



LIBRARIES

UNIVERSITY OF WISCONSIN-MADISON

The Canadian horticulturist & beekeeper. Vol. 26, No. 10 October 1918

Peterboro, Ont.: Horticultural Publishing Company, October 1918

<https://digital.library.wisc.edu/1711.dl/A74NAVHSJFVKS8M>

<http://rightsstatements.org/vocab/NKC/1.0/>

For information on re-use see:

<http://digital.library.wisc.edu/1711.dl/Copyright>

The libraries provide public access to a wide range of material, including online exhibits, digitized collections, archival finding aids, our catalog, online articles, and a growing range of materials in many media.

When possible, we provide rights information in catalog records, finding aids, and other metadata that accompanies collections or items. However, it is always the user's obligation to evaluate copyright and rights issues in light of their own use.

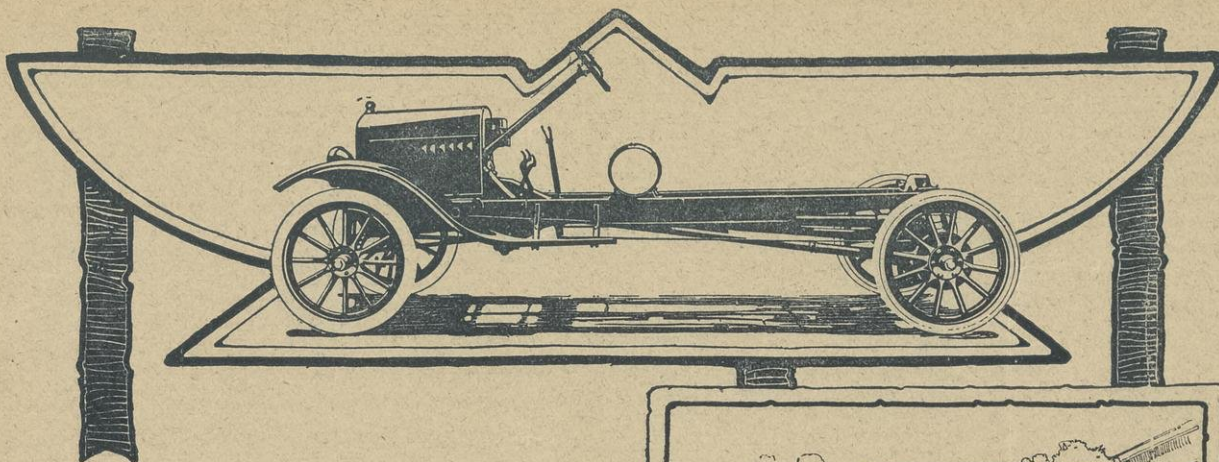


ESTABLISHED
1892
PUBLISHED BY
THE CANADIAN HORTICULTURAL ASSOCIATION
PETERBORO, ONT.

THE CANADIAN HORTICULTURIST & BEEKEEPER

Vol. 26, No. 10, October, 1918
\$1.00 per Year

TORONTO, ONT.
Address all Correspondence to Office at
PETERBORO, ONT.



Saves Money For The Farmer

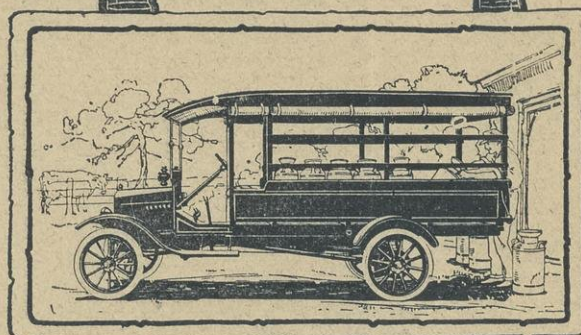
PRICES of farm products have reached a high level. The farmer can take *full* advantage of this situation only by adding to his equipment of time and labor-saving machinery. Time and labor are money. When time and labor are saved, money is saved.

Time and labor-saving devices for working the land do not produce complete results in themselves. The farmer must have rapid and dependable means of placing his products on the market.

The Ford One-Ton Truck will make trips to town so much more quickly than the horse that you will have many extra hours of time to devote to productive work. A large number of farmers have proven the Ford One-Ton Truck to be a time and money-saver—have you?

Price (chassis only) \$750

F. O. B. Ford, Ontario



Runabout	- \$ 660	Coupe	- - - \$ 875
Touring	- - 690	Sedan	- - - 1075

F. O. B. Ford, Ontario

All prices subject to war tax charge, except truck and chassis

All prices subject to change without notice 83

FORD MOTOR COMPANY OF CANADA, LIMITED

FORD - - - ONTARIO

The Canadian Horticulturist

CONTENTS FOR OCTOBER.

Fruit and Apicultural Editions Only.

Spray Guns, a Boon to Fruit Growers. Prof. L. Caesar, Guelph	233
Fertilizing the Potato Crop. R. D. Bligh	234
Fruit Packages and Packing	235
Winter Orchard Protection	236
An Outdoor Root House	236
Growing Tomatoes in Alberta	237
Keeping Celery Fresh. E. P. Smart, Brockville	238

Fruit and Floral Editions Only.

Fall Work in the Garden. H. J. Moore, Niagara Falls, Ont.	239
Destroy Insect Pests Now	240
Gardening Problems. Wm. Hunt, O.A.C., Guelph, Ont.	240
Storing Vegetables in Cellar and Pit. Prof. J. W. Lloyd, Urbana, Ill.	241

Floral Edition Only.

What to do with Your Garden Border. M. J. Eaton, Knowlton, Que.	233
Plant Bulbs Outdoors for Next Spring. Mrs. Wm. Barnett, Arner, Ont.	235
October Care of the Rose Garden. Miss M. E. Armour, Toronto, Ont.	236
Growing Tomatoes Indoors in Winter. Margaret McLaren	237
When God Speaks in your War Garden	238

Apicultural Edition Only.

Trial of an Intensive System of Beekeeping. F. W. L. Sladen, Ottawa	239
While Others Laughed—Root Won Out. Albert Sydney Gregg	240
The Honey Industry; Its Relation to Sugar. Morley Pettit	242
My Experience in Beekeeping and Advice to Beginners. W. H. Purnell, Brantford	243

All Editions.

Men Mentioned for the Fruit Commissionership	244
Niagara District Notes	245
The Manufacture of Cider. Prof. D. H. Jones, Guelph.	246
Celery in Cold Storage Practicable	247
The Poultry Yard	248
The Mosquito Must Go	249
Items of Interest	251
British Columbia Notes. C. L. Shaw, Victoria, B.C.	252
Winter Care of Vegetables. H. J. Moore	252

INDEX TO ADVERTISEMENTS

Automobiles	ii.
Bees and Bee Supplies	iv., 246
Classified Advertisements	vi.
Cold Storage	245
Commission Merchants	iv., 252
Cooperage Stock	250
Ear Drums	246
Education	iv., 249
Fencing	250
Fertilizers	iii.
Financial	245, 250
Flower Pots	249
Fruit Baskets	245
Furs	v.
Government	vi., viii.
Greenhouse Materials	245
Honey	iv.
Horse Radish	246
Irrigation	250
Machinery	247
Mail Order	251
Nursery Stock	248, 252, vi.
Overalls	252
Packing Aids	250
Roofing	249
Seeds, Plants and Bulbs	246, 248, 252, v., vi.
Typewriters	vi.

FEED THE LAND

By using the best Manure and get

GOOD CROPS

For Nurseries, Fruit Growers and Gardeners.

Sure Growth Compost

(A Composition of all Natural Manures)

Makes poor land fertile and keeps fertile land most productive.

Supplied by

S. W. Marchment

133 Victoria St., TORONTO

Telephones: Main 2841; Residence, Park. 951

Say you saw this ad. in The Canadian Horticulturist.

Greenhouse Material Bargain

Owing to financial difficulties we are wrecking part of our Richmond Hill plant and offer for immediate sale in large or small quantities:—

T IRON EAVE.—1½" pipe posts cemented in 4" glazed tile.

SASH BARS.—Specially strong 1¼" purlines, King purline clips, 1¼" Braces split Y's and T's.

STEAM PIPES.—500 ft. 4"; 5000 ft. 2"; 15,000 ft. 1¼" with Canadian Jenkins valves, felting, etc., and pipe hangers.

VENTILATORS (Wood).—Advance machine arms and hangers—1¼" shafting. King machines, arms and hangers—1" shafting.

D. D. 21 oz. GLASS.—20 x 20—16 x 20—14 x 20, down to hot bed sizes.

One house 45 ft. wide with 26 ft. bars.

One house 33 ft. wide with 19 ft. bars.

We will cut these bars to lengths required. This material has been in use only five years and is in good order for re-building. We will load on cars or sell on ground here.

Write for further information or make appointment if coming to see material.

W. J. LAWRENCE

Richmond Hill - - - Ontario

Honey Buying

We are in the market to buy your Honey in large or small lots. Any quantity handled. Excellent prices offered. We provide 60 lb. tins and pay carriage both ways.

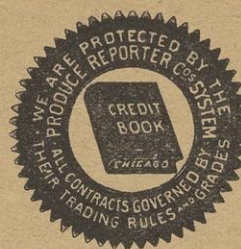
Wagstaffe, Limited

PURE FRUIT PRESERVERS
Hamilton - Ontario

Canada Food Board License No. 14-262.

Fruit and Vegetables Solicited

WE GET BEST PRICES



We Solicit Your Consignment
Send for Shipping Stamp

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto Market we have a ready outlet through these branches. We never have to sacrifice your interests.

Canada Food Board License Nos.
3-007, 3-008 and 3-009.

H. PETERS

88 Front Street East
TORONTO

Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine.



References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.

FREE SHORT COURSES

FRUIT GROWING---2 Weeks---January 27th to February 8th

VEGETABLE GROWING---2 Weeks---February 10th to February 22nd

FLORICULTURE AND LANDSCAPE GARDENING---2 Weeks---February 24th to March 8th

AT THE

Ontario Agricultural College, Guelph

Fruit Growing Course covers culture of tree and small fruits for amateur and commercial growers in all parts of the Province.

Vegetable Growing Course touches on all points of interest to large growers and back-yard gardeners.

Floriculture and Landscape Gardening Course gives instruction in the growing of plants and flowers for the home and the market, and in the choice, arrangement and planting of trees, shrubs and vines for home grounds, schools, parks, etc.

OTHER SHORT COURSES ARE

Stock and Seed Judging (2 Weeks)—Jan. 14th to 25th.

Poultry Raising (4 Weeks)—Jan. 14th to Feb. 8th.

Bee Keeping (2 Weeks)—Jan. 14th to 25th.

Drainage and Surveying (2 Weeks)—Jan. 14th to 25th.

Farm Power (2 Weeks)—Jan. 28th to Feb. 8th.

Factory Dairy Course (3 Mos.)—Jan. 2nd to Mar. 21st.

Farm Dairy Course (4 Weeks)—January 27th to February 21st.

Expenses—Railway fare, board and lodging while at Guelph.

An illustrated Short Course Calendar will be mailed on application

G. C. CREELMAN, President

The Canadian Horticulturist and Beekeeper

(See Pages 239-243)

(See Pages 239-243)

Vol. 26.

TORONTO, OCTOBER, 1918

No. 10

Spray Guns a Boon to Fruit Growers

Prof. L. Caesar, Provincial Entomologist, O.A.C., Guelph, Ont.

THIS last season has demonstrated as well as any one could hope the efficiency of thorough spraying if that spraying was done at the times and with the mixtures recommended in the spray calendars. Every orchard visited that was thus treated had beautifully clean fruit, several of the orchards having less than one per cent of scab and codling moth injuries combined. A great factor this year in securing thoroughness in the spraying of apple orchards, especially orchards composed of medium to large sized trees, was the spray guns. Several makes of these were used throughout Ontario, and most of them gave excellent satisfaction. The fact is that since the introduction of gasoline-driven power outfits there has been probably no greater boon to fruit growers in the line of spraying—and what would fruit growing, at least apple growing, amount to without spraying?—than the invention of the spray gun.

Many fruit growers, probably the majority, are already familiar with one or more makes of gun but for the sake of those who have not used them or seen them used, a few words of description may be useful.

The guns are made of brass or some closely allied copper alloy, are about twenty inches long, and about one inch in diameter. At the exit end is a nozzle with a flat plate, like the plates of an ordinary disc nozzle, in it. This is removable and consequently plates with small or large openings can be used to suit the pressure the pump can give. At the other end of the gun is a handle which can be turned to shut off all the mixture or to let it on and to regulate it as desired. When the handle is turned to open the gun to its full capacity the spray is sent out in a long, narrow stream, which carries right through or over almost any apple trees, but breaks into a fine mist about eighteen inches wide a few feet from the nozzle. By turning the handle in the opposite direction the spray comes out in a very wide, fine mist. Inter-

mediate positions of the handle will give variations between the fine, wide mist and the long, narrow stream. It is this power of adjustment and the great driving power of the device that are so valuable. The gun is, however, very much cleaner and more convenient to use than the old spray rods. This can readily be understood when one



How would you like to have a field of celery like this one, grown by P. Desole, at St. Hubert, Quebec.

remembers that with it you have only a little cylinder of twenty inches long, weighing in all about three pounds to handle instead of a pole eight to ten feet long. Moreover, there is no necessity for getting drenched with the gun, because except for San Jose or Oyster-shell Scale it is not necessary as a rule to go in beneath the trees to spray, all the work being done while standing out just beyond the range of the branches.

In the matter of speed and economy of material, it has been proven that one man with one gun and one line of hose can spray quite as much and often more than two men with two rods and two lines of hose and that less mixture is required to do an equally good job.

Unfortunately, the guns can scarcely

be used with any but power outfits capable of giving about 200 lbs. pressure with ordinary rods and nozzles. If a machine cannot supply 200 lbs. pressure when a large or medium sized plate is in the nozzle of the gun it will often do so by substituting a plate with a smaller opening.

Many growers will be inclined to use a short hose with the gun, but this would be a mistake. The hose should be at least thirty feet long and of excellent quality. A long hose allows the spray machine to be driven beyond the tree out of the way of the operator and of the spray itself.

Although the spray gun greatly simplifies spraying and makes it much easier to do a good job, a word of caution against carelessness or over-confidence is necessary. No outfit will ever be made for spraying or dusting that will be fool proof so far as giving results goes. When using the gun study how to do a good job, how to cover from every side every bursting fruit bud or every tiny or large fruit. If it requires this constant care on the part of those who try to teach the subject, it will require just as much care from fruit growers or their helpers who have not devoted so much thought to it though they may have done more spraying. There is a great tendency on the part of everyone to grow careless; hence a man who has never sprayed a tree in his life before will often after half-an-hour's teaching beat the man who has sprayed for years.

During some winters mice are very destructive to fruit trees, even after the latter have been planted several years. Just before winter sets in, wrap ordinary white building paper around the trunks, tying it with twine; mound up the soil a little about the base to prevent the mice entering at the bottom of the paper, and there should be no trouble from them. If this has not been done before the snow has fallen, tramp the snow well around the trees, after putting on the paper, which will prevent the mice from reaching the trunks —W. T. Macoun.

Fertilizing the Potato Crop*

R. D. Bligh

THE chief factor governing yield in potato production is soil fertility. It is not by any means the only factor. Besides available plant food, moisture, temperature, vigor of seed and numerous other conditions, have a bearing on the success or failure of the crop. Nevertheless available plant food will, to a large extent, govern both the quantity and quality of the harvest. It is, therefore, fundamental that fertility be maintained where it is deficient.

To-day with the immense amount of nitrate of soda being used in munition manufacture, and the increased price asked by the Chilean Government, also the lack of transportation facilities for both acid phosphate and nitrate, together with the impossibility of potash importation, the fertilizer situation has rather a gloomy appearance. To-day farmyard manure is the most effective general fertilizer that we can use. Its average composition is 10 lbs. nitrogen, 5 lbs. phosphoric acid, and 10 lbs. of potash. Based on its food contents alone, its value is at least \$4.00 a ton, and this is further augmented by humus forming material.

A profitable use of commercial fertilizers depends on their intelligent use, and this in turn depends on soil conditions and crop requirements. Fertilizers may be and are used profitably in many instances. On the other hand their indiscriminate use is almost sure to result in general loss.

The following are some definite conclusions that have been obtained by experimentation:—First, manure cannot be substituted by the use of commercial fertilizers, nor can the fertility of the soil be maintained by their use alone. Generally the best results are obtained from their combined use, in which case the application of fertilizer acts as a starter to carry the young plant along until the manure has undergone decomposition and its fertilizing constituents are rendered available by the action of soil organisms or bacteria. Care should be taken in selecting this fertilizer which is to serve as a starter, to see that it contains readily available plant food, that is, to have its nitrogen in the form of a nitrate and its phosphoric acid in the form of acid phosphate, otherwise the fertilizer itself may have to undergo chemical changes in the soil before its food is available for plant life.

Second, fertilizers (termed complete) that contain the three essential elements, nitrogen, phosphoric acid and potash, have given the largest profits.

* Extract from an address delivered before the last annual convention of the Nova Scotia Fruit Growers' Association.

To-day such a fertilizer is practically an impossibility to secure because Germany holds the chief potash supply of the world. Therefore, we must make use of our farmyard manure and our clover roots to supply the potash. Furthermore, by the more general use of ground limestone, those inert forms of potash that are held captive in our soil will be liberated and become available for our crops.

