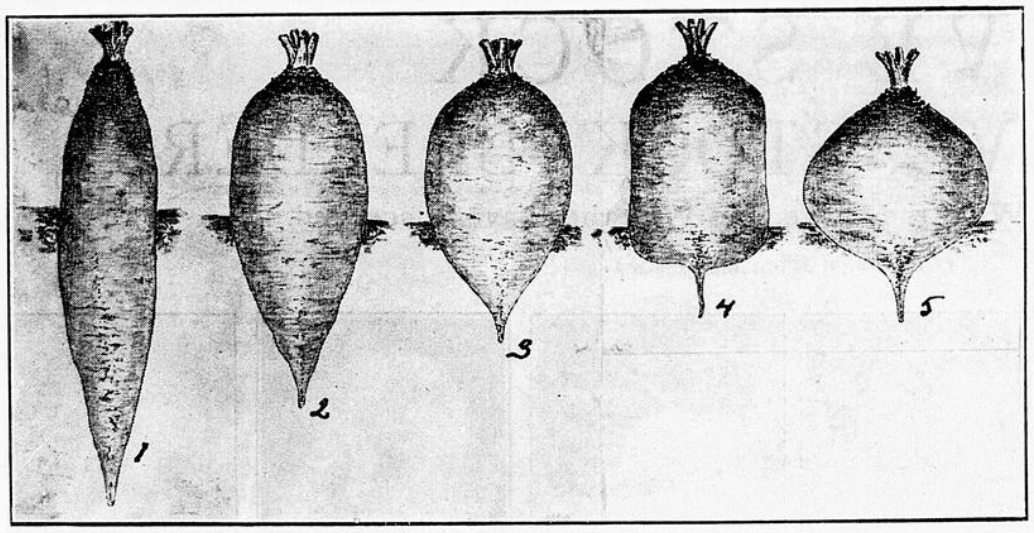


Fig. 2.—Types of Mangels: 1—Long, 2—Intermediate, 3—Ovoid, 4—Cylindrical, 5—Globe.

ferior type. Coupled with that is the fact that there are some varieties that have a low dry matter content. Under such conditions it is then extremely important to obtain seed of varieties which have given good results in tests covering a number of years. In such a test at Macdonald College the Danish Sludstrup Mangel (a Yellow Intermediate) has been giving good results and can be recommended. For a cylindrical mangel the Ideal and for a globe variety the Giant Yellow Globe are both good.

The importance of the proper choice of varieties of root crops cannot be too greatly emphasized. The result of several years tests, showing that many swede varieties and most mangel varieties are extremely variable as to quality, makes it specially important that only those varieties which have been giving good results for some years be grown.

E. A. LODS,

Cereal Husbandry Dept., Macdonald College

FARM AND DAIRY ICE HOUSES

Essential to Comfort and Health During the Summer

ONE of Canada's abundant natural resources is our annual crop of ice. The value of the ice harvest is not usually appreciated. This is probably due, largely, to the fact that at the time ice is plentiful it is not required for immediate needs. With many of those who should be most interested, it is the old story of letting the future take care of itself, with the result that in periods of excessive heat, such as were experienced last summer, large quantities of meats, dairy products and other foods spoil for the want of ice.

To the farmer, ice is almost a necessity in the summer. Exposed in the fields to the heat, he finds a cool drink invigorating and refreshing. To his horses, panting from exertion and heat, a piece of ice applied to the head not only revivifies them, but may be the means of saving their lives.

In the farm home there is nothing more invigorating than the cool dishes which may be provided with the assistance of an ice supply. One of the attractions of the city to the rural young in the warm weather is this ability to secure these cooling delicacies. In the midst of her household cares, endeavouring to make the farm home a real home for her family, the farmer's wife is entitled to this little attention on the part of those she is trying to make comfortable.

There are few localities in Canada where a supply of ice cannot be obtained during the winter months. In most cases, farmers either by themselves or co-operatively, are able to harvest and store it. The wonder is, then, that any farmer or dairyman would be without a supply.

To preserve a domestic supply of ice is a simple matter. An unoccupied corner of an outbuilding may be utilized, by enclosing the necessary space with rough boards. About 40 cubic feet of space should be allowed per ton of ice. If the soil is porous, no provision need be made for drainage. If it is impervious clay, it should be underdrained. The earth should be covered with six inches of broken stone, cinders or gravel, on which should be spread about a foot of planing-mill shavings. Between the walls and ice should be placed at least a foot of shavings or sawdust, and the ice should be covered with a foot of the same material.

The illustration shown herewith is of a more pretentious ice house, with built-in refrigerator and milk room. This has the advantage of providing every facility for the care of dairy products as well as the food supplies of the household, enabling the farmer to have his fresh meat and other requirements at hand, when, without his ice supply, his family might be forced to depend upon the smoked and pickled varieties for the table during the hot weather.

Full particulars and details of construction of this ice house and others may be secured from Bulletin 35, Dairy and Cold Storage Series, Department of Agriculture, Ottawa. The Dairy and Cold Storage Commissioner will also supply blue prints free on application.

As an index to the amount of ice required, the following figures may be quoted:

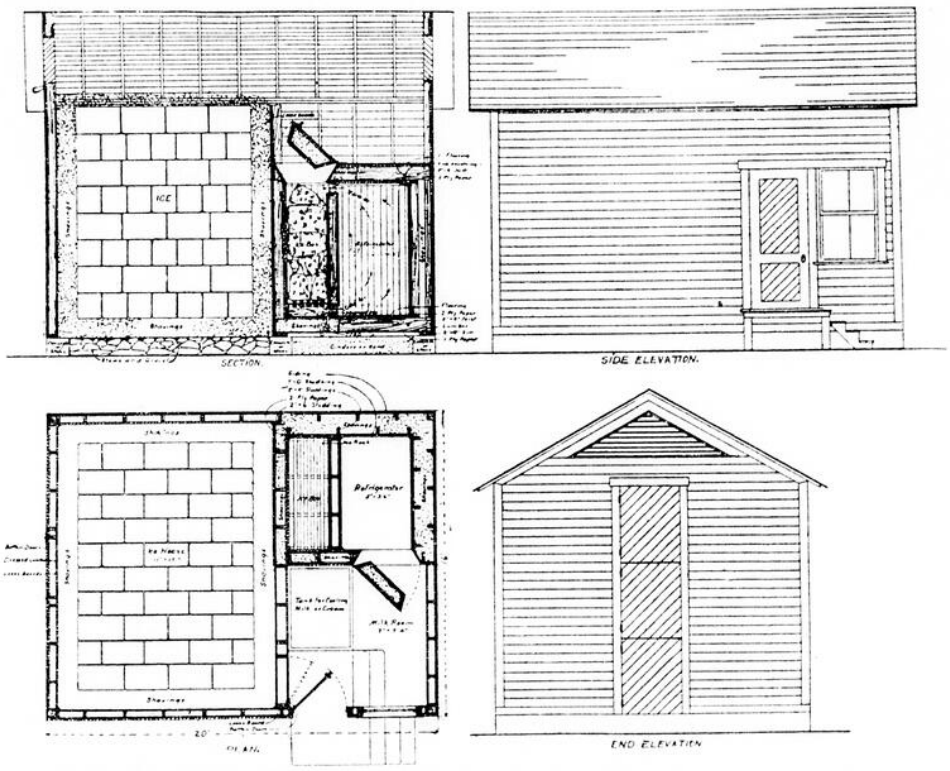
A cubic foot of ice weighs 57½ pounds. One ton of solid ice measures, approximately, 35 cubic feet. A consumption of two cubic feet (115 pounds) per day for four months would amount to nearly seven tons. Allowing for the waste when such a comparatively small body of ice is stored, a building 10 feet square and 10 feet high will afford ample space for that quantity of ice if it is carefully packed.

Fifty pounds per day for four months would amount to three tons. Allowing for waste, a solid block of ice six feet square and six feet high should be sufficient if properly stored.

For the purpose of estimating the weight of ice roughly by the number of blocks, the following table will be found convenient:

12 blocks 18 x 36 inches, 8 inches thick—1 ton.
10 blocks 18 x 36 inches, 10 inches thick—1 ton.
8 blocks 18 x36 inches, 12 inches thick—1 ton.
7 blocks 18 x 36 inches, 14 inches thick—1 ton.
6 blocks 18 x 36 inches, 16 inches thick—1 ton.
5 blocks 18 x 36 inches, 20 inches thick—1 ton.

Conservation



A well-built Ice House, combining ice storage, milk room and refrigerator.

FROZEN GRAIN IN FEED OAT GRADES

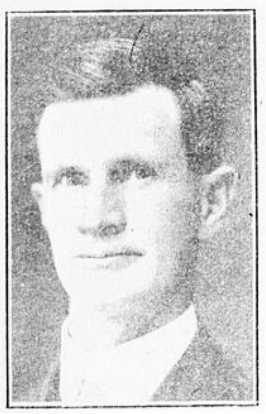
MOST farmers and many local grain dealers do not fully understand that the term Feed in official grades of oats, as No. 1 Feed oats, implies that the oats have been frozen or are otherwise unsound; or that the words Canada Western, as for example No. 2 Canada Western oats, mean that these oats are sound and suitable for milling purposes. Frozen oats will not germinate satisfactorily, so only the official grades No. 1 and No. 2 Canada Western oats are accepted and separately binned for seeding purposes at the Government terminal elevators. Large quantities of Western oats will this year be distributed over Eastern Canada for seed purposes and both farmers and dealers are well advised to guard against the use of even Extra No. 1 Feed oats for seed unless a germination test is first made. The Canada Western grades, however, can be counted upon to give satisfactory germination.

Seed Branch, Ottawa

LIVE STOCK
QUEBEC LIVE STOCK BREEDERS

Where they live, What they have, and Why they have Succeeded.

(Continued from last issue)



J. LEE ALEXANDER,
Maple Hurst Farm, Hillhurst.



R. R. NESS,
Burnside Farm, Howick.



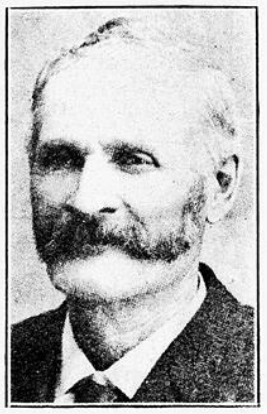
A. J. NESS,
Woodside Farm, Howick.



P. D. McARTHUR,
Cherry Bank Farm, Howick.



D. T. NESS.
Edgewood Farm, Howick.



JAMES BRYSON,
Point Round Farm, Brysonville.

P. D. McArthur, "Cherry Bank Stock Farm"", Howick, R. M. D. 2

Ayshires,

Most of the heifers of the Cherry Bank herd are from R.O.P. dams and all are entered for the R.O.P. test as they freshen. Former herd heads have been Whitehill Free Trader (imp.) (33273) (8783), a noted prize winner and Jupiter of Hickory Hill (32327) a son of Floss Morton (23598) by Haysmuir Milk Record (imp:) (24822) (6716).

The present herd bull is White Chieftain of Cottage Hill (35827) by Auchenbrain Albert (imp.) (26900) (6866) R.O.P. 14, (six R.O.P. daughters), out of Buttercup (24187) (10,623 lbs. milk, 383 lbs. fat). There are also two daughters of Buttercup in the herd. The herd has had many show winnings. This year a senior heifer calf won at Ormstown in a class of 27.

T. B. Macaulay, "Mount Victoria Stock" Farm", Hudson Heights

Clydesdales, Hackneys, Hackney Ponies, Shetland Ponies

The Mount Victoria Stud is one of the best known in the province. It received extended notice in our issue of November 1916. Pictures of the Clydesdale stallion *Prince Netherlea*, the Hackney *Christopher North* and the Hackney Ponies *Glendermott Wildfire* and *Glenavon Victoria* were published. These tables of the Mount Victoria farm contain about seventy horses of the above-named breeds.

P. McCullough, Sutton

Yorkshires

In 1916 Mr. McCullough won the diploma at Sherbrooke for pen of one boar and two sows.

Dr. Duncan McEachran, "Ormsby Grange Stock Farm", Ormstown

Clydesdales, Shires, Ayrshires, Jerseys, Berkshires, Rhode Island Reds

DR. McEachran, who has been founder and principal of the Veterinary School of Montreal, Director of Quarantine for twenty-seven years, and President of a large Alberta ranching company, established the Ormsby Grange Farm in 1907. This farm won the first Silver Medal in the Agricultural Merit Competition in 1916. The report of the judges was quoted in our January issue. The Clydesdale stallion, Selborne, is well known and there are altogether about two dozen purebred horses in the Doctor's stables. The other stock comprises about 70 head of cattle, half a dozen swine and 300 fowl.

D. A. MacFarlane, "Kelso Stock Farm", Kelso

Ayrshires

THREE three-year-olds and one two-year-old from this herd qualified in the R.O.P. in 1915. Of these the most notable was Violet of Kelso—33963—with a record of 10,863 lbs. milk and 400 lbs. fat. Mr. MacFarlane always has good Canadian-bred cows and frequently wins prizes with them. Lady Mary Kelso won first prize in the dry cow class at Huntingdon last fall and Wylie of Elmshade (10363 lbs. milk, 411 lbs. fat) took second place in the competition between R.O.P. Cows. He usually shows at Ottawa. Three years ago he won the championship for Canadian-bred cows.

W. R. McGerrigle, Ormstown

Clydesdales

Shows at Ormstown, Valleyfield, Ottawa and Sherbrooke.

James McKell & Son, "Elm Grove Farm", Riverfield

Ayrshires

The Messrs McKell have had good success with their Ayrshire cows at the Ormstown Show.

Charles McLean, Pointe Claire

Percherons

Gilbert McMillan, "Springburn Farm", Huntingdon, R.M.D. 2

Ayrshires

Mr. McMillan is continuing the herd founded by the firm of McMillan and Leggatt upon the basis of that formerly owned by Mr. W. F. Stephen. The herd bull is Springburn Lord Kitchener—45825—a son of Auchenbrain Hattie 6th, the champion cow at Springfield Mass. in 1916.

Mr. McMillan is the energetic Secretary of the Howick-Huntingdon Ayrshire Club. He has a herd of about thirty head.

Erskine McOuat, Brownsburg

Ayrshires, Shropshires

Mr. McOuat's herd was established by his father, Mr. James McOuat, who died about five years ago. It numbers about fifty head. It was formerly represented at local fairs but has not come out for the last two or three years.

W. H. Martin, Warden

Clydesdales, Jerseys, Berkshires

MR. Martin has been breeding Jerseys and Berkshires for about 25 years and has had purebred Clydesdale mares for six years. He owns a mare that was grand champion at Toronto in 1913.

He has shown Jerseys at the leading Quebec fairs for about 15 years. In 1914 he won the chief honors all round, including the silver medal at Valleyfield for best display of dairy cattle of any breed, and the Hochelaga Bank cup at Three Rivers for best display of Jerseys. The same year in competition with B. H. Bull & Sons, Brampton, Ont., Edwards and Alexander, and other prominent breeders his Canadian-bred stock made a very creditable showing against imported stuff. In 1916 he visited Valleyfield, Three Rivers, Quebec and Sherbrooke with Jerseys and Bershires. The Berkshires won everything and the Jerseys were second only to Edwards and Alexander. At Sherbrooke Mr. Martin won the prize for cow and two of her progeny and the senior yearling and junior heifer calf. He has had good success with the progeny of his herd bull, Brampton Noble Lord (imp. in dam). This bull is a grandson of the famous Noble of Oaklands.

Geo. Reg. Mooney, "Elm Glen Stock Farm", Inverness

Shorthorns, Berkshires

MR. Mooney, who has taken a two years' course at Macdonald College, recently succeeded his father, the late Henry Mooney, in the ownership of the Elm Glen Farm. Mr. Henry Mooney

had a number of splendid Shorthorns of the smooth type and Mr. George Mooney, coming home from College with the conviction that his father had shown good judgment in his choice of breed, resolved to strengthen the existing herd with a few individuals from the best Ontario herds. At the Watt dispersion sale at Elora, Ont., he purchased Oak Bluff Monarch (102905), by Browndale (80112), at a cost of $430; also two cows Meadows Queen (114056) and Bridal Ruby (96451), the latter of the "Brawith Beed" family, one of Cruickshank's favorite tribes. This brought the herd up to twenty-five head of such quality that Mr. Mooney decided to try conclusions in the showring. At Quebec Oak Bluff Monarch and Bridal Ruby won championships and Mr. Mooney was awarded first prize on both his purebred and his grade herds. At Sherbrooke, where he met the competition of Mr. Watt of Elora, Ont., the Quebec champions had to take second place but the heifer Alpine Belle 7th (114829) won first prize and Bridal Ruby was sold to Mr. Wadsworth of Milby, Quebec, for $400. Mr. Mooney took advantage of the opportunity offered by the Cromwell dispersion sale in November to strengthen his herd further by the purchase of a promising three-year-old and an aged cow that has never taken a second place at any exhibition in the province.

George H. Montgomery, "Lakeside Farm", Philipsburg

Clydesdales, Ayrshires

MR. Montgomery's herd was founded in 1903 upon purchases from the Glenora and Isaleigh Grange herds. The first sire used was The Don — 8855—winner at the Pan-American Exhibition. Later sires have been Barcheskie Cheerful Boy (imp.)—28879—, Hobsland Bonnie Boy (imp.)—33275—and Morton Mains Planet (imp.)—33279—, Auchenbrain Sea Foam (imp.) —35758—(8865) the bull now at the head of the herd, won first prize as a yearling at Toronto and Ottawa, first in aged class and champion at Sherbrooke and Quebec in 1915 and second at Ottawa in keen competition. In 1916 he was first at Quebec and Sherbrooke and second at Ottawa. In 1915 two cows from this herd qualified in the mature class, two in the three year old class and two in the two year old class. Four of these six had records of over 10,000 lbs. milk and three of these four produced over 400 lbs. of fat. Altogether, the herd includes a score of R.O.P. cows. At Sherbrooke in 1916 this herd won the senior and grand championships, male and female, and the senior herd diploma. At the five leading fairs of the province it won over eighty prizes, including nine championships. At the great Ormstown Show in 1914 it won the special for best display of Ayrshires.

Mr. Montgomery's stallion, a son of Sir Spencer, won third place in the three year old class at Ottawa in 1916. Three of his mares are purebred Clydesdales and one foal.

Mr. Montgomery issues a typewritten catalogue giving pedigrees and description of stock offered for sale. This serves as a very satisfactory answer to many enquiries. He attributes his success largely to his farm managers, John Symington (1903-1914) and D. McArthur (1914), and to the assistance and interest of Mr. R. R. Ness. Other contributing factors have been advertising and a firm adherence to the policy of using the best sires obtainable.

Harold M. Morgan, "Stoneycroft Stock Farm", Ste. Anne de Bellevue

Clydesdales, Ayrshires, Yorkshires

THIS is one of the older dairy and stock farms of the Island of Montreal, having carried the above breeds for some twelve years or more. During the past year some changes have been made in the stock and buildings which have depleted the dairy herd but it is now being built up again from other herds throughout the province, and will no doubt soon have a good representation of the breed. The Stoneycroft Farm is managed by Mr. L. C. McOuat, B.S.A.

