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The Fifth Annual Spring Gardening & Planting Number

# THE CANADIAN HORTICULTURIST

*& Beekeeper*



APRIL - 1916

PUBLISHED BY

Vol. 39 - No. 4

The Horticultural Publishing Co. Ltd., Peterboro, Ont.





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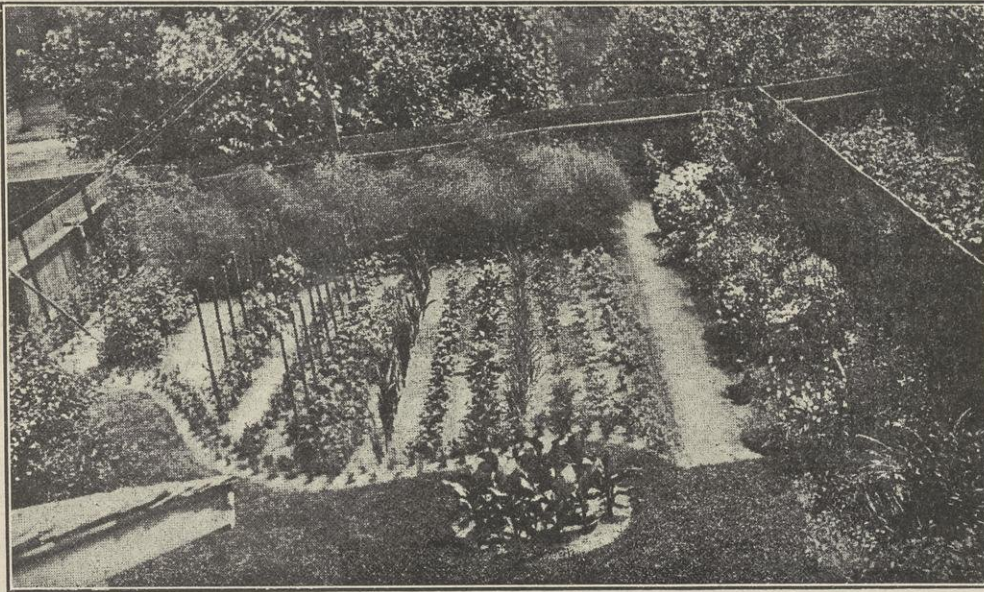
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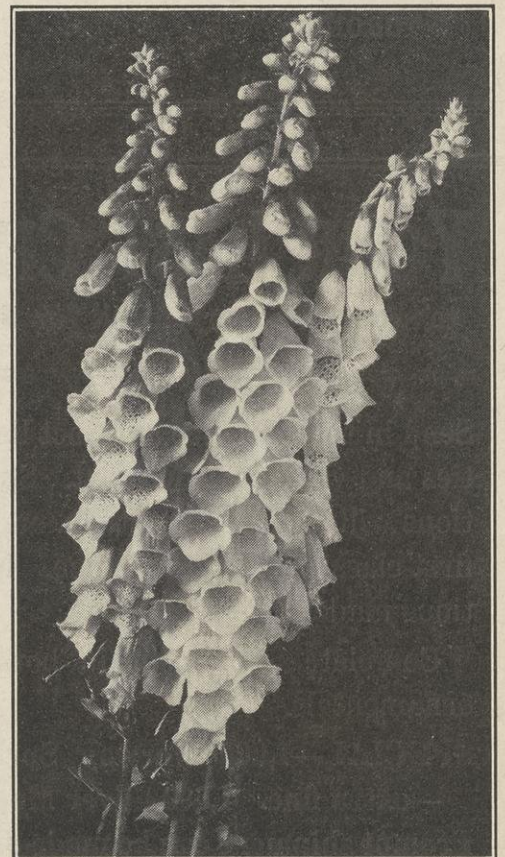
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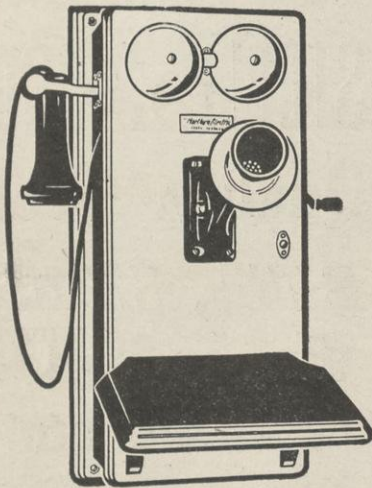
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# The Canadian Horticulturist and Beekeeper

Vol. 26

PETERBORO, APRIL, 1916

No. 4

## Essentials to Success in Fruit Growing

Seth J. T. Bush, Morton, N.Y.

THE growing of fruit, when properly conducted, is a business which requires all the brains, all the patience, all the care and sometimes all the money a man has, to carry it on successfully. The old idea that it took a "smart" man to be a lawyer, a doctor, or a merchant, but that any fool could be a farmer, has at last been exploded, and in its place has come the realization that in the successful farmer and fruit-grower must be combined the shrewdness of the lawyer, the sympathetic insight of the physician, and the practical wisdom and foresight of the merchant and manufacturer.

To be a successful fruitgrower, a man must know how to prune his trees; how and when to spray them, and how to thin whenever that is necessary or advisable. He should know his soil and

what it needs to properly nourish and sustain the trees and mature the fruit. He should know the relative value of different varieties; their bearing, carrying and keeping qualities. I would not recommend the raising of a great many varieties, and it is always important to plant only the varieties suited to your soil and climatic conditions. The man who raises any kind of fruit on a carlot basis has a distinct advantage over the man who, perhaps, raises more fruit but can not load solid cars of one variety. The question of fertilizer for our orchards is a vital one. The man who depends wholly on commercial fertilizers for his orchards, or any other part of his farm for that matter, is making a serious mistake. If I could get all the good barnyard manure and all the good cover crops I need, I would

not buy a pound of commercial fertilizer, with the exception of nitrate of soda as a top-dressing for pastures, meadows, and wheat in the spring.

With the right kind of cover crop to plow under, and proper cultivation afterwards, you will need mighty little else, and you may have to eliminate the cover crop occasionally. I am not, however, advocating barnyard manure for peaches. A fruit grower should walk through his orchards at least once every week through the summer, and be on the lookout constantly for the various diseases and ills that the tree is heir to.

In the case of peaches, the "grubbing" of the trees is one of the most essential things, and should be done thoroughly at least once each year—in May or June. The "Grubs" must be removed or they will ruin the trees in



New Brunswick within a few years should rank up well as a fruit bearing province. The orchard here shown is that of R. W. Barker Burton, N.B. Many more orchards will shortly come into bearing.





The strawberry crop last year of Geo. Johnson, Peterboro, Ont. Are you planning to grow one like it this year?

short order. Every diseased peach tree should be pulled up and burned the moment it is discovered; don't try to save part of the tree which does not seem to be affected, as disease after it once appears, will spread rapidly, and the entire tree will usually be affected before the fruit can be harvested.

There ought to be a strict law, and a rigid enforcement of it, to protect the fruit grower from his careless neighbor. The man who will not properly look after these things is a menace to his neighborhood, and should be forced to do so or be severely punished by the state.

#### Exporting Peaches.

If this wretched European war ever ends, and the people over there have any money left with which to buy fruit, I believe that the Elberta peach can be exported with success, if picked at the proper time, pre-cooled and quickly delivered to the ship under proper refrigeration. The experiment has been tried by western growers, with not very satisfactory results, it is true, but the eastern orchards have several days advantage, particularly those within five hundred miles of the seaboard. The experiment, I understand, has also been tried by Canadian growers, under the supervision of the Canadian Department of Agriculture, with much better results.

The principal obstacle in the way of doing this successfully, is the absence of railroad tracks on the New York docks, which would permit cars to be switched direct to the side of the steamer, and a quick transfer of fruit to the steamer's refrigerators, also a lack of proper refrigerator space on most of the ocean liners.

Pre-cooling peaches for shipment to any market is an essential to the greatest success. The greatest losses sustained by growers have been due to

improper refrigeration, and absolutely inexcusable transportation service furnished by the railroad companies. If cars are properly iced and cold, and the fruit is cold when loaded, it will carry three times as far, thereby widening the distribution, and arrive in first class condition, usually with but one icing. We have our own ice plant at Morton, and ice our own cars, and try to have the cars iced from 24 to 48 hours before they are loaded, so that they will be absolutely cold—around 40 degrees—usually about 36, so that the peaches coming from the cold rooms where they have been held at 34 to 36 degrees for two to four days, will not undergo any decided change in temperature, and will not "eat up" all the ice in the bunkers before the car can reach the first icing station. Last season we shipped cars of peaches as far as Tampa, Florida, under these conditions, successfully.

#### What The West Has Done.

Most fruit growers are supposed to be in the business for profit, but a lot of them, like Rip Van Winkle, have been asleep for twenty years, and many, I fear, never will wake up. The whole world has heard of the Hood River Valley of Oregon, and the Wenatchee Valley of Washington. These people have been able to overcome a freight handicap of \$1.51 per barrel (figured as three boxes) and a haul of three thousand miles, and sell their apples here in our midst, where the finest flavored apples in the world are grown, for three and four times what we receive for ours. Co-operation is the thing that has done it. Elimination of every needless expense, and a package that could be absolutely guaranteed.

It is much cheaper to operate one large, efficient, convenient packing plant in a community, than thirty or fifty individual plants, and it is abso-

lutely the only way by which a standard, uniform pack can be obtained. There is no experiment about it; it has been thoroughly tried out and proven an unqualified success.

#### Selling Problem.

It is not a question any longer of how to grow good fruit, or how to increase the yield; it is a question of HOW TO SELL IT. The cost of production is increasing all the time, and unless we adopt a better system, which guarantees an honest, uniform pack, and keeps the "cull" out of the package altogether, at the same time securing each year better and wider distribution, prices will go down until we reach a point where any chance for a reasonable return on our investment will vanish.

The selling of fruit is a specialized industry, and should be handled by experts. We are really manufacturers—manufacturers of the world's food supply—but unlike all other manufacturers, we have been blundering along on the principle of every man for himself, and the Devil take the hindmost.