Third, all crops require certain amounts of the three elements, nitrogen, phosphoric acid and potash, but if one of these is present in a very limited amount, the crop can only develop as long as this supply of the smallest quantity lasts. If for instance there is an excess of available phosphoric acid and an excess of potash, but only a small amount of nitrogen, not enough for the needs of the crop, the crop will be determined by the amount of nitrogen.

This accounts for results obtained from complete fertilizers.

Fourth, the use of fertilizers should be considered from the standpoint of profit and not of yield. Watch your profit. The largest applications do not always give the largest profits. The increase in yield between the use of 500 lbs. and 1,100 lbs. of commercial fertilizer may not be sufficient to justify the increase in cost. For example, an interesting experiment was carried on for three years by Dr. Zavitz at the Ontario Agricultural College to determine the most profitable amount of fertilizer to use for potatoes. The following table shows the results obtained:—

Fertilizers and manures	Yield per acre in bushels.		
	Fertilizers per acre.	Average of 78 tests 3-yr. exp. 912-13-14.	In. over check plot.
	Weight.		
1. Nothing	0	131.8	
2. Fertilizer	320	154.0	22.2 bus.
3. Fertilizer	640	166.0	34.2 bus.
4. Fertilizer	960	178.9	47.1 bus.
5. Fertilizer	320		
6. Cow Manure..	10 tons	179.9	48.
6. Cow Manure..	20 tons	181.8	50.

From this experiment the yield per acre increased as the amount of fertilizer became greater. From studying the results we see that the first 320 lbs. of fertilizer increased the yield 22.2 bushels, the second 320 lbs. 12 bushels, and the third, 320 lbs. 12.9 bushels, while the 20 tons of manure increased the yield exactly 50 bushels over no fertilizer and only 1.9 bushels over the plot receiving 10 tons of manure and 320 lbs. of fertilizer. Thus we see that as we increase our fertilizers our yields do not increase proportionately, for if they did, instead of getting increases

of 34.2 bushels and 47.1 from the applications of 640 and 960 lbs. of fertilizer, we would get 44.4 bushels and 66.6 bushels, respectively. Furthermore, these experiments show the wisdom of combining our stable manure with light dressings of fertilizers for increased production. Remember that your profits or losses from the use of commercial fertilizer will be governed by the following conditions in your soils, viz.:—Drainage, Organic Matter and Lime. If these are present your profits are assured.

Late Crops of Strawberries

C. L. Shaw, Victoria, B.C.

Strawberry plants bearing two crops a year are now being grown on the southern part of Vancouver Island, although so far in only small numbers. W. W. and J. W. Suttie, two brothers, living just outside Victoria, recently went into the growing of "everbearers" in earnest, and by staying with their task, both on and off season, they have reached their goal. Just at the close of August the Suttie Brothers began to harvest their late crop and they expect to gather berries until the coming of frost.

Overhead irrigation is in use on the Suttie farm, the Skinner system being used. This consists of a water pipe down the centre of the garden, with laterals running off on both sides every fifty feet and about eight or ten feet from the ground. In these laterals nozzles are inserted every three feet, and these effectively cover the ground. Under normal conditions irrigation is applied every ten days.

The plants are in no way associated with the Alpine variety, well known in England as late bearers. They were developed from Bismarcks, originally by Samuel Cooper, of New York State, in 1889, and have already gained popular favor in many parts of the United States. Vancouver Island, however, has been tardy in trying them out, but the success of the Sutties is likely to act as a spur to other growers to do some experimenting with the double-crop variety.

I would cover each late fall-set strawberry plant with common earth from the side of the rows, about two inches deep, as soon as it begins to freeze hard in November. What is true of strawberries, is also true with raspberries, blackberries, and all small fruit plants. If set in the fall and a mound of earth placed over or around each plant, the results are very satisfactory, and we get done what otherwise might be undone if left until spring. But plants must be well ripened and mature or else taken up from the field and set out the same day.—L. J. Farmer, Pulaski, N.Y.

Fruit Packages and Packing

SOME of our apples are graded and packed in the orchards and shipped direct to market. The majority are roughly graded, packed in barrels and sent to the storehouse where they are re-packed. The chief package is the barrel, which, for some years to come, will be the standard for our ordinary grades of such varieties as Greening, Baldwin, Russet, Stark and Ben Davis. The box package, so much admired, is the standard for western growers and where eastern growers come into competition with them it is likely that we will have to adopt this style of package for our fancy fruit. Undoubtedly apples present a much more beautiful appearance when properly packed in boxes, and it is certain that they hold up longer and show fewer bruises. Fancy grades should all be boxed, especially the early and tender kinds, such as Fameuse and McIntosh, and the better grades of Spy, King, and other similar varieties.

Barrel Packing.

The greatest objection the consumer has to much of the barreled fruit is dishonest packing. The packer often does not realize that fruit should be packed according to grade, i.e., No. 1 fruit should be strictly No. 1, and No. 2, should not contain No. 3's.

In packing a barrel of apples the top must be carefully faced with apples representative of the contents of the barrel. The tail also should be properly levelled and arranged. This practice is very often questioned, but the more attention given to the packing of

our fruit, the more will our reputation be enhanced. The apples should not be given more pressure than necessary to keep them from getting slack. A great many of the packers have a tendency to press their barrels too tight, with the result that the greater portion of the apples are bruised and the market value and keeping qualities are greatly impaired. The barrels should be frequently racked on a two-inch plank and the apples should be level with, or but slightly above the top of the barrel before pressing. This will do away with excessive pressing and the apples will come out in better condition.

Packing Instructions.

The following instructions to packers are in use by one of the most successful shipping associations in Ontario:—

"Drive all quarter hoops down firmly and nail with three nails in each upper quarter hoop. Then drive hoops well down on the end of the barrel with poorest head and nail with four nails. Then head line by using four nails in each headliner. Exercise care in headlining and drive nails slanting. If nails show through to outside of barrel don't clinch but take out and drive right so it does not show through. Now, take out the other end of the barrel and clinch the quarter hoop nails. Use one and a half inch wire nails.

"Next, stencil your barrel.

"Now you are ready for packing.

"If using paper, place this in the end of barrel. With great care pick out and stem your facers, not the larg-

est but average size of grade you are packing. See that every apple is a perfect one with the very best color you have to choose from. You should not have any difference in size in your facers, but if you should have, place your smaller apples to the outside row and the larger ones to the centre. A good many inexperienced packers do the opposite. Always place stems down, with the exception of long sloped varieties, as Gilliflower and Bellflower, which lay red cheeks down. The sorting must be done carefully, and reject all worms, scabs, bruises and unshapely apples both for No. 1's and No. 2's. Now, place your barrel on a plank and after each basket of apples is emptied, give the barrel several quick, short shakes. You will have to be governed according to the size of the apples you are packing how full to fill the barrel before using the leveller. At all times level so it will take one row blossom end up, on top and leave your apples about half an inch above staves. Care must be exercised in racking down very carefully. Nail and headline your barrel and same is ready for shipment."

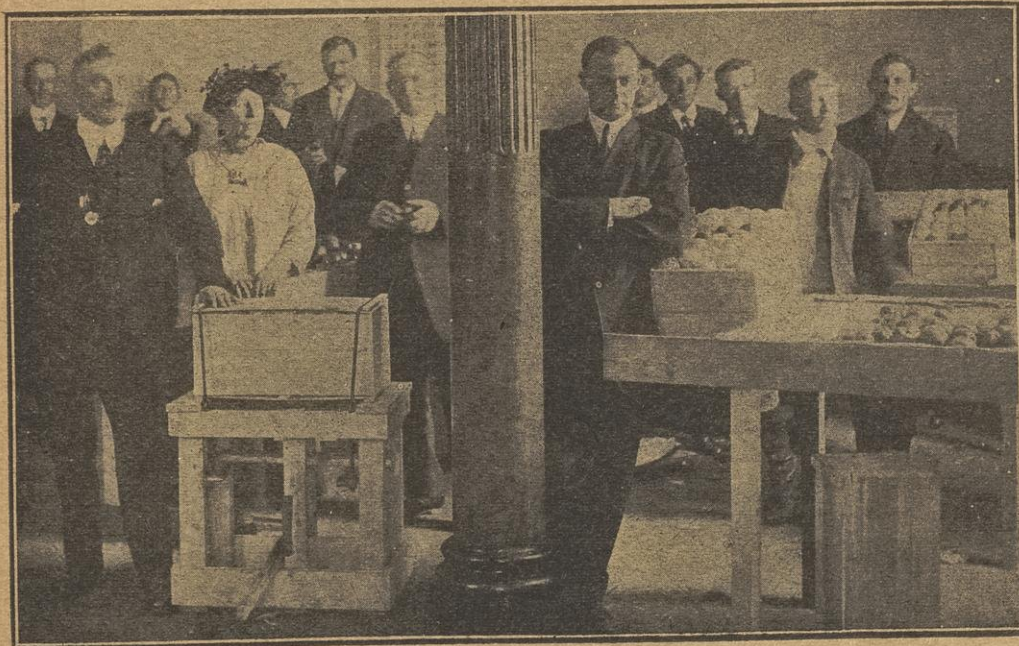
Avoid Pressure.

When apples have to be shipped to the storehouse to be re-packed very little pressure should be given and the barrels need not be faced. In harvesting an apple crop for storage, very little attention is given to grading, this being completed in the storehouses. Some buyers recommend this practice and their reasons presumably are lack of labor and shortness of season, but it is quite obvious that if the apples are run over a table in the orchard and culled, the expense of rehandling these culls would be avoided and the margin of profit increased.

Box Packing.

The packing of fruit in boxes by the Ontario growers is on the increase. Local markets in Ontario and Quebec are using more boxes than before. The western markets are asking for their fancy fruit in this package, and if our growers are to participate in these markets for high priced goods they must ship the greater percentage, if not all, of No. 1 fancy fruit in boxes. Box packed apples may meet with poor returns at first, but once introduced to the trade, they should, and will give better net prices to the grower. Any failure may be attributed largely to low quality and poor packing.

All summer and early fall apples should be sold in our markets in boxes. The fruit carries better and finds a readier market, especially in the west. In our local markets, and to some ex-



Of late years interest in commercial fruit growing has been increasing in New Brunswick, where fruit packing classes, such as the one here shown, have been held under the direction of Mr. A. G. Turney, Provincial Horticulturist. Mr. P. J. Carey, of the Dominion Fruit Division, may be seen to the left.

tent in our western markets, there is a good demand for our summer apples, such as Astrachan and Duchess, put in baskets. The fancy and No. 1 grade of apples will always bring better prices in boxes and baskets than in the barrel. The fruit being sold suffers far less from bruising in the smaller package.

Packing and Grading.

To make a success of box packing much time and patience at the start is necessary. Some of our growers have not succeeded sufficiently to make it worth while changing from the barrel pack. This is to be regretted and it is safe to say, had they persevered, very good results would have been shown. The most important point in box packing is to aim for the same standard of quality that has obtained for the western growers their markets and high prices. We have the flavor in Ontario, so our next concern is to get well colored, clean fruit. The apple should be graded closely, according to size. This not only facilitates packing, but also improves the appearance of the box when opened. Box packing requires considerable practice and skill to reduce the cost to a minimum.

High grade fruit should be wrapped; use a light Manilla paper. Much of the paper at present in use is too thin, and where the apples sweat it presents afterwards a very untidy appearance. No time is lost by wrapping, for while the packer is reaching for the apple with one hand he picks up the paper with the other. Then, too, a wrapped apple remains in place and the shifting so troublesome in unwrapped apples is overcome. The boxes should be paper lined as it insures keeping dirt and odors away from the fruit and adds to the attractiveness of the package. Pads are sometimes used in the tops and bottoms of the boxes. The thick patent pads made with excelsior filling are clumsy and occupy too much space. Single and double corrugated cardboard or heavy soft cardboard or paper will answer the purpose, especially for export, and will prevent a good deal of bruising.

The two ways of packing most used are the diagonal and square methods. The diagonal is preferable for the reason that it causes less bruising. One apple fits in between two in the form of a triangle and allows more pressure to be applied diagonally across the box instead of having to jam them as in the square pack.

The bottom of the box when packing, is the top when opened in the case of unwrapped fruit, but if the fruit is wrapped the box is top side up and the last layer is the face. If there are to be four tiers in the box and a wrapped diagonal pack is used, start the apples two across; the second tier three; the

next, two; or three across, then four, etc. This is to ensure the fourth tier, or face, opening up with an apple in each corner. If the fruit is unwrapped start the face by placing an apple in each corner; the second tier then will start with two.

October Pruning

Prof. J. W. Crow, O.A.C., Guelph, Ont.

Would it be injurious to apple trees to prune them in October? We are not very busy and could do some work in the orchard if it would be alright. Our pruning would not be more than 1 inch cuttings.—H. L.

I would not advise pruning young trees at this season, but trees five years old and up might be pruned in moderation without danger. It would be well not to go above the inch limit mentioned, but I should not care to remove any considerable number of branches of this size, although certain trees might seem to require it.

Winter Orchard Protection

The heavy losses to fruit trees last winter have led many to wonder how orchards can best be protected against similar losses next winter. The fact that many trees this year have borne but light crops and thus have not depleted their strength will give some protection. Of course, there is no sure cure. Two precautions that can be taken are to see that the trees enter the winter as well matured as possible, and second, that the winter moisture supply in the ground is saved.

Cultivation after the leaves have fallen may prove beneficial in conserving the winter moisture supply. In extremely dry situations it may be worth while to apply a mulch of straw or coarse manure in the late fall. Such a mulch may attract mice and a cone of earth should be built up about the base of the trees to a height of ten or twelve inches. Then if the mulch does not come closer to the tree than the base of the cone there will not be great danger from mice.

With small plants it is quite possible to bend them over to the earth and cover with soil. This is a common practice in protecting raspberry bushes and very young trees. Just enough dirt to hold the plants near the ground will furnish ample protection.

A good supply of moisture in the soil during the winter season will also tend to protect trees from drying out. Where the falls and winters are dry it is a good practice to irrigate trees after the leaves have fallen if water is available. It is not good practice to let weeds or grasses grow up about trees in late summer in localities where the fall and winter are likely to be dry.

An Outdoor Root House*

Prof. J. W. Lloyd, Urbana, Ill.

An outdoor cellar for storing vegetables may be constructed of brick, hollow tile, or concrete. Taking advantage of the topography of the land, an excavation is made in the side of a hill, if possible, at such a point that a grade entrance will be secured to the cellar. Forms are then erected, if the construction is to be of concrete, and the side walls made. The roof may be either in the form of an arch that is self-supporting, or it may be made flat if reinforced concrete construction is employed. Provision must be made for carrying the ventilator shafts of concrete to a height that will put their outlets above the layer of earth that is to be placed over the roof. It is preferable to have the walls provided with air spaces to furnish insulation. For this purpose concrete blocks in place of solid concrete walls may be employed. Another way of improving the insulation of the storage cellar is to fill in a layer of cinders between the concrete wall and the bank of earth forming the side of the excavation, and also to carry the layer of cinders over the roof. In all cases there should be a layer of water proof concrete over the roof.

Earth should be banked against the exposed sides and over the top of the building to a depth of at least three feet. This will assist very materially in maintaining a uniform temperature within the storage cellar, and will be good protection against frost. The entrance should consist of a vestibule with double doors. Retaining walls should be provided so that earth may be banked against the vestibule as well as the rest of the building. The vestibule should be sufficiently large so that upon entering, a person may close the outer door before opening the inner door, and thus avoid cold air draughts.

The ventilators and air intakes should be provided with dampers so that they may be closed or opened as desired, to maintain the proper temperature in the cellar. The air intake should be screened at the outer end to prevent the entrance of rats or other vermin.

By proper attention to such a cellar it is possible to maintain a temperature of 34 to 38 degrees without much fluctuation, during most of the winter season. This temperature is almost ideal for the storage of potatoes, the root crops, and cabbage. Such a storage cellar is rather expensive, but is a permanent structure and is especially adapted to the storage of vegetables, and also apples, in northern localities.

*Extract from circular No. 231, entitled, Storage of Vegetables for Winter Use, issued by Agricultural Experiment Station, Urbana, Ill.

Growing Tomatoes in Alberta

THE production of tomatoes in large quantities on the prairie does not appear to have been a success in the past, but prairie people are inclined to attempt things which have never been done before. Messrs. G. O. Kerr and J. E. Terrill, of Lethbridge, Alberta, have observed for some years that tomatoes in small quantities were matured in the Lethbridge district and decided that there was no reason why the experiment should not be made on a commercial scale. As a result about two acres of tomatoes were set out this summer on land farmed by Mr. Kerr, a few miles east of Lethbridge. The plants were started under glass in Lethbridge and set out on June 6, 7 and 8, at which time they were from six to eight inches in height. Three thousand five hundred plants were set in the plot, some of them three feet apart and some four feet apart. The experience of the season seems to indicate that the four-foot distance is preferable.

The soil secured was an old pasture which had since been in alfalfa and was protected by a wind break of trees on the western side. It was a rich loam with a gentle south slope, and, of course, was irrigated. The land was cultivated in the ordinary way and irrigated before planted and three times afterwards.

First Returns.