E. H. Morgan, Stanbridge Station

Jerseys, Shropshires, Berkshires, Chester Whites, Tamworths, White Wyandottes

MR. Morgan's Jersey herd was established forty-eight years ago, when a heifer was purchased from E. L. Clarkson of Duchess County, New York and a bull from R. Stephens of Montreal. The herd now numbers forty head. The Shropshire flock was established twenty-five years ago and has been frequently strengthened by the purchase of rams from the United States and Ontario. Hogs have been bred for fifteen years.

Mr. Morgan attributes his success to careful selection of breeding stock, somewhat extensive advertising and a constant endeavor to satisfy his customers.

David T. Ness, "Edgewood Farm", Howick

Clydesdales, Ayrshires

LIKE all the family Mr. D. T. Ness was brought up amongst Clydesdales and Ayrshires. The show record of his Ayrshire herd for 1915, as given in his advertisement in the 1916 publication of the Canadian Ayrshire Breeders' Association, is a remarkable one. For the six fairs—Ormstown, Valleyfield, Three Rivers, Quebec, Sherbrooke and Ottawa—he totals 114 prizes of which 43 are firsts.

At Sherbrooke in 1916 Mr. Ness won the junior male and female championships, the junior herd prize and the special prizes for four animals from one sire and two animals from one cow. He had similar success at the other leading fall fairs. At the National Dairy Show he secured two fourth prizes. Mr. Ness has twice won the cup for best display of cattle of any breed at Sherbrooke.

Robert Ness & Son, "Woodside Farm", Howick

Clydesdales, Standardbred and French Coach Horses; Ayrshires

THE head of this firm, Mr. Robert Ness, Sr., is one of the most widely known livestock men of Canada. He was brought up in the business, his father being in his opinion a better judge of Ayrshires than himself. Mr. Ness's sons have likewise grown up in a livestock atmosphere and the grandsons are following the same tradition. Mr. Albert Ness, the junior member of the firm, is best known as a horse breeder—a master of all details of the business.

Mr. Robert Ness made his first importation in 1865; thus his activities as an importer cover a period of over half a century. The story of his first experiences is an interesting one and one that carries a good lesson for the young breeder who is sometimes disposed to become discouraged. In 1865 the Agricultural Society of Chateauguay entrusted Mr. Ness with the selection and importation of a Clydesdale stallion. He made the journey and selected a four-year-old for the Society and for himself a two-year-old stallion, a yearling Ayrshire bull and a Leicester ram. The older stallion was killed by rough weather on the voyage and Mr. Ness, having insured the two horses together, was unabe to recover his full value in insurance. He therefore turned over his own stallion to the Society at cost. In spite of this discouraging experience he crossed again the next year and brought out three more horses. And then importation became a habit with him and the habit has persisted up to old age.

The successes of Robert Ness and Sons in the showring are too numerous and too well known to require notice here. The firm has on hand at present about 25 head of Canadian-bred horses and 50 Ayrshires of all ages.

Sir Spencer, their great Clydesdale stallion, died in 1916. His son, Spencer of the Briars, won the Candian-bred championship at Ottawa last winter and again last fall. Ruby Jen, now five years old, has won the female championship at Ottawa for the last two years. The Ness horses usually carry off the chief honors at Ormstown, Valleyfield, Sherbrooke and Ottawa. They have three times won the Bank of Hochelaga's cup for best display of horses at Sherbrooke.

R. R. Ness, "Burnside Stock Farm", Howick

Clydesdales, Ayrshires, Leicesters

BURNSIDE Ayrshires are noted over the American continent as animals of superior merit and there is no better known or more popular breeder than "Bob" Ness. The Burnside herd is the largest in the province, sometimes numbering over two hundred head. Hobsland Masterpiece (imp.)—36717—is one of the most famous of living sires and Barcheskie Lucky Girl (imp.)—21363—with an American Advanced Registry record of 17000 lbs. milk and 656 lbs. fat (equal to 772 lbs. butter) at the age of 13 is almost equally well known. The prize winning record of the Burnside herd is much too extended to be detailed in the short space at our disposal. It includes the female championships at Toronto and Ottawa for four or five successive years. The male championship at the same fairs in the same years has been won by Hobsland Masterpiece except in 1916 when he was beaten at Ottawa by this grandson, Mr. J. H. Black's Hobsland Piecemeal. At the National Dairy Show at Springfield Mr. Ness won twelve prizes totalling $316.

Albert Nussey, Brysonville

Clydesdales

Mr. Nussey's stock is derived from that of Robert Ness & Son. He shows at Ormstown, Valleyfield, Sherbrooke and Ottawa.

William Nussey, Howick Station

Clydesdales

Mr. Nussey's stallion, Baron Silloth's Heir by Baron Silloth (imp.), has won championships at Ottawa.

Jay W. Oughtred, Marbleton

Shorthorns, Hampshire Downs

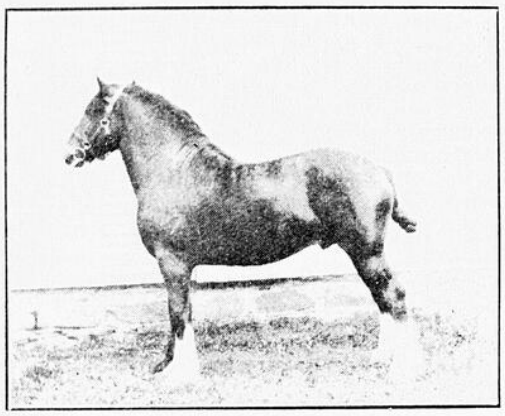
THIS young man, having less than a year ago succeeded to a business which made his late father's fortune, has little to relate of his own experiences. He tells us, however, that one of his ewes raised two lambs which sold for $25 each. Together with eight pounds of wool at 43 cents this makes a total return of $53.44 from the one ewe this year. His herd numbers 27 and his flock 274.

Hon. William Owens, "Riverside Farm", Montebello

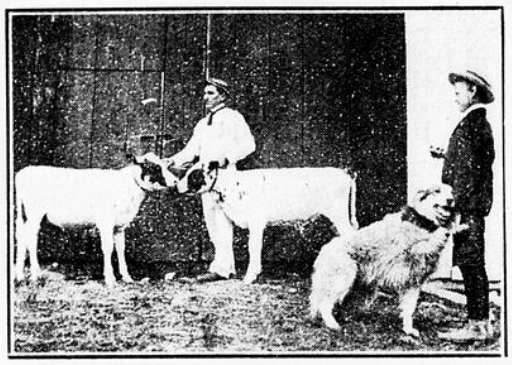
Ayrshires, Oxford Downs, Yorkshires

EXCEPT Mr. R.R. Ness no Quebec Ayrshireman has so many cows in the Record of Performance as Senator Owens, and if the comparison were to be limited to the classes above two-year-olds the Riverside Farm would be far in advance of even Burnside both in numbers qualified and in average production. Of the eight mature cows qualified, six have produced over 10,000 lbs. of milk and three of the six have done so twice. In 1915 two mature cows and a two-year-old qualified.

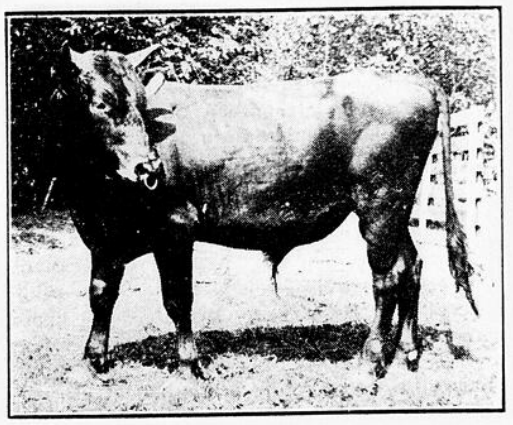
Senator Owens takes great pains to keep his herd free from tubercular disease. For a long time he



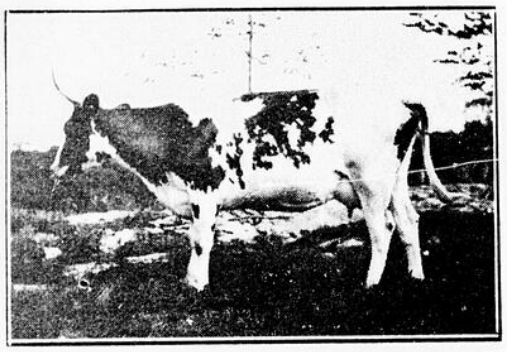
A two year old Clydesdale Stallion bred at the Maple Park Stock Farm, Dixville, Que. C. C. Hanson, Proprietor.



Two promising Ayrshires. Property of Louis Lavallée, St. Guillaume.



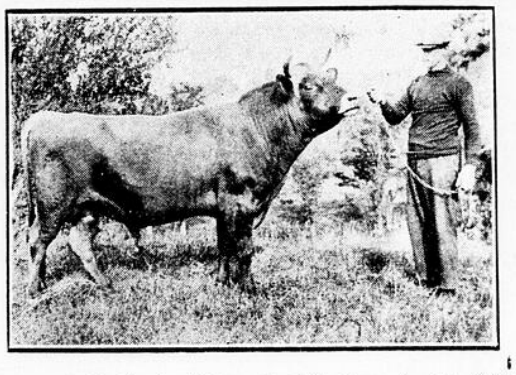
French Canadian Bull, Arastagnus, 2618. Property of Ferd. van Bruyssel, Beaupré.



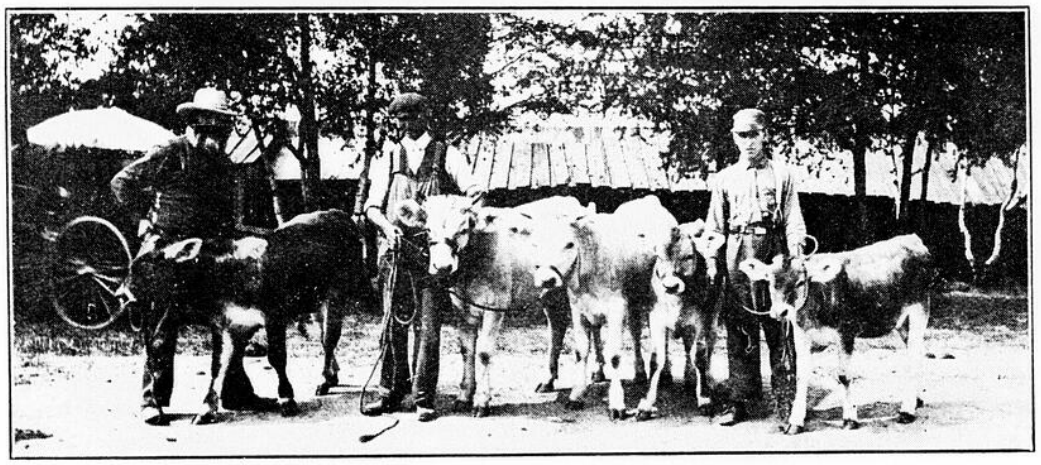
Ayrshire cow, qualified in the R. O. P. and by a R. O. P. Sire. Property of W. F. Kay, M. P., Philipsburg.



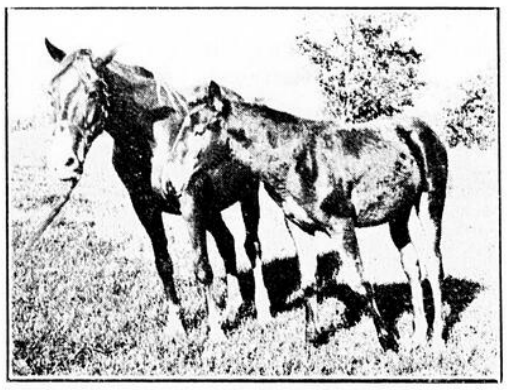
Prize Shorthorns owned by Geo. Reg. Mooney, Elm Glen Stock Farm, Inverness.



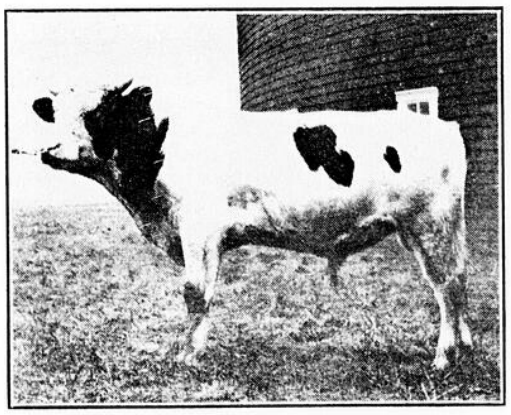
Jersey Bull, Fox's Abbess Lad O. Dunniwold, 6692. Edwards and Alexander, Hillhurst. First prize yearling and Junior champion at Valleyfield, Three Rivers, Quebec and Sherbrooke. Also headed first prize young herd at same shows.



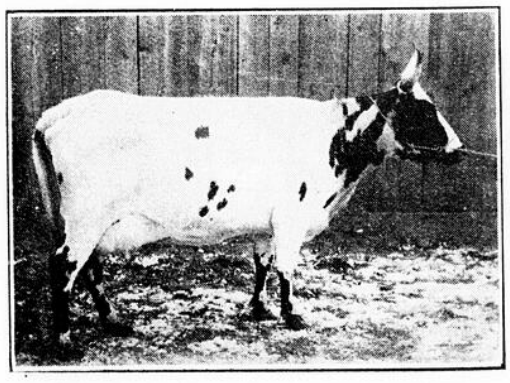
Young herd of Brown Swiss Cattle. C. E. Standish, Ayer's Cliff.



Morgan mare and colt, J. B. Jones and R. A. Jones, Vale Perkins, P. Q.



King Lee Posch, Head of the Maple Lawn Farm Herd of Holsteins. Property of L. H. Parker, Hatley.



Clover Ridge Glennet, 40986, a two-year-old R.O. P. cow. Property Wilton Dryden, Cowansville.

has applied the tuberculin test annually, with the result that in the most recent test of the seventy-two head over eight months of age not a single animal reacted.

J. H. M. Parker, "Willowdale Farm", Lennoxville

Clydesdales, Dairy Shorthorns, Leicesters,

L. H. Parker, "Maple Lawn Farm", Hatley

Holsteins

MR. Parker's experience with purebred Holstein dates from 1912 when he bought three females and Prince of Rubicon, a son of Mr. Neil Sangster's noted bull, Pleasant Hill Korndyke Pontiac. Prince of Rubicon won first place at Ayer's Cliff as a calf and as a two-year-old, and first at Sherbrooke as a yearling. His daughters are of good constitution and of good type and promise well from the production standpoint. They have already a good showing record, the Maple Lawn herd having won eight first prizes at Ayer's Cliff last fall and two first and several other prizes at Sherbrooke, and having taken first place in the dairy test at the former show and second at the latter. The present head of the herd is King Lee Posch, an exceptionally strong, rugged yearling of the very best breeding. His sire, Launcrest Lee Posch, is a brother of the world's record milk cow, May Echo Sylvia, and a son of May Echo, the only cow with a seven-day record of over 700 lbs., having one daughter and two grand-daughters with records of over 700 lbs. also. His dam, Lady Rose Agnes, is a grand-daughter of May Echo. Among the notable females of the herd are (1) Emily Guitty of Crystal Spring, by Riverside Wayne Lad, winner of the dairy test prizes at Ayer's Cliff and Sherbrooke, referred to above, and winner of first at Ayer's Cliff and fourth at Sherbrooke in the show ring. (2) Bonnie Tidy Netherland, a cow of exceptionally good dairy type now on test, and three young daughters. (3) Forest View Clothilde Korndyke, a two-year-old purchased from D. A. McPhee. She is sired by Count Hengerweld Korndyke and her dam, Pauline Sylvia Clothilde, holds a seven-day record of over 540 lbs. milk and 22 lbs. butter, and comes of high-producing stock. (4) Tidy of Maple Lawn, first prize senior heifer calf at Sherbrooke, 1916. The herd has some choice young bulls for sale, including Benjamin of Crystal Spring, bred by D. A. McPhee, the winner of first prize at Ayer's Cliff and third at Sherbrooke.

W. D. Parker & Sons, "Sunnymead Stock Farm", Compton Station, R.M.D. 1

Ayrshires

MR. W. D. Parker, the head of this firm, has been a successful breeder for sixteen years and his system of selection and breeding has resulted in the evoluation of a herd of sixty head of high average quality. Among the extra good cows on hand are: Stella of Sunnymead with 9000 lbs. milk, testing 4.80 (official) and giving 538 lbs. butter, which has sold for $163.86, and Peerless of Sunnymead, 45048, a three-year-old with 6343 lbs. milk, testing 5.99, equal to 449 lbs. butter, which sold for $146.10. At the head of the herd have been such bulls as Prince Imperial of Riverside,—24507—by Barcheskie Raymond (imp.) and Hobsland Monarch (imp.) —33278. The present herd bull is Burnside Good Gift (imp.)—43071,—a son of Auchenbrain Hattie, champion cow at Toronto and at Ormstown in 1915 and first prize winner at Springfield, Mass. in 1916. This cow was recently sold for $1,500. The firm has choice young stock for sale.

J. J. Parnell, Lennoxville, R.M.D. 1

Ayrshires, Leicesters, Yorkshires

Mr. Parnell has had twenty years' experience as a breeder, and has a good showring record. He has twelve purebred Ayrshires, twenty Leicesters and from fifteen to twenty-five Yorkshires.

Antoine Phaneuf, St. Antoine, Vercheres Co.,

Ayrshires, Oxford Downs, Yorkshires

IT is twenty-nine years since Mr. Phaneuf came into possession of his farm by inheritance. Experience soon convinced him of the importance of stock-raising as a complement to the cultivation of the land, and he entered upon the breeding of Ayrshire cattle, procuring his foundation stock from the best breeders of the time, such as Drummond, Greenshields and Ogilvie. In 1906 he imported a bull from one of the best Scottish farms. Later importations included two other bulls and a number of cows of the best milking strains, such as those of Auchenbrain, Lessnessock and Andrew Mitchell.

Since 1908 Mr. Phaneuf has shown at Three Rivers, Quebec and Sherbrooke. He has met with good success, especially in the milking classes. At Sherbrooke last fall he won first in both the classes for three-year-old cows, that for dry cows and that for those in milk. At Quebec he won first and second in the three-year-old class, first in the two-year-old class and second in the aged class. At Three Rivers he won the herd prize with a herd comprised of: (1) the yearling bull Orange Douglas 2nd—50819—a nephew of Wolless. (2) Sunnyside Blythe Kate—36376—7 years, 65 lbs. milk per day; (3) Berthe—40439—4 years, 54½ lbs; (4) Lena—47543—3 years, 49½ lbs; (5) Bernadine—44028—3 years, 48 lbs. Two of his cows have been winners for three successive years.

The herd numbers over thirty head. The Oxford Down flock amounts to over twenty head. The Yorkshires include four or five brood sows. Mr. Phaneuf's farm won a silver medal in the Agricultural Merit Competition of 1900, with a score of 98½ points, including 15 out of 15 for live stock.

W. W. Phelps, South Stukely

Tamworths, Yorkshires

Mr. Phelps is working into a good herd of swine. He showed at Sherbrooke Fair this year and won the diploma with his Tamworths.