Imagine any other manufacturer going ahead an entire year in total blindness and ignorance of what his expenses were or what his product would bring! He does not do business that way—not much. Before he will turn a wheel he must know exactly what the cost of production will be, and the exact price his product will sell for. The tariff must be properly adjusted for the manufacturer; there must be "gentlemen's agreements," and secret trade combinations; every contract must contain a "strike clause" and a "war clause," and in all cases ONE SET OF MEN produce the article and ANOTHER SET OF MEN sell it, while the farmer and fruit grower generally insists on playing the game from every angle, without any regard whatever to his qualifications.

The average man has some difficulty in being an expert in more than one line of endeavor. The man who plans his crops; plants, tills, fertilizes, sprays, prunes, thins, harvests and prepares them for market, at the same time running the gauntlet of germs, parasites and adverse climatic conditions, has done at least ONE MAN'S WORK, and he ought to have sense enough to see that the sale and distribution of his product is ANOTHER MAN'S WORK, and should be handled only by men who are experts in that particular business.

#### Different Lines of Work.

The production and the sale and distribution of the products of the farm and orchard are two separate and distinct propositions, and call for entirely different qualifications in the men who do the work. A man may be



the most successful grower of high grade fruit, but have no ability at all as a salesman, and this is usually the case. It takes no ability to accept the first offer that happens along; any fool can give his property away. The man who puts his whole time, thought and energy into the production of a crop, has no time to study market conditions and transportation and distribution problems.

When Benjamin Franklin told his fellow-signers of the Declaration of In-

dependence that they must hang together, or they would surely hang singly, he uttered a warning which seems pretty well suited to present day conditions confronting the farmers and fruit growers of this country. The old adage "In Union there is Strength," was never more self-evident than it is to-day; every other business in the country has adopted the plan of combining interests, but the farmer and fruit grower continues to permit himself to be used as a foot-ball to be kicked

about by every conscienceless speculator that comes along; continues to go through life asking two questions: "How much is it?" and "How much will you give me?" letting someone else set the price on everything that he sells and everything that he buys.

The individual grower is helpless in the battle of to-day.

Methods that were good enough for our grandfathers will no longer answer—this is a progressive age and times have changed.

## Orchard Fertilization\*

Prof. W. S. Blair, Kentville, N.S.

SINCE our fertilizer supply is being shut off, owing to the war, it seems desirable that we should modify our orchard practices in order to meet conditions as they exist. With an unlimited supply of potash at a reasonable rate we have had little need to worry about the potash requirements of our orchards; in fact, in many cases probably more potash than actually necessary has been used in the past. This, however, does not say that we can do without this element in the years to come. The hope is that the shortage in this fertilizer is only temporary. Nitrogen also has in the past been reasonable as compared with present prices of seventy dollars per ton for nitrate of soda, which last year cost us only fifty dollars. The various phosphatic fertilizers have also advanced.

An acre of apples producing one hundred barrels, according to analysis, will take from the soil approximately as much nitrogen and phosphorus as an acre of wheat producing fifteen bushels, and about three times as much potash.

|                       | Apples. | Wheat. |
|-----------------------|---------|--------|
| Nitrogen .....        | .65     | .43    |
| Phosphoric Acid ..... | .45     | 7½     |
| Potash .....          | 45½     | 16     |

Experiments have shown that a fertilizer carrying thirty pounds nitrogen, fifty pounds phosphoric acid and fifty pounds potash should be furnished to a full bearing orchard annually. It will be noticed that the phosphoric acid called for is much in excess of the amount the plant requires according to analysis, but in actual practice it is found that plants generally require an amount of phosphorus in excess of that called for from a chemical analysis of the product grown.

Considering the fact that nitrogen is one of the most important fertilizing elements, it is well for us to see that

we are making the best use of the means at our disposal to obtain all of this element we can from the air by growing leguminous orchard cover crops. An analysis of the various cover crops in their green state gives a comparative idea of their fertilizing constituents.

|                       | Common Vetch<br>ready to bloom. | Peas<br>2 to 3 ft. | Crimson Clover. | Red Clover. |
|-----------------------|---------------------------------|--------------------|-----------------|-------------|
| Nitrogen .....        | .64                             | .45                | .43             | .41         |
| Phosphoric Acid ..... | .14                             | .11                | .13             | .13         |
| Potash .....          | .47                             | .36                | .49             | .45         |

It will be noticed that according to this the crops run fairly uniform in their green state.

Experiments conducted at Ottawa give the following comparative values of the different leguminous cover crops seeded July 13th and collected October 20th:

|                                             |       | Weight of<br>crops per<br>acre. | Nitrogen<br>per<br>acre. |
|---------------------------------------------|-------|---------------------------------|--------------------------|
|                                             | tons. | lbs.                            |                          |
| Mam. Red Clover stems<br>and leaves .....   | 6     | 1,319                           | 82                       |
| Mam. Red Clover roots...                    | 3     | 1,200                           | 48                       |
| Total .....                                 | 10    | 570                             | 130                      |
| Common Red Clover stems<br>and leaves ..... | 4     | 1,779                           | 70                       |
| Common Red Clover roots...                  | 2     | 1,445                           | 47                       |
| Total .....                                 | 7     | 1,224                           | 117                      |
| Crimson Clover stems and<br>leaves .....    | 11    | 234                             | 85                       |
| Crimson Clover roots .....                  | 3     | 201                             | 19                       |
| Total .....                                 | 14    | 435                             | 104                      |
| Hairy Vetch stems and<br>leaves .....       | 11    | 1,895                           | 129                      |
| Hairy Vetch roots .....                     | 2     | 345                             | 18                       |
| Total .....                                 | 14    | 240                             | 147                      |

The common vetch was not grown for comparison in this test, but the chances are that it will compare hardly as favorably as the hairy vetch, but better than crimson clover.

That the turning under of such a cover crop does supply a large amount of nitrogen, which is taken from the air, is shown by tests conducted by following grain on land which had



A five-year-old McIntosh tree in the Glenburn Orchards of W. A. Fraser, Trenton, Ont., which bore a bushel of apples.

\*Extract from a paper read at the last annual convention of the Nova Scotia Fruit Growers' Association.





Pruning operations in the orchard of J. A. Campbell, Aultsville, Ont. Note the type of ladder used.

previously been in grain with which red clover had been sown, as compared with adjoining plots not seeded to clover. The results were as follows:

|                                                                              | 1st year.     | 2nd year.           |    |
|------------------------------------------------------------------------------|---------------|---------------------|----|
|                                                                              | straw<br>lbs. | grain<br>bush. lbs. |    |
| Banner oats where clover seed with the grain crop had been turned under .... | 5,110         | 55                  |    |
| Banner oats where no clover had been seeded with the grain crop .....        | 2,260         | 44                  | 4  |
| Gain from clover ....                                                        | 2,850         | 10                  | 30 |
| Banner oats where clover seed with the grain crop had been turned under .... | 3,270         | 44                  | 38 |
| Banner oats where no clover had been seeded with the grain crop .....        | 2,320         | 33                  | 36 |
| Gain from clover .....                                                       | 950           | 11                  | 2  |

A total gain of 3,800 lbs. straw, 21 bushels 32 lbs. grain for the two years from seeding clover with the grain crop, the growth of which was plowed under in the fall of the same year. This increase of crop is equal to approximately twenty-five dollars, at present prices, and the gain must have been due principally to the one crop of clover.

Similar tests with corn and potatoes show the following gains:

|                                                              | tons. | lbs.  |
|--------------------------------------------------------------|-------|-------|
| Corn where clover sown with grain was plowed under .....     | 19    | 1,560 |
| Corn where no clover was plowed under .....                  | 16    | 1,160 |
| Gain from clover .....                                       | 3     | 400   |
| Potatoes where clover sown with grain was plowed under ..... | 320   | 40    |
| Potatoes without clover .....                                | 280   | 20    |
| Gain from clover .....                                       | 39    | 20    |

Repeated tests show that the clover does not lessen the yield of grain when seeded with it, and similarly a cover crop is not a detriment in orchard practice, but rather a gain.

It has been said that a good crop of clover turned under is worth as much in fertilizing value as ten tons of manure per acre. It would seem from what we can find out that this is pretty

largely true. At least investigation shows that a vigorous crop of clover contains in stems, leaves and roots:

100 lbs. Nitrogen.  
30 lbs. Phosphoric Acid.  
85 lbs. Potash.

and well made barnyard manure from well fed animals contains in one ton:

10 lbs. nitrogen in 10 tons 100 lbs.  
5 lbs. phosphoric acid in 10 tons 50 lbs.  
9 lbs. potash in 10 tons 90 lbs.

At the present price of commercial fertilizer; that is, nitrate of soda seventy dollars a ton, slag sixteen dollars a ton, and muriate of potash we will say \$150 a ton, although even at that price it is not available. Probably if you are buying mixed fertilizers you will pay at that rate per pound at least. Nitrate of soda contains about fifteen per cent. nitrogen, one ton would contain three hundred pounds, which at seventy dollars would be 23 1-3 cents a pound. Phosphorus approximately six cents a pound, and potash at the assumed price would be fifteen cents a pound, as muriate of potash contains fifty per cent. potash, or one thousand pounds in one ton.

Figured then on this basis, a ton of well made stable manure, from well fed stock, would be worth as follows:

|                                    |        |
|------------------------------------|--------|
| 10 lbs. Nitrogen at 23 1/2c .....  | \$2.35 |
| 5 lbs. Phosphoric Acid at 6c ..... | .30    |
| 9 lbs. Potash at 15c per lb. ....  | 1.35   |
| Value per ton .....                | \$4.00 |

Considering, therefore, the scarcity of potash, we cannot afford to let this important fertilizing element be lost through our method of handling.

The foregoing is calculated according to the prices you have to pay for the various fertilizing constituents in commercial fertilizers, and does not include the value of manures for their humus contents. In both cover crops and manure, we are liable too often to forget about the important part humus

plays in producing conditions suitable for crops other than the supplying of necessary plant food.