The first of the ripe fruit was avail-

able seven weeks after setting out the plants, or about the end of July. During the month of August from five to six hundred pounds of beautiful ripe fruit was taken off the plot each day, and this rate of production continued into September. The total yield of the plot is estimated at 35,000 lbs. and a ready market was found for the product in the city of Lethbridge, the early ripe tomatoes bringing twenty-five cents a pound and the latter crop fifteen cents a pound. The gross price of 35,000 pounds at the latter figure was \$5,250.

According to Mr. Kerr no difficulties were experienced in the production of this crop. The vines were trimmed early in July for the purpose of producing heavier fruit and also admitting more sunshine which ripened it rapidly. The tomatoes were as large and as well developed as the best imported stock from British Columbia or Washington, and, being local grown, they of course, reached the consumer in better condition. The crop was so heavy that in many cases the support stakes which had been put in for the vines to climb on were broken down. One vine was noted which had eighty-three tomatoes on it.

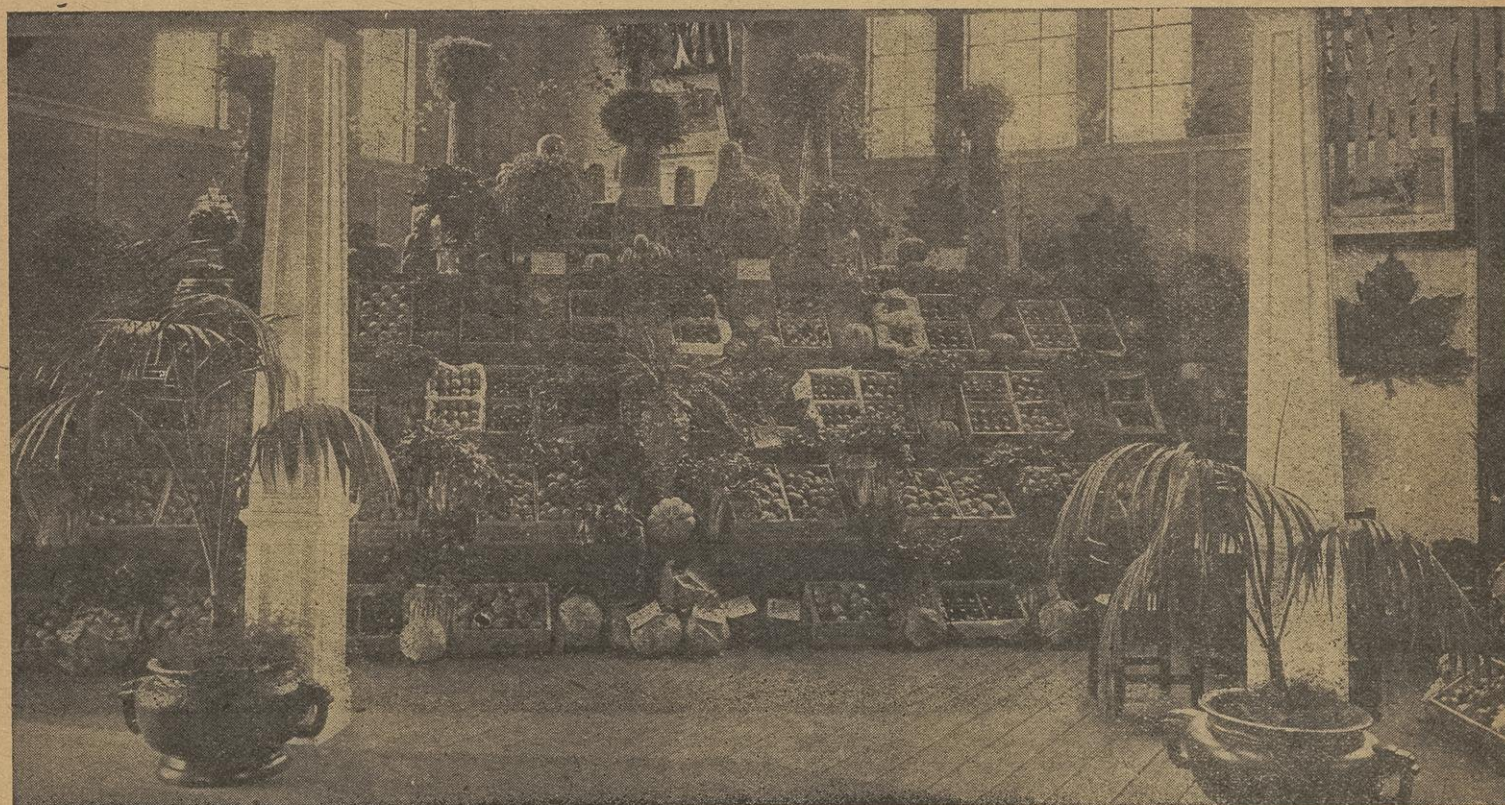
Up to September 7th no damage had been experienced from frost, although as a precautionary measure flax straw had been dumped about the plot so

that smudges could be started if necessary. Mr. Kerr points out that the essential thing in the production of this crop was the irrigation, which not only increased the amount of fruit but by affording ample moisture at the right time resulted in early ripening. Without irrigation it is doubtful if the experiment would have been successful. As it is the experience is instructive as to what these irrigated lands are capable of. As there is an abundance of such land there is little doubt that some day this portion of the prairies in southern Alberta will be the home of one of the most productive agricultural communities on the continent.

Practice Fall Spraying

Fall spraying after the leaves of fruit trees have dropped may be substituted for the usual dormant spraying, and orchardists will thus overcome the difficulties in handling freight and obtaining labor in the spring. San Jose scale unless extremely bad can be controlled practically as well by fall operations as by deferring the work till spring, according to entomologists of the Ohio Agricultural Experiment Station.

Heavy spray tanks are much more easily hauled over firm ground in the fall than over soft ground in the spring. Men and teams are more available for doing the work in fall than when the rush of spring work is on. Also the application of such a



The display of vegetables from the gardens of the prize winners in the Ontario Field Crop Competitions was an outstanding feature in the Horticultural Building at the Central Canada Exhibition, Ottawa. It was arranged by Mr. J. Lockie Wilson, Sec'y of the Ontario Vegetable Growers' Association.



Various varieties of peaches as photographed in the peach orchard of Dr. A. J. Grant, at Thedford, Ont., past president of the Ontario Fruit Growers' Association.

spray as lime-sulphur solution or a miscible oil to orchard trees confers considerable immunity from attacks by meadow mice and rabbits during the winter.

Insecticides and any required machinery should be ordered now for this November spray. No delay will then be occasioned when spraying time comes.

Keeping Celery Fresh

E. P. Smart, Brockville, Ont.

Celery properly banked up in the first part of October should be ready for use in three or four weeks. If it is to be stored in a cellar for winter use, nothing further need be done to give the upward direction to the stalks after drawing up the earth about the plants. If the climate allows of its remaining in the open ground, as is the case in some parts of the country, a heavy bank of earth may be made on each side of the rows. As the weather grows colder, additional covering of litter will be necessary. Celery will stand considerable frost, but the ground must be as dry as possible and made secure from water in the trenches. This winter-trenching should not be attempted unless one is sure that his locality is not too severe and is able to give sufficient covering. If conditions are favorable, ideal celery is the result of this system. In parts of our country where the climate is more severe, celery must be stored under cover or in a cellar,—a temperature of about thirty-four degrees Fahrenheit is most suitable. The celery

plants are placed preferably in narrow boxes, of a depth almost equal to the height of the celery. At the bottom of the box there should be a few inches of moist sand or earth. The roots of the celery plants should be placed on this in an upright position, the plants being quite close together to exclude light. No earth or sand should be placed between the plants. The soil should not be watered from above—the dampness must be maintained below the roots. Thus placed, the celery will be blanched and ready for use in January, February and even later on. If boxes are not available the space on the cellar floor may be divided into strips by placing boards of suitable height and the proper distance apart. The plants would then be packed as in the boxes. If planted in wider boxes in masses, there is always danger of the plants "heating" and decaying.

The varieties of Celery are not numerous. The Golden self-blanching and the White Plume are the most popular. The Red or Pink celeries are in favor in the English markets and the claim is made for them that they are crisper and better flavored than the white varieties, as well as less liable to rust and rot in winter. The Pink variety has not attained any degree of popularity in this country, but is worth a trial on a large scale by some enterprising celery grower who could thus educate the public as to its value.

We must put up our fruit in boxes if we are to hold the western market.—C. J. Thornton, M.P.

The Use of Pits

The pit for storing vegetables should be located in a well-drained place. Ordinarily, a shallow excavation, usually not over a foot deep, is made in the ground. This pit is lined with straw; then the vegetables to be stored are placed in a conical pile on the straw. Straw to a depth of about six inches is then placed on the sides and top of the pile. This is covered with about three inches of earth. The straw is allowed to extend up through the earth at the top of the pile to provide for ventilation. As cold weather approaches, more covering is added to the pit. Another layer of straw and an additional layer of earth are applied. In very severe climates an outer layer of manure is also put on to afford protection against frost.

If parsnips alone are to be stored, they may be placed in a conical pile and merely covered with soil, since they are improved rather than injured by freezing. The advantage of placing them in a pit rather than leaving them in the garden where they grew is that they are more accessible during the winter season.

The conical pit described is applicable to the storage of beets, carrots, parsnips, turnips, and potatoes. Better results will usually be secured if the piles are made rather small. It is easier, then, to take out supplies during the winter without unduly exposing a large portion of the product. Sometimes, it is the practice to use several pits for the storing of the home supply and to place a small quantity of each kind of vegetable in each pit, so that when supplies are desired, the entire contents of one pit may be removed at once and kept temporarily in the basement of the house until used.

Cabbage is not usually stored in conical pits. The plants are pulled with the roots and leaves left on, and are placed upside down in narrow rows, about three heads wide, on the surface of the ground, then banked up with earth. It is not necessary that the cabbage be buried very deeply, since it is not injured by freezing provided it is allowed to thaw out slowly while still buried in the soil.

The outdoor pit method of storing vegetables is better adapted to severe than to mild climates, and to the storage of vegetables to be used late rather than early in the season. Considerable inconvenience will be experienced at times if vegetables from these pits should be desired during very severe weather.

The situation of a strawberry bed should be open and airy; they will not tolerate shade.—W. A. Dier, Ottawa, Ont.

Trial of an Intensive System of Beekeeping at C.E.F., Ottawa

By F. W. L. Sladen, Apiarist, Dominion Experimental Farms

HAVING found that the development of beekeeping in many places in Canada is being much held back by the difficulty in controlling swarming and the loss of bees in winter, the writer has been paying special attention to these two problems. Any solution, to be acceptable, must not much increase labour in the apiary; preferably it should reduce and simplify it.

At Ottawa, which is in the heart of a particularly favorable region for honey



Portico fixed to hive front.

production, the writer has been unable to prevent swarming by the simple methods employed successfully in many places further south, such as giving shade, ventilation, and room in the hive. The more radical method of raising nearly all of the brood to the uppermost super, sometimes called the Demaree plan, and the laborious method of cutting out queen-cells every week have also proved unreliable. The only sure and practicable way to prevent swarming at present known to the writer is to cage or remove the queen and cut out all the queen-cells, except one, eight or nine days later. The production of field bees continues unabated for about five weeks after the queen is removed; by this time the best part of the honey flow is over. This method automatically provides a young queen that will give greater profit the following year than the old queen. The time to carry out this method is at the beginning of the honey flow from clover; consequently it does not cover early swarming that may take place in strong colonies.

In 1918 the writer modified this method to the extent of dividing the brood chamber, which was of 10-frame capacity, into two parts, each containing five combs, by means of a thin

frame covered on both sides with wire cloth, leaving a queen-cell with, or preferably, giving a selected one to, each part. A special portico leaving the regular entrance at full size, but providing each part with an outer entrance separated by a sufficient distance—about nine inches—for the mating of the two queens, was designed. The portico was made reversible; the reverse side reduced the regular entrance to two small, widely-separated entrances for use in fall or spring, or with weak colonies. Each side of the portico had a forked tongue which was pushed into the entrance of the hive and clasped the adjacent corner of the wire-cloth divider. On August 7, when the light honey crop was removed, out of thirteen colonies treated by this plan, seven were found to contain young laying queens and brood on both sides, and five on one side. In the remaining colony a queen began to lay on one side four days later. No swarming took place. The colonies gave an average of 188 lbs.* of surplus honey each. Their average strength on April 25 was 4 1-2 combs. Wire queen excluders were used.

Removal of the supers containing the dark honey crop between September 12 and 20 caused the severance of the two parts of each colony. The colonies were then fed up for winter.

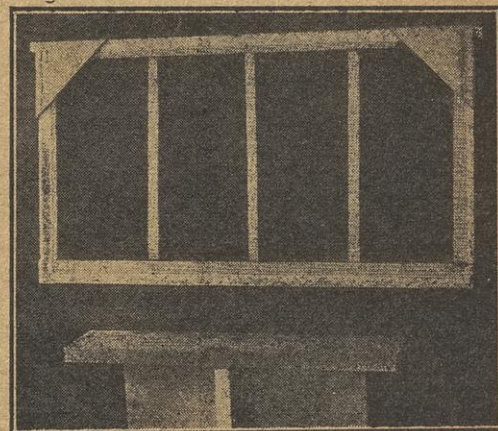
Part of the purpose in thus wintering two laying queens in each hive, was to eliminate early swarming and at the same time to take advantage of the very favorable conditions in spring in the Ottawa district for building up comparative weak colonies in time for the clover honey flow.

Two weak colonies in a 10-frame hive separated by the wire cloth division were wintered in the cellar in 1917-18. They were found to cover 2 1-2 and 3 combs respectively on April 25. The last week in May, about the middle of the honey flow from dandelion, the stronger one was transferred to a separate hive. This treatment prevented any attempt at early swarming that usually gives trouble with strong colonies, especially towards the end of the dandelion flow, and also, the inferior dandelion honey, instead of congesting the brood nest and needing a super for surplus, was converted into bees for working on the clover. Both colonies built up strong in time for the clover flow which commenced on June 25.

*This figure excludes certain colonies that had swarmed before division or started the season very weak.

The weaker one was fed a pound of thin syrup a day during the honey dearth that followed the dandelion flow. This colony, treated as explained below, gave 220 pounds of honey and an increase of one colony. The other colony was not fed at this time and gave 260 pounds of honey with no increase. The total yield of the double colony was therefore 480 pounds. The first colony was helped by the feeding; the second by the fact that they were hybrids. The average yield of the other colonies in the apiary was 176 pounds.

A study of the wintering problem shows that although many bees are lost in winter through insufficient protection which may easily be supplied) much loss is also caused by unwholesome stores. Indeed many losses attributed to starvation are primarily due to heavy consumption of unwholesome stores. No better stores can be found than pure clover honey stored as gathered. This is well demonstrated by the good wintering as a rule around Lake St. John, Que., 250 miles north of Ottawa, where practically all the honey comes from clover and the bees are kept in the cellar for more than half the year. But in many places the wintering chamber contains a more or less unwholesome mixture of many kinds of honey, etc., gathered at different seasons, chiefly in late summer. How to easily get rid of this brood-chamber



Wire-cloth division and portico.

honey and replace it with wholesome stores is the problem.

In the colonies re-queened in the way described above, it was found that all or nearly all of this honey was removed by the bees to make room for the large amount of brood raised by the two young queens, and the colonies were fed in the fall with a mixture of granulated sugar syrup and honey that

had been gathered at the season when it came almost entirely from clover, (June 25 to July 10) in colonies having a record free from all diseases.

The best bees for wintering are young bees that have not done much field work, that is, bees raised in late summer. The presence of the two young queens in the brood chamber insures a maximum production of such bees.

This system supplies a method of increasing bees without sacrificing the honey crop, each colony becoming two. Where no increase is desired, one of these colonies may be placed over the other at the beginning of the honey flow: A larger honey crop will result. It also provides a surplus of young fertile queens without the trouble of forming nuclei, and, if desired, without even raising the queens artificially, because excellent queens may be raised from two-day-old larvae that may be found in swarm-cells at the time the queen is caged. Indeed, it has been found advantageous to delay treating a colony until its preparations for swarming have advanced to about this stage, ascertained by weekly examinations.