John H. Pibus, Jnr., "Hillside Farm", Knowlton

Holsteins, Leicesters

LEICESTERS are the specialty of Mr. Pibus, but he owns a Holstein bull, Joffre Korndyke, and four pure bred cows besides twenty-five well bred grade Holsteins. He began sheep-breeding ten years ago with two registered Leicesters, and now has a flock of twenty carefully selected registered ewes, headed by a ram from the imported stock of James Snell of Clinton, Ont. For the last six years his flock has stood at the head of the Brome County Fair. In 1916 it won the silver cup offered by the Bank of Commerce for the best flock of long-woolled sheep. Mr. Pibus adheres to the policy of weeding out the inferior females and keeping only the best of both sexes. Advertising, good feeding and constant study of the needs of the flock have also contributed to his success.

David Pringle, Huntingdon

Clydesdales, Ayrshires, Leicesters

From this Ayrshire herd Elsie of Winton Hill—23711—qualified in the R.O.P. in 1915 with a record of 12214 lbs. milk and 454 lbs. fat.

Mr. Pringle is usually one of the successful competitors in the Leicesters classes at Huntingdon Fair and in the horse ring at Ormstown, Huntingdon and Valleyfield.

R. S. Pringle, "Maple Leaf Farm", Huntingdon

Ayrshires

Mr. Pringle was working into an exceptionally strong herd, some of his cows having qualified with high records, when an accident in 1915 rendered it necessary for him to sell off his mature stock. He is building up again upon the foundation of their progeny.

John Purcell, Huntingdon

Leicesters

MR. Purcell's experience as a sheep breeder covers a period of about thirty years. The success he has attained is attested by his exhibition record of the past year. He showed at Ormstown, Valleyfield, St. Martine, Huntingdon and St. Louis and won the flock prize at all five of these fairs. He is wintering about twenty head. Mr. Purcell buys only from the best breeders and importers and keeps only the best quality of breeding ewes. He gets ready sale for all his lambs for breeding purposes and sells his wool to good advantage through the Huntingdon Wool Growers' Association.

John Racey, Lennoxville

Shropshires

Shows mostly in the Maritime Provinces.

Donat Raymond, "Raymondale Stock Farm", Vaudreuil

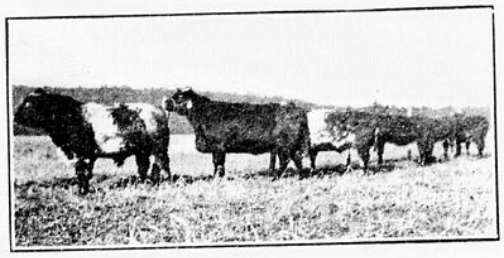
Holsteins

MR. Raymond's herd founded only two or three years ago has already developed into one of the leading Holstein-Friesian herds of the province. It now numbers forty-four head of the most aristocratic breeding and is headed by May Echo Sylvia's handsome son, Avondale Pontiac Echo by King Pontiac Artis. In an early issue we hope to give this herd the extended notice which it deserves. The Raymondale herd showed in fourteen classes at Valleyfield in 1916 and won twelve first prizes. Mr. Raymond is Secretary of the Quebec Division of the Holstein Breeders' Association and has his office in the Queen's Hotel, Montreal.

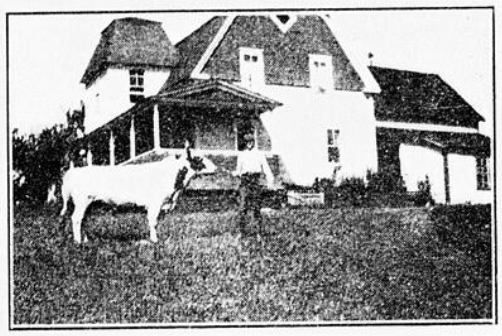
Charles Ruiter & Sons, "Pinehurst Jersey Stock Farm", Cowansville, R.M.D. No. 2

Jerseys, Silver Wyandottes

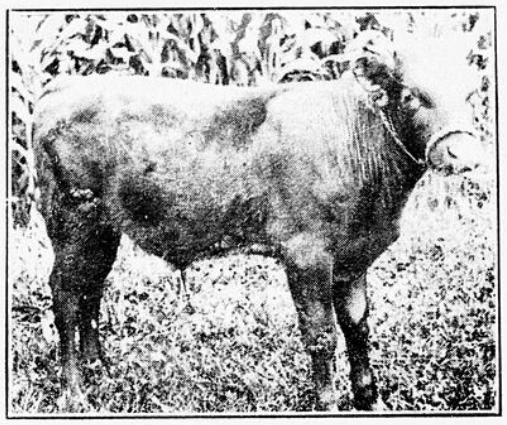
TWENTY-FIVE years ago Mr. Charles Ruiter began grading up his herd by using purebred bulls. Nine years ago the Messrs Ruiter laid the foundations of the present herd of fifty registered cattle by purchasing registered heifer calves. All but four of the present herd are homebred and the Messrs Ruiter are proud to win prizes with cattle of their own breeding. "They show their work cattle and work their show cattle." They can show a row of ten young cows all by the same sire, all prize winners and every one a grand dairy cow. Bulls, Canadian Fairy Boy 3730 and Trial's Sultan 126793 by T.S. Cooper & Son's Sultan's Golden Jolly 86180, champion of the National Dairy Show, Chicago. Cows making 560 lbs. butter as three-year-olds and 600 to 700 lbs. as four-year-olds. The Pinehurst Silver Wyandottes, also prize winners, dress out grand carcasses and pay good profits in eggs.



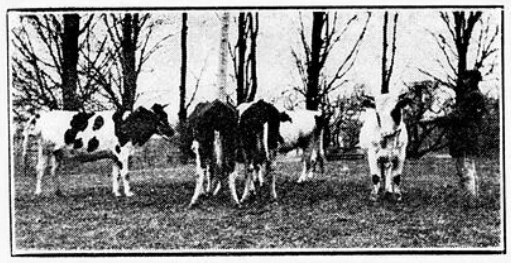
"Shorthorns" owned by Geo. Reg. Mooney.



Hobsland Monarch (imp.)—33278—Property of W. D. Parker & Son, Compton Station. This bull has won 1st at Three Rivers, Quebec and Sherbrooke.



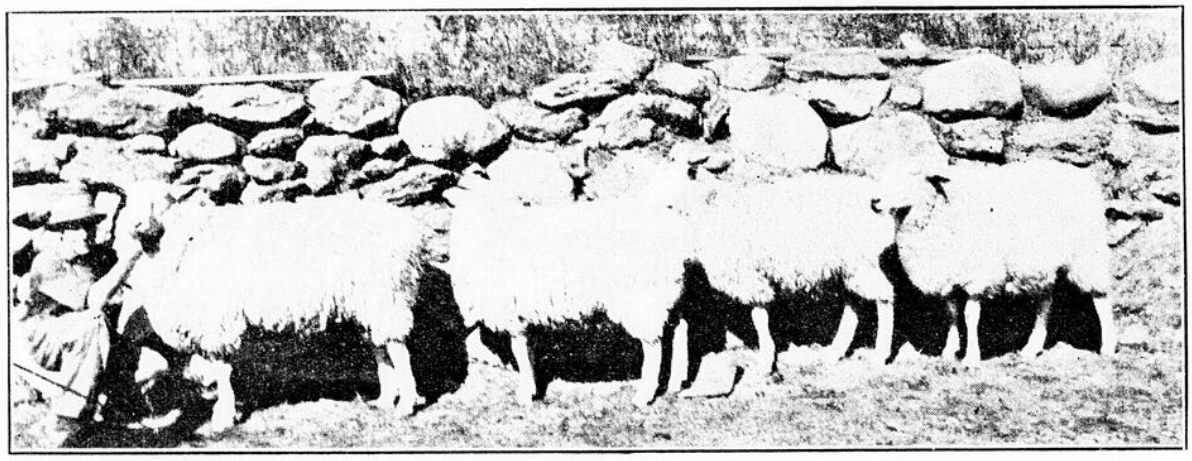
Shorthorn Bull Calf. Star Boy, 100212. Property of B. Jones, Jr., and Jones R. A. and Vale Perkins.



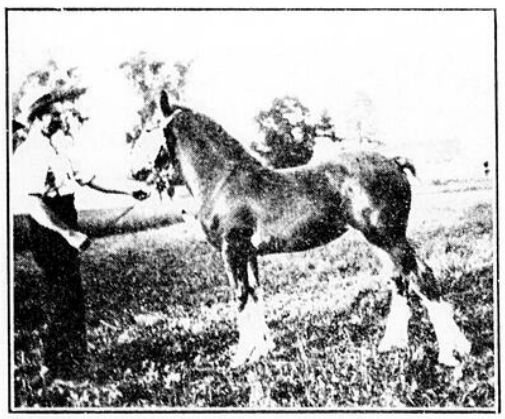
A Group of Maple Lawn Farm Holsteins, Property of L. H. Parker, Hatley.



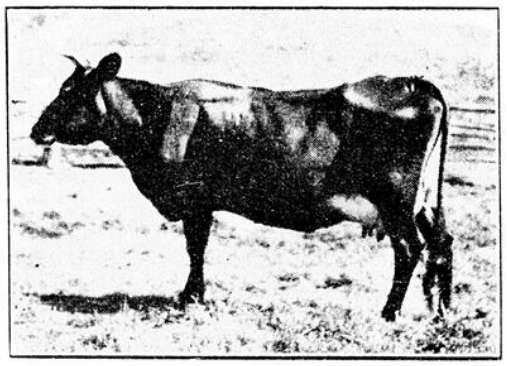
Avondale Pontiac Echo, Head of the Raymondale Farm Herd, Vaudreuil, D. Raymond, Proprietor.



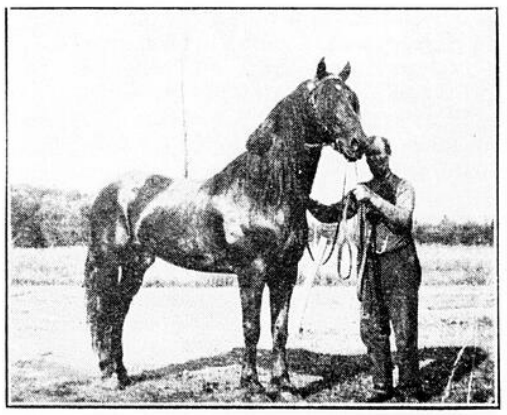
Winners of the Silver Cups offered by Bank of Commerce at Brown Fair, 1916, for best flock of long wooled sheep. J. H. Pibus Jr., Hillside Stock Farm, Knowlton, Que.



Aberdeen's Grace (Sire, Lord Aberdeen), owned by R. Todd, Geneva.



French Canadian Cow, Morlaisienne, 2617 R.O.P., 7794 lbs. milk, 366 lbs. fat: adult class. Property of Ferd. van Bruyssel, Beaupré.



French Canadian Stallion, Duke of York. Property of C. E. Standish, Ayer's Cliff.

THE FEEDING OF DAIRY CATTLE

At Macdonald College

By H. Barton, B.S.A., Professor of Animal Husbandry

IN compounding rations for our College herd we do not consider nutritive ratio as such. The matter of nutritive ratio and its control are incidental to other considerations. The two features on which we base our ratio allowance are digestible protein, and, what may be called the general substance and nutrition of the ration. Our practice is to decide upon the general character of the ration, due consideration being given to market price, availability, mixture, bulk, palatability, etc. Our next step is to standardize a ration within the above general selection as made in accordance with our judgment. In this attempt at standardization our object is merely to arrange, in terms of the feeds selected, a working guide in accordance with requirements which have been determined.

For the past four years we have employed the Scandinavian Feed Unit system of determined requirements. This system was adopted for the following reasons: Its calculation and employment are simple; it is the outcome of extensive tests and is based on actual practice; it affords a ready means of valuing and comparing feeds; we wanted to give it a trial.

It has given us splendid satisfaction throughout and I would not think of substituting any other system for it except the one recently published as the Modified Wolff-Lehmann Standard. This new standard is arranged on much the same basis as the Scandinavian in that protein minimum and total digestible nutrients are its two features. It is more specific, more scientifically correct, and more easily adjusted with accuracy to our conditions. On the other hand it requires much more calculating and it must be remembered that no standard ration, be it ever so specific and accurate, can serve as anything but a general guide when employed even for the individual cow, and to a much greater degree is this true when applied to the herd as a whole. Herein is where the exacting standard becomes impracticable and may even be misleading because of its specific teaching.

Our cows are fed twice daily, each feeding including the full ration of silage, roots, hay and meal, the hay being given last each time. The evening's roots are fed before milking to simplify feeding at night from a labor standpoint. The cows are watered after each feed and have water before them at night in continuous troughs.

For ration allowance the herd is divided into groups based on weight and milk production. These groups are arranged to include the majority of the herd and averages are taken within them. Three divisions are made on the basis of weight and three on the basis of milk, so that nine groups are arranged.

This year our ration consists of corn silage (well matured), mangels, mixed hay (clover and timothy), wheat bran, gluten feed, dried brewers' grains, oatmeal feed (high grade), and nutted oil cake. The rations are made up and given the herdsman in the form of a guide sheet as below. It will be noted roots and oil cake are not included in the rations for low milkers.

The above meal ration is costing $29 per ton.

DAIRY CATTLE RATIONS

I Division—Cattle 1050 lbs. and over—Average 1100 lbs.

1	*Milk* 35 lb. & over Av. 40 lb.	2	*Milk* 25-35 lb. Av. 30 lb.	3	*Milk* Under 25 lb. Av. 15 lb.
Silage	35 lb.	Silage	35 lb.	Silage	42 lb.
Mangels	25 "	Mangels	25 "	Hay (mixed)	8 "
Hay (mixed)	10 "	Hay (mixed)	9 "	Meal mixture	5 "
Bran 3 lb.		Meal mixture	8 "		
D.B. Grains 3 "	Meal mixture 10 "				
Oat feed 3 "					
Gluten feed 2 "					
Oil Cake	½ "				

II Division—Cattle 900 to 1050 lbs.—Average 950 lbs.

1	*Milk* 35 lb. & over Av. 40 lb.	2	*Milk* 25-35 lb. Av. 30 lb.	3	*Milk* Under 25 lb. Av. 15 lb.
Silage	35 lb.	Silage	35 lb.	Silage	38 lb.
Mangels	20 "	Mangels	20 "	Hay (mixed)	7 "
Hay (mixed)	9 "	Hay (mixed)	8 "	Meal mixture	5 "
Meal mixture	10 "	Meal mixture	8 "		
Oil Cake	½ "				

III Division—Cattle under 900 lbs.—Average 800 lbs.

1	*Milk* 35 lb. & over Av. 40 lb.	2	*Milk* 25-35 lb. Av. 30 lb.	3	*Milk* Under 25 lb. Av. 15 lb.
Silage	30 lb.	Silage	30 lb.	Silage	35 lb.
Mangels	20 "	Mangels	15 "	Hay (mixed)	7 "
Hay (mixed)	9 "	Hay (mixed)	8 "	Meal mixture	4 "
Meal mixture	10 "	Meal mixture	8 "		
Oil Cake	½ "				

Exception—Heifers in full milk may require an allowance of oil cake when not giving enough milk to place them in the classes above which would entitle them to it.

—Extra heavy milkers and extra heavy cows will have special allowance based on Group I. Division (1).

AYRSHIRES SELL WELL IN SCOTLAND

ONE of the most noted Ayrshire herds in Scotland is that of Mr. Thos. Barr, *Hobsland*, Moncton. In fact this herd is world famous, as many of the greatest Ayrshires of the United States, Canada, Japan and other countries have been selected from this herd. He now holds an Annual Sale of young bulls and cows. This was held on December 2nd. 1916, and eighteen bull calves realized $5,135.00., an average of $285.00. The highest price, $1,500. was paid for "HOBSLAND'S SCOTLAND'S BEST", a December 1915 calf by "NETHERLAND SCOTLAND'S YET" out of "HOBSLAND'S JEAN" whose record in forty-eight weeks as a three year old, was 11,250 lbs. of milk testing 4.1%. Apparently there was keen competing for this bull. The dam of this youngster is a full sister of the renowned champion "HOBSLAND'S PERFECT PIECE", to which "SCOTLAND'S BEST" bears a strong resemblance. The next highest price was $430.00, paid for "HOBSLAND CORONET", a March calf of "HILLHOUSE MAJESTIC". The dam "HOBSLAND'S DOCKINS" has a record of 8,460 gallons of milk, testing 3.81% in forty-three weeks. One of her daughters was sold at an auction sale in the United States for $2,000. The highest priced cow sold for $220.00.

There have been a number of sales of Ayrshires in Scotland of late at exceptionally good prices.

W. F. STEPHEN

Huntingdon, Que.,

December 27th., 1916.

AYRSHIRES IN THE TROPICS

IN considering the breeding of livestock in the tropics there are two important topics which must always be taken into consideration—adaptability and constitution. There have been many failures following the importation of cattle into South America because these two qualifications have been ignored.

The mountainous character of the country and the decidedly humid atmosphere make a condition which is altogether different from the climate to which the breeds of the United States and Europe are accustomed. It is for this reason that all imported cattle should have an especially strong constitution and should have inherent qualities which would permit them to adapt themselves to the new condition of the tropics.

In the Republic of Colombia many importations have been made from time to time of Holsteins, Durham, Rod Polled and Angus cattle. These importations did not give satisfactory results because the breeders had considerable difficulty to get their animals acclimated. On account of these many instances of failure we decided to try the Ayrshire because it was recommended to us as having constitutional vigor and the quality of adapting itself to tropical climate. So far I may state that we have been successful with this breed of cattle, and many of our neighbors are following our example and importing the breed. The native breeders are constantly improving the native cattle by crossing them with imported Ayrshires, and the result has been a remarkable increase in milk production and good conformation.

NOTE — We have always claimed that Ayrshires thrive and produce well under any conditions and especially under extreme conditions of either cold or heat. The above proves our contention.

W. F. S.

CANADIAN SHEEP BREEDERS' ASSOCIATION

The following directors were elected to the Canadian Sheep Breeders' Association for 1917:

Maritime Provinces	Burder Goodwin, Baie Verte, N. B.
Quebec	Jas. Bryson, Brysonville, Que.
	Prof. H. Barton, Macdonald College, P.Q.
	V. Sylvestre, Clairvaux de Bagot, Que.
Ontario	(To be appointed)
Manitoba	W. H. English, Harding, Man.
Saskatchewan	F. T. Skinner, Indian Head, Sask.
Alberta	H. J. A. Evans, Lacombe, Alta.
British Columbia	J. F. McCutcheon, Sardis, B. C.

M. W. Wade, Secretary, Canadian Sheep Breeders' Association, Parliament Buildings, Toronto, Ont.

THE DAIRY

AN ACT TO AMEND THE REVISED STATUTES, 1909, RELATING TO THE MANUFACTURE OF DAIRY PRODUCTS

7 GEORGE V, CHAP. 24

(Assented to 22nd December, 1916)

HIS MAJESTY, with the advice and consent of the Legislative Council and of the Legislative Assembly of Quebec, enacts as follows:

1. Article 2031b of the Revised Statutes, 1909, as enacted by the act 1 George V (1st session), chapter 16, section 1, and amended by the act 5 George V, chapter 31, section 9, is again amended:

a. By replacing paragraph 2 thereof by the following:

"2. The words "butter factory" mean any establishment to which milk or cream from cows of herds belonging to at least three persons, is brought, either for sale in its natural state as one or the other, or to be converted into butter, wholly or partly, in such establishment or elsewhere.";

b. By striking out the word "cheddar" in the third line of paragraph 3 thereof.