When speaking of well fed and well kept stable manure, it is well for us to keep in mind that manure from animals poorly fed is not nearly as valuable as that from well fed animals, and that a manure from which the liquids have been lost is not nearly as valuable as one where it has been retained. Just in this connection it is interesting to note that almost half of the total value of the excrement lies in the urine. Nearly four-fifths of the potash is found in the liquids voided by animals.

The object of this address is to show the comparative value of the leguminous crops as compared with stable manure, and if possible to encourage a more extensive growth of the nitrogen gathering crops in our orchards.

It would seem to me, in the face of conditions that at present exist, we should adopt some system to make a greater use of the clover and vetch than we have in the past.

In conclusion I would say we should depend more than we have upon clover; that if necessary, stable manure should be used to give the necessary plant food and soil conditions to secure a good stand, and liming usually will be necessary. Basic slag may in some cases be used to furnish the lime requirements, in addition to the phosphorus. In case acid phosphate is used, lime should also be used. The potash can in a measure be secured by taking more care of our stable manures, and using more absorbents, such as straw, sawdust and dried peat, to hold the liquids voided by our farm stock.

### Seasonable Hints

The first thing that should be attended to in the orchard this spring is the cultivation of the land about the bushes and fruit trees. With an ordinary hoe and rake, the land should be deeply worked and pulverized, and after each rain it should be loosened again. Upon the manner in which this is done will depend largely the supply of moisture and food for the summer. Leave the winter covering of straw on as long as possible. If uncovered too soon, the plants will blossom early, and may get caught by late spring frosts. Of course if the weather continues so that the plants make vigorous growth, it will be necessary to remove the covering earlier.

Grapes should not be uncovered until later, or the young buds will be liable to get nipped by frosts. It is better to have a good crop of fruit a little late than none at all.

Raspberries may be uncovered now, if they were covered in the fall.



## Spraying Methods in Nova Scotia.

L. D. Robinson, Berwick, N.S.

SO far as Nova Scotia is concerned, spraying is the most important factor in the production of first-class fruit. Here, pruning, cultivation, fertilization and thinning count for little, where thorough spraying has been neglected. In the Annapolis Valley, especially, the congestion of orchards, aggravated by numerous wild apple-trees growing in pastures, on the roadside, and even in the woods, greatly facilitates the spread of orchard pests, and places a high premium on spraying.

Since the introduction of lime sulphur as a fungicide, the popularity of Bordeaux has steadily declined, owing to its greater tendency to cause spray injury. At present, Bordeaux is prohibitive on account of the demand for copper for war purposes. A new rival of lime sulphur, "soluble sulphur," was placed on the market last year.

Notwithstanding some serious burning that resulted from its use, there are good reasons for regarding it as the coming spray. Experiments conducted by Prof. G. E. Sanders, on the premises of S. B. Chute, Berwick, appear to prove conclusively that "soluble sulphur" gives excellent results when used with lime arsenate, instead of lead arsenate. However, the wise orchardist will not give up the use of lime sulphur till further experiments make assurance doubly sure that a better fungicide has displaced it.

### Insecticides.

In combining insecticides with fungi-

cides, care must be taken that reactions injurious to fruit and foliage do not occur. If these combinations result in the presence of free arsenic, burning is sure to follow. Paris green will combine well with Bordeaux, but not with lime sulphur. Lead arsenate is an excellent insecticide to use with lime sulphur or Bordeaux, but causes excessive burning when used with soda sulphur (soluble sulphur) as many proved last year, to their sorrow. Lime arsenate being a stable compound, can be used without danger of spray injury, with either of the three fungicides.

Lead arsenate at the rate of five pounds to one hundred gallons, should be used in all sprays for the orchard. This should first be reduced in water, and poured into the spray tank when the machine is in full motion. It should be remembered that the poison in all properly prepared sprays is not a liquid, but a fine powder in suspension. A few moments must always be allowed after starting the machine, to stir up the poison, before the nozzles are opened.

Examine fruit buds carefully before applying the first spray, for apple scab, and if aphids are present, add Black-leaf forty to this spray, at the rate of one pint to one hundred gallons.

### Dilutions of Lime Sulphur.

The margin between the effective strength and danger point in the use of lime sulphur spray is narrow. It is very important that accurate dilutions should be made, and this can only be

accomplished by the use of the hydrometer. When this instrument is allowed to come to rest in pure water 60 degrees F., the figures 1,000 appear at the surface. If salt be now added, the glass will rise in exact proportion to the quantity dissolved. When placed in any dilution of lime sulphur, the decimal part of the reading at the surface denotes its strength.

Careful experiments have shown that the strength of lime sulphur dilutions for use on foliage, and the time of application should be as follows:

1st application, when blossom buds show green, 1.009.

2nd application, when blossom buds show red, 1.008.

3rd application, when most blossoms have fallen, 1.007.

4th application, 10 to 12 days after 3rd application, 1.0069.

5th application, when apples are the size of large crabs; if wet and cold, 1.0069.

When scale or bark louse is present, use dormant strength for 1st application, 1.03.

Place the hydrometer in a portion of the concentrate to be used. Suppose it to come to rest with the figures 1.288 at the surface. The decimal .288 denotes its strength, and the decimal .009 that of the first spray for apple scab. It is evident that the dilution figure will be found by dividing .288 by .009, which gives 32. This means that to make a dilution 1.009 hydrometer strength, each 32 gallons must contain exactly one gallon of the concentrate. To find the number of gallons concentrate to use in making 160 gallons, we simply divide 160 by our dilution figure 32, which gives us five gallons.

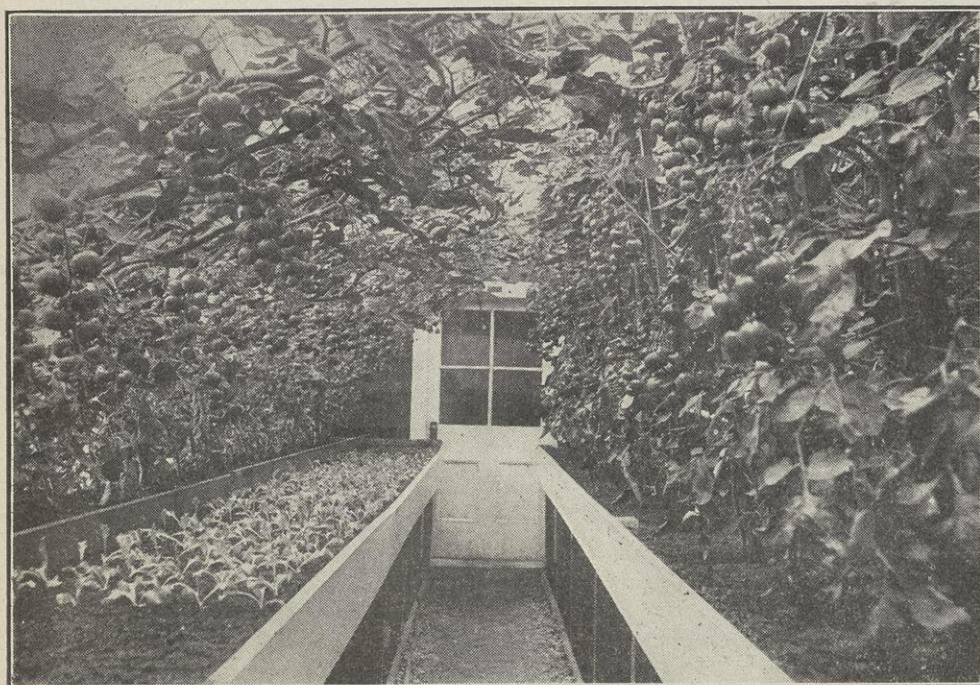
We can obtain the same result more briefly as follows:

$$\begin{array}{r} 160 \div .288 \\ = 160 \times .009 \\ .009 \quad \quad = 5. \\ \quad \quad \quad 288 \end{array}$$

Hence the following simple rule for making any dilution from any lime sulphur concentrate: Multiply the number of gallons dilution to be made, by the decimal part of the desired strength, and divide this result by the decimal part of the strength of the concentrate used. The result will be the required number of gallons concentrate to be used in making the dilution.

### Apparatus.

The power sprayer is necessary in all orchards producing upwards of five hundred barrels yearly. A good machine should combine simplicity, lightness and durability. It should contain a blade propeller agitator, and be capable of maintaining a pressure of at least two hundred pounds on two lines



The product of this crop of tomatoes averaged one dollar a plant. The first fruit was picked Feb. 10, 1916. It was grown by R. Hemstock, gardener for J. B. Laidlaw, The Grange, Whitby, Ont.



of hose. The lines of hose should be from thirty-five to fifty feet in length, fitted with rods eight to sixteen feet long, according to the size of the trees, and nozzles capable of throwing a driving spray, rather than a fog-like spray.

### Asters and their Requirements.

A. V. Main, Ottawa, Ont.

**T**HIN, sandy soil or impoverished ground does not suit asters. They require a good rich soil, especially if watering is not done. Where there is an abundance of water and time in which to apply it, rich soil is not so imperative.

The best asters come from what gardeners call good deep soil, moderately supplied with rotted manure. Cultivate it regularly with the hoe and use water sparingly. Instead, dig deep

and prepare the ground for the droughts, that we seldom escape. Queen of the Market, Purity and Day-breaks stand close planting, twelve inches both ways. The taller branching sorts require eighteen inches and two feet between the rows where ground is not valued by the foot. An application of your favorite garden fertilizer in August will help to furnish exhibition winners.

I have not found disbudding the plants, or confining the plants to three and four blooms, of any particular advantage. With a new piece of ground, deeply cultivated, good stocky plants to begin with and good varieties, blooms will come fit either for market or exhibition and give profitable returns. One of the best disbudders is the aster bug. It is a most destructive pest that bleeds the best of buds and

causes them to wilt. I never knew of such a visitor until I entered the city limits. The best remedy I know is to get up at daybreak and spray with hellebore, while the dew is on the plants. I use an electric insect exterminator, made at Woodstock, Ont. It is a pair of bellows, which are used with dry powder. It holds three-quarters of a pound of hellebore. Full directions are given with it.