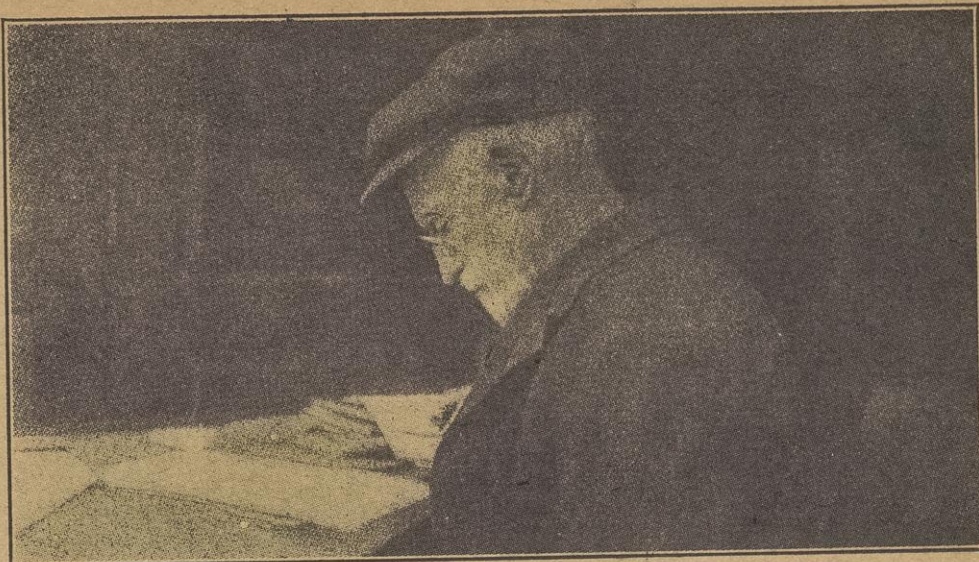
In colonies where the old queen is considered too valuable to kill, a nucleus may be made for her on the eighth day from the same colony with a comb containing a little brood and a few bees. These queens may be used to replace any young queens that are found to be lost when the white honey is removed. Where more increase is desired, good results have been obtained by simply transferring the old queen to the top super on the first day and later placing this on a new stand. The weaker colony that gave 220 pounds of honey and an increase of one colony was treated this way.

Stores and bees are equalized as much as possible in early spring, thus further attention at this time is avoided. An outer protection case is recommended both in early spring and fall.

The system of beekeeping above outlined is to be tried next year with 12-frame as well as 10-frame hives and also in an out-apiary which will be visited only occasionally.

As an alternative to the above method of dividing colonies in the fall, a spring dividing experiment was made as follows:—

A strong colony covering six combs on April 25 was removed to a new stand on May 20 and a purchased fertile queen introduced to the bees that returned to a new hive placed on the old stand in which one of the combs of brood with the adhering bees had been put. The result was 356 pounds of surplus honey and an increase of two colonies, including the division made.



A. I. Root, the famous bee man, although nearing eighty years of age he bubbles with enthusiasm, new ideas, and the desire to make experiments. His mind is still young. He is up to date in everything. He simply will not grow old.

While Others Laughed---Root Won Out *

By Albert Sidney Gregg

DON'T laugh at the fellow with new-fangled notions. He may be a genius in disguise. Rather sit at his feet and learn. For when a man begins to experiment it is a sure sign that ideas are working in his system. And ideas make fortunes.

I have just interviewed a man who began by making all sorts of experiments in his youth, and who later developed a million-dollar business right in the village where he had long been looked upon as a "joke."

This man is known in fifteen languages as "Root, the Bee Man," for he has built up the largest concern of its kind in the world. His plant and bee yards at Medina, Ohio, cover seven acres. He has experiment stations in other states. And he has a representative in practically every important city throughout the world.

His foreign correspondence is so extensive that a special translating department is maintained, where every correspondent is answered in his own language. One of his books on bee culture has been translated into French and Spanish.

People who see what Root has done exclaim: "What a lucky fellow! Why, he has a regular gold mine!"

But in his youthful days nobody thought Root was lucky; and his family and friends were sure they were not! His experiments in chemistry and electricity rendered him as great a nuisance as was Edison when he was making his early discoveries. Long before electric motors came into general

use Root built a small motor out of crude materials and actually made it go. Then, one day, he had a grand new idea, and he invited the family to see him demonstrate it. He explained that he was going to explode gas with an electric spark. Nobody had sense enough to interfere, so he put the gas into a bottle, ran the electric wires in through the cork, and the family gathered about to see what would happen. They saw! The spark exploded the gas all right. With a bang the bottle flew into fragments, and a girl in the group was hurt in the arm by some of the pieces. That ended the family gatherings to see young Root try out his ideas. The young man and his contraptions were banished to outer darkness, but he went on joyfully experimenting, just the same. He did not grasp it at the time, but he had actually stumbled upon the basic principle of the modern gas engine by which automobiles and airships are now propelled.

As a lad he prepared lectures on various subjects along the line of his experiments, and fired them off wherever he could corral an unsuspecting audience. When he was only sixteen, he actually hired a hall at his own expense, advertised a lecture, and delivered it, too.

His Start In Beekeeping.

Eventually he became a watchmaker and jeweler, and at twenty-five was in business for himself. He jogged along for a while, repairing watches and selling jewelry in good old orthodox fashion, until he discovered one day that

*From "The American Magazine."

there was a pretty strong demand for rings and chains made of German silver.

"Why not use the real article?" he said to himself; and forthwith he began melting silver dollars and making the metal up into rings and chains. In this way he developed an extensive business as a manufacturing jeweler. It was his custom to buy up silver dollars and pour them into the melting pot a peck at a time. Finally, somebody became alarmed at the extent of his business and the number of good silver dollars Root was melting up, and made complaint to the Government. So, in due course of time, Root was officially "investigated." The authorities, however, ruled that as long as he paid for the silver dollars he had a right to do as he pleased with them, so he continued to melt them.

About this time Root saw some mention in a paper of a strange vehicle called a "velocipede," and thought he would get one. After considerable inquiry he learned that he would have to send to France for it, but that only whetted his curiosity and he sent his order. The people of his village had harbored suspicions of Amos Root's sanity before; but when that velocipede arrived they were dead sure he had gone clean crazy. It had two low wheels, but no motive power, and the rider was obliged to kick it along with his feet. In the midst of the jeers of his friends, Root only laughed good-naturedly and hired a hall for the purpose of making further experiments. Locking the door against his hilarious fellow citizens, he practiced all day, secretly and strenuously, until he had learned how to ride the strange importation. Then, in the evening, he ventured forth and gave a triumphant demonstration of his skill. And that was the only reply Root ever gave to the jeers of his friends and neighbors.

One day, while engaged in melting silver dollars, Root's attention was attracted by a strange humming sound.

"What's that?" he exclaimed.

"A swarm of bees," replied one of his associates. "Look there!"

He pointed to the swarm as it slowly passed along, quite near the tops of the houses. At that time, about all that Root understood about bees was that they had stingers! But as he watched them that day he began to ask questions.

"What will you give me to catch those bees?" asked his helper.

"Can you catch them up there in the air?"

"Sure, I can!"

"Well, if you catch those bees I'll give you a dollar."

Root made the offer as a challenge, without any thought that the swarm could be caught; but the other man knew something about the habits of bees, and had noted that they were heading for a tree, where they would soon alight. Catching up a small box, he hurried to the tree, and after scooping them into the box, he came back in triumph. Without a word, Root took the box of bees and handed the man a silver dollar. And it was that very coin which became the nucleus of Root's present million-dollar bee business.

"Tell me how you caught them," he said, as he studied the bees through a crack in the box.

"Oh, that's a ten-dollar secret!" was the enigmatical reply.

Again Root asked all kinds of questions, but he could not get any more information from the man, and that very thing stirred his curiosity all the more, until he determined to find out for himself. First, he ransacked his house for reading matter on bees, but found very little. Then he asked the neighbors. They laughed and told him what little they knew. But that wasn't much, so he framed an excuse to go to Cleveland—no trifling matter then, for it was a day's journey with a horse and buggy. When he reached Cleveland he hunted high and low for a book on bees, and finally bought one. All that night he sat up, poring over his treasure, and the next day he was so "full of bees" that he could hear them buzzing everywhere. Back he went to Medina and began to put his new knowledge into practice. Farmers living near the village advised him against bothering with bees.

"There ain't no money in bees!" he was told. But he went on experimenting, utterly regardless of what his neighbors said.

Then he gave the people another jolt by investing twenty dollars in an Italian queen bee, which he had imported for his especial benefit. Twenty dollars for one bee! It was an unheard-of thing. But that was A. I. Root's way. The unheard-of thing, the new thing, that thing that was full of unlimited possibilities, was always the thing that captured his imagination.

The fancy queen came in due season, and Root had everything ready for a truly royal reception. But just as he was putting her into the hive, something slipped and the Italian beauty flew away.

"There goes twenty dollars!" he exclaimed. "Now the people will call me a fool, sure enough!"

But by this time Root had found out that a bee will always come back to its

starting point. So he waited near the hive, and in about ten minutes his expensive and elusive queen returned, this time to enter the hive without any trouble.

"My, what a narrow escape!" exclaimed Root thankfully. "If that queen hadn't come back, I never would have heard the last of it."

From that time on, Root gave himself utterly to the bees. He left the making of silver rings to others, while he put in his time developing all kinds of bee and honey contrivances. Among other things he rigged up a homemade honey extractor which enabled him to separate the syrup from the comb. This was done by perforating a tin bucket with small holes, and attaching it to a revolving table. Honey in the comb was placed inside, and the bucket was then made to revolve rapidly. Centrifugal force caused the honey to come through the holes and run down into a cup. The familiar honey extractors now in general use are constructed on the same principle which Amos Root introduced with his tin bucket.

A Critic Silenced.

From the twenty-dollar queen Root obtained in one summer a colony which yielded him a barrel of pure honey. When he told what he had been able to do, his critics demanded proof. One man in particular was so loud in his denunciation of these claims that when the chance came Root unceremoniously collared him and demanded:

"Did you say it was impossible for anyone to get a barrel of honey from one colony of bees in one summer?"

"I did," replied the man, "and I say it again, too. It simply can't be done."

"You come along with me and let me show you something," said Root. And then, as the man hesitated, he exclaimed: "Come along! You have as good as called me a liar. Now I want to show you that somebody else is the liar—and that you know who he is."

Root led the man to where the colony was kept. It was a bright day, and the bees were working with all their might. Root had put the hive on scales so that he could actually see the progress the bees were making. Pointing to the dial he said:

"Now you watch that scale!"

The critic watched. He could see the hand on the scale slowly move, and in a few minutes it registered three ounces of honey, which the bees had deposited within the hive.

By this time the critic was ready to apologize. He not only admitted his mistake, but went out and told his neighbors that Root was right. Later when Root told that he had obtained

fourteen pounds of honey in one day, the people accepted his word, although the results he was getting were far ahead of anything they had ever seen. His success attracted a great deal of attention. He made and sold hives and extractors, and began writing for the "American Bee Journal," under the nom de plume of "Novice." His articles in the "Journal" brought so many inquiries that he got out a circular to answer queries. He then launched "Gleanings in Bee Culture," first as a quarterly and later as a monthly. At the present time, this publication goes all over the world.

When "Gleanings" was started Root did not have enough capital even to buy an engine to run his printing press, so he hitched his press to a windmill. Now a windmill will furnish power only when the wind is strong enough, and many a time Root was obliged to work at all hours of the night in order to accommodate his work to the wind. But he worried along in this way until he was able to buy a steam engine.

Besides developing the honey extractor, Root has also brought to perfection the Weed process for making wax for comb foundation. He also made a machine by which this wax strip could be indented, or milled, in exact imitation of a bee comb. There are only two machines in existence for making the mills for doing work of this kind, and both are owned by the A. I. Root Company. The mills made by these machines have been shipped all over the world.

Root is very unconventional. He goes about in an ordinary suit with a cap on his head, and half the time the cap is down over one ear. On one occasion he got caught in Columbus without baggage, and when he went to a hotel and applied for a room he was assigned to one of the fifty-cent variety and required to pay in advance. Root accepted the situation with a good-natured chuckle. He could probably have bought and sold the hotel and never missed the price.

Although nearing eighty years of age he bubbles with enthusiasm, new ideas, and the desire to make experiments. His mind is still young. He is up to date in everything. He simply will not grow old. He will keep right on working until he cannot stand up, and then will call in a stenographer and dictate a lot of directions for others to carry out.

"What advice have you to give a young man who wants to make a success of his life," I asked Root, after he had told me about his own success.

"Let him learn all about his business, just as I did about bees," he replied promptly. "Why, I went so far as to get a book in a foreign language, and then hired a girl who knew the language to read and translate it for me as she went along. The big thing is to be thorough. Know everything there is to be known about the business you are in. Knowledge raises the quality. And quality insures success. Don't be afraid to try new things. You will make mistakes, and you will lose money sometimes; but you will make discoveries that will more than offset your losses. Avoid a rut as you would the pestilence. Folks will laugh and call you a joke, just as they have done in my case. But let them laugh. Follow your best light, and don't be turned aside by ridicule. In finances, steer clear of signing notes and of speculation. Don't go into debt, don't speculate. And trust the Lord."

The Honey Industry; Its Relation to Sugar*

Morley Pettit, formerly Provincial Apiarist for Ontario

FIVE hundred tons of honey wanted for export! This is the word that has gone out from the Dominion Government and gives official recognition to a new language in Canada. Honey in hundreds of tons!

The annual reports of the Ontario Beekeepers' Association have contained lines of figures representing totals of crops of a few of the members who were interested enough to report. Nobody reads them, but if they did they might be surprised to learn by figuring that three hundred to five hundred members have annually reported aggregates of five hundred to one thousand tons and over. As I say not one beekeeper in a hun-

Quebec the other provinces have their honey resources practically untouched. With the world on sugar rations this is deplorable. With our national credit in need of strengthening this waste of a great natural resource is a grave oversight.

The enormous demand for honey suggests a most urgent need of the beekeepers at the present time, and that is sugar for winter stores. It has been stated by some, even in responsible positions, that honey is the best winter feed for bees; but we have learned by bitter experience that this is not true, for Canada at least. They may winter well on the best grade of honey, but the poorer grades are usually stored last and used first, and the only safe method is to feed freely syrup made from granulated sugar after they have finished gathering in the fall.

Beekeepers have been accused of wishing to feed sugar only that they might liberate honey to sell at a higher price. They have even been called a nasty name which we do not think should ever be applied to a bona fide producer of food—this, of course, through lack of understanding of the facts of the case. While there is no use denying that the present difference in price carries weight, and is the most weighty incentive to

increase production, the best beekeepers fed sugar just as freely twelve years ago when there was very little difference in the wholesale prices of the two, and would prefer to feed it to-day if it cost as much as the price of honey.

A year ago, many beekeepers, for patriotic and economic reasons, failed to feed the necessary amount of sugar. As a result the winter loss of colonies reported in Ontario was 25.5 per cent., and I am quite sure the actual loss was much higher than that, whereas apiaries fed heavily with sugar syrup wintered almost 100 per cent.

The point is that in the Canadian winter bees are unable to take a cleansing flight for a period of from three to five months. During this time they must retain within the intestine the feces which accumulate in proportion as the food is highly digestible or otherwise. The accumulation from sugar syrup stores is almost nothing as compared with even the best of honey, and the accumulation from the lower grades of honey is such as to cause dysentery and death. Unfortunately the inferior grades are gathered from fall flowers, stored last, next the winter cluster and used first in winter. This year on account of the prevalence of aphides in some districts they are storing "honeydew" an excretion of the aphides which falls on the leaves of trees. If compelled to depend on this as a winter food the bees are sure to die before spring. The remedy is to feed sugar syrup freely after they have finished gathering these things, so they can store it next their cluster and use it first in winter.

Only granulated sugar will answer. Yellow sugar is not sufficiently refined and would act much the same as inferior honey.

Beekeepers have been classed with manufacturers using sugar in their product; but



Apiary on the Experimental Farm, Invermore, B.C.

dred, and certainly not one "layman" in a thousand reading the figures reported comprehends or could repeat a moment after the total crop of honey tollsomenly collected from flowers by the bees of one-third of the members. Now nineteen out of every twenty beekeepers in Ontario either neglect or object to reporting their crop, so if they averaged the same as the reporters the total crop might be obtained by multiplying the reported crop by twenty. Many of the non-reporters have small crops, but many of the reporters are enthusiastic beginners with almost no crop at all. This evens them up and the fact that the majority of large producers are non-reporters for selfish reasons makes it quite safe to estimate the annual crop in the neighborhood of ten thousand tons of honey produced in Ontario alone.

It is probably less than that this year; but a few thousand tons of honey make little difference one way or the other when the market has been practically bare by the holiday season each year since the failure of 1914 cleaned up what surplus the previous bumper year had left. Where does it go? A great deal of it never gets beyond the concessions and villages whither it is taken in automobiles and buggies from the beekeepers' doors and stored for winter consumption. A great deal more is shipped to friends and relatives who have moved to sections of the country where beekeeping has not been developed. Some reaches the retail grocer through the regular channels of trade. Under existing conditions the amount he is able to secure is only tantalizing.

Large as the amount of annual production in Ontario may seem it is only a small fraction of what might be produced were the industry more fully developed. Aside from

*This article appeared in "The Canadian Grocer."



Home yard of the apiary of C. Klabuhn and Sons, Conneant, Ohio.

this is not a fair comparison. The manufacturer converts raw materials which might have been used in other ways. The beekeeper employs insect laborers to wrest from nature raw material which would otherwise be a total loss. Like the farmer, he is a producer of food, and the sugar he feeds to his bees bears the same relation to the honey they produce as the oats he feeds his horses bears to the wheat and other crops they help him harvest.

The restrictions of a bee's diet are its misfortune, and humans who can eat a variety of things may well hesitate to deprive it of the one essential. The severe Canadian winter is one of the greatest handicaps to the development of honey production in this country. The uncertainty of the quality of natural stores is one of the chief causes of winter loss of bees. Through the efforts of our instructors the use of sugar to overcome winter losses has become general. It is essential to the success of this industry which may well be considered a most essential industry.

My Experience in Beekeeping and Advice to Beginners

By Wm. H. Purnell, Brantford, Ont.