2. Article 2031d of the Revised Statutes, 1909, as enacted by the act 1 George V (1st session), chapter 16, section 1, is amended by striking out the words: "approved by the board of directors of the executive committee of the Dairy Association of the Province of Quebec", in the third and fourth lines of the second paragraph thereof.

3. This act shall come into force on the day of its sanction.

THE COW'S HIGH COST OF LIVING

IT is too late in the day to solve the problem of the cow's present high cost of living. It may be possible, however, to offer some solution for the year to come.

The problem is a complex one involving particularly crop production and purchase of commercial feeds. Five important principles govern the cow's bill of fare.

1st.—The raising of all roughage required and the adjusting of herd numbers in accordance with the roughage.

2nd.—The raising of roughage best suited for milk production, of which silage, clover and roots are good examples.

3rd.—The raising of heavy yielding grain crops, mixed grain crops if possible.

4th.—The selecting of commercial feeds judiciously.

5th.—The buying of commercial feeds in bulk and in the best market season.

Any one of these might well form a subject in itself for discussion, but it is not my present intention to analyze them fully. The present moment, however, seems most opportune for at least some reference to the last mentioned. Every one is aware that this is an unprecedented year for high priced feeds, and while this year is no great exception to a great many years in so far as price tendency of feeds is concerned, it is a very good one for emphasizing market possibilities because they can be made very impressive. A brief survey of the prices for a few of our more important milk-producing feeds during the present season will present some startling revelations:—

	Aug. 1916 Per ton	Jan. 1917 Per ton
Bran,	$22.00-$24.00	$31.00-$33.00
Shorts,	24.00- 26.00	33.00- 36.00
Middlings,	26.00- 28.00	38.00- 50.00
Glutenfeed,	30.00	38.00- 40.00
Oil cake,	34.50	48.00
Oats,	.52c per bus.	.68c per bus.
Moulée,	30.00- 32.00	43.00- 46.00

The above figures speak for themselves. The argument so often advanced is: We can't afford to spend the money on such high cost feeds. This, however, is one excuse behind which farmers are sometimes too ready to hide. It is not so much very often that the farmer has not got it, but rather that he does not want to spend it. In most things this is a very abnormal attitude, but when it comes to the matter of feed purchase it is undoubtedly a very short-sighted one. 33 1-3% return is more than most people can reasonably expect on any investment. Perhaps, did all farmers attempt to buy in the season of low prices the price would go up, but that is a bridge that may be crossed when they come to it. Meanwhile, there is an opportunity for those who first arrive.

H. BARTON,

Macdonald College

THE EUREKA MILKING MACHINE

On Trial in Holland

THIS type of milking machine is quite different from the systems with which our dairymen are familiar. The machines come originally from Denmark and in 1914 arrangements were completed to introduce this make to our Canadian farmers. The war made it necessary, however, to postpone this campaign.

The whole apparatus consists of a set of four teat cups which exercise intermittent pressure on the teats; the milk is caught in an open milk pail placed under the teats. The teats are surrounded by a heavy rubber tube placed between two metal plates. By a purely mechanical arrangement, without suction, or pressure, tanks or tubes, first the upper half of the teat cup is pressed together, and then the lower half. By this manipulation the teat is emptied out. Then the pressure is suddenly withdrawn and the process is repeated. The distance between the cups for the fore and hind teats can be adjusted, and in the trials it was found important to correct this distance weekly. If a cow is restless it is a sure sign that the pressure on the teats is too great and this must be attended to immediately otherwise the steel cable may break, or the teats become inflamed. Two broad bands over the back of the cow keep the apparatus in position.

To operate the machine it is only necessary to give a steel axle 74 revolutions per minute, and it has been found possible to run four machines at the same time by means of hand power. Usually a ½ h.p. engine will be sufficient, but at times when cows were hard to milk 1¼ h.p. had to be used. The tests were conducted in winter and early spring with two groups of eight cows. They were fed on a ration of grass-silage, a little hay, 7 lbs. corn meal, 2 lbs. oilcake and 2½ lbs. of sesame cake. A preliminary test conducted during December in which both groups were hand milked gave the following results:—

	Milk	*Fat*	*Total solids.*
Group I (machine milk)	242 lbs.	7.56 lbs.	27.4 lbs.
Group II (hand milk)	239 "	7.24 "	26.3 "

In the last week of December the actual test started, in which Group I was milked with the Eureka milking machine. From the very first numerous difficulties were encountered. Two cows could not be milked with the machine. In one the distance between the teats was too great and no satisfactory adjustment could be made; and in the other cow the teats were too small and pointed outward. Similar troubles were mentioned in reports of Danish experiments. The machines were repeatedly out of order; the steel cables would rust and break and also where the cables were soldered to the plate numerous breakages occured.

The test lasted nearly three months and gave the following results:—

	Milk	*Fat*	*Totals solids.*
Group I (machine milk)	225 lbs.	6.66 lbs.	25.3 lbs.
Group II (hand milk)	227.5 "	6.11 "	24.6 "

Finally both groups were milked by hand for a whole month with the following results:—

	Milk	*Fat*	*Totals solids.*
Group I (machine milk)	220 lbs.	6.11 lbs.	24.6 lbs.
Group II (hand milk)	213.5 "	5.4 "	22.7 "

We see that in this final test there was such a falling off in yield in the hand milked group that we must take this into consideration when judging the results obtained in the main trial. The cows of the hand milked group were reducing faster in yield than the animals from the first group, and thus for proper comparison we have to add about 3% to the totals of Group II. Then we find that machine milking gave a slight reduction compared with hand milking, but not sufficient to consider it a serious drawback of machine milking. Hand stripping was here again very important as the strippings amounted daily to 2½ lbs. per cow,—a much larger quantity than was found when using suction milkers.

The time occupied in milking the animals was very short, and was reduced still further as the milker became more expert.

February 4th:

100 lbs. in 29 minutes, 6 cows, 2 machines.

February 20th:

100 lbs. in 36 minutes, 6 cows, 2 machines.

February 21st.:

119 lbs. in 28 minutes, 6 cows, 2 machines.

=2 lbs. of milk per minute per machine.

March 1st.:

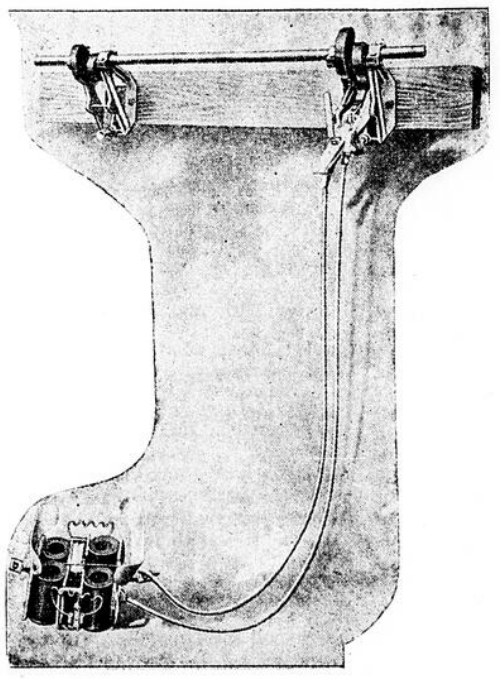
109 lbs. milk in 49 minutes, 6 cows, 1 machine.

March 7th:

109 lbs. milk in 48 minutes, 6 cows, 1 machine.

=2.3 lbs. of milk per minute per machine.

This apparent reduction in efficiency of the machines when several are used is due to the fact that the milker can give more attention to one machine. Besides, when several machines are used some will not be milking all the time. In the trials in Denmark four and five machines were used, and the results were as follows:—



Eureka Milking Machine.

4 machines:

1.3 lbs. of milk per minute per machine.

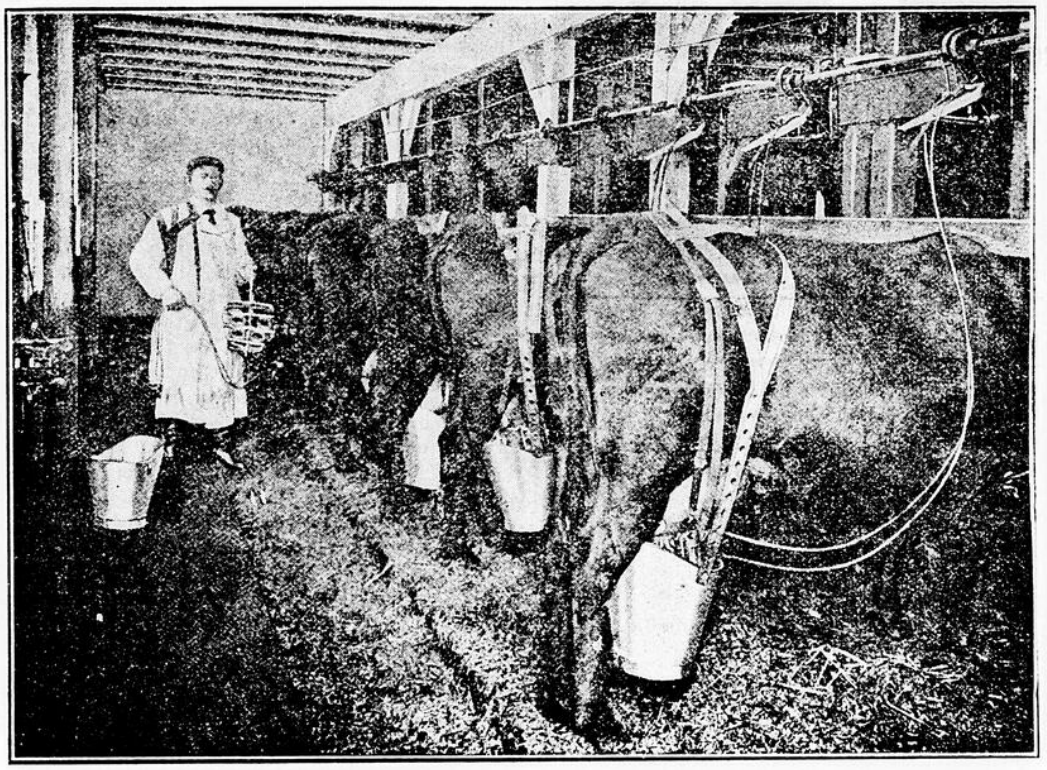
5 machines:

1 lbs. of milk per minute per machine.

One exeperienced milker can handle 3 machines at the same time and in this way one milker can do the work of two hand milkers.

The Eureka machine is cheaper than the suction milker and will appeal on that account to our farmers when introduced in this market. But the Dutch and Danish investigators agree that although the machines show great possibilities the present models are not really suited for daily use and need much improvement.

J. VANDERLECK



Eureka Milking Machine in use on the Farm.

At the same time that the Eureka machine was tried out in Holland it received a lengthy test in Denmark and the results obtained there were very much the same as set down in this paper. Besides the Danish investigators observed the effect of the machines on the different cows. Some animals would take quietly to the machines, milk easily and completely dry in a short time, whilst others could not be milked at all or left three to five pounds of strippings in the udder. The machines were better suited also for small cows than for the large Holsteins.

As this machine has no suction system or rubber tubes it was expected that the milk produced in this way would be superior to other machine milk and also to hand milk, but the actual bacterial counts were disappointing:—

	Machine milk bacteria per c.c.	Hand milk bacteria per c.c.	
February 7th.,	61,600	23,100	Cows dirty.
" 9th,	25,300	10,560	
" 11th.,	20,900	5,300	
March 1st.,	11,260	17,600	udders washed.
" 7th.,	18,656	22,176	udders washed.
" 14th.,	28,820	27,040	
" 15th.,	13,720	14,430	udders washed.

As a rule the machine milk contained more bacteria than the hand drawn milk and only when the udders were carefully washed was the bacterial count of the machine slightly lower.

The directions for cleaning the Eureka machine parts, as given by the manufacturers, are very unsatisfactory. When the machines were treated according to these instructions a bacterial count of more than 400,000 bacteria per c.c. was repeatedly recorded. When the machines were cleaned oftener the various parts rusted away.

The machine itself weighs approximately 5 lbs., but with steel cable and other parts to be carried from cow to cow, more than 16 lbs., certainly too heavy a weight to be handled regularly by a woman or boy.

WHEN MILK IS MADE

MOST of the milk is manufactured in the udder during milking process. Just how all different ingredients are secreted and mixed together in the cow's udder probably never will be known. Inside the cow's teat is a hollow tube; this tube runs up to a chamber known as milk cistern or milk reservoir. The average capacity of this milk cistern is about one-half pint. All the milk that is already made when one starts to milk lies in these milk cisterns. The cow does not have complete control over the muscles of the teat, so one can usually draw a pint to a quart of milk when he sits down to milk old Bossy in spite of her efforts to hold it back. Tiny ducts radiate in all directions from the milk cistern to the milk glands proper in the upper part of udder. These ducts branch in all directions. At the point where these branches join the main duct is a muscle over which the cow has absolute control. The milk is secreted in gland tissue, a spongy mass of cells and blood vessels, and must flow down through the milk ducts to the milk cistern before it can be drawn from the udder. Hence by controlling muscles in milk ducts, a cow can hold up or let down her milk at will. The new milker usually gets only a pint or quart in the milk cistern until the cow finds out he means business, then she lets down her milk. The question is often asked if the milk is not all made in the udder, what makes the udder get larger before milking? This seems to be due to a sort of piling up of materials from which the milk is made in the gland. It is the milking process only that stimulates the secretion of this milk by the gland. *Rural New-Yorker*

The two British sailors had secured tickets to the dog show, and were gazing upon a Skye terrier which had so much hair that it looked more like a woollen rug than a dog.

"Which end is 'is 'ead, Bill?" asked one.

"Blowed if I know," was the reply. "But 'ere, I'll stick a pin in 'im, and you look which end barks."

AYRSHIRE FIELD DAY AT "EVIE STOCK FARM"

THROUGH the kindness of Mr. J. J. Ballantyne of Montreal, one of the proprietors of "Evie Stock Farm" at Chesterville, Ont., the members and friends of the Dundas Grenville Ayrshire Breeders' Club enjoyed an interesting day at this farm on Tuesday, December 12th.

Mr. Ballantyne was accompanied from Montreal by Prof. Barton, of Macdonald College, W. F. Stephen, Secretary Canadian Ayrshire Breeders' Association, of Huntingdon, Que., D. Raymond, Manager, Queens Hotel, Montreal, who by the way is a noted Holstein breeder, Mr. Allison and others D. Drummond, Chief Inspector of R.O.P., Ottawa joined the party at Finch. The party was met at the station by Wesley Hamilton of Chesterville, and Arthur Christie of Winchester, President and Secretary of the Dundas-Grenville Club. Autos were provided to convey the party to "Evie" farm. A stop was made at the Allison Stock Farm, where this splendid Holstein herd was inspected, and the noted "May Echo" was seen for the first time by some of the party. Needless to say the herd was greatly admired, and much could be written of it would space permit.

The party, which had increased to about thirty, among them being the Allison Bros., and a few other Holstein breeders, including H. T. Cunningham of Huntingdon, Que., arrived at "Evie Farm" about noon. Here more members of the Club, including the Vice-President, Elgin Montgomery of Mountain, were gathered.

After a sumptuous luncheon, the host welcomed the guests and called upon Prof. Barton, D. Drummond, and W. F. Stephen, who made brief addresses and each emphasized the value of Club and Record work. After a vote of thanks to the host, moved by Mr. Hamilton and seconded by Mr. Christie, and the singing of "For He's a Jolly Good Fellow" and "God Save the King", the party proceeded to the stables to inspect the "Evie Ayrshires". They found a typical and breedy lot of 13 Ayrshire heifers three years old, also six heifers and four bull calves all dropped since last February. The heifers had been selected in Scotland, largely from the Crawford herd, a year previous by Alex. Cameron, the present herdsman, and they and their progeny prove his capability not only as a judge but also as a herdsman, for the stock was in fine working condition. All these heifers have been running in the R.O.P. test, and will close their year with most creditable records, several having given over 8000 lbs. milk with a test of considerably over 4.% fat in seven and eight months. In fact the average test of the whole bunch will be nearly 4.5%.

In studying out the pedigrees of these heifers it is at once seen that they have a long line of record ancestry. "Chapmanton Baronet" (Imp.), by "Sir Netherton Neptune" is the herd header. He is one year old, shows strong character for his age, and is of excellent type.

Prof. Barton selected a pair of heifers on which to demonstrate, and gave a most excellent address, emphazing the value of character, type and utility, also the wisdom of breeding along certain lines rather than following indiscriminate breeding. His address was full of thought for breeders of dairy cattle, and contained much sound advice. He was followed by W. F. Stephen who advocated the selection of sires true to type and from record ancestry.

Altogether the day was a very profitable one and only the heavy snow storm, and bad roads prevented many more from attending. It was generally conceded by those present that such gatherings were most helpful, and an impetus to the club work.

POULTRY

POULTRY SHORT COURSE AT MACDONALD COLLEGE

THIS course of two weeks is intended to assist in supplying the demand for practical knowledge combined with a lecture course on the more important phases of poultry culture.

The lecture course will cover every branch of poultry-keeping, and will also include lectures on crop production and soil management as related to poultry raising, farm management, the growing of small fruit, care of the orchard, and demonstrations on trussing birds for the table, roasting and serving of poultry, and the value of eggs in the diet.

Students are expected to do practical work in feeding and watering fowls, also operating incubators, from 8.00—9.00 a.m., 1.00—2.00 and 4.00 to 5.00 p.m. Lectures are given daily from 9.00 a.m. to 12 noon and from 2.00—4.00 p.m.

The course commences on Monday, February 19th., 1917 at 2 p.m.

There will be a registration fee of $1.00. No other fees will be charged.