Plants that become yellow from stem rot should be pulled out. Asters will be more free from pests and diseases if fresh locations are given them and, as already stated, an uninterrupted growth from the seed bed to finished bloom. Late sowings in May outdoors proves that we often err in raising the plants, in a greenhouse temperature, that gets "uncanny," dry and hot, not once but many times.

## Plan of a Home Vegetable Garden

The following planting table has been prepared to meet the requirements of a town or city lot 33 x 30 feet. The estimated cost of the seeds and plants is \$2.30, and the estimated value of the products \$25.00.

W. T. Macoun, Dominion Horticulturist.

| Row. | Kind of Vegetable.                                                                                              | Seed required for 30-ft. row.       | Distance apart of rows.         | Depth to sow seed.                     | Distance to thin plants.                     | Time required to develop for use. Based on results at Ottawa.                                                                    | Yield per 30 foot row   |
|------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------|----------------------------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| 1    | Parsnips                                                                                                        | 1 packet                            | 18 ins. from boundary           | $\frac{1}{2}$ inch                     | 2 ins. apart                                 | 107 to 112 days                                                                                                                  | 60 to 80 lbs.           |
| 2    | Beets                                                                                                           | 1 ounce                             | 12 ins. from row 1              | $\frac{1}{2}$ inch                     | 2 ins. apart or as ready                     | 53 to 70 days                                                                                                                    | 50 to 60 lbs.           |
| 3    | Carrots                                                                                                         | 1 packet                            | 12 ins. from row 2              | $\frac{1}{2}$ inch                     | $1\frac{1}{2}$ ins. apart or as ready        | 64 to 76 days                                                                                                                    | 65 to 75 lbs.           |
| 4    | Onions                                                                                                          | $\frac{1}{4}$ ounce                 | 12 ins. from row 3              | $\frac{1}{2}$ inch                     | 1 in. apart                                  | 93 to 120 days                                                                                                                   | 40 to 60 lbs.           |
| 5    | Onion Sets                                                                                                      | $1\frac{1}{2}$ pounds               | 12 ins. from row 4              | 2 inches                               | Plant 2 ins. apart                           | 56 days                                                                                                                          | 40 to 60 lbs.           |
| 6    | Early Cabbage and Cauliflower                                                                                   | 12 plants each                      | 15 ins. from row 5              | Roots well covered                     | Plant 15 ins apart                           | 102 to 121 days                                                                                                                  | 3 to 5 lbs. per head    |
| 7    | Spinach, Mustard and Cress                                                                                      | 1 packet each                       | 15 ins. from row 6              | $\frac{1}{4}$ inch                     | 4 to 6 inches apart                          | 60 days                                                                                                                          | Weight varies much.     |
| 8    | Lettuce and Radish, followed by Squash and Melons (3 hills of each, 5 ft apart).                                | 1 packet each                       | 2 ins. from row 7               | $\frac{1}{4}$ and $\frac{1}{2}$ inch.  | Lettuce 6 ins. ....<br>Radish as ready ..... | 50 to 70 days ....<br>21 to 36 days ....<br>Muskmelons 110 to 144 days.<br>Watermelons 96 to 161 days.<br>Squash 66 to 104 days. | Ditto.                  |
| 9    | Dwarf Early Pea                                                                                                 | 4 ounces                            | 12 ins. from row 8              | 2 inches                               | 1 in. apart                                  | 49 to 51 days                                                                                                                    | 6 to 7 quarts in pod    |
| 10   | Second Early Pea                                                                                                | 4 ounces                            | 18 ins. from row 9              | 2 inches                               | 1 in. apart                                  | 52 to 56 days                                                                                                                    | Ditto.                  |
| 11   | Late Pea (semi-dwarf)                                                                                           | 4 ounces                            | 18 ins. from row 10             | 2 inches                               | 1 in. apart                                  | 63 to 71 days                                                                                                                    | 6 to 9 quarts in pod    |
| 12   | Lettuce and Radish (2nd sowing of this). Might be a path ..... Sown or planted after                            | 1 packet each..<br>danger of frost  | 18 ins. from row 11<br>is over. | $\frac{1}{4}$ to $\frac{1}{2}$ inch... | As before for these                          | As before                                                                                                                        | Weight varies much.     |
| 13   | Early Beans, $\frac{1}{2}$ ; Late Beans, $\frac{1}{2}$                                                          | 2 ounces each..                     | 18 ins. from row 12             | 2 inches                               | Plant 2 ins. apart                           | Early, 47 to 53 days<br>Late, 66 to 76 days.                                                                                     | 10 to 20 quarts.        |
| 14   | Late Cabbage and Cauliflower                                                                                    | 10 plants each.                     | 18 ins. from row 13             | Roots well covered                     | 18 ins. apart                                | 107 to 123 days                                                                                                                  | 4 to 6 lbs. per head    |
| 15   | Celery (start plants early)                                                                                     | 1 packet                            | 24 ins. from row 14             | $\frac{1}{4}$ inch                     | Plant 5 ins. apart                           | 5 months                                                                                                                         | 12 to 19 ozs. per head. |
| 16   | Swede Turnips. Sow June 15 to July 1.                                                                           | 1 packet                            | 4 ins. from row 15              | $\frac{1}{2}$ inch                     | 5 to 7 ins. apart                            | 60 to 90 days                                                                                                                    | 60 to 80 lbs.           |
| 17   | Peppers & Egg Plant, or 3rd sowing of Lettuce and Radish or more Late Cauliflower, or early sowing of Parsley.. | 1 packet each..                     | 18 ins. from row 16             | Roots well covered                     | Plants 15 ins. apart                         | Peppers, 132 to 178 days<br>Egg Plants, 150 to 162 days                                                                          | Yield varies much.      |
| 18   | Tomatoes, trained to single stems and tied to 5-foot stakes or wires                                            | 1 packet or 15 plants, 2 feet apart | 24 ins. from row 17             | Roots well covered                     | Plants 2 feet apart                          | 108 to 179 days, depending on when started and season                                                                            | 100 to 150 lbs.         |
| 19   | Early Corn, followed by late sowing of Lettuce & Radish..                                                       | 1 packet                            | 36 ins. from row 18             | 2 inches                               | Hills 3 ft. apart, 5 plants per hill         | 66 to 94 days                                                                                                                    | 40 to 50 ears.          |
| 20   | Later Corn, about 2 ft. from boundary..                                                                         | 1 packet                            | 36 ins. from row 19             | 2 inches                               | Ditto                                        | 77 to 112 days                                                                                                                   | Ditto.                  |

In addition to these, cucumbers would be grown over wire netting tacked to one of the fences. Melons, cucumbers and squash should be thinned to from three to six plants per hill.



# Growing Vegetables for a Family of Seven

A. P. Marshall, Niagara Falls, Ont.

**W**HAT to do with a vacant lot that had been used for two seasons to keep chickens in was the problem that faced me in the spring of 1915. The soil needed some refreshing and how to provide it and obtain a return for the trouble was the question.

Owing to the war and probable high prices for food stuffs, campaigns were carried on last spring recommending more production and suggesting the utilizing of all available land to grow some useful crop. This, coupled with a desire to practise greater economy, prompted the idea of working this lot of about fifty feet by one hundred and twenty feet in vegetable crops suitable for a table where young but hungry mouths let nothing go to waste and are ready to tuck away a good healthy quantity of all that's good at every meal.

Since part of this yard must keep the few breeding hens, a small part was yarded for them, leaving all of the balance free to be used for garden purposes. Owing to the nature of the land it looked like a difficult matter to accomplish anything, and as the neighbors said as soon as dry weather started the ground would bake hard and everything would dry up. It was natural to almost lean to their view, but if the land was to be refreshed in any case, it was worth a trial.

Not having developed the idea until well along toward spring the land did not get any fall preparation. We obtained a little stable manure, used what hen manure was available, and sprinkled the soil with a little air-slacked lime and had a man plow and harrow the land well. If we could have had a disc harrow, better preparation could have been made of the land, making less work afterwards, but the harrow was too big to get through the gateway. The manner in which the household appreciated the big variety of fresh, crisp vegetables was ample repayment for the effort, and as we were able to have crops as early as the market growers and earlier than our neighbors, in spite of poor first conditions, great satisfaction was felt with the effort.

In the meantime, before planting, time was spent in carefully selecting a good variety of seeds to give a steady supply, once the crops started to bear. When these were finally selected there was just \$3.00 worth to order, besides a peck of local potatoes, thirty-five cents, and two dozen tomato plants, twenty-five cents, making three dollars and sixty cents in all. The teaming, manure, plowing, and harrowing cost two dollars and seventy-five cents, so that the total cost was six dollars and thirty-five cents. When we consider the healthful occupation it gave,

the satisfaction of being able to pick our own supply as we wanted it, and the saving effected, the experiment was a huge success.

In dividing up the land, three long paths were made the full length of the garden. Each bed was about six feet square, except where small, round, tapering beds were formed to let vines run. With a late start and no time to lose, plantings were begun as fast as the beds were got ready, and plantings made each week-end until all the seeds were used. With each kind of seed, however, only a small portion was used at each planting so that new lots were coming up to give continuous supply throughout the season. In some cases, where frost got the first plantings, later sowings came right along and followed so close as to get in as early as it was possible and avoid the frost.

Our varieties consisted of three varieties of peas, four of beans, two beets, one turnip, two carrots, two lettuce, two radishes, three corn, two parsnips, one parsley, one cabbage, two tomatoes, one summer squash, two squash, two pumpkins, one muskmelon, one watermelon, two cucumbers and potatoes, with sunflower and mangels for the chickens. Our potatoes were used as soon as produced, without waiting for quantity, and supplied seven of us from early July until the end of August, when



Victoria Park, Peterboro, Ont., the flower beds in which are planted and the grounds cared for by the local horticultural society.



there was no trouble securing all we wanted at a fair price.

Of the other vegetables, we obtained all we could eat, being obliged to give away and sell some to prevent waste. All tops and unused parts went to the chickens. Thus everything was turned into some use. As the crops were taken out it became possible to enlarge the chicken yards and finally, by yarding tender stuff, the whole place was given over to them. Besides this, beans, peas, tomatoes, cucumbers and similar vegetables were put up in jars for winter use, spreading the use of the crop over the whole season. Pumpkins, squash and such things were placed in the cellar to gladden the hearts of the little ones as well as the grown-ups when turned into pumpkin pies and similar culinary delights.