IT was in 1912, just when I had finished "taking off the honey," while working for Mr. John Clark, of Cainsville, that he said to me: "Billie, you've done well. Why not make yourself a bee-keeper; it's in you?" And this, mind you, when one could see that I did have but four fingers and a thumb on each hand. However, I took his advice to heart, and in October bought eight hives and made my debut to the world as a bee-keeper. Things went well with me, and in 1913 I got some 500 lbs. of honey; so increased to 15 hives. July, 1914, which will always rank as the worst in Canadian bee history, found me with 18 hives and the firm determination to add to my apiary; so I bought 10 more hives. Now began the experience that has taught me this lesson for life: "Feed at the right time and lots of it."

Affairs were going on pretty well at the apiary, but October and early November found me plowing some nine miles away, and it seemed as if I could not get to my bees. A severe frost for a week made matters worse, but a spring-like three or four days followed, and set me busy in the apiary—just too late. Although I placed syrup nearly boiling under them, a biting wind and snow started, and I had to take two-thirds of the syrup away. Well, I packed them, made frames to go on top, put on a layer of cheese cloth, stiffened up the syrup with powdered sugar, and poured in the frames, covered all over, and left them secure in their quadruple cases.

In February, 1915, I peeped into a few hives, and—well, they were alive, but that was all I could say, and April found me with 23 dead hives and just five to commence 1915

with. I bought three 1-lb. packages of bees that arrived too late even for increase. But I stuck to it. June 14th, 1918, found me with 23 pretty good hives, and two poor ones. August 1st found me with 2,285 lbs. No. 1 clover honey and 20 hives increase, all doing fine.

Now, Mr. Beginner, is not my experience sufficient to give you courage to stick to it? My apiary is seven miles away from my regular work, which is a disadvantage you may not have to contend with. Twenty-two hundred and eighty-five lbs. honey from 23 hives is surely not bad for an amateur, when one considers that the average crop per colony for Ontario this year is, I understand, a trifle over 62 lbs. If I may presume to advise from my little experience, I would say, "Feed good stores, all the bees will take, and have them packed away snug and warm not later than the end of October. Learn swarm control, together with maintaining the principle that each hive must have a vigorous young Italian queen."

A Side Hill Bee Cellar for Winter*

By G. W. Haines.

AS I commenced keeping a few bees in 1882, I have tried many ways of wintering. I have even tried burying them. They wintered well, but it was a lot of hard labor. The next best way proved to be a house cellar where a family lives above, or at least where there is a fire above. One year I had bees in a cellar the ground floor of which was frozen for some time. The following spring there was a heavy loss. It was so cold that the bees ate only what was within their reach, and chilled and died with lots of honey in the hives. If you find it freezing for any length of time, start a fire in the cellar in some way and warm it up. The poorest wintering I experienced was in the cellar of a vacant house which was used for a beehouse. The cellar became cold and remained cold. When the sun warmed up it never reached away down into the cellar. The result was very poor wintering. The next season I put building paper over the floor. I put on some hay and tried it again. But I had heavier losses than ever—more each time than a good beecellar would cost.

In one's own cellar he can control matters. Last winter my son and myself, in wintering in seven different places, found it not so easy to control things away from home. The farthest yard is 40 miles distant.

The best wintering with least labor and least expense I have ever tried, in the long run, has been a cellar in a side hill. In the first one I built, I left dirt sides, as the ground was very hard. There was just a little wall at the top where the dirt bothered by falling down. But since then I have found it best to lay a stone wall up from the bottom. The last one built suits me perfectly. The bees are on a flat at the bottom of a side hill, where they have fine pasturage. These are 35 miles from home. I had the farmer living where these bees are located pick out a spot for the cellar where the snow drifted deepest over the hill. He reports that every winter now the cellar is out of sight, as the snow is usually 10 feet deep above it. This is very important, as very few temperature changes occur under that amount of snow. This cellar goes in the bank on a level with the yard. There

* Cleanings in Bee Culture.

is just enough slope to the floor so that if there is any water it will run out at the door. On opening the first door you come to a five-foot vestibule leading through to the second door. This is a very important arrangement, as frost will not get through the second door. The cellar is nine feet deep. A deep cellar will not be changeable like a shallow one. It is 25 feet long and 9 feet wide, laid up with loose stone—something a mason would call a dry wall. Near the top I used mortar on account of frost. The wall is laid on a level with the ground. A plank, 2 by 8 inches, is laid for a sill; then the roof is put on; some boards are laid across the sills and filled with straw to the roof. The back end of the cellar is about two feet higher than the front. This conducts any water away from the sides. In carrying the bees, we walk on a level, set four in a row, and pile five high. About 200 will thus winter finely. We could put in 225. We started in with one ventilator on top of the first cellar. We now use two on top, about eight inches square. We lock up the door and do not see the cellar again until time to set the bees out in the spring. We built this cellar when we had a spare day. We first dug, then laid the wall, then put on the roof. Straw was to be had close by for the drawing. We bought lumber for the roof. We usually have paid \$10 a year for cellars to winter in. The cellar's rent for two or three years paid the cost of building it. The additional labor necessary in putting the bees in and getting them out of a rented cellar will soon pay for building one—and then there is no worry, no insurance, and better wintering. We expect to build another one next summer.

Prepare Bees for Winter Now

Upon every owner of bees devolves at present a national duty:—to do his best to keep them alive until they can again add to our depleted supply of sweets. Half the battle is to provide them with good protection during cold weather. If you have not a dry, deep cellar, try to get a friend who has one to let you put your bees in a dark corner there. Do not put weak colonies away for the winter; they consume more stores, so valuable now, than strong ones, and even then are more likely to die. Unite them now while the weather is still mild, and see that each colony has about 30 pounds of wholesome stores to tide it over until well on in spring. Do not delay. Uniting and feeding cannot be satisfactorily done when cold weather is upon us. If your apiary is sheltered from wind, another good way to winter strong colonies of bees, suitable for southern Canada, is to pack the hives in shavings or dried leaves in a large case. Do not forget to provide a small flight hole in the case.

Honey has doubled in value since twelve months ago, and so has every hive of bees. There was a heavy loss of bees last winter, mostly through neglect to prepare them with care and in good time.—F. W. L. Sladen.

A Correction

In the September issue of "The Beekeeper," Mr. W. H. Kirby in his article on the rendering of wax omitted to state that in using his combination press for a hot water press the escape wax tube at the bottom should be plugged with a wooden plug in order to hold the hot water to cover the cheese before screwing the pressure on it.

Men Mentioned for the Fruit Commissionership

OF late considerable interest has been manifested among fruit growers as to who will be the probable successor to the late "Dan" Johnston, as Dominion Fruit Commissioner. The important duties connected with this office make the appointment one of interest to all fruit growers. There is a feeling that the Fruit Commissioner, whoever he may be, should have a practical first-hand knowledge of fruit-growing conditions, including the difficulties fruit growers have to contend with, so that his administration of the department will be sympathetic as far as the growers are concerned. It is realized also that the Fruit Commissioner should, if possible, be acquainted with the production and handling of tender fruits as well as of apples.

Hon. T. A. Crerar, Dominion Minister of Agriculture, is known to favor promotion in the Department where this is possible. He also, however, realizes the importance of men holding such offices having a practical knowledge of growing conditions. Among the men in the Department whose names have been mentioned as possible successors to the late Mr. Johnston are Mr. Baxter, who has occupied an important position in the Department for some years, and whose appointment is understood to be favored by some British Columbia Growers, although he is an eastern man. Mr. Baxter has a pleasing personality and is conscientious in his work. He gained valuable experience while representing the fruit division in Western Canada for several years. When the Canada Food Board was organized Mr. Baxter did such excellent work in the fruit and vegetable section that some months ago he was appointed chief of the enforcement of the Food Board. He has proved himself a painstaking official and his claims for the position should be given every consideration when the appointment is made. Mr. F. H. Grindley, the acting Fruit Commissioner, has been in the Department for some years, and has become familiar with fruit conditions from coast to coast. He is a graduate of the Macdonald Agricultural College. The name of Mr. E. H. Wartman, Dominion Fruit

Inspector at Montreal, has also been mentioned.

Three men strongly advocated in Ontario are Dr. A. J. Grant, of Thedford; Mr. Foster, of Burlington; and Prof. F. W. Broderick, of Winnipeg. The following information relating to these men may be of interest as well as the reference to Mr. Wartman, whose illustration appears on page 6 of this issue:

Prof. F. W. Broderick.

Prof. F. W. Broderick, of the Manitoba Agricultural College, Winnipeg, spent his boyhood on his father's fruit farm in the Niagara district, Lincoln County, where he was born in 1879. In 1899 he entered the O.A.C. at Guelph, graduating as a specialist in horticulture in 1903. The same year he did some work for the Ontario Department of Agriculture in spraying with Bordeaux mixture to eliminate mustard in the growing grain crops. In the fall of 1903 he applied for and was accepted as an assistant in the Dominion seed branch under Commissioner G. H. Clark, and was sent to the Maritime Provinces, which position he held for three years. While there he obtained an insight in Nova Scotia fruit conditions. In 1907 he applied and was accepted as a teacher in horticulture in the Manitoba Agricultural College at Winnipeg, and after teaching for a number of years was appointed professor of horticulture and forestry, the position he now holds. While living in Winnipeg Prof. Broderick has had a splendid opportunity to study the fruit trade of that part of the Dominion. In connection with his college work he has also had a wide outside public experience, which, coupled with his first-hand knowledge of fruit-growing conditions both East and West, is believed by those who know him to admirably fit him for the work of Dominion Fruit Commissioner.

Mr. H. T. Foster.

Mr. Foster, whose name is prominently mentioned for the position of Fruit Commissioner, lives in Nelson Township, near Burlington, Ont. He has farmed and grown fruit all his life in one of the best fruit dis-

tricts of Canada. The Burlington district is centrally situated in the Province of Ontario, and all kinds of staple fruits—apples, pears, plums, cherries, strawberries, raspberries, blackberries, and currants—are grown there in abundance, as well as some grapes and peaches. It has been recently stated that more fruit and vegetables are shipped yearly from Burlington Junction by G. T. Ry. and C. P. R., and by radial railway, motor truck and horse-drawn lorries over the cement highway, East and West to Toronto and Hamilton, than from any other point in the Dominion.

Mr. Foster has had a wide experience, and has made a success of fruit-farming. He has been for years president of the Burlington Fruit Growers' Association and a member of the Burlington Co-operative Fruit Shippers, who shipped apples and pears in boxes in carlots over twenty years ago to Great Britain. For three years he was a director of the Ontario Fruit Growers' Association, and represented the board at the Toronto Industrial Exhibition; is frequently asked to judge fruit at different shows; has often been sent as a speaker by the Ontario Department of Agriculture to address meetings of farmers and fruit growers in various parts of the province, and is a staunch advocate and defender of the interests of the fruit growers.

Dr. A. J. Grant.

Dr. A. J. Grant, of Thedford, is one of the best known fruit growers in Ontario. He is among the largest and most successful growers of small fruits, peaches and apples in Lambton county, a county which for some years has enjoyed an enviable reputation for the quality and extent of its fruit production. Some years ago he organized and has since managed the Thedford Fruit Growers' Association. This is one of the most successful organizations of the kind in the province. In 1914 Dr. Grant was elected president of the Lambton Fruit and Vegetable Growers' Association, an office which he still holds. The same year he was elected a director of the Ontario Fruit Growers' Association, and within two years had advanced to the office of president, a some-

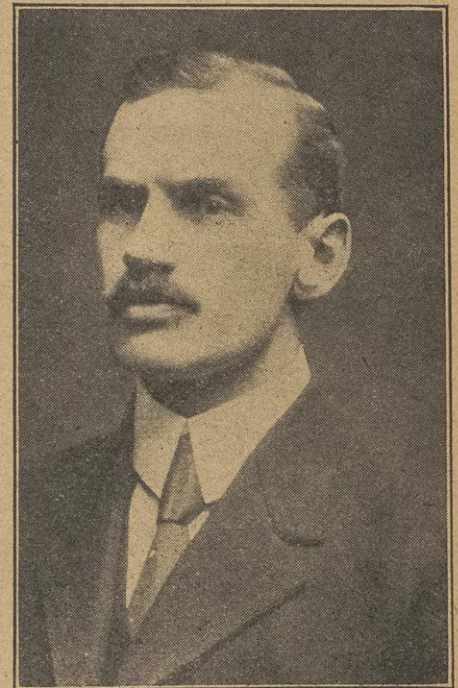
(Continued on page 246.)



H. T. Foster, Burlington, Ont.



Dr. A. J. Grant, Thedford, Ont.



Prof. F. W. Broderick, Winnipeg, Man.

Niagara District Notes

By F. G. W. Pattison, Winona, Ont.

THE latter part of August was hot and dry, but September has proved exceptionally cool and wet in the fruit belt. In consequence of the long drought and great heat early plums and peaches were rather on the small side, although of most excellent quality. It is a long time since plums have been so free from rot as this year. So far the plum crop has been the best fruit crop of the season, and owing to the cool weather has hung well. Thousands of baskets of plums have been shipped from the Winona-Grimsby district, and there are still a lot of late plums to come on. Grand Dukes, Monarchs, Reine Claudes and Damsons. One grower in this neighborhood has as pretty a crop of Shropshire Damsons as I ever saw. This plum seems to be making good in this section. They are great bearers and fine handsome trees of vigorous growth. Latterly, chiefly owing to the difficulty of obtaining sugar in the towns and cities, plum prices have been rather disappointing as dealers have been paying as low as 40c to 50c per 11-quart basket, whereas those who contracted earlier in the season are receiving from 65c to 90c per 11-quart basket. In the Hamilton market prices have been better, running from 40c to 65c per 6-quart basket, and 75c to \$1 per 11-quarts. It seems a pity that when the Food Control Board issued their regulations restricting the sugar consumption at preserving time that they did not at the same time issue simple directions for preserving fruit without sugar. Sugar, as most fruit growers know, is not necessary in the canning of plums, because sugar adds nothing to the keeping qualities of canned fruit, the secret of which lies in proper sterilization, sealing, etc. Perfectly sterilized and properly sealed fruit will keep and sugar can be added at the time of using.

The long dry spell provided favorable conditions for dry rot in tomatoes, which has been very bad and has pretty nearly cut the tomato crop in two in the Niagara District. The first set of the early varieties was not much affected, but later sets were and the first set of the late tomatoes was very badly affected. The following report from Beamsville is an example: "Dry rot in the tomato fields is more prevalent than was at first expected, and a heavy acreage planted for the canning factories will be a total loss. In many fields of three and five acres almost 60 per cent of the ripening crop is rotting. The early varieties did not seem to be so badly touched." In consequence of this the dealers have had hard work to get tomatoes to fill their orders and prices have stiffened somewhat. The cool wet weather of September, however, seems to have checked its ravages, but there will not be near the crop that was expected. Early peaches are over now, St. John peaches are also nearly done and Crawfords are on the market. The peach crop is turning out about what was expected, from 35 to 40 per cent of an average crop. Crawfords are decidedly light, although a few orchards have a good crop. Elbertas and later peaches are somewhat better. Prices are good, running from 60c to 85c for 6-quarts, and from 85c to \$1.40 for 11-quarts.

Bartlett pears are a fair crop in this section and prices have been running from 65c to \$1 per 11-quart basket. Duchess pears are on the whole light, Clairgeau and Keiffer

being a pretty fair crop; other kinds are light. Fall apples, particularly Gravensteins are a good crop in this section. Of later apples, Snows and Greenings are the best, although there is a fair sprinkling of Russets and Baldwins. It has been stated that the varieties of tomatoes which have proved most susceptible to rot this season are Chalk's Jewel and Ignotum. The rot is said to be caused by a fungus which attacks the pistils of the tomato plant when the latter is very young and which ultimately kills the cells. Black rot spreads rapidly in a tomato patch and affects everything forming within its radius. The only possible remedy to combat the evil is in rooting out the diseased plants and burning them just as soon as a trace of the fungus is noticeable. As the fungus works internally, this is the only known remedy. Some of the growers believe that the disease is started in the hot bed or cold frame.

In the latter part of August A. W. Despard, of the Department of Agriculture, was in the St. Catharines district securing samples of fruit to be placed in large jars for exhibition purposes. Strawberries, cherries, plums and peaches were secured, and then Mr. Despard left on the steamer with a carload of exhibits for the Toronto Exhibition. Mr. Despard is to remain in the vicinity of



We Build
GREENHOUSES
and Glass Enclosures

For over half
a Century
It Has Been
Our Business
Send for Catalog

Lord & Burnham Co.

Limited, of Canada

TORONTO MONTREAL
Royal Bank Bldg. Transportation Bldg.

Save Your Money

for the coming

Victory Loan

A. E. AMES & CO.

Investment
Securities

UNION BANK BLDG., TORONTO
Transportation Building, Montreal
74 Broadway - - New York

Established
1889

FRUIT GRADERS

for your Apples and Pears. Grades
more correctly and more quickly than
it is possible to do in any other way.
Send for price list. Manufactured
and sold by the

Hantsport

Fruit Basket Co.,

HANTSPORT - - - - - N.S.