The programme is as follows:—

	1917	
Mon.	Feb. 19th.	2.00 p.m.—"The Classification of Poultry"—M. A. Jull, Manager and Lecturer, Poultry Department.
		3.00 p.m.—Roll call and assign work.
Tues.	Feb. 20th.	9.00 a.m.—Address—Dr. F. C. Harrison.
		9.15 a.m.—"Poultry Farm Management"—Prof. Barton, Professor of Animal Husbandry.
		10.30 a.m.—"The Embryology of the Chick"—Prof. Lochhead, Professor of Biology (148).
		2.00 p.m.—Illustrated Lecture — A. G. Taylor, Assistant, Poultry Department.
		3.00 p.m.—"The Fowl"—M. A. Jull.
Wed.	Feb. 21st.	9.00 a.m.—"The Anatomy of the Fowl"—Professor Lochhead (148)
		10.30 a.m.—"Incubation"—M. A. Jull.
		2.00 p.m.—"Soils and Crops"—Prof. Murray, Professor of Cereal Husbandry.
		3.00 p.m.—"Brooding"—A. G. Taylor.
Thurs.	Feb. 22nd.	9.00 a.m.—"Parasites and Their Control"—Prof. Lochhead (148)
		10.30 a.m.—"Feeding the Chicks"—M. A. Jull.
		2.00 p.m.—"Care of The Growing Stock"—A. G. Taylor.
		3.00 p.m.—"Feeding The Laying Stock"—M. A Jull.
Fri.	Feb. 23rd.	9.00 a.m.—"Preparing and Shipping Fowl for The Market"—J. G. Morgan, Provicial Poultry Instructor, Quebec, Que.
		10.30 a.m.—"Poultry Houses"—A. G. Taylor.
		2.00 p.m.—"Soils and Crops"—Prof. Murray.
		3.00 p.m.—"Opportunities For Poultry Raising in Quebec"—J. G. Morgan.
Saty.	Feb. 24th.	9.00 a.m.—"Killing and Plucking"—W. A. Maw, Macdonald College.
		10.30 a.m.—"Market Poultry"—M. A. Jull.
Mon.	Feb. 26th.	9.00 a.m.—"Breeding For Egg Production"—Geo. Robertson, Central Experimental Farm, Ottawa.
		10.30 a.m.—"The Apple Orchard"—Prof. Bunting, Professor of Horticulture.
		2.00 p.m.—"The Selection of Breeders"—Geo. Robertson.
		3.00 p.m.—"Turkey Raising"—A. G. Taylor.
Tues.	Feb. 27th.	9.00 a.m.—"Poultry Hygiene"—Dr. McEwen, College Veterinarian.
		10.30 a.m.—"Mating Standard Bred Fowls"—B. R. Austin, Manager, National Farm, Point Fortune, Que.
		2.00 p.m.—"The Preparation of Poultry For The Table"—Household Science, (101)
Wed.	Feb. 28th.	9.00 a.m.—"Duck Raising"—A. G. Taylor.
		10.30 a.m.—"Small Fruit Culture"—Prof. Bunting.
		2.00 p.m.—"How To Perform a Post-Mortem"—Dr. McEwen.
		3.00 p.m.—"Eggs"—M. A. Jull.
Thurs.	March 1st.	9.00 a.m.—"The Marketing of Eggs"—M. A. Jull.
		10.30 a.m.—"Poultry Diseases"—Dr. McEwen.
		2.00 p.m.—"The Preparation of Eggs For The Table"—Household Science (101)
Fri.	March 2nd.	9.00 a.m.—"Goose Raising"—A. G. Taylor.
		10.30 a.m.—"Capon Production"—W. A. Maw.
		2.00 p.m.—"Poultry Diseases"—Dr. McEwen.
		3.00 p.m.—"Review"—M. A. Jull.

Those wishing to attend this course should fill in and return application form to—

THE PRINCIPAL,

Macdonald College, Que.

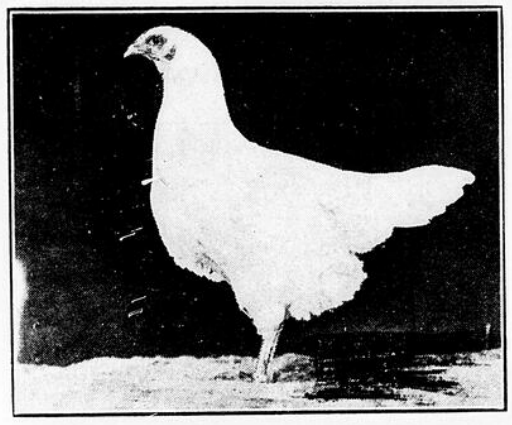


Fig. 1.—A good type of hen. She possesses quality and stamina; her body is of good length, depth and width, or speaking in dairy terms of milk production this hen has capacity.

IMPROVING THE FARM FLOCK

BETTER methods of feeding, housing and general management will do much towards increasing egg production in all breeds. Some breeds will lay better than others, when handled in exactly the same manner, and certain strains of the same breed or variety will produce more eggs than other strains.

A laying hen should have plenty of width and depth of body with a long breast-bone or keel. Type and constitution alone, however, will not produce eggs. There are other factors of greater importance, and the ability of a hen to lay eggs depends upon her breeding.

The majority of eggs in the Province of Quebec are produced in March, April, May and June; more eggs are produced at this time of the year than the market demands, and although the cost of production is low, they are worth less than at any other time. Consequently the profit on a dozen eggs laid in the spring months is lower than at any other time. What is desired is a hen that will not only lay 180 or more eggs in a year, but one that will lay well during the winter months, for winter producers are the most profitable.

The ability to lay eggs is inherited, and it requires careful and consistent selection to improve production. The heaviest yearly producers lay a good number of eggs between October and November, and these are the hens which should be selected as breeders. Spring production is of little value in determining the best producers. Heavy winter producers are the best breeders, providing they have good health and constitutional vigor.

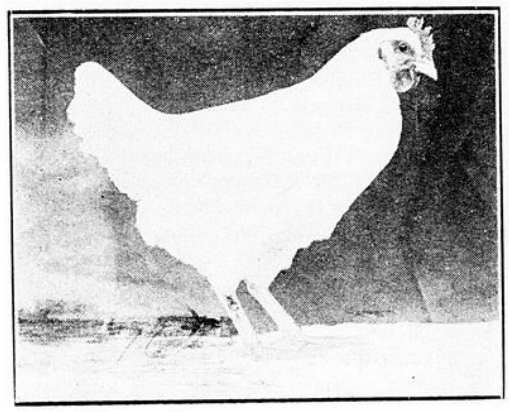


Fig. 2.—A pullet with a masculine appearing head which is very objectionable.

The selection of heavy producing females may not improve the egg production of the subsequent flocks to any extent. It has been found that the male has a greater influence in transmitting the ability to lay a good number of eggs in the winter months than has the female. The hen transmits the ability to lay a normal number of eggs during the spring season, but she cannot transmit the ability to produce a large number of eggs in the winter season. This ability is transmitted by the male, and he should come from a heavy producing hen. The problem, then, is to select the heaviest winter producers and mate them with a male whose mother was known to have been a heavy winter layer. The selection of the male is very important, and it is only by using a male bred from a good winter layer that best results can be secured.

The question of improving egg production has not been given the attention that it deserves on the part of farmers and others, but it is such an important question that a few practical suggestions should be of some benefit.

Constitutional vigor in laying stock is very desirable but at the same time the laying stock should not possess coarse features or be lacking in quality. In females, particularly, should there be no coarse-

ness about the herd; a hen with masculinity showing in the head is usually a poor layer.

Among Plymouth Rocks, Wyandottes, Rhode Island Reds and similar breeds it has been found that the best layers average less than standard weights. On the other hand, among Leghorns and similar breeds the heaviest layers usually average above the standard weights.

A heavy laying hen usually has an active nervous temperament. She is busy first thing in the morning and is one of the last to go to roost. She shows no evidence of being lazy.

It has been demonstrated repeatedly that the birds which begin laying early in life make the best annual producers. Prof. James Dryden maintains that heavy producers can be selected on the basis of egg production during the early laying season. "The egg record in the first three months' laying (November, December, January) will enable the poultryman to pick out the hens that will, on the average, prove to be the best layers during the year".

The numerous egg-laying contests have established the fact that the production in the pullet year is nearly always greater than in subsequent years. It is nearly always the case that hens which are unprofitable during the first year will be more unprofitable during the second year.

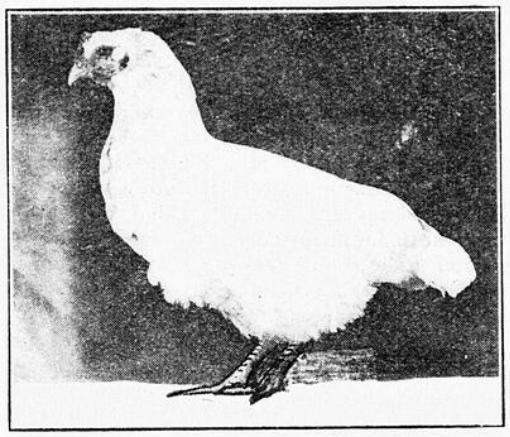


Fig. 3.—A hen with a very poor constitution. She is shallow-breasted and narrow through the body and is not the type of hen found among heavy producers.

Poultry breeders are beginning to find that the period of profitable production can be lengthened considerably. Birds are being produced in different parts of the country which lay over 180 eggs in their third year. Dryden says: "In one case 664 eggs were laid in three years and 819 in four years by the same hen. In her fifth year she reached a total of 982 eggs. At the beginning of her sixth year she passed the 1,000-egg mark. Another laid 958 in five years. Remarkable are the records of hens, B42 which has laid 834 in four years and of B14, 827 in four years". This shows that maximum results in egg production have not yet been obtained and the problem of breeding the most profitable hen still remains.

M. A JULL

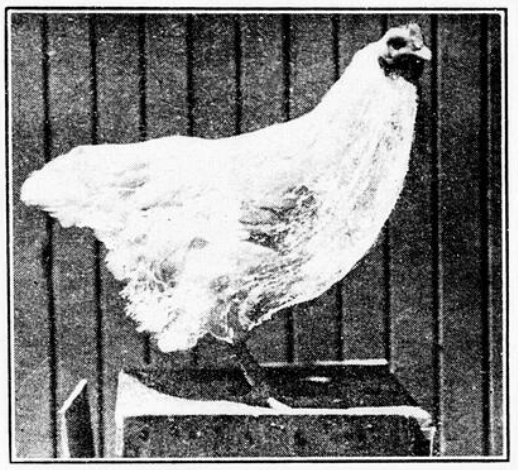


Fig. 4.—Here is a type of hen with a good constitution but one that is inclined to get excessively fat instead of laying eggs. Her features are coarse and she represents the unprofitable feeder.

WOMAN'S WORLD

HOUSEHOLD SCIENCE EXTENSION WORK

Megantic County

BEGINNING January 9th meetings in the interests of the Macdonald College Household Science Extension work were held in Megantic County, at Maple Grove, Millfield, Inverness and Leeds. Miss Campbell, Demonstrator for the Quebec Homemakers' Clubs, addressed the meetings. Although the weather was cold and stormy, the average attendance was thirty eight. Clubs were organized at Maple Grove, Millfield, and Leeds. The following officers were appointed:—

Maple Grove:—

President—Mrs. Thos. Wood
Vice President—Mrs. J. McRaynolds
Sec. Treasurer—Mrs. Henry Annesley

Millfield:—

President—Mrs. Geo. Jamieson
Vice President—Mrs. Alfred Jamieson
Sec. Treasurer—Miss Florence Mooney

Leeds:—

President—Mrs. A. Lefebvre
Vice President—Miss H. A. Hume
Sec. Treasurer—Miss H. E. Whyte.

These are the first Quebec Homemakers' Clubs to be organized in Megantic. Judging from the interest and enthusiasm shown at the meetings and the capability of the officers, there is every reason to hope that this branch of the College extension work will be well carried on in this county.

Miss Campbell wishes to thank the school Commissioners for their kindness in arranging for the meetings at the school houses, and all the people who gave her as a Macdonald College reprensentative so friendly a welcome.

FOODS AND FOOD VALUES

Lesson VII

The Home Breakfast. Growing Children require a Good Breakfast. Breakfast Preliminaries. Breakfast Plans

WHAT do we like for breakfast? Whims and fancies in regard to food likes and dislikes should not be encouraged as a rule, but the individuals who present themselves at the breakfast table to-day demand "a breakfast I like."

In order to please all a menu suited to each individual appetite must be oftentimes considered. For this reason the preparation of the home breakfast is a greater task than that of other meals. Some breakfast is essential; the long fast from supper time until the breakfast hour means that the food tract is quite empty and consequently food must be supplied for body activities and to give energy for the day's work. Those who have a heavy dinner at the close of the day may require a lighter breakfast than those who have a light supper at night. Growing boys and girls require a wholesome, generous, well-cooked breakfast in order that they may grow steadily and do efficient school work. Men and women who go out to a vigorous day's work demand a heavier breakfast than those who have light indoor occupation.

The winter season usually brings an increased appetite for food so that it is during the other seasons of the year that the homemaker is burdened with the task of arousing appetite for the first meal of the day. Mothers cannot be too careful in satisfying themselves that their daughters have had a good breakfast before leaving for the school-room. "Food first, then education" is the natural and correct idea. In cases of digestive derangement some food in a liquid form, e.g. a cold, well-flavored egg-nog, a small bowl of well-made gruel, and a soda biscuit, or a cold glass of orange juice followed later by a slice of crisp toast and a cup of weak hot cocoa might take the place of a breakfast.

Suggested Aids to Breakfast Appetite:—

"Early to bed, early to rise," followed by a bath of some kind if at all possible.

A glass or two of cold water—the internal bath.

Use of tooth brush and mouth wash.

A dash of fresh air before breakfast.

A few physical exercises followed by two or three long breaths.

A well-aired dining room with table carefully laid.

The presence of a neat, trim, happy mother or other homemaker.

Fruit or fruit-juice for the first course (if desired).

In other words the preparation of the breakfast proper is only one means to the end to be obtained —success. All the members of the family as well as the mother must rise early enough to attend to these "breakfast preliminaries."

What should constitute a Breakfast?

One food selected from each of the following would supply a hearty breakfast; three selections if carefully made would provide a light menu of good balance.

1. Fresh or stewed fruit, e.g., grapefruit, oranges, orange juice or stewed dried fruit.
2. A breakfast cereal, well cooked in double boiler and daintily served. Variety of cereal in the days of the week is conducive to maintaining "the cereal habit."
3. A protein dish, e.g. eggs soft cooked in any form, fish cakes, fish hash, creamed dried beef, bacon, liver, sausages, corned beef hash.
4. Toast (hot and crisp), corn, Graham, bran or Roman Meal muffins, griddle cakes.
5. Jam, jelly, marmalade or syrup.
6. A beverage, e.g. tea or coffee for adults and cocoa, postum or milk for children.

Fruit should not be eliminated in normal cases but a selection can be made from the other foods suited to the taste and needs of the individual.

Breakfast Plans

I.	II.	III.
Fruit, Toast, Beverage.	Fruit, Cereal, Toast, Beverage.	Fruit, Cereal, Protein dsh, Toast, Beverage.

IV.	V.
Fruit, Cereal, Protein dish, Another hot dish, Toast, Beverage.	Fruit, Cereal, Protein dish,* Another hot dish,* Toast, Muffins, Marmalade, jam or jelly, Beverage.

(* e.g., Baked beans and hot brown bread, or griddle cakes with bacon, kidney stew with vegetable border.)

The Preparation of Breakfast

Everything should be left in readiness for breakfast the night before,—the fire laid, cereal cooked, fruit stewed or if fresh well washed and chilled. Bacon should be sliced and trimmed, eggs washed, meat or fish partly prepared and necessary things at hand. The utmost care should be given the actual cooking. The porridge should *always* be correctly salted, of proper consistency, hot and well cooked. The serving is most important. Make cereal servings small rather than too large and in this way aid children to form the habit of eating one food before another is served. One of the parents should "sugar" the cereal if it is to be sweetened. Many a child "fools" with its food because it is allowed to pile sugar on its cereal. In consequence appetite is quickly satisfied before the breakfast is begun. Sugar is not a meal. The forming of the habit of chewing is most valuable. If something dry is eaten with the cereal better chewing of the cereal is the result. There is no better food for a child's breakfast than a dish of good oatmeal or rolled oats porridge with plenty of good pure milk. Cornmeal and cracked wheat are good alternatives.

Eggs are ideal breakfast proteins and should be served in a variety of ways but always soft cooked, e.g. tender omelettes, soft scrambled eggs. Bacon is another suitable, nutritious, and easily digested protein. Meat is not necessary when cereal and milk are taken. Breakfast without beef of any kind would be a step in the right direction in many homes. Of course sausages, ham, fresh pork are needed and well digested by men of vigorous outdoor occupation in cold weather. Griddle cakes are as a rule not a suitable flour mixture for breakfast. It is impossible to cook all the starch during the quick cooking, which renders them not easy of digestion. Muffins left over from the day before are really better as they are drier and crisper. If necessary they should be moistened before reheating.

We must all admit that we are not inclined to overlook a doctor's, lawyer's, teacher's or nurse's failures. Why is it that we can pass over our own failures so lightly in the profession of homemaking? Bad coffee, porridge resembling a bran poultice in consistency and flavour, bitter scorched bacon, and many other *failures* are lightly passed over by us as "bad *luck* with my breafast this morning." *Failure* covers the case much better.

The kimona-garbed, curling-papered *homemaker* (?) has passed. Let us see to it that failures in our duty vanish also, and so make the home breakfast a success,—a fitting beginning to each new day.

E. B. RUTTER,

School of Household Science,

University of Saskatchewan.

WEAVING

(Contribution from the Canadian Handicrafts Guild

IF we try to value the scope of the weaver's art, the proportion of those working in weaving and its allied trades will have to be taken into consideration. Roughly speaking these amount to one-fifth of the human race. Surely, after agriculture and the feeding of mankind, his clothing comes next in importance. Over and above the economic side of the question, its value from the inventive, mechanical and artistic standpoints have to be considered.

From earliest ages to the present time, all peoples and all classes of people weave. It may be only in the elementary manner of plaiting grasses into a mat, or, as necessity arises and knowledge increases, the using of other materials such as flax, cotton or wool to be spun and woven into the beautiful fabrics we all know and admire.

As early as the Stone Age, linen was woven in Switzerland, but it is to the Egyptians we look as the people who brought the spinning and weaving of flax to as high a state of excellence as it has ever attained.

It is remarkable that the cultivation and preparation of flax to-day is almost identical with that used in Egypt five thousand years ago. As far as is known the Egyptians practised only plain weaving. True, they ornamented their cloth, but did so either by leaving out threads in the warp or weft. These open strips they ornamented afterwards by darning in, hence the modern idea of drawn-work is as old as the time when Joseph bought and sold corn for the people. The Tabernacle with its gorgeous hangings of fine linen, and curtains of crimson, purple and gold, tells of their knowledge of dyes.

Not until the Chinese brought their knowledge of weaving to the Western World do we find the use of the horizontal loom. The Egyptians, Greeks and Romans all used the vertical loom; from China the horizontal loom was brought to India, where the wonderful silks and linens, so prized by the Romans, were woven. Certainly they made these beautiful fabrics on horizontal looms long before the Christian Era.

These looms bear a close resemblance to the hand loom of Old English pattern which is perfectly adapted for the weaving of the finest silk, coarsest linen, wollen or cotton materials. Let us study these looms for a moment. The four posts of the loom must be of good wood, six inches wide, three inches thick and six feet long. These posts must be joined in pairs morticed into side pieces of wood eight feet long; then the cross pieces need not be morticed into place, but screws may be used. The length of these must depend upon the width of the cloth to be made. In order to fix the frame securely four blocks may be nailed to the floor at the foot of each post.

Into this frame are fixed two rollers, one at the back called the "back roller" and one in front called the "breast roller". The latter has a wheel attachment which allows it to turn only one way. The back roller is weighted so as to prevent the threads of the warp being stretched too severely by the change of the treadles. The warp is placed in the loom and unwound sufficiently to allow it to reach the breast roller, where it is fixed by two rods. The warp is stretched in proportion to the amount of weight placed in a box suspended from the back roller, and held by a rope wound around it two or three times. Tapestry looms are made with a wheel on the back roller, instead of a weight.