Of course the crop did not produce itself just by preparing the soil and putting the seeds in the ground. Had they been left to themselves, hardly anything would have grown, for most of the land would have baked as hard as a brick. The simple plan followed was to make a hurry-up job of hoeing the whole place as quickly as possible after every rain. Having no facilities for watering, this was the only course to follow and it worked well. Of course the vines were sprinkled with lime occasionally to keep off the bugs. This we found the most effective remedy we have ever used.

We attribute the results entirely to the preparation of the soil, good seeds, frequent hoeing, especially after every rain, and to our never allowing the soil to get in the condition it would have had it been left alone to choke off all the growth at the start. Anyone who wishes can figure what seven healthy people will eat in a season and then add considerable to that and then decide whether the effort to utilize a vacant lot proved profitable or not. By planning a little now, one can arrange to take advantage of every opportunity for getting the best results the next season.

### Garden Suggestions

Henry Gibson

The mulch of manure that has been on the lawn all winter may now be raked off and carted away. Go over the lawn with an iron-toothed rake, and tear out all the crab grass that you can find. This is the time to repair and sow down any bare spots in the lawn; the sooner it is done now, the less patchy it will look. Any new lawns that are being contemplated should be sown at the earliest possible moment when the soil is in condition. It is better to sod any steep grades that are likely to wash badly, or you will have to be sowing all the time.

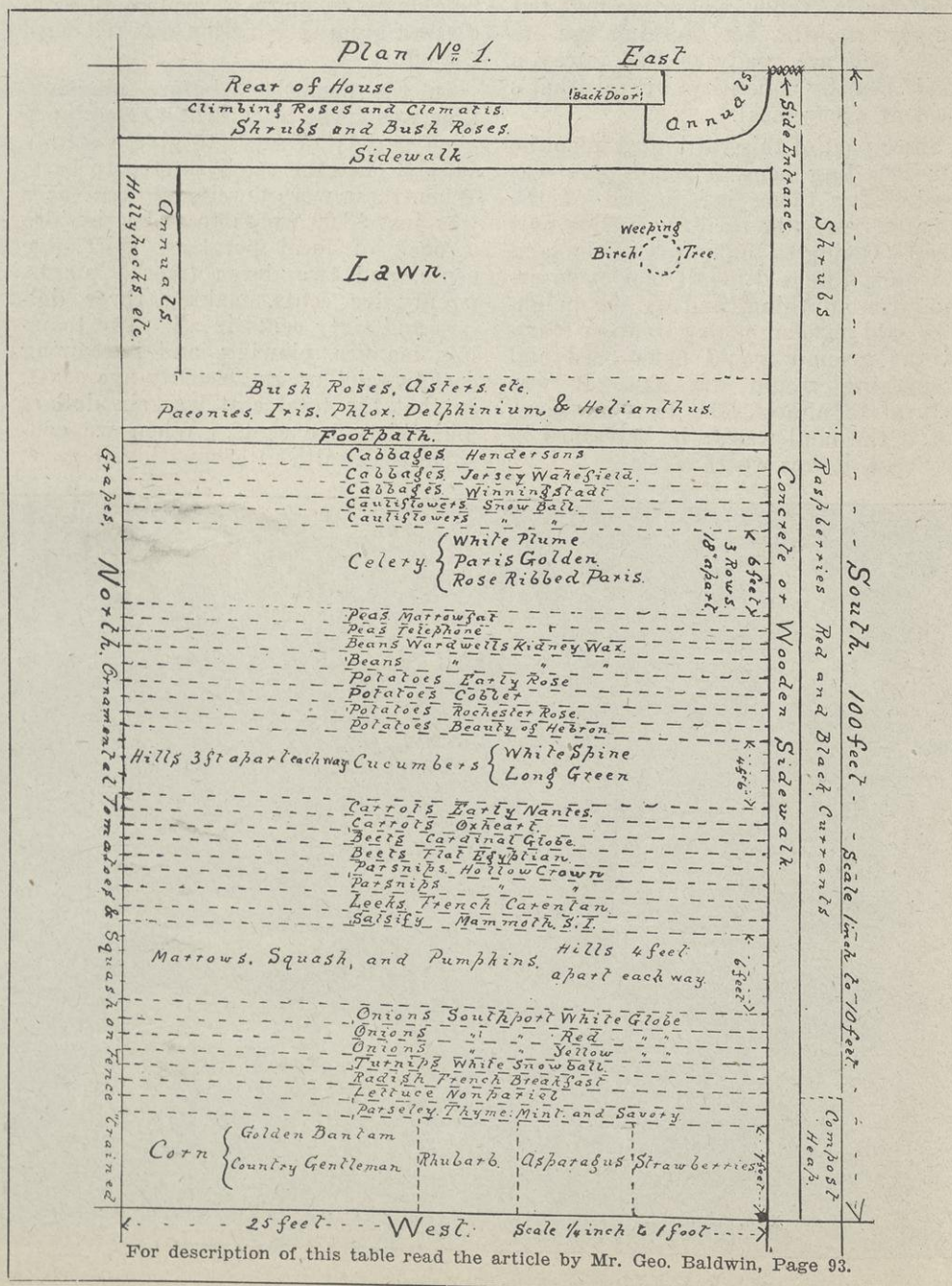
Roll the lawn with the heaviest roller you can get, and do it often. Have you decided to feed the lawn this year? Remember that constant cutting, year after year, takes away a large amount of plant food, so that in time the lawn is sure to deteriorate. It's the same with the lawn as it is with the vegetable garden; if you don't feed it, it won't feed you. You have to feed the grass if you would have a fine greensward. The mulch you had on all winter will have been beneficial to it since the rains and melting snow will have washed down valuable plant food.

There are specially prepared lawn fertilizers that are good to a certain extent, but the manufacturers of these, wishing to create a good impression at the outset, usually include in them a large percentage of sulphate of ammonia or nitrate of soda. These cer-

tainly do what is claimed for them, i.e., make the lawn green in a short time, but the trouble is that the effect is not lasting. These two ingredients are stimulants, rather than real plant foods, and their effect upon the lawn may be likened to a whip upon a tired and hungry horse; it makes him go faster for the time being, but it does not appease the hunger.

Roses must be pruned hard back to get good results. The hybrids should be cut back to two or three eyes. Teas do not require such heroic treatment, and as they burst into leaf sooner than do the hybrids when pruned, we like to leave them until the last for pruning.

For trellis work, or around the piazza, if you are thinking of any new roses, don't overlook some of the Penzance sweet briars; they are good.





# Planning the Garden of Satisfaction

By Geo. Baldwin, F.R.H.S.

**H**EREWITH are shown two plans of gardens intended to suit the requirements of the average backyard gardener. Number one is for a combined flower and vegetable, and number two is solely for vegetables. The varieties given are the best as determined from actual experience. They can be relied upon. These plans will not suit all gardens as to location and size, but are given as an idea upon which to plan. By all means plan. It's the only way.

By the time this is in print there will still be time to make a hotbed or cold-frame to raise your own plants, and thus save time and expense. The following are the names of a few of the best varieties of flowers with which to beautify the surroundings of your lawn: Climbing roses, crimson Rambler, Dorothy Perkins, and Tauschen-don, Clematis; Jackmanni, hollyhocks. Buy the plants, as they do not bloom the first year from seed. If you insist on growing them from seed, procure Chaters double mixed.

For bush roses, the following are six of the best: Marquis de Sinety, copper and yellow; Miss Cynthia Forde, rosy pink; Mrs. A. E. Coxhead, red vermillion; Mrs. W. C. Miller, blush salmon rose; Mollie Sharman Crawford, pure white; Juliet, gold on one side of petal and rosy red on reverse side. Paeonies: Festiva Maxima white; Humeii, rosy pink; iris; Mrs. Horice Darwin, Madame Chereau, Pallida Dalmatica. Delphiniums: Duke of Connaught, Musea, Persimmon. Helianthus: Miss Mellish and Daniel Dewar.

Shrubs and annuals are too well known to need describing. Be sure to get a good strain of asters and gladioli, as there is nothing that will set a garden off better than these.

Now for the toothsome vegetables. We will take them in the order shown in the plan on page 92: Cabbages, unless you want variety, Henderson's Summer Early will answer all purposes for early, mid, late. It is a good plan to order of your seedsman now if you do not raise your own plants, as they grow most of the best varieties for sale, and by ordering now you can generally get what you want.

There are several good varieties of peas and beans. Those marked on the plan will give good satisfaction. Don't forget that the Telephone Pea is tall growing and requires some brush or netting to run up. The writer has experimented with thirty varieties of potatoes for the last five years. The three given on the plan have proved to be the best during that time. They

were grown on a clay loam with sandy sub-soil, and are varieties the seed of which can be secured in almost any feed store.