Cold Storage Fruit Warehouse

Finest Apple Rooms in the Dominion
for Export and Local Trade

Special Rooms for all
kinds of Perishable Goods

The Canada Cold Storage Co.
Limited

53 William St. - MONTREAL, QUE.

Deafness



Perfect hearing is now being restored in every condition of deafness or defective hearing from causes such as Catarrhal Deafness, Relaxed or Sunken Drums, Thickened Drums, Roaring and Hissing Sounds, Perforated, Wholly or Partially Destroyed Drums, Discharge from Ears, etc.

Wilson Common-Sense Ear Drums

"Little Wireless Phones for the Ears" require no medicine but effectively replace what is lacking or defective in the natural ear drums. They are simple devices, which the wearer easily fits into the ears where they are invisible. Soft, safe and comfortable. Write today for our 168 page FREE book on DEAFNESS, giving you full particulars and testimonials.

WILSON EAR DRUM CO., Incorporated
133 Inter-Southern Bldg. LOUISVILLE, KY.

SEEDS

Wholesale

Improved Farm Root Seeds
Improved Vegetable Seeds
Improved Flower Seeds

Seedsmen please enquire for our SPECIAL PRICES

KELWAY & SON, Wholesale Seed Growers
LANGPORT, England

Cable Address: KELWAY, LANGPORT

PRACTICAL QUEEN REARING

is the title of the new bee book, cloth bound, 110 pages, finely illustrated, which has just been written by Mr. Frank C. Pellett, former State Apiarist of Iowa and well known bee-keeping writer.

For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Alley, Miller, Dines and others with variations as practised by the large queen breeders.

You have this in this new bee book.

Send for your copy now and learn for yourself how to rear queens from your best colonies to advantage. Variations of plans may be of great value also to queen breeders.

Price postpaid, \$1.00, or with the American Bee Journal, one year only, \$1.75.

(Canadian postage 15 cents extra.)

AMERICAN BEE JOURNAL
HAMILTON, ILLINOIS

St. Catharines till late in the fall gathering more fruit specimens. These exhibition-jars contain the fruit as it was found growing in the orchard, the branch and leaves being intact and kept fresh by the preserving liquid in the jars.

Grapes have been on the market for some time. Champions, Moore's Early and Campbell's Early; a few red grapes also. Concord and Niagaras are not ripe yet, but will be shortly if the weather stays favorable. Grapes are only about 40 to 50 per cent of an average crop. The price is likely to be fairly good, as wine and jam men are offering in the neighborhood of \$35 a ton. A report from Grimsby says: "The fruit shipments from the Grimsby East station are growing daily. Peaches and pears are preponderant, but some grapes are being shipped and tomatoes are being sent out in car load lots. A report from Old Niagara says that the first few days' operations of the Community Canning Kitchen there has resulted in 2,211 pounds of jam being put up by the Girl's Service Battalion and their helpers, besides quantities of canned fruits, pickles, canned tomatoes and beets, all of which goes to the Red Cross Kitchen at Hamilton for distribution among our Canadian soldiers overseas. Mrs. Rigg, Commandant of the Girls' Service Battalion, is delighted with the generosity of the fruit growers and citizens of Old Niagara in giving fruit and vegetables for this purpose.

A report of Sept. 16th says that the peach season is at its busiest at Niagara-on-the-Lake and that growers are very busy packing and shipping their crops. As in former years, a good deal of the fruit is shipped out by train and trolley, though the steamer carries a full cargo on every trip. The Michigan Central sends in a special train every night to take out the fruit, refrigerator cars being provided for fruit consigned to distant points. Locally, less fruit is being canned than ever before, owing to the difficulty of obtaining sugar, and it is safe to say that many tables will lack the usual addition in the way of fruit during the winter as a result. Jobbers and wholesalers are awaiting definite prices on new pack canned goods, etc., for the ensuing season. These should be out soon. It is probable that canned tomatoes will be available at a better figure than that even promised a few weeks ago. Quebec province has produced a good yield this season, and there will be a good condition in this respect elsewhere. Canada's allotment of dried prunes, peaches, and apricots is likely to run pretty small,

as the U. S. government has taken over most of the crop for army use. As regards the canning trade there has been little change in the situation lately.

The rains and hot weather have introduced an element of danger as far as the tomato pack is concerned, that is causing a good deal of anxiety, but as yet there have been no reports of any serious damage.

District canning factories are now busily engaged on tomatoes. There is a probability that prices for the new pack will be somewhat lower, and the price of 20 cents a tin to the consumer is looked for.

Peach, pear, and apple orchards along the South Shore of Lake Ontario in New York State show very severe damage from last winter, much of the trouble was caused by temperatures below the zero point.

Men Mentioned for the Fruit Commissionership

(Continued from page 244.)

what remarkable record in such a long-established and well known organization. In 1914 he was selected as one of the delegates to represent Ontario at the Dominion Fruit Conference held that year at Grimsby. Last March he was one of the six Ontario delegates called to Ottawa to advise with the Government in reference to the then proposed amendments to the Inspection and Sales Act, which have since been enacted into law.

Dr. Grant is still a young man. He is full of energy, is ambitious and has a practical way of looking at public issues which his friends point out is a quality greatly needed in any person holding the important office of Dominion Fruit Commissioner. He is an effective public speaker and has a faculty of inspiring confidence in his judgment. It is these qualities which have led to his selection for so many public offices.

Mr. E. H. Wartman.

Mr. E. H. Wartman has been Dominion Fruit Inspector at Montreal for a number of years, and has gained a wide experience in this work. He was born at Eden Villa Farm, on Lake Ontario shore, Frontenac County, five miles west of Kingston, where he pursued general farming, with an orchard of many kinds of fruits as his hobby to supply local trade.

In 1880 he crossed the Atlantic with 500 barrels of apples to London, England, and met with success. In 1882 he crossed with a larger lot. In 1892 he crossed the Atlantic, sailing from Montreal on S.S. Amaranthia, with over 3,000 barrels of apples. In 1902 he crossed the Atlantic as superintendent of Canadian Fruit Exhibition at Wolverhampton, England, and Cork, Ireland. In all he has crossed the Atlantic eight times in the interests of the fruit trade.

He patented a fruit grader some years ago for sizing of fruits, also a fruit box, and is said to-day to have a surprise for fruit men in a fruit sizer of his ingenuity. For ten years he was engaged in the evaporating fruit business in Prince Edward County. He has given several addresses at Macdonald College, St. Anne's, Que., on practical fruit subjects, and has given addresses at fruit meetings in the Province of Quebec on marketing fruits, packing fruits and spraying. On September 1st last he completed his 17th year as Dominion Fruit Inspector at Montreal, Que. Mr. Wartman is a contributor to the news columns of The Canadian Horticulturist, and has been for many years.

BEEES FOR SALE

Colonies in ten frame Langstroth hives. Bred from imported Italian Stock. Supposed to have sufficient stores for winter. Bee supplies of every description. Root goods made in Canada.

The Canadian Bee Supply and Honey Co., Ltd.
73 JARVIS ST. - TORONTO, ONT.

HORSE RADISH ROOTS WANTED

Must be clear of small Roots and green tops and in sound condition. Price six cents per pound, Toronto.

THE WM. DAVIES CO., Limited

521 Front Street East - - - Toronto, Ontario

Canada Food Board Packer's License No. 13-50

Celery in Cold Storage Practicable

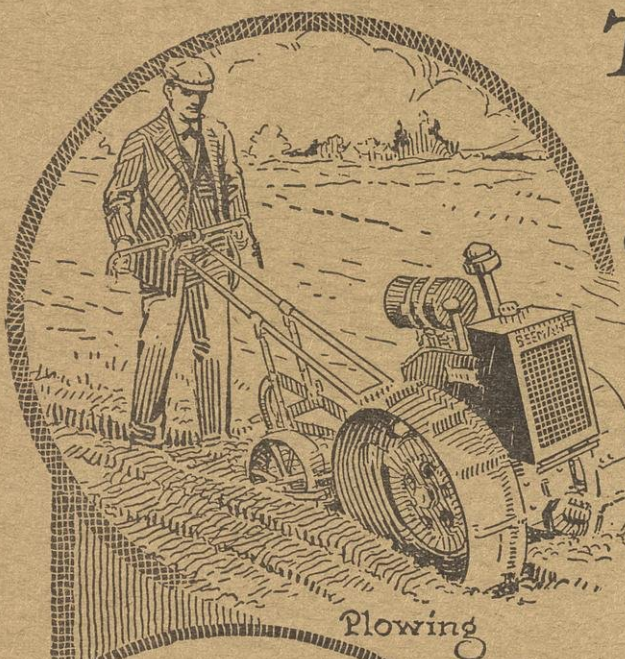
If celery is packed in small well-ventilated crates and carefully handled it will keep in good cold storage for three months, or longer, according to results obtained in a four-year test, reported by the United States Department of Agriculture in Bulletin 579, "Celery Storage Experiments."

The celery used in the experiments during the four years was grown and stored in western New York. Each experimental lot

was packed in the field and crated in the storage house by representatives of the Department of Agriculture. In every instance the celery used was free from disease and was so handled that the different lots were comparable. Six type of crates were used—a standard crate, a partition-ventilated crate, a 16-inch crate, a 14-inch crate, a 10-inch crate and an 11-inch crate.

The smaller crates appear to remove the two chief causes of spoilage—poor ventilation and breakage. In every instance the decay was much less in the small and partitioned crates than in the standard crates. Of the crates used during two or more years,

the 14-inch crate gave the best results, followed by the 16-inch, the partitioned, and the 11-inch solid head, in the order given. Small crates cost a little more than the standard crate in proportion to their capacity, but this disadvantage is more than offset by the smaller percentage of breakage. Small crates are preferred by many storage-house managers and handlers of celery, because of the ease in handling and the smaller amount of breakage. In a market test made in January, 1916, celery in small crates sold for a much higher price than similar celery in standard crates handled in exactly the same way.



Plowing



Disc Harrowing



Cultivating

The BEEMAN GARDEN TRACTOR

EVER since power machinery made greater farm production possible the farmer has been looking for a low-priced tractor that would do his work efficiently and economically.

Now the Beeman Garden Tractor and Walking Engine has arrived—the tractor that costs less than a good horse and will do the work of two—that will plow, harrow and keep under cultivation from one to twenty acres and make more intensive cultivation and increased production possible.

For orchardists, vineyardists, market gardeners and fruit growers the Beeman is the one practical tractor. It is indispensable for the small farmer and a convenience for the man who owns a large tractor.

It is but 17 inches wide and will travel without injury to rowed crops where the use of a horse would mean loss of plants.

A boy and a Beeman can keep 20 acres under cultivation at 30 per cent less cost than by any other means.

A Beeman starts and stops at a touch of the finger, is easier to operate than an old fashioned plow and develops 1½ H.P. at the drawbar or 4 H.P. for operating any of the farm machinery.

Low first cost and low upkeep are two big features of the Beeman. It operates 5 hours as a tractor on a gallon of gasoline and 7 hours per gallon when driving farm machinery.

The Beeman is made in one type for all uses at \$285 F.O.B. Factory.

Write our nearest office and learn what the Beeman will do on your farm. Mail the coupon today.

**The Canadian Fairbanks-Morse Co.,
Limited**

Makers of the Famous "Z" Engine
Montreal, Toronto, St. John, N.B.



The Canadian
Fairbanks-
Morse Co., Limited,
Montreal, Toronto, St. John.
Send me complete information
regarding the Beeman Garden Tractor.

Name

10 Address

**Ask for
Catalogue
of
Poultry
Supplies**

Our Catalogue of Poultry Supplies gives prices and full descriptions of the following:

Water Fountains

Grit and Shell Boxes

Dry Feed Hoppers

Oat Sprouters

Trap Nests

Brood Coops

Egg Boxes

Sprayers, etc.

Also a Full Line of Feeds

We also carry the following kinds of Leg Bands in stock:

Spiral Celluloid

Smith Sealed

Double Clinch

Leader Adjustable

Colored Adjustable

Climax, Challenge

Geo. Keith & Sons

124 King Street East

TORONTO

POULTRY YARD

Prepare for Winter

C. E. Brown, Northwest School of Agriculture.

The first task to perform when beginning to clean and repair the poultry house should be to clean the interior thoroughly. The walls, ceilings, floors and nests should be scraped and brushed and a good coat of whitewash applied. If the floors are of earth, at least two inches of the surface soil should be removed and replaced with fresh earth or sand. If they are of concrete construction they should be washed and scraped. All cracks and crevices, especially about the roosting quarters, should receive a liberal coat of whitewash. If this work is faithfully performed the poultry keeper should be relieved of considerable worry over the comfort of his fowls the coming winter.

Next make all necessary repairs to windows and doors and to the interior fixtures. It is of great importance to the health of fowls that all broken doors and window-lights be repaired before the first cold snap arrives. Drafts due to carelessness in this respect are almost always fatal to chickens, and such diseases as croup and pneumonia are often contracted as a direct result. An ounce of prevention is worth a pound of cure so see if the next rainy day cannot be used to good advantage by spending it at the poultry house.

Calendar for October

October is a gentle reminder of winter, and the poultryman is warned about approaching cold weather. It is too cold to risk the health of the poultry by allowing them to roost outdoors. They should be brought in and made acquainted with roosts and houses.

However, before they are placed in their new quarters, the latter should receive a good cleaning and purifying. Use disinfectants, use whitewash, use the broom. Go about the work in a systematic manner.

In some sections there is considerable wintry weather in October, but in others there are many days during which the weather is bright and mild. Take advantage of all good days and complete the repairs to the buildings, and do other outside work.

One thing in particular that should be attended to, is using every effort to guard against dampness. Examine the roofs carefully; and see that the floor in the building is higher than the level of the outside ground, so that there may be no dampness on that score.

Also see that every provision is made for thorough ventilation. Where houses are improperly ventilated, frost is sure to gather on the walls during winter which will produce dampness. Chicken-pox, distemper, roup and kindred ailments in many cases owe their origin to poor housing.

If the pullets are now placed in their winter quarters it will give them a good chance to become acquainted with their new home before they start laying. It is well to have a china egg in each nest, which will guide

them to the proper place when they are ready. The April-hatched pullets should begin laying eggs this month.

Don't delay any longer in culling out all stock that it is not intended to winter. Those fowls in molt, however, should not be shipped as they not only make unsatisfactory eating, but will be cut in price in market. They will bring better returns later on. The extra young cockerels command a good price right now.

Feeds for the Poultry

A dry-mash, egg ration, as worked out by poultrymen at the Ohio Experiment Station, is made up of: ground corn, 2 parts; bran, 1 part, and meat scrap, 2 parts. This mash when fed in connection with a grain mixture of corn and wheat gave an average annual production of 140 eggs per hen. Omitting the wheat to make the ration conform with Food Administration rulings should not lower the efficiency of the ration.

Other mashes made up of the same materials but in different proportions did not prove satisfactory as a laying ration for hens. When a large amount of meat scrap

Beautify Your Home

By Artistic Planting

Your enquiry for Trees, Shrubs, Vines and Perennials will be welcomed.

JOHN CONNOR CO., Limited

Nurserymen and Florists

Hamilton

Ontario

Holland Bulbs

Hyacinths

Tulips

Narcissus

Easter Lilies, etc.

Write for Price List

Wm. Rennie Co., Limited

King Street East Toronto, Ont.

was used in the ration fewer eggs were produced than when a medium amount was fed; similarly, when only a small amount of meat scrap figured in the ration, the egg production was unsatisfactory. From the entire experiment the poultrymen have decided that a satisfactory ration for egg production should contain 12 per cent of meat scrap, but wheat is not necessary for laying hens if the proper proportion of corn, bran and meat scrap are maintained.

People who have a supply of buttermilk or skim milk in large enough quantities to feed laying hens all they will drink may leave out the meat scrap, as these by-products form a good substitute for meat scrap. Cheaper sources of protein, such as cottonseed meal, linseed meal or soy-beans, however, are not satisfactory as they are not secured from animal sources. Experiments have verified the unprofitableness of attempting to use proteins for laying hens from vegetable sources.

Poultry Notes

Do as much outdoor work as possible now before bad weather sets in.

Someone has said that a helter-skelter poultryman will have helter-skelter hens, and there is considerable truth in it.

This is a good month to buy new stock.

Hens take to the trees when "varmints" take to the hens.

"The fool shooseth his neighbor's hens from his back yard, but the wise man fixeth up a snug place for them to lay in."

If I were a hen I'd steal my nest, too, if I had to stay in such filthy houses as some hens do. Honest, it is a shame. Clean up, and keep cleaned up.

The Mosquito Must Go

G. L. Shaw, Victoria, B.C.

Fruit growers of the lower mainland district of British Columbia are determined that the mosquito has got to go. This summer the mosquito pest was so bad that fruit production was materially decreased, because it was practically impossible for the berry pickers to work. Scores of city girls, mobilized by the Y. W. C. A. from school, office and home, responded to the call for harvesters, but the mosquitoes first handicapped their efforts and then actually drove the volunteer harvesters away altogether. A large proportion of the Fraser River crops were left to spoil in consequence. The situation was extremely serious for the dairy farmer, too.

Now, however, the farmers are organizing for a war to the finish against their enemy. Hon. John Oliver, premier of the province, has promised that at the next session of the Legislature a Mosquito Control Bill will be introduced. This act provides for the establishment of mosquito control districts, the proper course to pursue for establishment, the method of levying and collecting municipal taxes.