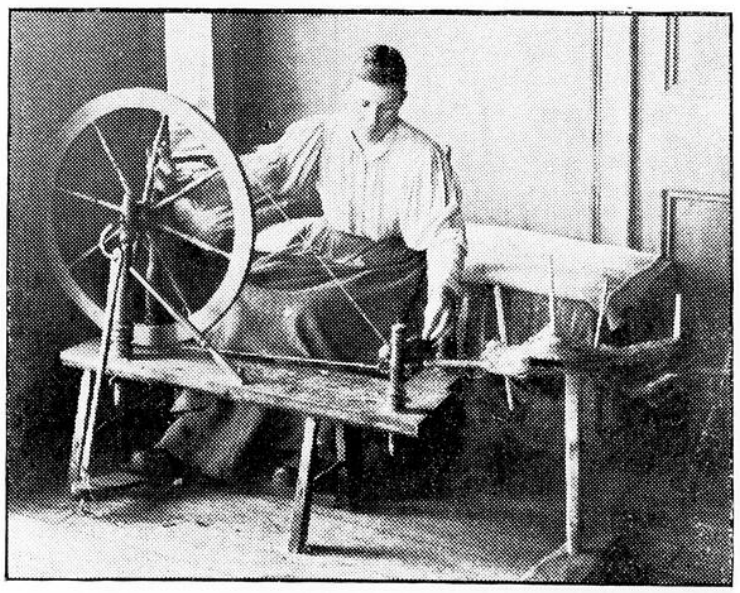
With the horizontal loom came the shuttle which enabled the weaver to quickly pass the weft between the strands of the warp, and also made it possible to weave a much wider cloth than that woven on the vertical loom. With this simple loom the very finest and most beautifully patterned cashmere shawls and rugs are woven.

About the middle of the eighteenth century the Jacquard machine was introduced, and superseded the draw loom. This machine made it possible to change the design quickly. It is also responsible for separating the Art of Designing from the Craft of Weaving. The speed of weaving by the power-loom has increased. This may be a commercial advantage, but the quality of the weaving is lowered.

How can weaving be improved? Simply by going back to the old way, and weaving the very individuality and soul of the weaver into the work. Surely in this new country of ours it is worth while to grow flax for the use of the stem as well as for seed, and from it make the linen and weave the cloth that will wear.

During the last few years a very decided movement has been started by the Canadian Handicrafts Guild, heartily supported by the Department of Agriculture, to revive and promote the various crafts brought into the country through immigration. Settlers from Europe and Asia, with their various craft knowledge, have come to make their homes in the Dominion of Canada, and it has been felt that this knowledge should not be lost to the New World. Hence the work of the Canadian Handicrafts Guild. What is known to one may be taught to the other, and thus the feeling of comradeship and dependence comes to the stranger in the new land, dependence on the older resident for knowledge of ways and means, and comradeship through imparting to him new methods of doing old work.

Weaving is one of the principal crafts, owing perhaps to the fact that the French settlers in Quebec have more or less kept up the art of spinning and weaving brought into this country by their fore-fathers. Excellent specimens of linen



have been found on the Island of Orleans, and also in St. Georges Beauce, which should be an incentive to the weaving of our own linen from our own flax. The medium most used, however, is wool, and this briugs before us the study of sheep and their products. One cannot help feeling the extravagance of the age we live in, when we realize that the demand for only hind quarters of lamb for table use means that every other product of the animal is wasted. Why should not the farmer study the desirability of raising different breeds of sheep for the quality of wool, and why should not the women take a practical interest in the flock, before they come to the question of judging the spun wool? Why should not the housewife know the difference in yarn produced from the Leicester, Shropshire and Dorset, as well as the difference between the various cuts of mutton ready for the oven?

There is every facility in this varied climate for introducing the different kinds of sheep. No place could be better adapted to the raising of these than the Laurentian Hills where gentle slopes, green valleys and bubbling streams would make ideal pasture for a flock.

Let the farmer realize that there is money in producing different grades of wool as well as in supplying food for a fastidious table market, and the spinners and weavers will find their art and craft something worth while to revive and make perfect. The women of Canada know to-day how to judge and knit yarn, let them know how to judge the raw material also. Let them say what wool they prefer to spin and what wool is the best for different fabrics. Let them grow their own flax to be used later in the form of fine bleached linen, and with this as a beginning the arts of weaving, dyeing and the use of different patterns will reach a higher standard in a very short time.

BACTERIA IN THE INTESTINAL TRACT

EVERY person, even when in the most perfect health, has a considerable number of bacteria in the intestines, but when these bacteria become very numerous they cause abnormal fermentations resulting in auto-intoxication on a more or less extensive scale. This fact was proved a number of years ago and at present all intestinal fermentations must be considered unnecessary and harmful. Metchnikoff, the great French scientist, Sub-director of the famous Pasteur Institute, made the subject his life work and found among the invertebrate animals several in which the intestinal tract was entirely free of bacteria, and in order to show that bacteria in the intestinal tract were entirely superfluous he raised a number of tadpoles under aseptic conditions with splendid results. Normally the intestines of tadpoles are crowded with bacteria.

These bacteria which stimulate undesirable intestinal fermentation are found in impure drinking water, contaminated milk, raw vegetables, etc. Usually the poison produced is counteracted by the bile, the acid reaction of the small intestine, the fluid from the pancreas, etc., but as soon as any of these factors become out of order the putrefaction develops rapidly.

The bacteria growing in the intestinal tract are very numerous. The adult person removes daily 40,000 million bacteria in the faeces, and all these bacteria have actually lived in the intestines; more especially in the colon. These millions of bacteria produce very poisonous substances and themselves may penetrate the intestinal walls and lodge in different parts,—the liver, the lungs and especially the nearby mesenteric glands. The presence of these toxins and of the bacteria themselves is bound to cause local or general troubles. Usually we will have to deal with enteritis and sometimes with entero-colitis.

Tainted foods, which are used nowadays more especially in the urban districts, help to develop enteritis. It will show itself under various forms of which constipation is the most common. Sometimes this constipation is accompanied by occasional spells of diarrhoea, and the only rational treatment of such disturbances is to reduce the number and the virulence of the intestinal bacterial flora.

Infantile enteritis is always accompanied by a large increase in the intestinal bacteria. In the hot summer weather the milk shows changes which are sufficient to upset the digestion of infants; the natural checks of the intestinal bacteria are working unsatisfactorily and inflammation of the bowels follows. Of course when the milk is of poor quality and contains many colon bacteria the chances for enteritis are still greater.

Besides these local results we must realize that putrefaction in the intestines has a great influence on the general health if the poisons are absorbed in the body. Sometimes they affect the kidneys, sometimes the heart, but usually they play havoc with the nervous system. To the kidneys falls most of the work of removing the poisons produced in the intestinal tract, but even a healthy kidney can be overworked. Kidneys already weakened by an infectious disease such as scarlatina are certainly unable to do all the work required of them, and the general health suffers unless the intestinal bacteria are held in check.

The medical profession has used for centuries numerous chemical and mechanical means to reduce this intestinal flora. First we have the laxative mixtures, of which laxative salts must be specially mentioned. They certainly remove large numbers of bacteria, but considering that one microbe will produce millions of other microbes in one day at the favourable temperature prevailing in the intestines, such a reduction will be of very short duration. The chemical remedies, which try to kill the bacteria, such as salol, calomel, etc. produce poisoning themselves, and their use is very restricted. The only reliable intestinal disinfectant is lactic acid, but the great difficulty is to bring the lactic acid into the small intestine. Lactic acid being an organic acid is attacked by the gastric juices and completely digested before it can reach the large intestine. We must therefore produce the lactic acid among the bacteria we want to kill, and in the lactic acid bacteria generally used as starter in the manufacture of butter we have the proper material.

To check the intestinal group of bacteria it is sufficient to drink starter (sour milk), a product easily obtained in our dairying province. Experiments have shown that the daily use of buttermilk for two months caused a remarkable reduction in the intestinal flora and these favorable conditions persisted for seven weeks afterward. The dreaded putrefaction can only take place in alkaline surroundings and these starter bacteria make the intestines slightly acid. In order to have a minimum of intestinal bacteria we must keep the intestines in an acid condition.

The constant use of buttermilk will produce such conditions, but Metchnikoff isolated a bacillus which is much more active, the *bacillus bulgaricus*. The organism is found in Yughurt, the national drink of the Bulgarians. Besides its acid production this bacillus is said to have a special antiseptic action. Commercially it is for sale under the name of *Lacto bacilline* and can be obtained from Paris or the United States through leading chemists.

J. VANDERLECK

OF GENERAL INTEREST

THE SALE OF AGRICULTURAL PRODUCE

By Auguste Trudel, Secretary of the Quebec Cheesemakers' Co-operative Agricultural Society

THE farmer, like the industrial worker, the merchant, or the mechanic, has a right to receive just reward for his work, and the best means of obtaining it is through the assistance of a co-operative agricultural association for the protection of his interests and the sale of his produce. It is evident that the farmer cannot produce his wares at the same prices as in past years, for with him as with everyone else the cost of living has increased. Farm implements have materially increased in price and skilled help is becoming more and more difficult to obtain, while wages have more than doubled in the last few years. The farmer has to compete with the factory and city merchant who take many of our best men from the country districts, and to obtain help on the farm he has to pay high prices.

It is therefore necessary for the farmer to increase his revenue to keep pace with his expenses. One of the best means of doing this is to make the land produce to its utmost capacity; but another equally important method is to be able to sell his produce under the best conditions obtainable. In order to obtain good prices farmers should give up the old-fashioned method of selling, for by this means they lose considerable sums each year by selling to agents, and peddlers of all sorts who travel over the countryside. It is equally against their interests to exchange eggs, poultry and other produce with the local grocer for his wares. Who do not farmers organize for the sale of their farm produce for cash, and with this cash buy what they need from the local grocer? This would be the better way.

The best method of breaking up this system which persists to the detriment of the farmer is the agricultural society, that is why we repeat that in each parish of this province there should be a local co-operative society; the farmers should organize, not so much to make trade for themselves but in order to sell their produce with good profit and also to buy advantageously what they need for use on the farm,—agricultural implements, grain and seed, etc.

The co-operative society should have its location in the most central part of the parish, and be under the direction of a competent secretary. With the produce sent in by the various members he should supply the demands of the local market and send the surplus to the Co-operative Cheesemakers' Society, which is the central selling association. There the produce is classified by experts placed at the disposal of the Society by the Minister of Agriculture, and sold according to quality. The entire amount realized is sent to the farmer, to whom is sent at the same time a classification certificate containing remarks in the quality of the produce and the best method or improving it. This, we think, is the only practical means by which the farmer can sell his produce in a profitable basis. From results obtained by the local and central co-operative societies we have no reason to doubt the efficacy of the system. Co-operation is the means to which farmers should resort in order to defend their own interests and to exploit their land with profit. If they have not always received the full value of their produce it is because they have neglected to organize. Working men have their unions, merchants and industrial workers have their associations which they know stand by them to see that they obtain their rights. Farmers, to obtain these results, must have their co-operative societies. Thanks to them, they are not at the mercy of merchants when wishing to sell their produce or make a purchase.

Bulletin of the Quebec Co-operative Cheesemakers' Society.

YEAR-ROUND FEEDING OF DAIRY COWS

By Prof. H. H. Dean, B.S.A.

Ontario Agricultural College

WHAT we shall have to say about feeding cows applies to Canadian conditions, where in most cases it means six months feeding inside and six months outside, to a greater or less extent. On most Canadian farms the general practice is to begin stable feeding during October or early November and turn out to grass in April or May, after which time the cows are supposed to "pick" a living for the summer months.

It formerly was the custom, and is yet in some districts, to get the cows through the winter as cheaply as possible. Turnips and straw and any hay the horses would not eat were and are staple feeds for the cows at such times. Sometimes the cows "ran round the straw-stack" for the winter and went from straw to grass. However, on the best dairy farms, it is now becoming general to have about half the cows freshen in the fall or early winter and these cows are well fed to induce a good flow of milk. When they go to grass in the spring, they receive a fresh stimulus to give milk and are more or less like "fresh" cow. By adopting this plan of autumn freshening and good winter feeding, it is more or less like "fresh" cows. By fourth to one-third more milk than by following the old plan of scanty winter feeding and spring freshening.

The dry cows are also being better fed than formerly. It is a well-recognized fact that if a cow is to be a large producer she must be well fed not only while milking but also when she is dry. In fact, the cow needs better feed and care at that time than at any other, as she has to sustain not only her own vital function but those of the calf she is carrying. She may not need quite so much concentrated or grain feed when dry as when milking, but she needs plenty of succulent, easily digested feed during the dry period. In this way her vitality and nervous force are built up ; in other words, she is able to charge her storage-battery, which may be called upon in future for milk production.

Two facts stand out prominently in the modern feeding of cows. First, cows should be well fed at all times ; it does not pay to stint good cows ; second, the cows should be induced to consume as much cheap bulky food as possible, thus reducing the cost of production. If expensive grain and other concentrates are fed in large quantities, except in special cases, such as cows making records where cost is a secondary consideration, it is difficult to make much profit on the milk, even at the present high prices paid for milk and its products.

THE ART OF FEEDING

The economical feeding of cows is more an art than a science. We do not mean to say that science should not enter into the question, but we do think that a man with no knowledge whatever of feeding science, but who has, for want of a better term, what we have called "feeding gumption", will produce milk more economically, or at less cost, than will a man who is loaded with scientific theories, but does not understand practical cow-feeding. Of course, the practical feeder will do better if he knows something about "balancing" a ration, but if he allows the "balancing" feature to overshadow his cow-feeding-sense, the results will not be satisfactory.

Recent experiments indicate that if the pig be allowed to eat what he wants, when he wants it, and in quantity that he wants, the results are more economical than if rations, scientific or otherwise, are forced on or fed to him. To a large extent, this is probably true also for the cow. This principle explains why cows milk so well, as a rule, when feeding on good grass pasture. Under these conditions she selects her own feed when and where and in the quantity she desires.

The female of all species of animals has always been more or less an enigma, or not well understood, by the male. Freedom of action the female has always craved for. This has been denied by the male because of superior brute force. However, men are finding out that more can be accomplished by coaxing than by thrashing. Applying this principle to the feeding of cows, we should allow them as much freedom as possible and coax them with the kinds of feed they seem to like. Because of this, the man who studies cows, rather than scientific formulas, is likely to be the more successful feeder.

HOME-GROWN FEEDS BEST

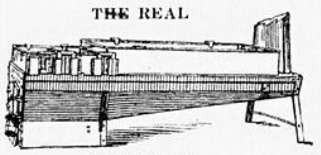
While we do not deny there is considerable feeding value in prepared commercial feed, we do think that generaly speaking, the dairy farmer is in best position, so far as feeds are concerned, who has most of the feed for his cows home-grown. By so doing he saves freight and commission charges, which are important items in feed costs. He also lessens the dangers from adulteration and weed seeds—the latter no small factor in dairy farming.

There are, however, times when it pays to sell home-grown feeds and to purchase from outside sources. The winter of 1914-1915 furnished an example. Oats were exceedingly high in price and cottonseed meal was comparatively cheap. Many farmers sold their oats and bought cottonseed meal, which was a wise move. This winter (1915-1916) things are reversed — oats are comparatively cheap and cottonseed meal is expensive, hence many farmers are feeding oats and wheat bran and not buying cottonseed meal. Although cottonseed meal analyzes high, chemically, for protein, this is a case where the cow does not place so high a value on a food as does the chemist. After all, the cow is a better judge of feed values for milk production than is the chemist. In saying this we are not casting any reflections on the chemist. It is impossible for any chemist to imitate closely in a laboratory the conditions as found in a cow's stomach, largely for the reason that laboratories have one standard or "dead level" of conditions, whereas, every cow's stomach is a law unto itself. The conditions in the stomachs of cows are as varied as is the number of cows being fed. It is for this reason

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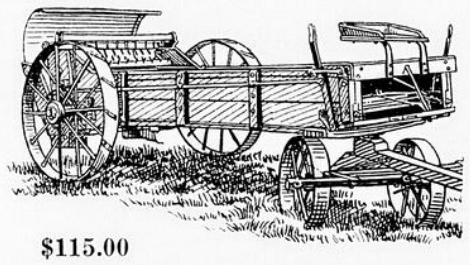
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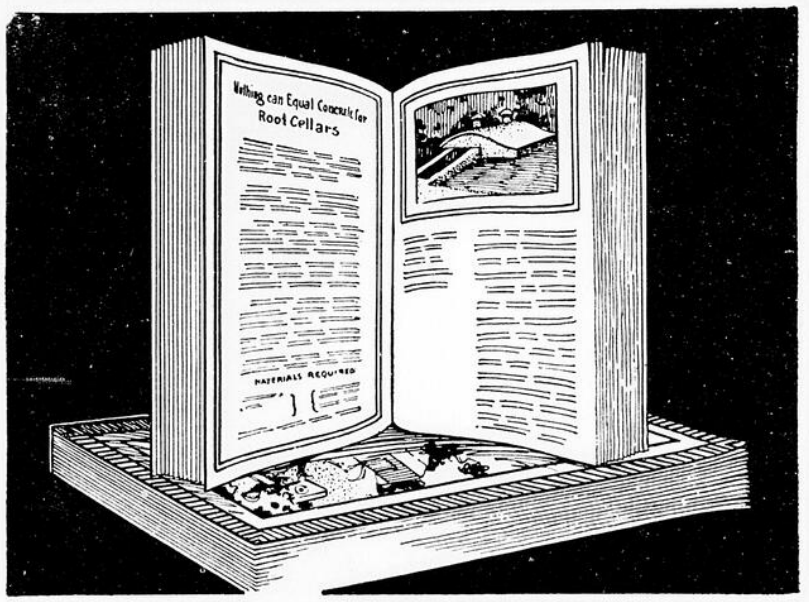
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that the successful feeder must study cows individually and not in the lump.

Coming back to the point of selling and buying, a dairy farmer to some extent needs to be a chemist in so far as knowing the chief characteristics of various foods, so that he may intelligently sell and buy. By knowing what he has on hand and comparing market prices with what he may purchase, he is able to keep a proper balance in his foods and in his farm operations as a whole. Truly, the dairy farmer needs to be as wise as a commission man.

THE BEST FEEDS FOR MILK PRODUCTION

The best home-grown feeds for the economical production of milk in northern latitudes are : grass, clover, alfalfa, corn, mangels, oats or oats and barley, peas where they can be grown, wheat bran and oil-cake meal. Of purchased feeds from outside sources, gluten meal, cottonseed meal and the dried by-products from breweries and distilleries take leading places. Some of the molasses feeds are recommended by dairy cow feeders who have tried them, but generally speaking these feeds are likely to be expensive and the buyer pays freight on considerable "filling material," that can be produced more cheaply on the farm. This is a case where the feeder needs to be an experimenter. Let him buy a small quantity, say half a ton, or not more than a ton, of one of these feeds. Add one to two pounds or more daily of the feed to the present ration, or use it as a substitute for an equal weight of some feed. Assuming that he is weighing the milk from each cow night and morning, as every dairyman should do, the cows will soon tell him whether or not he is getting his money's worth for the feed bought. Probably some cows will increase and some will decrease. Other factors than the feed may enter into the problem, but the wise feeder will soon be able to interpret the results as a whole and he can then intelligently decide whether or not to continue the purchase of the particular feed in question.

The best way to insure a supply of home-grown feeds on the dairy farm is to follow a rotation of crops—either a three or four-year rotation. We favor a short rotation, as by such the weeds may be better controlled. A very good three year rotation is : sod plowed in fall or spring, manured during the winter and planted with corn and other hoe-crops ; the second year this land is sown with oats, or a 2—1 (two bushels oats and one bushel of barley) oat-barley mixture, sowing two or three bushels per acre and seeding this with a clover and grass mixture of four to six pounds red clover, two pounds each of alsike and alfalfa, and four to six pounds timothy per acre ; the third year this land would be part pasture and part in hay. If a four-year rotation is desired the field may be allowed to stand for another year in grass and hay. If not, then plow and plant corn and roots in the fourth year. This makes a very good general balance of crops on 100 acre farms which may be varied to suit special needs and conditions.