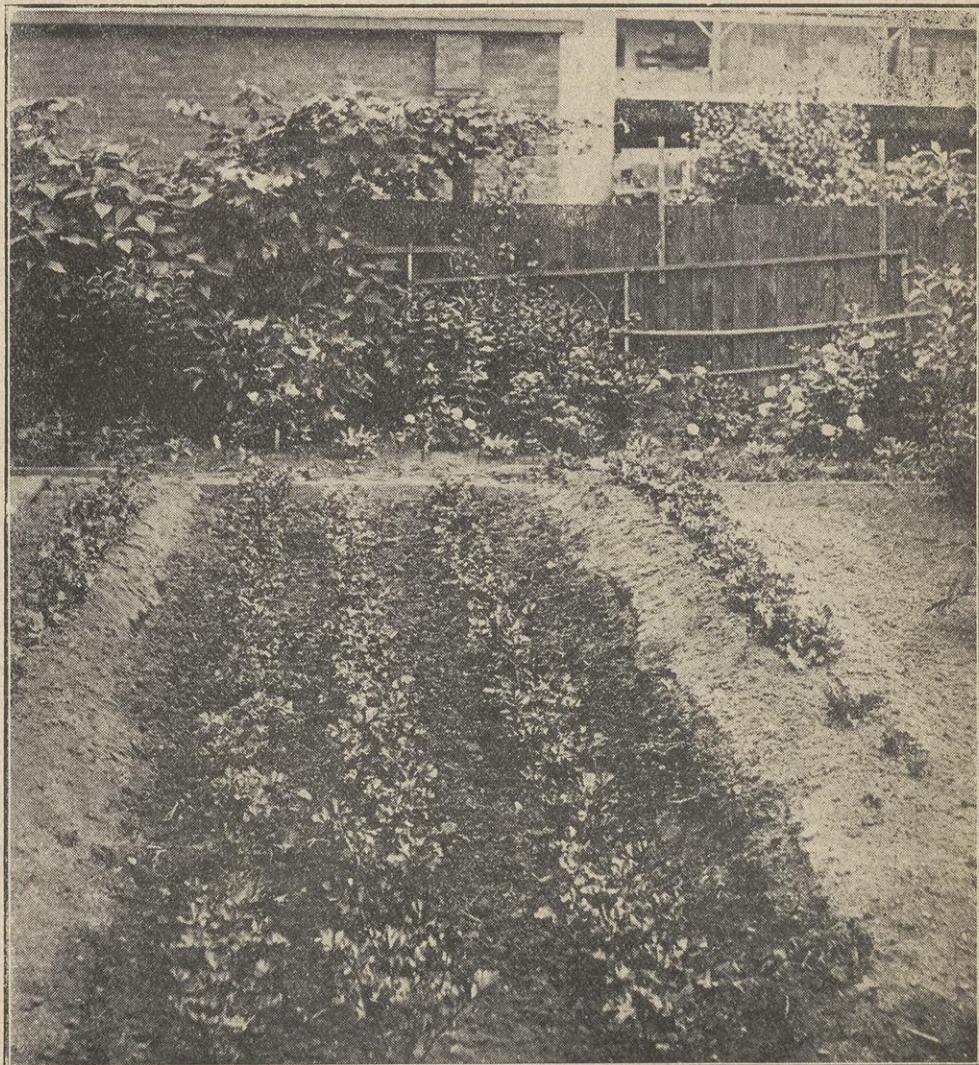
Cucumbers are best raised in the frame and transplanted to the ground when the weather permits, as the squash-bug plays havoc with the young seedlings when grown outside. The two varieties of carrots are good for nearly all soils, but if you have a deep loamy soil, try Carter's Red Elephant. The same comment applies to beets and parsnips. If you want the long blood red beet, or the long Sutton's Student parsnip you must have deep soil.

Leeks are best grown in the trench with the celery and earthed up together. Try some. Salsify is splendid for soups when sliced up; in fact, you would almost think you had oyster soup. Marrows, use white bush. Squash, Green Hubbard and Summer Crookneck are good. You will find by growing the Southport red, white and

yellow onions you get the best for flavor and keeping, but if you want them big, it will be necessary to start them inside, and have them eight inches long by May 24th, the time for planting out. Plant them in rich soil and give lots of moisture.

While a row each of radish and lettuce is shown on the plan, it is not absolutely necessary, as they can be grown to advantage in between cabbage rows, or on the ridges of the celery trench. Do not deprive yourself of the early Golden Bantam corn; it is by far the best early corn, and Country Gentleman or Stowell's Evergreen for late.

Get two or three nail kegs from the hardware and place over some of the rhubarb roots, packing manure around the outside, and have rhubarb a month earlier. Do not cut the asparagus the first year, and do not let the seeds ripen, but cut the brush off early in the fall, and lay on the bed for protection.



A celery bed, three weeks after planting, with radishes growing along the top of the ridges.





Turn the unsightly board fence into a source of profit by covering it with tomato, grape and similar vines.

If your strawberry bed is two years old, take the runners in late August and make a new bed. Four years is the life of the strawberry patch. For the hills of cucumber, squash, marrows and pumpkins, dig a hole fifteen inches square and deep, and tramp in ten or twelve inches of well decayed manure in the bottom, covering over with three or four inches of rich soil. Keep the roots moist and the tops dry, and you will have good results. It is not necessary to grow these on little hills or mounds; in fact, from my experience the reverse is the best method. Try it.

You will notice that no space has been allotted for tomatoes. They are very accommodating, and will grow in any old place except full shade. I get the best results from planting them up against the fence on the north side of the garden, tying them to chicken wire, which is stretched on the fence from one end to the other. Prepare the place for each root the same as for squash and pumpkins, allowing a space of four feet for each plant. The fruit ripens quicker, and by proper attention a greater yield is attained, besides helping to keep the garden cool in the

hot days. Full cultural directions for onions, cabbage, tomatoes and celery will be given in later editions.

The May issue of *The Canadian Horticulturist* will contain an article describing the preparation of the garden for planting, and necessary precautions to be taken to combat the insect pests. Prepare the celery trench a couple or three weeks before planting time in the following manner and see if you cannot have celery this year as sweet as a nut and fit to set before the King. The plan shows six feet for this purpose, so mark off the required width and length, then throw into ridges on each side nine inches of the soil, then put six inches of decayed manure and dig that in as deep as possible, throwing three inches of fine soil on top. Level it off, and let it settle till June 1st. Order your plants now if you are not growing them, allowing eight inches to a plant in rows eighteen inches wide. The accompanying photo will show you how to cover up an unsightly board fence. All the pumpkins in the foreground were grown on the fence, besides grapes and tomatoes galore.

## Early Work in the Flower Garden

Mrs. E. V. Nicholson, St. Catharines, Ont.

**A** DESCRIPTION of how one amateur starts planting seed for early spring flowers may be of interest to beginners. In the first place, I procure the best seed that can be bought, and then prepare the ground. The soil is placed in the oven and well heated so as to kill the seeds of weeds. The reason I like to kill the weed seeds is because they always grow much more quickly than the other seeds, and by the time the flower seeds are up the weeds crowd out the smaller plants.

Next I secure some four or five inch pots and fill them until within three inches of the top. I then take a small sieve and sift some earth on the top and sow the seeds. A little more earth is then sifted on them. A small board that is perfectly smooth, so that nothing will stick to it, is next placed over the top of the pot. Some seeds are so small they will cling to a piece of wood if it is at all rough.

Seeds of scabiosa, marigold, and other similar flowers that are large do not

require so much care in planting. I cover them thoroughly, for they grow better, and then have a pan of more than lukewarm water and set the pots in it, letting the water come up as far or farther up on the pots than the earth in the pot. When the earth begins to look moist, I take them out and drain them well. Then, if I have a hotbed ready I put them in there. If not, I put them on the top of the furnace and watch them carefully to see that they do not become too hot.

I have had petunias up in two days by following this plan. I cover them with a piece of glass or some brown paper, the paper being just as good as the glass. The reason I like planting seeds in pots instead of boxes is that we are not raising plants for sale, and if you plant them in boxes you will have phlox, stocks, single and double petunias, plumed and dwarfed celosia, marigolds, asters, etc., all together, and I do not like that. Some seeds are long, some fine, some have a fine leaf, and some are large, and when watered they are apt to get washed together, and then again some are so much longer than others in germinating that they keep the others back.

### Transplanting.

When the plants are the right size I take a fish box and transplant them about three inches apart. After transplanting them I always keep them out of the sun for a day or two in order to let them stand up a little before putting them in the window or hotbed. I also start my perennial seeds the same way. Asters I do not start until May. I plant them in a similar manner. I always have the best of luck when using pots, and they do not take up so much room as boxes on the furnace. When I water them I always put them in a pail of warm water.

I put my plants on the furnace in order that I may have early flowers and because our hotbed is not ready. That, therefore, is the only way I can do. A furnace is not very hot at this time of year. I find it really a good idea, as it is a bother to have a lot of boxes around the kitchen. Our cellar is light and warm and is almost as good as a hotbed. Last April the seeds that I started on top of the furnace were out by about the middle of the month and transplanted into pots, and did well.

Plant enough fruit trees and bushes so that you can share with the robin and other birds. It pays to have them around.

The Rex begonia is one of the most attractive house plants. Its variegated foliage always adds color and attractiveness to the window garden.

Don't make bird house openings larger than will easily accommodate the inhabitant. They prefer small openings as they are easier to protect.



# Queen Records

Harry W. Jones, Bedford, Que.

**A**ROUND the queen centres the strength of the colony, and on the strength of the colony depends the honey crop. This maxim holds good, other things being equal, such as an abundance of flowers with nectar in them, and favorable weather to collect it in. The beekeeper is responsible for the first part, and the vast majority of seasons prove that the crop is there to be gathered.

August and September is the time to make preliminary preparations for the gathering of the coming season's crop. Incidents relating to the longevity of queens are not lacking, but it seems pretty well agreed that, although a queen may, under favorable conditions, extend her usefulness for four, five, and six years, three years is about the average time a queen can be relied on to carry on her work at the head of the hive with full vigor and fertility.

When a queen is slow to begin laying in the spring and contracts her egg area early in the fall, the strength of the colony suffers inevitably. Young queens start brood rearing early and continue late in the fall, thereby beginning the winter with strong, populous stocks, and commencing early in the spring with a good force of bees to keep the brood warm and thriving, and to make up the usual wastage of winter and spring.

## Different Methods.

There are various ways of recording the ages of queens, embodying the keeping of written records which are cumbersome and unwieldy, and which may get lost. Bricks or stones set in certain significant positions on the hives are sometimes employed. This method is more often used to denote some temporary condition of the hive rather than to keep track of the queen's age. A third method, which is very good, and which serves a twofold purpose, is that of clipping the queen's wings. Queens with clipped wings make the swarming problem easier to control, and by clipping in certain ways may also denote the age of the queen. For a three-year system, clip the left wing for first year, right wing for second year, and snip off the ends of both wings for the third year. You can tell the age of a queen at a glance. If the queen belongs to the black tribe, it may take some glancing to find her, whereas an Italian queen, even among a crowd of her subjects, on a comb fairly attracts the eye.