Dr. Gordon C. Hewitt, Dominion Entomologist, at a meeting held recently in Mission City, said reclamation of the land and drainage were the principal factors to be considered, and he pointed out that the practise of putting coal oil on swamp water was not the cure-all it was supposed to be. Pumps, he said, could be employed in draining the sections of the valley that are below river level. He assured the meeting that the Dominion Department would do all in its power to check the menace, and advised the local formation of an association composed of an engineer, an entomologist and the Reeves of the various municipalities concerned as a means of fighting the mosquito and stamping out his breeding ground.

NEPONSET ROOFS

NEPONSET PAROID ROOFING

NEPONSET TWIN SHINGLES

19 Years of Service

WHEN buying roofing keep firmly in mind, first, the thorough protection it must afford against weather and fire; second, the many years your roofing must last; third, the price and ease of laying.

NEPONSET Paroid ROOFING

Has an enviable record of 19 years of service to date. That is to say, Paroid roofs laid in 1899 are keeping out 1918 storms! The tough felt saturated with asphalt is the best kind of roofing you can lay and it meets all requirements. It is made with Grey surface; also RED and GREEN slate surface.

Sold by Hardware and Lumber Dealers everywhere.

Neponset Twin Shingles for all Residences

Bird & Son, Limited, Head Office, Hamilton, Ont.

WAREHOUSES: Montreal, Toronto, Winnipeg, Calgary
Edmonton, St. John

The Largest Manufacturers of Roofings,
Wall Board and Roofing Felts in Canada.

188



Orders Filled Promptly.

We have a large stock of all sizes

FLOWER POTS

FERN OR BULB PANS

1 AZALEA POTS
and Rimless Pans

Send for Prices

THE FOSTER POTTERY CO., Ltd.
HAMILTON, ONT.



OSHAWA ONTARIO
Visitor: The Lord Bishop of Toronto.

A Residential School for Girls

Young Children also received.

Preparation for the University. Art Department, including drawing, painting, wood carving and art needlework. Toronto Conservatory Degree of A.T.C.M. may be taken at the School. Fine, healthful situation. Tennis, basketball, skating, snowshoeing, and other outdoor games.

For terms and particulars apply to the Sister-in-Charge, or to the Sisters, of St. John the Divine, Major Street, Toronto.

Protection and Profit



8

When money is in a Savings Account in The Merchants Bank, it is absolutely safe from loss, as far as you are concerned. All the time it is here, it is earning interest—so that the bank actually pays you to let it take care of your money. Don't carry unneeded sums on your person or hide them at home. Protect them against loss, theft and fire by opening a savings account.

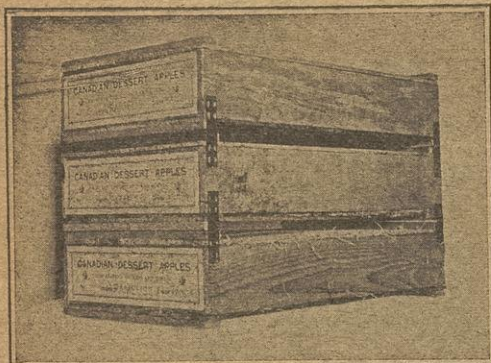
THE MERCHANTS BANK

Head Office: Montreal. **OF CANADA** Established 1864.

with its 102 Branches in Ontario, 32 Branches in Quebec, 19 Branches in Manitoba, 21 Branches in Saskatchewan, 53 Branches in Alberta, and 8 Branches in British Columbia serves Rural Canada most effectively.

WRITE OR CALL AT NEAREST BRANCH.

Showing our Clutch Nails.

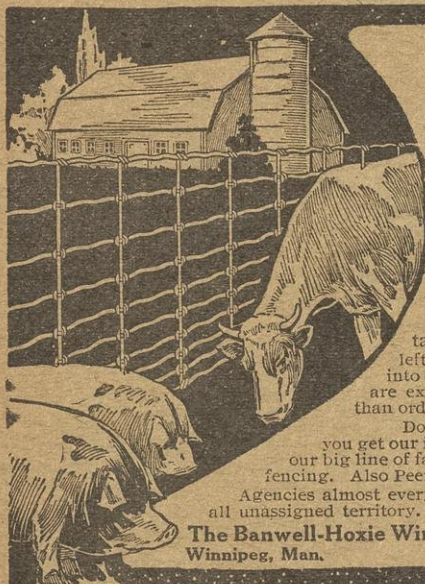


Well Packed— —Is Half Sold Our Box Strapping and Shipping Specialties

Save time and expense to the shipper and are safeguards for goods in transit.

Write for our Illustrated Booklet

J.N. WARMINTON & COMPANY
MONTREAL



PEERLESS PERFECTION

No matter how fast it comes, the most unruly animal can't break through a *Peerless Perfection Farm Fence*—it springs back into shape.

Made of heavy Open Hearth steel galvanized wire with all the impurities taken out and all the strength and toughness left in. Every wire is crimped making the fence into one continuous spring. Top and bottom wires are extra heavy. Will not sag. Requires less posts than ordinary fence. Absolutely guaranteed.

Don't buy a rod of fencing until you get our illustrated Catalog. Describes our big line of farm, poultry and ornamental fencing. Also Peerless farm gates. Agencies almost everywhere. Agents wanted in all unassigned territory.

The Banwell-Hoxie Wire Fence Company, Ltd.,
Winnipeg, Man. Hamilton, Ont.



Food From Waste Apples

Frank B. McMillin.

In these days, when the world faces an increasingly serious food shortage, it is unwise to overlook any resources that will add good nourishing food to the nation's depleted supply. Therefore, it is surely in order to again call special attention to the importance of properly utilizing that large proportion of the apple crop which grades below standard. In many localities the percentage of cull or cider apples runs fully one-third of the total, and it is frequently estimated that thousands of tons of such apples are wasted each year.

A portion of the larger culls may be evaporated to excellent advantage. Another most practical way of diverting this enormous waste into good food is by pressing. Practically all the valuable and nutritive elements of fruits are contained in the juice. The other parts consist largely of cellular tissue, and are of little value except to retain the juice, which in ripe apples runs as high as 90R. Therefore, a short cut to conserving the rich, life-sustaining elements possessed by even the smallest of cull apples is by first grating and pressing, then working up the juice.

A modern hydraulic cider press will extract an average of a little over four gallons of cider from each bushel of ordinary undergrades. This juice can be readily converted into a variety of food products that are not only appetizing and nourishing, but most of them are in concentrated form convenient to market and easy to preserve. Sweet cider, cider vinegar, boiled cider, apple syrup, apple jelly, apple butter and pasteurized cider are all in active demand, and can be sold at a better net profit than is usually obtained from the apples in a fresh condition.

Even the pomace need not be wasted. It is being used extensively as feed for dairy and beef cattle, and for hogs and sheep. Many pronounce it equal to ordinary corn silage. Pomace also has a distinct value as jelly stock because of its pectin content, which is not impaired by drying. Frequently the pomace is re-pressed, the resulting juice being used for making vinegar or jelly.

Digging and Storing Potatoes

W. T. Macoun, Dominion Horticulturist, Ottawa.

The best time to dig potatoes, if they are not affected with late blight or rot, is as soon as the tops have died. If the weather is dry or where the tops remain green until killed by frost, the digging should be delayed until that time, as during September there is often a great development of tubers. Where potatoes are grown on the average farm the digging is usually left as a matter of convenience until after the corn is harvested, where that crop is grown, as, when the tubers are covered with soil, the latter may be frozen an inch or so in depth, without the crop being injured. Potatoes should not, however, be left in the ground when there is danger of the ground freezing to a greater depth. When the soil is fairly well drained and not particularly wet the digging may be delayed for a month or more without much injury to the crop if the tubers are healthy; however, where there is no disease the sooner the potatoes are dug, after the tops are dead, the better.

Potatoes which have been killed by late blight will usually rot as soon as the conditions are favorable, and for this reason it is better to leave a diseased crop in the ground as long as possible, as the tubers

APPLE BARRELS

We ship them all over Ontario.
Machine-made, Standard size.
Get our prices.

Contracts made with Fruit Associations.

SARNIA BARREL WORKS,
Sarnia, Ontario.

SKINNER SYSTEM OF IRRIGATION

Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for \$15.75. Send for new Bulletin.

The Skinner Irrigation Co.
217 Water Street Troy, Ohio.

which are diseased will, most of them, show signs of rot before they have to be taken up on account of frost, and they need not be gathered. If diseased potatoes are dug and stored as soon as the tops are dead, the disease will be almost certain to develop in the pit or cellar, and healthy tubers will rot from contact with the diseased ones. It is not good practice to dig diseased potatoes early and pile them in the field. It is better to delay digging as long as possible and then put the potatoes in a cool, well-ventilated cellar where the disease may be checked. Potatoes in wet soil should be dug sooner than those in that which is drier and well drained.

Potatoes should be dug in dry weather, so that when they are taken to the cellar or store-room they will be perfectly dry. If the tubers are housed when wet, the conditions become very favorable for the development

of any disease which may affect them and for the rotting of the healthy potatoes from contact with those thus affected.

Items of Interest

The Dominion Fruit Division reports that there have been very few changes in fruit conditions during the past month. The Nova Scotia apple crop is still expected to yield approximately 400,000 bbls., or a little over half of last year's production. Much of this crop will be marketed in Ontario and Quebec, and some of it in the prairie provinces. The crop in Quebec will be comparatively light owing in part to many Fameuse orchards having been winter killed. Ontario is expected to yield below a normal crop. All winter varieties are light. Fall varieties in

Western Ontario are one-half of a normal crop, and are also light in Eastern Ontario. Conditions in British Columbia are somewhat better. In the inland valleys the apple crop will average about 10 per cent. less than in 1917. It is of better quality and size.

Commencing on August 15th the latest increase of 25 per cent in freight rates went into effect on shipments originating in territory east of and including Port Arthur and Fort William. Shipments originating at points west of Port Arthur and Fort William are subject to an increase of 25 per cent in rates effective prior to March 15th last.

The use of a spray gun of 250 lbs. pressure damages the foliage if held too near. It should not be used inside the tree, and it is better to keep at a distance outside of the tree.



Have You Received Your Simpson Fall Catalogue?

If not, a Post Card will bring it to you

EVERY Season, thousands of homes throughout Canada eagerly look for the Simpson Catalogue. The new Fall and Winter Catalogue, just issued, is a magnificent production of 356 pages, illustrating almost every conceivable line of merchandise for personal and home use. It is larger and more complete than ever before—giving you fullest descriptions and life-like reproductions that make ordering a real pleasure. 64 pages are illustrated in the actual colors of the merchandise, so you can tell exactly the shading and the texture of the fabrics. Thousands of articles are shown in this catalogue—for personal and home needs it is especially complete—every member of the family may be satisfactorily suited.

Canada's Authoritative Style Book

Simpson's Catalogue is regarded by thousands of women as their guide to the latest styles and models, because the great organization behind the Simpson Catalogue makes it possible to offer the very newest styles in the most seasonable materials, at the lowest prices. Every member of the family

finds something that he or she can buy cheaper and to better advantage through Simpson's Catalogue. Anyone having Fall shopping to do cannot afford to be without this book. Comparisons will show that the prices cannot be duplicated elsewhere. The Simpson Catalogue is a true guide to economy.

*We ship your parcel within one day of receipt of order.
We pay delivery charges on every thing in this Catalogue.
We refund your money if you are not entirely satisfied.*

Write for Catalogue No. 108 today.

The **SIMPSON** Company
Robert Limited
TORONTO



BOB LONG

UNION MADE
OVERALLS
SHIRTS & GLOVES



Known from Coast to Coast
R.G. LONG & CO. LIMITED
TORONTO CANADA



SMALL FRUITS

Raspberries, Gooseberries,
Red Currants, Black Currants,
Strawberries, Rhubarb Roots, etc., etc.

WM. FLEMING
NURSEYMAN
Owen Sound, Ontario

SANDER & SONS

ORCHID GROWERS

The Finest Stock in the World

Catalogue on Application

ST. ALBANS - ENGLAND

The Fruit & Produce Market

The Commission firms undernoted wish consignments of fruit and general produce. They will be pleased to have you write them for information, shipping stamps, etc., if you have fruit or vegetables for sale.

H. J. ASH

44-46 Church St. - Toronto, Ont.

CONSIGNMENTS OF FRUIT & VEGETABLES SOLICITED

Shipping stamps furnished on request.
Canada Food Board License Nos. 3-043,
3-044 and 3-517.

DAWSON - ELLIOTT CO.

32 West Market St., Toronto, Ont.
Wholesale Fruit and Produce. Consignments Solicited.

Canada Food Board License No. 3-045,
Class II., Div. B., and 3-046, Class II.,
Div. C.

HERBERT PETERS

88 Front St. E., Toronto, Ont.

See advertisement on page iv.

Canada Food Board License Nos. 3-007,
3-008 and 3-009.

British Columbia

Chas. L. Shaw, Victoria, B.C.

CONTRARY to earlier reports, the British Columbia fruit crop will show an increase over last year. The apple crop will be well above the average, as well as the most valuable one in history.

M. S. Middleton, Provincial Horticulturist, estimates that fruit production will show a five per cent increase. Early in the spring it was felt that, considering the large acreage and the additional number of trees coming into bearing, the increase would be 20 to 30% over the 1917 figure. May frosts, however, spoilt that prospect, and it was believed in many quarters that damage to the extent of 25% had been caused. The fine growing weather of August has helped materially, and there is every likelihood of a material increase after all.

Apple shipments are expected to exceed 3,000 carloads this fall, and the total value will be around \$4,000,000, as the average price per box is likely to be between \$1.40 and \$1.50. These figures are exclusive of crabapples, which will naturally boost the total somewhat.

British Columbia needs at least 1,000 more berry growers. There is plenty of room for that many, and there is a steady and lucrative demand for everything they could produce. It is estimated that there is a market for ten times B. C.'s normal production of strawberries, for the product of this province has now found its way right across the continent, even as far back as Baltimore, Md., where a considerable shipment was disposed of this fall.

The value of small fruits production in British Columbia last year was as follows: strawberries, \$189,437; raspberries, \$169,938; blackberries, \$34,139; loganberries, \$11,388; red currants, \$4,784; black currants, \$19,676; gooseberries, \$16,394. Total, \$445,756. It is expected that this year's values will be a good deal higher, although Vancouver Island's abnormally dry season retarded growth in that section. Kootenay did particularly well, however, and will be able to compensate for any deficit elsewhere.

Fire blight is the most serious plant disease that must be coped with in the dry belt, according to R. C. Treherne, B.S.A., Dominion entomological field officer. It has been found by experiment that bichloride of mercury is almost useless in disinfecting wounds in trees or in treating shears used in pruning away the parts affected by fire blight. Cyanide of mercury, however, has proved a really effective disinfectant.

The old B. C. Evaporating Co. Ltd., has reorganized under a new name, the Kalowna Packers, Ltd., and has already commenced operations on a large scale. While shortage of help is being felt, the concern expects to pack from 35,000 to 40,000 cases this season. The evaporating plant will be opened up as soon as the canning is over.

Indications are that the embargo which the British Government has clamped down on apple imports into Great Britain will remain in effect this season, owing to the congestion of war supplies destined for overseas. The effect of this course should not cause any concern to growers, for it was thought that when the embargo was on last year the market would be ruined, whereas, as a matter of fact, good prices were obtainable at all times.

British Columbia is destined to be one of the world's leading seed producers, according to Dominion Seeds Commissioner George H. Clark, of Ottawa, who paid the Coast a visit during early September. He was much impressed by the progress made in seed-growing at the Experimental Farm at Bagan

Bay, Vancouver Island, under the direction of Prof. Lionel Stevenson. He found the bulbs growing there the finest he had ever seen. He visited the farm of Mr. J. Steve, at Lulu Island, where mangels were produced last year to the extent of 3,000 lbs. to the acre.

W. E. Scott, Deputy Minister, has severed his sixteen years' connection with the B. C. Department of Agriculture owing to prolonged illness. He was born in Yorkshire in 1866, and has been associated with farming since early boyhood. After spending a few years in New Zealand, he came to this province and ranched in the interior and then on Salt Spring Island until 1902, when he was appointed a member of the Provincial Board of Horticulture for Vancouver Island. Nine years ago he was made Deputy Minister of Agriculture.

The potato crop will probably be a light one this year, according to present reports.

Winter Care of Vegetables

H. J. Moore, Niagara Falls, Ont.

With the advent of frost the thought of winter storage of vegetables will be uppermost in the minds of all growers. Upon the manner in which they are stored will depend success or failure, and surely failure will reward careless or half hearted methods.

Those who have a root cellar are indeed fortunate. Those who have not need not despair. It is easy to prepare a suitable storage place in the corner of the cellar at little expense except that of labor involved. Select a dry and cool corner, or position in the cellar, which, however, must be frost proof. Buy a few boxes from your grocer, and with the wood construct a number of bins; these need not be more than two feet high, and need not be covered. The divisions will serve to keep the various vegetables apart. Those who have but few vegetables may utilize a few boxes about two feet deep for their storage.

Next procure a quantity of fine sand; coarse gravelly sand should be avoided as it allows of a too free access of air to the vegetables, and thus they dry out rapidly and spoil. Clean lake or river sand is good. Any, however, which is clean and sanitary will serve the purpose.