If the seeding should fail, a pasture crop for the year may be got, according to O. A. C. tests, by sowing a mixture of one and a half bushels oats, thirty pounds Early Amber Sugar Cane and seven pounds red clover seed per acre. The oats and sugar cane seed are mixed and sown with the grain drill, and the clover is sown from the seeder box at the same time. Sown the first week in May, the crop will be ready for pasture by about the middle of June.

Where some land is unsuitable for the regular rotation, it may be seeded with permanent pasture crops, as follows : 5 pounds alfalfa, 2 pounds alsike, 2 pounds white or Dutch clover, 4 pounds orchard grass, 4 pounds meadow fescue, 3 pounds tall oat grass, 2 pounds meadow foxtail and 2 ponds timothy—a total of 24 pounds seed per acre. This is heavy and expensive seeding, but will pay where land is to be allowed to remain in pasture for a number of years.

On those farms where alfalfa or lucerne clover will grow successfully, it is an excellent crop for milk production. The following notes are based on the Field Husbandry Department, O. A. College investigations with reference to the growing of alfalfa more particularly for Ontario farms:

"Alfalfa is being recognized more and more as a most valuable farm crop for Ontario. Its perennial character of growth, its power of making use of the free nitrogen of the atmosphere and of the fertilizing elements of the subsoil, and its capacity for producing large yields of exceptionally nutritious feed for farm stock, combine to place this crop as one of the most important which can be grown. It possesses a combination of characteristics which is not found in any other farm crop. Alfalfa starts its growth early in the spring, and continues throughout the summer and even late into the autumn. Under favorable conditions it produces two or three crops per annum, and thrives for several years without the necessity of re-seeding. The feed is relished by practically all kinds of farm stock. It can be fed in the green or in the dry condition, or can be converted into silage. In at least some localities over Ontorio the second crop in the season is allowed to ripen for seed production to good advantage. Alfalfa is particularly suitable for use in a long rotation, and leaves the soil in an excellent condition for the growing of other farm crops. In order, however, to make alfalfa-growing successful it is important to sow the right kind of seed on suitable soil, and to employ the best methods of culture.

"Select land having a clean, mellow, fertile surface soil overlying a deeply drained, sweet subsoil.. Use large plump seed of strong germinating power, and of some hardy variety, such as Ontario Variegated, Grimm, Baltic or Sand. The common alfalfa seed of the Western States, even though it has been northern grown, usually produces plants which are too tender to resist the climatic conditions of Ontario. Make use of seed which grades high according to the Seed Control Act. Inoculate the seed with the proper kind of bacteria, providing alfalfa has not been grown successfully on the land in recent years. Sow the alfalfa seed at the rate of about



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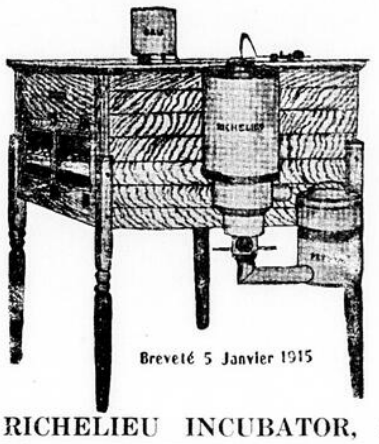
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twenty pounds per acre. The seeding may be performed according to any one of the following methods :

"1. Alfalfa seed may be sown on winter wheat in the early spring either on the old snow or on a fresh snow of one or two inches, and no harrowing or cultivation is necessary.

"2. On a suitable seed bed and as soon as the land is sufficiently dry in the spring, alfalfa seed may be sown from the grass seed box placed in front of the tube drill. About one bushel of barley, wheat or rye per acre sown from the tubes of the drill makes a very good nurse crop. After the seed is sown the land should be harrowed lightly.

"3. Alfalfa may be sown alone in the month of July on a summer fallow providing there is sufficient moisture for good germination.

"Alfalfa should never be pastured during the first year, and seldom, if ever, afterwards, as pasturing very frequently destroys the plants. The crop should be cut for hay or for green fodder in the following year after the seeding takes place as soon as it starts to bloom. Care should be taken to retain as many of the leaves on the stems as possible, and to protect the crop from rain. In many places in Ontario the alfalfa will produce three crops of hay per annum. The third cutting, however, may be used to advantage for mixing with corn when filling the silo, as this forms an easy method of handling the green alfalfa in the autumn and also of improving the quality of the corn silage. In some localities hay may be obtained from the first crop and seed from the second crop in each season and for a period of several years.

"If the directions here given are carefully followed, alfalfa may be expected to produce large and valuable crops for a number of years without reseeding".

HOW TO FEED

There is some difference of opinion among both practical and scientific feeders as to the number of times a cow should be fed during twenty-four hours. Some say, feed twice a day only, as the cow has a large storehouse known as the rumen or paunch where she can store a quantity of feed ; then, after her appetite or hunger is satisfied she will lie down and ruminate, or, as farmers say, she will "chew her cud". While no food is saved by this method, it saves labor, which is an important item on most dairy farms and it is claimed the results are quite as good as feeding more frequently.

On the other hand there are those who claim that a cow should be fed several times a day and cite the fact that cows on pasture under natural conditions eat a good many times in twenty-four hours.

For the average farmer it is a good plan to give the main portion of the feed night and morning when cows are in the stable and give a "lunch" of hay or straw and some whole roots at noon.

Those who are making records with their cows would do well to feed as many times per day as the cow is milked in twenty-four hours.

Each cow should have a separate manger or feeding-place, or, if a continuous manger is used there should be temporary divisions, so that the manger may be easily cleaned. This insures each cow receiving the feed allotted to her. The refuse should be removed daily and the manger be kept clean. The material for making the manger should preferably be cement ; and it should be so constructed that it will serve the double purpose of feeding and watering cows. This insures cleanliness and is the most convenient and satisfactory arrangement.

A still more satisfactory arrangement is a seperate drinking vessel for each cow. Many of the leading dairy farmers of Quebec have their stables equipped with these.—El.

If straw or coarse hay is used, it is a good plan to cut these and mix with the silage and pulped roots for a few hours before feeding, as this softens the dry feed and renders it more palatable and more digestible. A part of the meal or grain ration may be mixed with the bulky part of the feed at the time it is prepared and the remainder be put on top of the roughage after placing in the manger. This is a very good plan where all the cows get some meal. The extra good milkers then get the regular ration, and an added supply of concentrates according to the milk-flow. A cow should receive one pound of meal for each three to five pounds of milk produced; or six to eight pounds of meal for each pound of milk-fat.

SOILING AND SILAGE

When cows have good pasture they need very little additional feed, although some dairy farmers feed a little grain all the year around; and some give either soiling (green) crops or corn silage as soon as the grass begins to fail.

The best and most economical supplement for pasture crops is corn silage from the previous year's crop. Every dairy farm in Canada where corn will grow satisfactorily ought to have a summer as well as a winter silo, filled with corn. Summer silage saves labor, land and expense in summer as compared with soiling crops or allowing the cows to run on poor pasture which means decreased milk-flow and lessened milk checks from creamery, cheesery, or condensery. Winter rye, Canada peas and oats, alfalfa and red clover, early corn—all these are valuable soiling crops for the Canadian dairy farm. These, together with two or four pounds of meal daily per cow, will often prevent shrinkage of the milk-flow during a dry spell. Once the flow starts to go down, it is difficult to stop it.

The following are rations recommended by dairy authorities for the Province of Quebec:

	Pounds
1	
Corn silage	30
Roots	25
Hay	8
Bran	3
Brewers' grains	3
Schumaker feed	4
Oil-cake	1
2	
Corn silage	35
Hay	8
Oats	4
Brewers' grains	3
Gluten feed	3
3	
Corn fodder	30 to 40
Clover mixed hay	10
Oats	5
Wheat bran	5
Cottonseed meal	2

De Laval Dairy Hand Book.

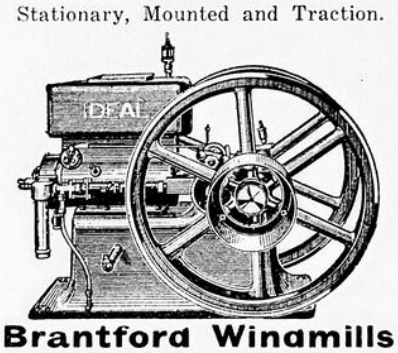
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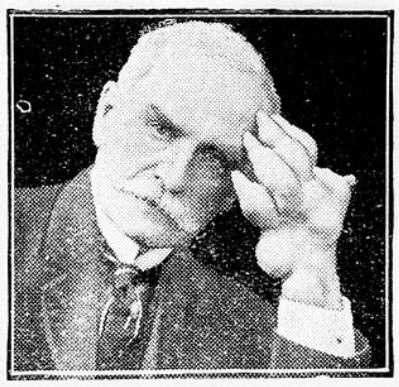
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Agents wanted in every locality. For full particulars, address C. E. STANDISH, General Agent, Ayer's Cliff, Que.

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"ECHO SEGIS FAYNE" a grandson of King Fayne Segis, the sire of new worlds Record cow Segis Fayne Jr Lanna, 50.68 lbs. butter in 7 days. Also yearling bulls & bull calves from 17 months old down, sired by Echo SEGIS Fayne. Prices $90 to $150. Write now. SUNNYSIDE STOCK FARM, JOHN M. MONTLE, Prop. Stanstead, Que.

FOR SALE

ONE beautiful stallion, half-blood Belgian, 2 years old, weight 1200 lbs. Apply to POLYCARPE PAYEUR, St. Pierre Baptiste, Meg. Cty.

Redpath SUGAR

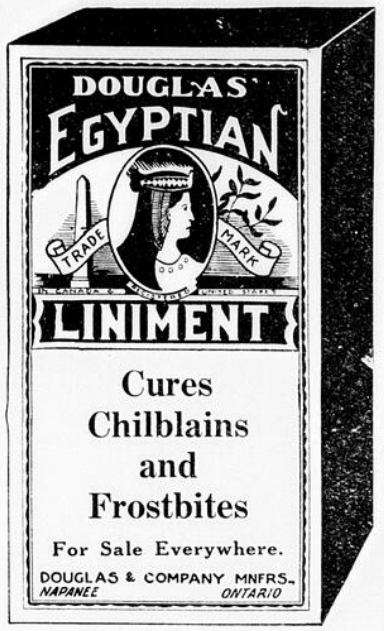


2 and 5 lb. Cartons—
10, 20, 50 and 100 lb. Bags.

was a favorite name among the long-forgotten food products of half a century ago, just as it is among the live ones of to-day. Only exceptional quality can explain such permanent popularity.

"Let Redpath Sweeten it." 2

Made in one grade only--the highest !



APPLE AND PLUM-TREES

WHERE could I get the best fruit-trees, as apple and plum-trees, etc.

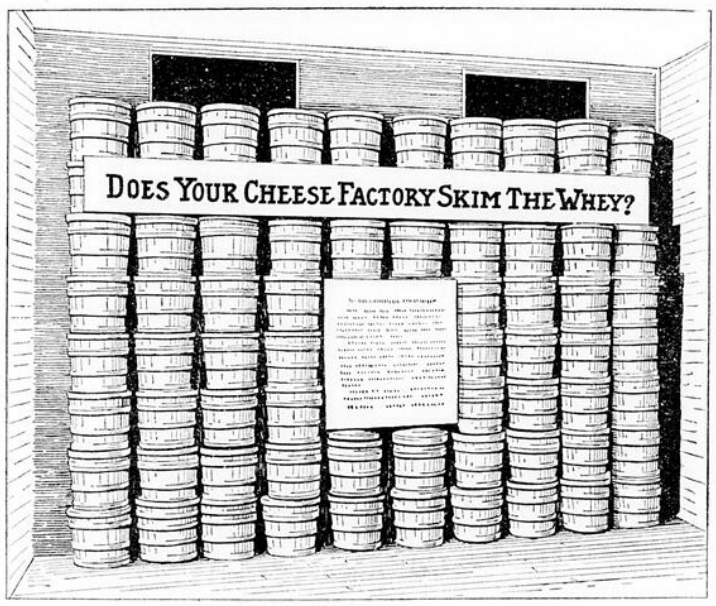
Farm For Sale

FOR SALE. One fine farm at very easy conditions, 300 acres of which 160 in cultivation, with barn, stable, piggery, modern hen house, close Ville-Marie. For further information, apply to ALBERT GUAY, notary, Ville-Marie, Temiskaming Cty.

FRUIT TREES FOR SALE

OUR Nurseries grow fruit and ornamental trees, the most suitable to our climate. Price list sent on request. EMILE GADBOIS & SONS, Rougemont, Que.

BUTTER & Cheese factory for sale or exchange for a farm with stock. 8000 lbs. of milk daily received Big revenue. Also one Ford auto all new. Apply to LUCIEN LANDRY Piopolis, Frontenac Cty.



SKIM DOLLARS OUT OF YOUR WHEY

If you make cheese and are not skimming your whey, you are throwing away every year thousands of pounds of butter-fat worth at the very least twenty-five cents a pound. The more milk you receive, the greater is your waste. A De Laval Whey Separator will put a stop to this loss and give you hundreds, possibly thousands of dollars a year extra profit.

The eighty tubs of butter pictured above were made from butter-fat recovered from the whey in a factory making American cheese, where 7,000 pounds of milk a day were received during the flush season, and 2,000 pounds during the winter, an average of about 4,000 pounds a day for the entire year.

The photograph was part of an exhibit gotten up by the Wisconsin Dairy School, and the figures below are from the same source.

	Daily	Annually
4,000 lbs. Milk		1,460,000 lbs.
3.600 lbs. Whey		1,314,000 lbs.
27 lbs. Whey Cream		9,855 lbs.
10.8 lbs. Whey Fat		3,942 lbs.
$3 30 Market Value		$1,200.00
13.2 lbs. Whey Butter (at 25c per lb.)		4,800 lbs.

Ask for our booklet on whey separation. It contains valuable information on the amount of money that can be saved by separating whey.

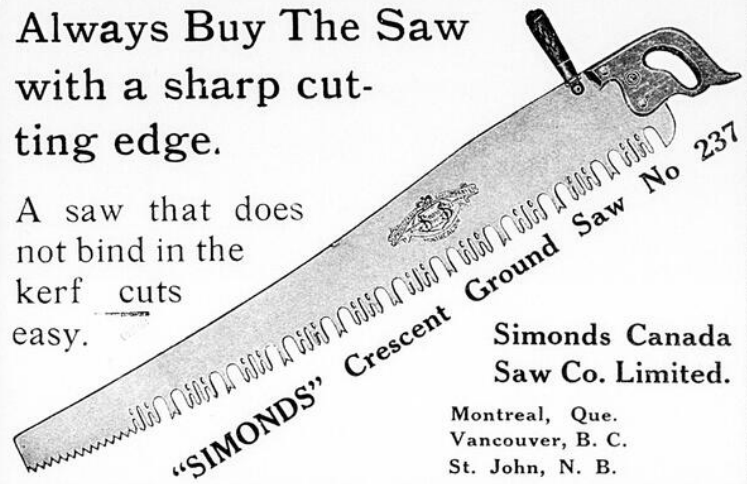
THE DE LAVAL COMPANY, Limited

LARGEST MANUFACTURERS OF DAIRY SUPPLIES IN CANADA.
Sole distributors in Canada of the famous De Laval Cream Separators and Alpha Gas Engines. Manufacturers of Ideal Green Feed Silos. Catalogues of any of our lines mailed upon request.

MONTREAL PETERBORO WINNIPEG VANCOUVER
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

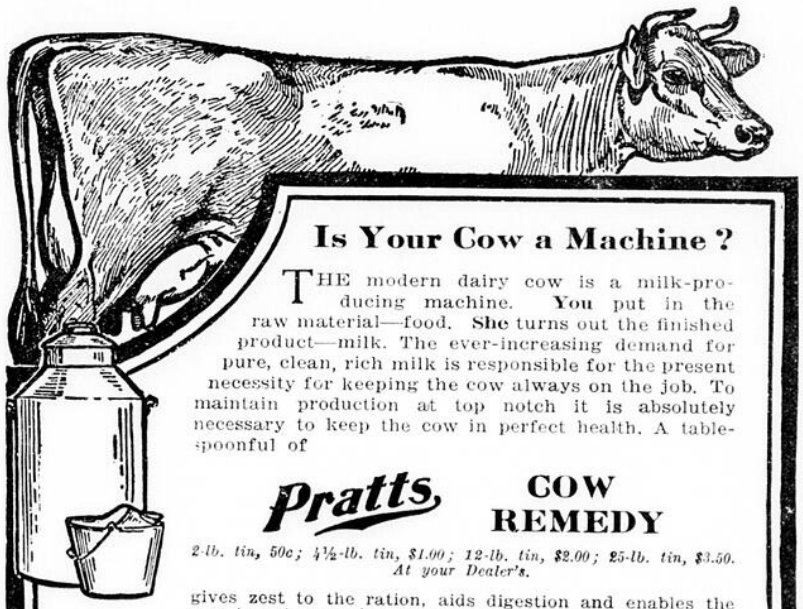
Always Buy The Saw with a sharp cutting edge.

A saw that does not bind in the kerf cuts easy.



Simonds Canada Saw Co. Limited.

Montreal, Que.
Vancouver, B. C.
St. John, N. B.



Is Your Cow a Machine ?

THE modern dairy cow is a milk-producing machine. **You** put in the raw material—food. **She** turns out the finished product—milk. The ever-increasing demand for pure, clean, rich milk is responsible for the present necessity for keeping the cow always on the job. To maintain production at top notch it is absolutely necessary to keep the cow in perfect health. A tablespoonful of

Pratts COW REMEDY

2-lb. tin, 50c; 4½-lb. tin, $1.00; 12-lb. tin, $2.00; 25-lb. tin, $3.50. At your Dealer's.

gives zest to the ration, aids digestion and enables the cow to get every last bit of nourishment out of the feed. Keeps well cows well—makes sick cows better. GUARANTEED to increase the flow of milk, and preserve perfect health. Contains no filler, middlings or other cereals, but is all medicine. Does not impart a druggy or foreign taste to milk or butter.

Money Back If Not Satisfied

Write NOW for Pratts New Booklet, "More Milk Money and How to Get It." Sent FREE on request.

PRATT FOOD CO. of CANADA, Limited

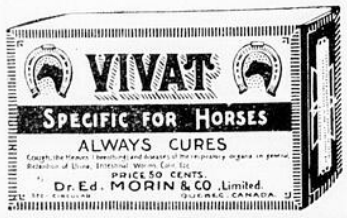
68E Claremont St., TORONTO. S-20

The Specific for All Diseases of the Horse.

"VIVAT"

An energetic remedy in powdered form, will cure your horse of COUGHS, HEAVES, COLICS, WORMS.

"VIVAT" also strengthens and gives endurance to DRAUGHT-HORSE as well as RACERS. Many prominent Veterinary Surgeons have tried it with success in critical cases.



One 50c box is sufficient for six days' treatment.

FOR SALE BY ALL PROGRESSIVE MERCHANTS

DR. ED. MORIN & CO., LIMITED,

QUEBEC, CANADA.