Another method which does not disfigure the queen, and at the same time provides an accurate way of knowing how old they are, is keeping their re-

cord in or on the hive. The inside of the cover makes a good place to jot down a notation, or the outside body of the hive itself will do if some weatherproof method of writing is employed. Another way which I have found very handy and practical is to have a small tag of wood—section blanks make the very best—and fastened to the hive by means of a small brad three-quarters of an inch in length. These wooden tags are painted a certain color for one year, red, for example; second year white, and natural wood, just as they come, for the third year. Every third season red tags are used, then white, then the plain wood. The apiarist can tell at a glance, by walking through the rows of hives, how many queens two and three years old,

or of the present season's rearing, he or she may have.

Simple systems may be devised by any beekeeper to suit his individual temperament and ideas. Some record should be kept of a queen's age. It simplifies matters to know that there are so many colonies, the queens of which will need to be replaced before the close of the season in order that they may not lag when the season opens the following year. If 35 per cent. of a yard needs to be requeened, and the fact is not noticed until the commencement of the honey flow, the beekeeper's harvest is bound to be lowered. In these days of European foul brood, see to it when you requeen that you get a good strain of Italians, preferably the leather-colored Italians.

# A Tale of Woe

Miss Ethel Robson, Denfield, Ont.

In your journal one often sees  
Such records of money made from bees,  
'Twould almost make you think, I'm  
sure,  
That, keeping bees, one couldn't be  
poor.  
But I have a different tale to tell,  
And one that doesn't read half so well;  
Though just as true as the ones you've  
told,

It's not of pockets filled with gold.

You may have seen my name in the  
papers  
As one of Ontario's women beekeepers.  
My picture, too, has been sometimes  
there—

It quite filled me with pride, I declare;  
I thought I'd surely learned the way  
To work with bees and make them pay.



Mr. Wm. Vickers, Kildonan, Man., as he appears while attending to business. He is one of Manitoba's well-known beekeepers. (Photo by R. M. Muckle.)



Our stock of bees each year increased,  
Our ardent labor never ceased  
Till two hundred hives and more were  
our score,  
With every prospect of getting more  
I thought our way looked very clear  
To a nice little income every year.

In 1914 this was our position:  
The bees that fall were in good condition;  
They wintered well, 'twas a pretty sight  
In the spring to see them take their flight.  
The willow, apple, and dandelion  
Kept them breeding; the weather was fine  
And the clover good. We had no fear  
But we'd get ten thousand pounds that year.  
And this much honey at ten cents a pound  
Is a thousand dollars easily found;  
And maybe double, if the weather held good  
And the basswood blossomed the way it should.

But here there occurred a serious hitch  
In my roseate plans for getting rich.  
Alas and alack, for the things we plan!  
I quite forgot how the weather man  
Can put our sweetest dreams to flight.  
A frost in June made the clover white,  
And the winds were strong and cold and bleak.  
No drop of nectar could the blossoms secrete.  
In the spring the bees had seemed so strong,  
But now they dwindled, our hopes along.  
We still looked forward to the basswood giving  
Enough at least to keep them living.  
It did do this, but not much more,  
And by September they had finished their store.  
And, worse than this, the bees were old—  
We had serious doubts if they'd stand the cold.  
Five pails of syrup we gave to each hive,  
And hoped that this would keep them alive.  
Two tins and a half of sugar in all  
Was what we fed to our bees that fall;  
And that, you know, means a good deal of money,  
Especially when you've sold no honey.  
We packed them away for their winter rest,  
And hoped it would all turn out for the best.  
Well, maybe it did, but 'twas not the way  
That things would have been had I had my say.  
The cold and rain of a backward spring

Caused the bees to dwindle like everything.  
As we feared before, they had not the strength  
To stand the test; and when at length  
It was time to take them out of their packing,  
Good grounds for our fears were surely not lacking.  
Some fifty hives we found were sped,  
And besides the number that were dead,  
From those that were left were very many,  
Too weakened down to hope for any  
Surplus of honey. 'Twould be all they could do  
To build up themselves ere the season was through.

However, you should have seen the clover.  
It never looked better the country over.  
So hope again began to soar—  
The bees might gather quite a store;  
For some eighty hives were sufficiently strong  
To bring in the honey right along.  
We made our plans how we would spend  
Our profits; but they had an end.  
The frost and cold of the month of June  
Again put the clover right out of tune.  
July was better, but the change came too late  
To save us entirely from last year's fate.  
Two tons of surplus was what we got—  
And this to many seems quite a lot—  
But two tons of sugar we had to buy;  
And sugar, you know, was exceedingly high.  
So all we had in good clear money  
Was the difference between the sugar and honey.  
As I said before, the former was dear—  
You can reckon for yourself our profits last year.

Now the clover last fall looked promising,  
But something may easily go wrong in the spring.  
Though I certainly hope that next year we'll get  
A bigger harvest than we've had yet.  
If not, to help to fill my purse,  
I'll have to take to writing verse.

The moral of my tale is clear,  
'Tis plainly writ for you right here:  
Don't think because you've a few hives of bees,  
You've an easy road to comfort and ease.  
The tales you have read no doubt are true,  
But you must remember that very few  
Succeed with bees right from the start;  
It takes a long time to learn the art.

So if you would gain what others have won,  
You'll have to follow the course they've run;  
You must take the ups and downs of fate,  
And maybe, too, you'll have to wait  
A good long time for your ship to come in,  
But if you hold on I think you will win,  
Though many there be who fall by the way—  
But of these I've nothing at all to say.  
With plenty of hope and lots of grit,  
You'll make a success, I'm sure of it.  
So here's to the bees, just give them a cheer,  
And we'll hope for better things this year.

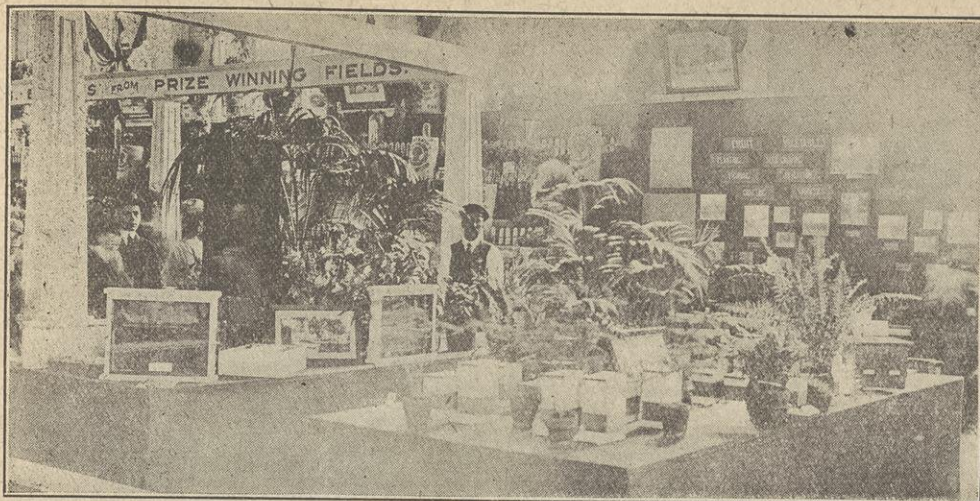
## Spring Management

H. D. McCulloch, North Bruce, Ont.

Conserve the force of old bees and improve conditions for brood rearing by giving the hive a decided slope forward to shed the rain from the entrance. Contract the entrance by means of entrance blocks in cool weather. An entrance one inch by three-eighths of an inch seems to suffice at such times.

Give protection to your hives if they are single walled. A sheltered location is a fine thing but that is seldom changed after the bees are once placed, although one year I moved mine about sixty rods into the sheltered edge of a hardwood bush and left them there for a month or more. Then when the winds were cold I was glad my hives were not exposed to the northwester. I have also used straw packing. A few stakes can be driven on three sides of the hives to support a packing of pea-straw, for instance, but such packing needs some kind of roof to give the best results. I have used wrapping or tarpaper, which is cheap and handy and very effective in breaking the wind. It has the added advantage that it absorbs into the hive considerable heat on a sunny day even if the weather is too cold for the bees to fly. This helps to dry the hive walls. A half width of the paper was sufficient to cover my Langstroth hives from bottom to near the top of the six inch chaff trays which are on all the hives. This wrapping is secured by two pieces of binder twine. The cost of the paper is about one and one half cents apiece for ten framed hives. Except for the inconvenience of having to remove the paper when feeding I would bring the paper up and fold it on the flat covers, but having chaff packing on top, this is not so necessary as it otherwise would be to keep wind from blowing in around the cover.





A portion of the educational exhibit of the Guelph Agricultural College at the Canadian National Exhibition, Toronto, last fall.

## Spring Dwindling

W. H. Kirby, Oshawa, Ont.

**S**PRING dwindling is simply the wasting away of a colony. It is surprising how quickly a colony will disappear, especially if the bees have been reared in late July or early August. Often the queen ceases laying early for want of forage in the fields. When spring arrives, these bees are getting old and their vitality is nearly done, and on flying out in the spring looking for water on cool days they get chilled and never recover. They simply perish. Sometimes younger bees that have come through the winter all right will fly out on cold days and perish also.

When the bees fly, brood-rearing begins. The bees use a great deal of water in order to make the proper feed for the larvae and young bees. If the water is not supplied them in the hive, they rush out for it on cold days, and many get chilled and fall to rise no more. The spring of 1915 was the worst for spring dwindling I have ever experienced. Having lost a colony or two before, I soon observed what was taking place. The winter before, I had fifty small metal entrance feeders made. These were so constructed that about three inches projected into the hive entrance. The other five inches in length of the feeder was covered with metal, and a small tube, about an inch high, soldered on the top side, in which a small funnel was inserted to pour in the water or feed. When the funnel was removed, a small cap was placed over the feed tube to keep the outer part out. This feeder is seven by eight inches and three-eighths deep. Being shallow, it holds about six ounces. This is one of the most perfect entrance feeders ever made.

I had no idea bees consumed so much water until I placed these feeders on

the hives. They were filled every morning. Some days some colonies used a couple of feeders full. I was so well pleased with the results obtained by the supplying of water with these feeders directly within the hives that I had a lot more made this winter, so as to be able to place one on every hive as soon as the bees need water, or possibly an odd colony may need syrup. They will be kept supplied with water until nectar commences to come in, when the feeders will be removed, except two, which, as an experiment, will be supplied with water right up to the time of taking off honey.