Do not, like some people, avail yourself of the back yard sand pile in which children have played all summer, or to which dogs and cats have had access. Your cellar where your food is stored should be as clean as any place in the house, if the floor is cold or damp, do not let the sand touch it. Lay rough pieces of board upon it in the bottom of the bins. Upon these place a layer of sand a few inches thick. The bins will now be ready to receive the following roots: Beets, carrots, chicory, parsnips, winter radishes, horse radish and winter turnips.

Use each bin for individual kinds, do not mix the roots. Upon the layer of sand in the bottom lay the roots close together, but not so close as to prevent the next layer of sand from sifting between them. Each root should be surrounded with sand to prevent evaporation of moisture from its cells. It is not wise to place more than three or four layers of roots in the bins or boxes, as air will be prevented from reaching the bottom ones. It should be remembered that the purpose of the sand is not to effectually stop air from entering, but to minimize the amount, and so prevent the loss of moisture.

Vegetables will not keep satisfactorily in a cellar if a furnace exists therein, no mat-

ter how cool the position may be. This also applies to roots in general. The furnace uses up the oxygen as a supporter of combustion. This causes a gradual but certain change of air in the cellar. The moisture is lapped from the air, and all bodies which contain it are levied upon, and none more so than the vegetable roots. We should not make the mistake of supposing that evaporation does not take place at a low temperature. It does, only more slowly than when it is high.

Syrup From Apple Culls

For those who have a great many second grade apples and culls on hand, the making of apple syrup is profitable. The acids are removed by boiling the cider with precipitated chalk (calcium carbonate, or whiting.) This neutralizes the acids of the cider, converting them into insoluble calcium salts, which settle to the bottom and are removed by decantation.

Add three-fifths of an ounce of precipitated chalk (obtainable at any drug store) for each gallon of cider used, bring to a boil, and boil vigorously for five minutes, removing the foam and scum as fast as formed. Pour into containers as tall as are available. Two-quart mason jars will do, or even big preserving kettles. Let stand quietly for four or five hours. Then carefully pour off the clear liquid, throwing away all the sediment at the bottom. Boil the clear liquid rapidly down to a syrup, removing all scum. The syrup should boil at 220 degrees Fahrenheit.

The syrup is placed in bottles or mason jars and sterilized by placing the containers in boiling water for 15 minutes. If the whole outfit is then allowed to cool slowly, the little sediment in the syrup will settle to the bottom and leave a clear, bright, very pleasing mild syrup, with a delightful apple flavor.

Items of Interest

Vegetable experts of the Ontario Department of Agriculture who investigated the potato blight in Lambton County this past season found that the fields were seriously affected. New phases of blight which so far have baffled discovery of cause and origin have appeared, along with the older and better known types. Potatoes are in consequence expected to be impaired in quality and in yield. The remedy is said to be fresh, vigorous seed from New Ontario. It is held that much of the seed used in this country is "run out" by repeated planting.

During 1917 there were shipped from Ontario 97,782 gallon cans of jam to the Canadian military hospitals overseas. At market prices this jam was worth \$84,302.

A comparative statement of the express movements of fruit and vegetables from all points in British Columbia for the past seven years shows a wonderful development in the fruit industry during that period. The comparative table from 1911 to 1917, with the number of packages and total weight in pounds, is as follows:

	Packages	Weight
1911	104,705	2,784,777
1912	166,400	4,330,233
1913	208,262	5,203,946
1914	259,470	6,326,903
1915	318,752	7,598,997
1916	312,622	7,496,151
1917	426,039	10,526,784

Of the 1917 crop, Okanagan Lake and Shaswap points are credited with 209,196 packages of fruit and vegetables, or 5,391,850

lbs., which is rather more than one-half of the total shipped. Summerland was the heaviest shipper in point of weight, having 1,245,551 lbs. to its credit, followed by Hazelton, 1,047,822 lbs.; Armstrong, 863,819 lbs.; and Penticton fourth, with 804,411 lbs.

While 90 pounds has been the legal standard for a bag of potatoes in Canada for a number of years, and has been generally adopted in most of the large commercial potato districts, there has not, until this season, been machinery for enforcing this standard. The Sections of Inspection and Sale Act respecting the weight of a bushel, bag or barrel of certain commodities, have now been transferred for administration to the

Department of Agriculture, and the Dominion Fruit Inspectors are charged with seeing that these sections are complied with. Anyone, whether grower, jobber, wholesaler or retailer, who sells or offers for sale potatoes in any bag containing less than 90 pounds, renders himself liable to penalty.

PERRY'S SEEDS

Alpine and perennials, unique collection; many new varieties unobtainable from any other source.

Hardy and adapted for Canadian climate.

HARDY PLANT FARM, ENFIELD, ENGLAND



For Fall Planting.

Write for our 28 page illustrated catalogue.

Bulbs
Seeds
Plants
Poultry
Supplies

FREE

Bruce's Regal Flowering Bulbs

For Winter Flowering indoors and Spring Flowering outdoors. A House without flowers is not a Home.

	Each	Dozen	100
Crocus in four colors.....	.03	.25	\$1.65
Freezias.....	.04	.30	2.15
Lillies, Calla White.....	.25	2.50	—
Lillies, Chinese Sacred.....	.30	3.00	—
Hyacinths, Roman, four colors.....	.10	1.10	8.50
Hyacinths, Dutch, four colors.....	.10	.95	6.50
Narcissus, Single, six varieties.....	.05	.50	3.50
Narcissus, Double, four varieties.....	.05	.50	3.50
Narcissus, Paper White.....	.07	.65	4.25
Scilla Siberica.....	.04	.35	2.65
Snowdrops, Single.....	.04	.30	2.10
Tulips, Single, Mixed.....	.05	.40	2.50
Tulips, Double, Mixed.....	.05	.45	3.00
Tulips, Parrot, mixed.....	.05	.45	3.00
Tulips, Darwin, mixed.....	.05	.45	3.00

JOHN A. BRUCE & CO., Limited,

HAMILTON, ONT.
ESTABLISHED 1850

Ship Your FURS To BECKER

Why We Can Pay Highest Prices

We are one of the oldest, largest and best known concerns in the fur business. We have a tremendous demand for furs from the largest and best known manufacturers in the world. The wide variety of their demands enables us to pay you the highest prices.

Standardized Grading Means a Square Deal for You

Becker's system of grading does not change with every fluctuation of the market. Over 83 years of Square Dealing in Grading—top-notch prices and prompt returns has inspired over 60,000 thoroughly satisfied trappers and shippers with absolute confidence in our way of doing business—and who ship to us regularly.

More Dollars For Your Entire Pack

We offer you the biggest check for your entire pack, the best service and fair, square and above-board dealing. There's no commission to pay. No express charges. We treat you right. We give considerable more for your furs when you ship to us and we mail a check the same day your furs are received. If requested, we keep your furs separate and submit valuation provided that condition of skins and the weather permit.

Read What These Satisfied Shippers Say:

I have shipped furs to you for 23 years and will say that the honest assortment and the square prices fetches the best looking check home to the shipper.

B. J. Foat, Wisconsin.

I have bought furs in the northwest for the past 27 years, and for the past 12 years shipped exclusively to your house, as my shipments have netted more money and your grading has been honest. J. E. Lewis, Mont. Michigan.

I'm sending one of my pictures. I have been buying fur. I have bought fur for 23 years and I have found Becker Bros. & Co. a good firm to deal with. George Armstrong, Michigan.

Sent FREE

Price List—

Our new price list, published free for shippers and trappers, is entirely different. Divides country into five zones. Shows at a glance what furs are worth your entire zone. Every trapper should have one. Sent free. Write today.

BECKER BROS. & COMPANY

"As good as a Government Bond—What we promise we do"

Dept. 1016, Chicago, Illinois
Dept. 1016, New York City
Dept. 1016, New Orleans, La.



CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at the rate of 15 cents a line, each line averaging seven words. Part lines count as whole lines, minimum of two lines accepted. Strictly cash in advance.

REAL ESTATE

ALL KINDS OF FARMS—Fruit farms a specialty. Write, stating requirements. W. B. Calder, Grimsby.

SEEDS, BULBS, PLANTS, SHRUBS

FOR SALE—Shasta Daisies, Delphiniums, mixed; Sweet William, mixed; Gaillardias, Baby's Breath, Hollyhocks, mixed double; Pyrethrum, mixed; Aquilegia, mixed; Fox Gloves, Canterbury Bells, mixed; Phlox, mixed. \$1.00 per doz for any of these perennials, not prepaid. Richard Trowhill, 335 Victoria St., London, Ont.

C. KEUR & SONS, Hillegom, Holland. Bulbs of all descriptions. Write for prices. New York Branch, 8-10 Bridge St.

DOUGLAS GARDENS**Catalogue for 1918**

Contains a complete list of a number of new plants that will interest customers this season.

A fine assortment of Paeonies. Perennial plants of all kinds. Shrubs and roses.

BEDDING PLANTS

Standard Fuchsias from 2 to 3 feet. Carnations of the finest varieties. Heliotrope, Cowslips, Salvia, Salpiglossis, Snapdragons, Pentstemon, Lobelias, Pansies, Ageratum, Verbenas, Asters and Stocks.

ERICK ERICKSON
OAKVILLE - ONTARIO

TREES & SHRUBS
BROWN BROTHERS CO.
NURSERYMEN LIMITED
BROWNS NURSERIES, ONT.

Northern Ontario

A vast new land of promise and freedom now open for settlement at 50c an acre in some districts—in others, Free.

Thousands of farmers are responding to the call. Here, right at the door of Southern Ontario, a home awaits you.

For information as to terms, regulations and railway rates to settlers, write to

H. A. MACDONELL,
Director of Colonization,

Parliament Bldgs., TORONTO, CAN.

G. H. FERGUSON,
Minister of Lands, Forests and Mines.

Will Nursery Stock Advance in Price?

Charles A. Green, Rochester, New York.

Nurserymen in the United States lost money heavily during the Civil War, and many of them were compelled to go out of business. At the close of the war the prices of plants, vines and trees greatly increased. I am told that apple, pear, plum, cherry and peach trees advanced in price at this period to about \$1.00 each. No one can tell now how seriously the nursery business may be affected by the present war or what the prices will be at the close of the war, but there are certain conditions that are fundamental and can be understood at a glance.

The seedlings, that is the little trees grown most largely in France, in ordinary times, are imported to this country in large amounts. These seedlings are the base of the nursery business. During the past few years the French, being actively engaged in war, have not been able to grow these seedlings as heretofore, therefore the supply has been so largely reduced that American nurserymen cannot hope to receive a full supply. Without these seedlings the nursery business in this country cannot be conducted as successfully as in the past.

Here is a peculiar circumstance: Nurserymen propagate trees most largely by budding. The buds after being inserted in the seedling stocks have of late years been tied and held firmly in place by a product known as raffia, a silky ribbonlike substance which holds the bud firmly in place until it has obtained a foothold in the little seedling. Of late it has been impossible to secure a supply of this raffia, which has in past years been imported from Europe. Nurserymen have been obliged to use substitutes. In many instances these substitutes have failed utterly to protect the inserted bud. As a result the budding of many nurseries has been an absolute failure, not only causing nurserymen serious losses but diminishing the supply of fruit trees.

Thus there is good reason for assuming that the production of fruit trees in this country will be greatly reduced in the next few years.

The winter of 1917-18 was one of the most severe ever known, causing the destruction of a large portion of the fruit trees growing in nurseries of this country. Peach trees in particular were wiped out by the million by the severe winter, and in many instances apple, pear, plum and quince trees were utterly destroyed.

Typewriters had been used for a quarter of a century before the Underwood was thought of, but the growth of the Underwood business is one of the wonders of the modern industrial world.

It is regrettable that during the past few years not everybody who wanted an Underwood has been able to get one just when he wanted it. There are not enough to go round, not even with the largest typewriter factory in the world (60% larger than any other) making more than 600 machines a day.

This enormous business did not come by accident. It is the result of selling the best typewriter at a price consistent with its value, and giving customers the best service ever offered in the typewriter business. United Typewriter Co., Limited, 135 Victoria St., Toronto.

(Advertisement)



Mr. E. H. Wartman, Dominion Fruit Inspector, Montreal, Que. Mr. Wartman has been a frequent contributor to the columns of The Canadian Horticulturalist. A reference to him appears on page 244.

A further reason why higher prices must be expected for fruit trees is that the cost of everything entering into the production of trees has advanced in price. The price of labor has increased, and the cost of producing a tree is largely labor cost, but aside from this there are many items necessary to the nursery business which cost now more than twice the ordinary price. I refer to rope, twine, burlap, lumber for boxes, labels, paper for lining boxes, etc. Notwithstanding the prospective advance in price of nursery products, it is profitable with good management to plant fruit trees.

Buy SPRAYERS NOW

The War Emergency Board requests that you

BUY NOW

while they can be shipped

High-power, low-down, short-turning, easy-drawing sprayers are the best

Do you want large, medium or small, hand or power?

Write at once---Name this Paper

"FRIEND" MFG. CO.
GASPORT, N.Y.

Agents Wanted



Trees, Shrubs, Vines and Herbaceous Perennials

BY JOHN KIRKEGAARD

This is a magnificent volume on horticulture and arboriculture and contains lists of the best selections of varieties for various purposes. It is an every-day reference guide for every lover of plants; in fact it is just the book for amateur gardeners, tree and plant lovers, park superintendents, landscape architects, garden supervisors and schools and colleges.

It contains over 400 pages with 2096 descriptive classifications and 59 full page half tone illustrations. The price postpaid is \$1.50.

SPECIAL OFFER

One new yearly subscription to The Canadian Horticulturist (Fruit or Floral Editions) free with each copy at - \$1.50

Address **BOOK DEPARTMENT**

THE HORTICULTURAL PUBLISHING CO., Limited

PETERBORO

ONTARIO

BUY YOUR GARDEN BOOKS

Now is the time to begin reading about and planning your garden for next year. Here are some of the best horticultural publications we can recommend, suitable for amateur gardeners and fruit growers. These are bound in cloth and are well illustrated.

'GARDEN GUIDE'—The amateur gardeners' handbook, giving simple, practical suggestions for planning, planting and maintaining the home grounds in flowers and vegetables. One of the handiest books one could have. Price, cloth, \$1.00; paper, 75c.

'THE BACKYARD FARMER'—J. Willard Bolte—A very helpful and charming garden book. In 75 chapters gives reliable directions for the best cultivation of vegetables, fruit and flowers, the proper care of the lawn, vines and shade trees. Net, \$1.00.

'THE CANADIAN GARDEN'—Mrs. Annie L. Jack—A practical help for the amateur giving reliable information on gardening in Canada, cultivating the land, fertilizing, when to plant, pests, trees, shrubs, bulbs, vines and hedges. A valuable feature is the list of monthly reminders. Net, \$1.00.

'MILADY'S HOUSE PLANTS'—F. E. Palmer—The complete instructor and guide to success with flowers and plants in the home. Every woman growing plants in the home

should have a copy of this book. Illustrated throughout. Net, \$1.00.

'INJURIOUS INSECTS AND USEFUL BIRDS'—F. M. Washburn, M.A.—This book is intended to supply orchardists, vegetable growers, gardeners and housekeepers with a reference book for guidance in campaigning against injurious insects and four-footed pests. Contains 453 pages well illustrated. Net, \$2.00.

'PRODUCTIVE VEGETABLE GROWING'—John M. Lloyd—Presents the underlying principles of vegetable production in a clear and logical manner with every step thoroughly explained in the 192 illustrations. It places vegetable gardening on a safe and sure basis and will enable the farmer or the amateur gardener to profitably engage in this work. Net, \$1.75.

'STRAWBERRY GROWING'—S. W. Fletcher—A well illustrated practical book of 375 pages. It deals fully with modern commercial practice in North America. Net, \$1.75.

25c. will be allowed on the purchase price of any of these books for each new subscription sent us at the rate of 50c. a year, or three years for \$1.00.

Address **BOOK DEPARTMENT**

THE HORTICULTURAL PUBLISHING CO., Limited

PETERBORO

ONTARIO



The successful apple orchard owner follows these practices :

1. **Manures his land**—Small amounts put on each year are more likely to give good results than heavy applications occasionally.
2. **Sprays his trees**—Three applications, dormant, pink and blossom sprays, with an additional application later if the weather is such as to promote scab.
3. **Prunes his trees**—Removes all cross branches, and lowers heads of high trees. Thins outer growth of trees so that sun can get to all parts.
4. **Cultivates his land**—Begins cultivation as soon as possible in spring and according to location stops from June 15th to July 1st.

Thousands of trees have died through neglect and winter injury. This means that apple crops will be scarce and high in price until young orchards take their place. If you have a good orchard, by all means care for it. Labor is scarce, and if you cannot carry out all these suggestions, follow as many as possible.

For specific information upon any phase of fruit growing, manuring, cover cropping, the choice and use of insecticides, cultivating, etc., to suit your special case, you are invited to write the office of the Commissioner of Agriculture, Parliament Buildings, Toronto, giving full details and full information will be sent you.



The Result of Proper Manuring, Spraying, Pruning and Cultivating as described above.

The Ontario Department of Agriculture

Parliament Buildings, Toronto

HON. GEO. S. HENRY,
Minister of Agriculture

DR. G. C. CREELMAN,
Commissioner of Agriculture



ONTARIO