You are losing more Money per acre on untapped Maple Trees than you make on an acre of any other crop.

Any farmer that has an untapped maple grove is overlooking the biggest opportunity to make money on his farm. Every crop that you plant in the ground requires seed, fertilizing, ploughing, cultivating, cleaning and a number of other operations that take time and money. Too much dry, wet or cold weather may mean little or no crop.

Maple trees always produce a fair crop and they grow on land that is practically worthless for cultivation. They need no care of any kind yet each year produce more and are tapped at a season when you can not do any other kind of work.

Maple syrup and sugar now command the best price in their history. If you have maple trees let us tell you how to make the most out of them with little time and effort.

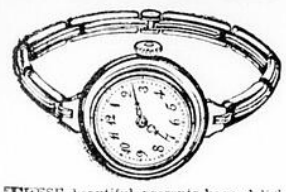
Grasp the opportunity to make money out of your maple trees and write us to-day for the fullest information.

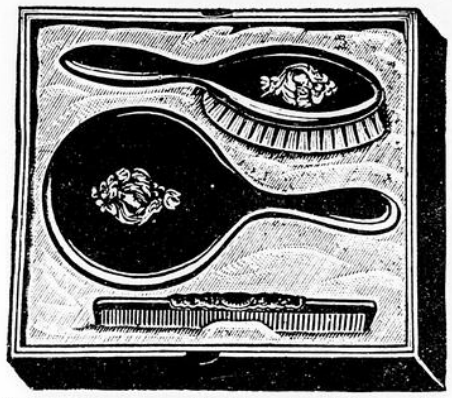
GRIMM MANUFACTURING CO., LIMITED,

59 WELLINGTON ST., MONTREAL

FREE

Princess Mary Toilet Set and Exquisite Bracelet Watch





THESE beautiful presents have delighted thousands of ladies and girls in all parts of Canada. You can get them without a single cent of cost—this is the opportunity of a lifetime for you. The beautiful Princess Mary Toilet Case is just what you need. It contains a handsome circular British Plate Mirror, a lovely Parisian Bristle Hair Brush, and a neat, strong dressing comb. All are in rich, ebony finish, and both brush and mirror have lovely nickel silver monogram mounts. The set comes in a nice presentation box and it will give you a lifetime of service and satisfaction. You'd gladly pay three to five dollars for a similar set at your store.

You will also be delighted with the exquisite gold finished bracelet watch because it is such a beauty. Bracelet watches are now all the rage. Many of them in solid gold and set with precious stones sell for as high as $100.00 each. This lovely bracelet watch is just as beautiful as any you could buy. It is richly gold finished, stem wind and set, and has the genuine expansion bracelet that fits snugly on any wrist.

We are giving away these magnificent presents to quickly advertise and introduce our delicious new Royal Japanese Perfume. Help us to do so and you can get them without a cent of cost. Just write to-day and we will send you, postage paid, only 25 lovely trial size bottles to distribute among your friends at only 10c. each. There are six delicious odors—White Rose, Wood Violet, French Carnation, Lily of the Valley, etc. Most ladies buy three or four of these fine bottles at once. They go just like hot cakes. It's no trouble at all.

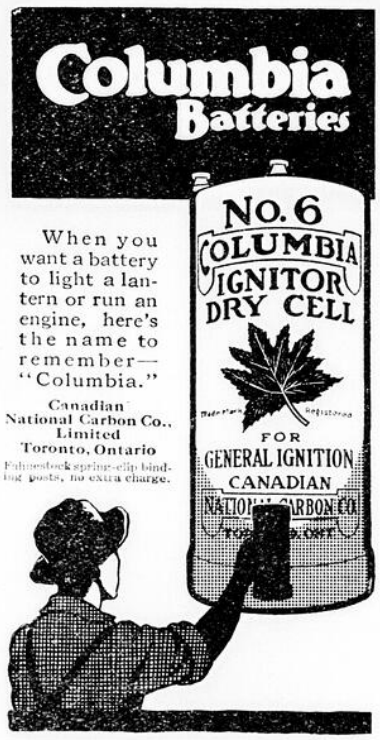
Return our $2.50 when the perfume is sold and we will promptly send you this beautiful Princess Mary Toilet Set complete just as represented, and the lovely bracelet watch you can also receive without selling any more goods by simply showing your beautiful present to your friends and getting only four of them to sell our goods as you did.

Write to-day—NOW—don't miss this great opportunity. We pay all charges on these lovely presents.

Address THE REGAL MANUFACTURING CO. Dept. T 33 TORONTO, ONT. 20

APPLE AND PLUM-TREES

YOU can get the best fruit trees of the province, at the best conditions, at FREGEAU BROTHERS, Nurserymen, Rougemont, Que.



When you want a battery to light a lantern or run an engine, here's the name to remember—"Columbia."

Canadian National Carbon Co., Limited
Toronto, Ontario

Fulmerstock spring-clip binding posts, no extra charge.



Coffee Icing

Cook two Cups of Lantic Sugar with half a cup of strong coffee until the syrup forms a soft ball when dropped in cold water. Add a teaspoonful of vanilla extract and beat until cold enough to spread.

Lantic Sugar

"The All-Purpose Sugar"

is specially good for cake baking on account of the *fine* granulation.

The Sugar with the red ball trade-mark

Packed in 100-lb. Bags

For book, address

Atlantic Sugar Refineries, Ltd.
Power Building, MONTREAL 13



"It is such a saving in labor I must have a power outfit."

In his sixth order to us, Mr. J. C. Harris of Ingersoll, Ont., says more for the Spramotor than our most enthusiastic advertisement. A man may buy a thing once and be dissatisfied, but when he comes back for additional purchases, there is only one conclusion that we can come to, and that is that article must be all right. We never claimed more for the Spramotor than that it would do the work required of it effectively and economically and in all things give satisfaction. And letters which we have received and are constantly receiving from farmers all over Canada, signify that our statements have been met with a service that is making staunch friends for the Spramotor wherever it is used. Over 100 Gold Medals and Special Awards to the credit of the Spramotor shows that these expressions of confidence are merited. Suppose you write now while the matter is fresh in your mind for a copy of our booklet on crop diseases.

Spramotor
It isn't a SPRAMOTOR unless we made it

MADE IN CANADA — NO DUTY TO PAY.

HEARD SPRAMOTOR Limited,

3062 King Street, LONDON, CANADA

RECLAIMING STUMP LANDS



This wonderful machine pulls the largest stumps out by the roots, clearing from 1 to 3 acres a day for one-tenth the cost of dynamite, and will pay you bigger profits than any other machine made. Send to-day for FREE CATALOG No. 8—we are saving one for you.

W. SMITH GRUBBER CO. La Crescent, Minn. U.S.A.

Eggs and Purebred Poultry

THE season of incubation will soon begin. We wish to advise you to get at once your breeders. We have few choice males in all thoroughbred breeds Hens, Ducks, Turkeys, Geese, Guinea-fowls, Peacocks, Turtles, Pigeons, Rabbits, etc. We can procure you any kind of poultry. Ask for our illustrated catalogue, 15 cuts of fowls, the best known breeds in the country: absolutely necessary to beginners, 15c by mail. Dont forget to send stamps for your answer, for our correspondence is very large and our good King George does not make credit. We will have ready in March a french treatise on the raising of Turkeys, 25c. Indispensable to those who breed that cheerished fowl. Write to us for particulars. THE YAMASKA POULTRY YARD, St. Hyacinthe, Que.

DANGEROUS

as well as painful

Backache Neuralgia
Lumbago Rheumatism
Stiff Joints Sprains

Combault's Caustic Balsam

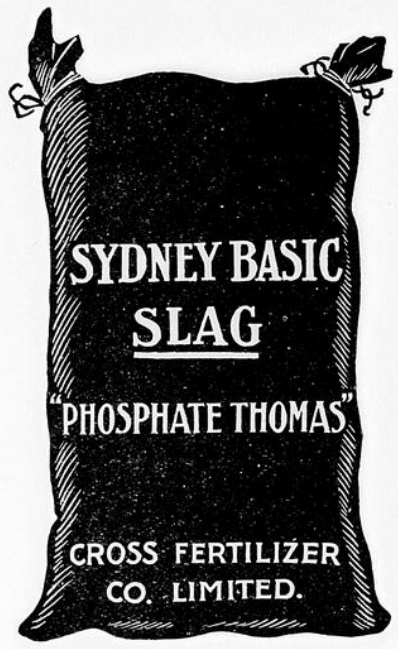
WILL RELIEVE YOU.

It is penetrating, soothing and healing and for all Sores or Wounds, Felons, Exterior Cancers, Burns, Boils, Carbuncles and all Swellings where an outward application is required CAUSTIC BALSAM HAS NO EQUAL. Removes the soreness—strengthens the muscles. Price $1.50 per bottle. Sold by druggists or sent by us express prepaid. Write for Booklet L.

The LAWRENCE-WILLIAMS COMPANY, Toronto, Can.

NOTICE TO FARMERS

If your Want to Fertilize Your Land Buy your Slag Right Now.



We wish to inform the farmers of this Province that on account of shortage in raw materials and freight cars for transport, Basic Slag will be hardly procurable later on. We still have a limited quantity for immediate delivery provided the order will be received promptly.

BRAND 558	
Total Phosphoric Acid . . .	14 to 16%
Available to	80%
Fineness	80 to 90%
Available Phosphoric Acid .	11.20%

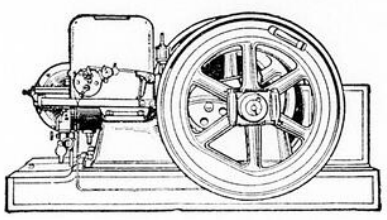
PRICE

$19.00 per ton F.O.B. factory at Sydney, N.S.
$22.00 per ton F.O.B. Quebec or Montreal.

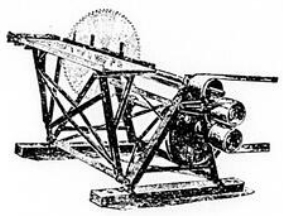
Prices for carload lot of 20 tons f.o.b. station will be given upon request.
Ensure your delivery by placing the order at once.

The Cross Fertilizer Co., Limited

275 ST. PAUL STREET, — — QUEBEC.



You can have a Page Engine to suit any purpose. We have them in 1½, 1¾, 3, 5 and 6 Horse Power with Battery or Magneto Equipment. Write for Catalogue containing full particulars and prices.



No. 1 Wood Sawing Machine (3 ft. 6 in. between wheel and blade.)

No. 2 Wool Sawing Machine (4 ft. 2 in. between wheel and blade.)

No. 5 Wood Sawing Machine (4 ft. table for cutting poles into any length as the balance wheel is under the frame.)

The blades come in 20, 22, 24, 26, 28, 30 and 32 inches. Prices and full descriptions are contained in our catalogue, which will be sent free on request.

"MY ENGINE IS ALWAYS RUNNING TO PERFECTION"

Nothing we could say would be as convincing as this paragraph from one of our satisfied customers —name and address on request.

"My Engine is always running perfection. I pump water, run the grinder and saw wood without any trouble. I also do all sorts of work with it and although it is a 3 H. P. it gives me as much power as a 4 H. P. of one other makes gives to others. I know because I competed with a neighbor of mine who had a 4 H. P. of another make and mine went evener as the 4 H. P. reduced its speed at time.

What do you care if it is the lowest-priced farm engine on the market? That is nothing against it so long as it does the work required of it. There are indeed some farmers afraid to buy a Page because it is so low in prices. Others again who buy it for that very reason. In either case the Page will surprise. Put to the test of daily service, it soon makes clear the fact that its price is merely incidental—that the big outstanding feature is its ability to furnish greater power for least fuel.

Here's the Machine for Sawing Wood

Suitable for farmers or lumbermen—this Saw Machine is built to last and will stand the severest kind of use. The frame is built of heavy angle steel bars strongly bolted and rigidly braced—there is no vibration when in operation. The interchangeable pulley and balance wheel, the tilting table with roller at one end to facilitate the handling of long poles are all advantages that will appeal to any farmer or lumberman.

FENCING

Page Wire Fence is recognized as a standard all over Canada. If we had to buy wire at the prices now prevailing, Page Fence would have to sell at much higher prices. We advise all our customers to order now.

Prices on request.—Write for our catalogue.

We can make immediate shipment. Freight is allowed on all shipments of 200 lbs. or over to all stations in the Province of Quebec and Eastern Ontario, provided payment is made in thirty days.

The Page Wire Fence Company, Limited

507 Notre Dame St., West, Montreal.

There's More Money in Live-Stock

that is kept in top-notch condition with

INTERNATIONAL STOCK FOOD TONIC

"3 FEEDS FOR 1 CENT"

Thirty years' use by hundreds of thousands of farmers has proved beyond the shadow of a doubt that International Stock Food Tonic literally works wonders with all kinds of Live Stock. This fact is no longer questioned—but those who hear of International Stock Food Tonic and use it for the first time cannot help wondering WHY it does so much good.

The Reason for its Phenomenal Success

If your animals were running wild, as Nature intended, and as their ancestors did, they would be guided by their instincts to eat certain herbs, roots and seeds that would keep their digestive organs in perfect condition. This they cannot do on a modern farm, and lacking these natural tonics and conditions they do not fully digest or assimilate the food you give them.

Here is just where International Stock Food Tonic comes in. It is the most perfect combination ever devised by the medicinal values of the roots, seeds, barks and herbs that live-stock need. It tones up an animal's digestive system to the point where it will get out of the feed all the good there is in it. With its help the food value of the grain and hay, ensilage and roots you feed is all turned into meat or milk, wool or work, instead of going, in large proportion, on the manure pile.

Without eating any more the animals that get International Stock Food Tonic thrive much better and produce a great deal more. This extra is practically all profit, for the cost of the International Stock Food Tonic itself is scarcely large enough to be considered.

International Poultry Food Tonic

Makes Poultry Healthy. Makes Hens Lay.



For over 25 years INTERNATIONAL POULTRY FOOD TONIC has been used by Poultrymen in all parts of the World. It greatly increases the egg production of any flock as it tones up and stimulates the egg-producing organs. This preparation also keeps poultry healthy and prevents disease. Helps to fatten poultry for market rapidly and cheaply. Its cost to use is remarkably small. Your Poultry Profits will be greatly increased if you will use this preparation.

For sale in 25c, 50c and $1.00 packages; also 25-pound pails at $3.75.

The best Judges are the Men who USE it!

I have been using your **International Stock Food Tonic** now for three years on all my stock, especially horses and cattle. I find it pays me well to use it as it keeps them healthy and thriving, improves the appetite and increases the quantity of milk.

I never have a sick horse, not even colic and I attribute this to the regular use of **International Stock Food Tonic.** I find that its use gives the hair of the animals a better appearance. It certainly keeps stock in fine shape and I would not want to be without it.—John S. Holden, President of Markham Milk Producers Association, Markham, Ont., R. R. No. 2.

I have used your valuable **International Stock Food Tonic** for over fifteen years. My stable is never without it; simply because I would not do without it as long as I can buy it. I always buy it by pail — generally fifteen dollars' worth. Being a constant user of it. I can recommend it to anyone.—S. S. Rombough, Glen Miller, Ont.

Kindly send me 500 pounds of **Grofast Calf Meal.** I have been using it this year and never used the like of it. My calves are as fine a bunch as i ever raised an milk.—James Bennett, Calumet Que., R. R. No. 1.

i am well satisfied with all **International Remedies** but above all, with **International Stock Food Tonic** and I can prove to my friends that all your remedies are marvellous.—Omer Ouellet, St. Paul de Buton, Que.

I have made use of your **International Stock Food Tonic** for my cows with great satisfaction. They have given me a large profit this year.—Achille Pelletier, Rivière du Loup, En Bas, Que.

International Stock Food Tonic is good and I am using it every day, and couldn't get along without it and out of the 400 pounds I purchased in September. I only have 25 pounds left and am purchasing a further supply at once.—J. Brooker, Hog Breeder, South Woodslee, Ont.

In regard to your **International Stock Food Tonic** would like to say that I have used it for a number of years and it certainly does all that you claim for it, especially for small pigs. I always feel safe in recommending it to anyone. Am feeding it now with good results, for with pork at the present prices we like to hurry the pigs along and your tonic certainly does it.—John D. Newcombe, R.F.D. No. 1, Mull, Ont.

International Stock Food Tonic

is put up in 50c and $1.00 packages, $1.50 lithographed tins, and $3.75 pails. For sale by dealers everywhere. Get a pail to-day. Refuse substitutes or imitations.

Horses Work Better

for International Stock Food Tonic gives them new vigor and endurance—more life and "go"—their coats grow sleek and glossy.

It keeps horses healthy, stronger, and in general all round good condition. If you have any horses or colts for sale be sure and give them International Stock Food Tonic for 30 or 60 days. Its every day use will often add $50.00 or more to their value, for it quickly causes them to greatly improve in general appearance.

Cows Give More Milk.

The Dairy Cow is simply a machine for turning feed into milk—and International Stock Food Tonic makes her a much more efficient one. With it she will digest and assimilate a far larger proportion of her ration, and return it to you in milk—butter fat—and profits.

Cattle Fatten More Easily.

Heavy stall-feeding without International Stock Food Tonic is almost sure to result in serious waste through un-assimilated nourishment. This wonderful Tonic keeps the digestive system toned up, so that the cattle can benefit fully from the extra feed, and put on beef faster and at far lower cost.

The progressive cattle owner cannot afford to fatten his cattle without having a good supply of International Stock Food Tonic on hand.

Hogs Grow Faster

and are ready for market weeks earlier if they get International Stock Food Tonic. It has never been equalled for promoting rapid growth, and enabling the hogs to stand the forcing process without loss of vigor or digestive powers. You will easily get an extra gain of half a pound per day per hog, if you use International Stock Food Tonic,—the quickest hog grower and fattener in the World. It is endorsed by leading breeders.

Sheep Produce More Wool and Mutton.

The splendid condition in which International Stock Food Tonic keeps sheep, shows itself in two important and very gratifying ways. With increased appetites and better digestions, they grow and fatten much faster—and their wool is heavier and of better quality.

International Grofast Calf Meal



INTERNATIONAL GROFAST CALF MEAL is a scientific high grade substitute for milk in the quick growing of calves. "Grofast Calf Meal" is easily mixed, calves like it and they grow and develop as rapidly as on new milk. Sell your milk and raise your calves at a very low feeding cost which will make you much more money.

GROFAST CALF MEAL will raise three or four calves at the cost of raising one on new milk. GROFAST CALF MEAL is manufactured exclusively as a perfectly balanced, scientific, substitute for milk from high class carefully selected ingredients.

We have a special booklet entitled, "How you can raise and grow calves at a low cost without milk", which we will gladly mail anyone interested.

GROFAST CALF MEAL is put up in 25, 50 and 100 pound bags. If your dealer cannot supply you, write us direct.

International Stock Food Company Limited

TORONTO CANADA

ALSO MANUFACTURERS OF

International Louse Killer,
International Colic Remedy,
International Heave Remedy,
International Distemper Remedy,
International Cattle Specific,

International Antiseptic Healing Powder,
International Worm Powder,
International Compound Absorbent,
International Roup Remedy for Poultry,
International Gape Remedy for Poultry.

International Gall Cure,
Dan Patch White Liniment,
Silver Pine Healing Oil,
Dan Patch Hoof Ointment.