Where bees are wintered outdoors, as mine are, they have a chance generally for a flight in February or early March. This causes the queens to lay, and as there is more or less pollen in the hives there is quite a force of young bees added to the strength of the colonies. This helps them to come through the spring in good condition.

## Spring Management

F. W. L. Sladen, Experimental Farm, Ottawa

About the time when the first willows are coming into flower, bring the colonies out of the cellar and place them where they will be sheltered from cold winds. Contract the entrances of the hives. Extra covering during early spring is advantageous. Guard against robbing, and as soon as weather permits, ascertain if each colony has from five to ten pounds of stores, and if there are at least a sufficient number of bees to crowd in the spaces between three or four combs. Two or three weeks later, on a day when the bees are flying freely, make a thorough examination and see if worker brood is being pro-

duced; the cappings of drone brood are raised and convex, whereas those of worker brood are nearly flat. Shortage of stores may be corrected by equalizing through exchanging combs, and later by feeding with sugar syrup. Colonies that are very weak or queenless, or have a queen that produces drones only, should be united to strong colonies. Bees wintered out-of-doors should be left in their winter cases until settled warm weather.

## Supering.

Give a super as soon as the bees fill the hive and honey is coming in. It is easier, and often pays better, to produce extracted honey than comb honey, because the bees are less liable to swarm, and when there is a supply of empty combs about double the weight of honey is obtained.

To get a full crop of honey, the bees should be prevented from preparing to swarm. This is best done by enlarging the entrance, preventing crowding in the brood nest and giving the queen plenty of room to lay. The first super, consisting preferably of empty extracting combs, may be given without a queen excluder so as to permit the brood nest to expand up into it. As soon as the first super is beginning to fill rapidly with honey, a second super should be placed underneath it. The queen should now be confined to the brood chamber by means of the queen excluder. If the honey flow is expected to last a long time, as, for instance, the flow from fireweed, one or two combs containing mostly honey or capped brood may be removed from the brood chamber every week and placed in the super, their place being taken by empty combs, and at the same time any queen cells that may have been built should be cut out.

Clipping the queen's wings (the queen is more easily found before the colony gets populous) is a good precaution to take against loss of first swarms, but the swarm should be attended to when it issues, or the queen may get lost. When the swarm emerges, cage the queen, move the old colony to a new stand and place on the old stand to receive the returning swarm a hive containing frames fitted with foundation with the queen inside. By this means the old colony becomes so much depleted that it is not likely to swarm again.

System in apiary work is important, especially during the active season. A certain day of the week, say every Monday, should be chosen for doing the apiary work, examining the colonies and giving any further super room that may be needed.

Note.—See Chas. E. Hopper's advertisement, which could not be gotten on the Bee pages, on page 111.



## Swarm Prevention and Control\*

W. J. Sheppard

A FAVORITE method of swarm prevention in some parts of the United States is what is known as the "Demaree plan." It is operated as follows: Just before the colony is ready to swarm, put all the brood except one frame in a second storey over a queen excluder, leaving the queen below with the one frame of brood and, preferably, empty combs, failing which, frames with full sheets of foundation. Cut out all queen cells. The brood frames above, as soon as the brood hatches out, will be used by the bees for storing honey. The Demaree plan slightly varied has been tried in Ontario under the guidance and direction of the Ontario Agricultural and Experimental union—Mr. Morley Pettit, beekeeping director—and has been found to answer there and to increase the honey crop. The variation consists in giving an additional storey of empty combs between the bottom storey and the brood, making three in all. By this means the old combs in the top storey, which may contain dark honey gathered previously, can be taken away before the bees begin to store the white honey crop from the clover.

The following adaptation of the Demaree plan I would like to see tried this year, and have reports on the results at the end of the season:

"As soon as the bees begin to cover the outside frames in the brood chamber, usually early in May, give them an extra body containing another set of combs. If combs are not available, full sheets of foundation must be used. I think the best way is to put this body underneath the other, so that the brood will be above, and then not so likely to get chilled. This will give the queen all the room she requires, and the colony should go ahead and get strong rapidly. At the commencement of the honey flow, which is generally toward the end of June, or so soon as there are any indications of swarming, by queen cells being started, search for the queen and place her with one frame of young unsealed brood, in the middle of the empty combs in the first storey, next the bottom board as in the Demaree plan, then put on the queen excluder. Next will come a second storey containing a set of empty combs. Over this second storey place a screen wire escape board, with the slide over the escape opening closed, and immediately above this a third storey, containing the remainder of the brood. If there is more than sufficient brood to fill this storey it can be used for strengthening weaker colonies. A small entrance is provided above the screen wire board so that the bees can fly from the top storey and most of the adult bees will go back to the main entrance below. This will not affect the brood, however, which will be kept warm by the heat ascending from the lower storeys. If the queen cells are all destroyed in the top storey the screen wire can be removed after 10 days, as the brood will then be too old for any more to be built.

"By using the screen wire separation between the second and third storeys there is no need to search for or cut out queen cells, with the possibility of missing some, at the time of putting up the brood, except on the one frame to be placed below containing the queen. This can be done subsequently, and if a queen should be hatched

out in the meantime she cannot get down below and cause trouble. The upper storey can easily be kept under observation and control. If preferred, a young queen can be allowed to remain in the top storey. She can come out at the upper entrance to get mated, and as soon as she is laying can be utilized to take the place of the old queen. Thus no time need be lost, and the risk of requeening with a strange queen dispensed with. Should it be decided not to supersede the old queen, the queen cells in the upper storey can be destroyed and all the brood permitted to remain and hatch out, thus strengthening the colony below, in which case a large amount of honey should be obtained. The plan can just as easily be put in operation after a swarm has come off and permits of other variations, such for instance, as dividing up the brood combs into nuclei at leisure, if increase is desired. I do not see any objection to the upper entrance being allowed to remain until the end of the season, as it will provide additional ventilation, and it can be told at a glance which hives have been treated. The screen wire board will be found a useful ap-

pliance in the apiary in other ways. When fitted with a Porter bee escape, it can be used for clearing supers of bees and will be found preferable to all wood escape boards, as the heat ascending from below will help to keep the combs warm after the bees have left them, and so make them easier to extract. When used for this purpose it will be necessary to have the screen wire double. It can also be used for uniting colonies and also for pushing weak colonies along by putting them up over strong ones, with the screen wire between. In the latter case a small piece of queen excluder zinc would have to be fixed over the escape opening to allow bees to come up from below. It will also be found useful for protecting honey from robber bees when supers are being removed.

"In winter it can be used for placing next the frames, underneath the packing, thus providing a beeway over them and permitting the colony to be inspected at any time without disturbing the bees. Should they be found to require feeding in winter or early spring a cake of candy can be placed over the escape opening, after removing the slide. Syrup can also be fed in the spring by inverting a Mason jar, with a perforated can over the wire screen, which as the position of the cluster can be seen, can be placed directly over it."

## Some Suggestions for the Manufacturers

E. L. Carter, Norman, Ont.

AS I was busy to-day on the task of nailing up three hundred metal spaced frames, the thought that came to my mind was this. Surely if the manufacturers of beeware understood only to a small degree the difficulties to the beginner of properly nailing together the hive and its various parts when they are shipped in the flat, they would take some measures to advise us as to the best and easiest ways of doing it. The coming season will be my fourth with the bees. When my original two hives of bees arrived at my nearest station, I had only seen the interior of a hive once. I had never handled or seen bees kept for honey, with the above exception, which was for a few minutes only.

How well do I remember going to the station to bring home my first two colonies. There were my bees out on the platform, with quite a number flying around the hives. They appeared to come from a hole in the wire netting of one of them. The express agent informed me that they had been inside at first, but owing to the bees getting out too freely for his comfort, he had placed them where I now saw them.

What to do was now the problem. I naturally did not relish the thought of being stung at the outset of my beekeeping career. A happy thought struck me. Hastening to a nearby department store, I procured a couple of yards of cheesecloth, and armed with gloves, veil and smoker (which I had fortunately brought along) proceeded to place the cloth over and around the leaking hive, and tied it securely in place. After that it was comparatively easy sailing, although there were a few bees flying around their moving home all the way. Doubtless they were more frightened than I was, only I did not know it then.

More difficulties were in front of me. I had ordered a couple of extra two storey hives complete, in the flat. When I unpacked the box and endeavored to put the various parts of hive, cover, bottom board, frames and division boards, etc., together, I found I was up against a veritable Chinese

puzzle. After considerable sorting, the various parts of hive body, covers, bottoms, frames, etc., were assembled, although even then and for a year or two afterwards, there were a few pieces I could not identify. It was a long time before I discovered they were intended to support the galvanized iron roof. Then there were long thick nails, and short thick nails, and small thin nails. Where was I to use the different sized nails? How many nails should be used for the different parts? Then there were holes in the side bars of the frames, but what was the proper way to do the wiring, and how were the wires to be made tight? Remember, I had nothing to guide me but the A. B. C. and one of the bee journals, and the trouble with any of the helps of this nature that I had was that none of them were elementary enough to help such a greenhorn as I was. In spite of my handicaps, I finally completed the task in a fairly creditable manner. I have since seen where I could have done a better and quicker job. My difficulties were pretty well over, I hoped, along these lines, until I commenced getting my supplies ready for the coming season's work.

I have just unpacked a shipment from one of the leading bee supply houses. Included in my order were some chaff division boards, which I have never used before. I procured them this year to protect some pound packages of bees I have coming. Among the packages was a roll of what I took to be first aid cotton bandages. It was some time before it occurred to me that they were a part of the division boards, and longer yet before what I think is the right way of attaching them came to me, and then it was through remembering something I had read some time back in one of the journals. How a sheer beginner would ever begin to put one of those chaff division boards together and attach and stuff the cushion properly, I cannot imagine.

It does not matter much if one is a little slow in putting together frames and sections and other parts when you have only a few colonies to attend to, but as the num-

\*Extract from a paper read March 7 before the Kootenay Beekeepers' Association, held in Nelson, B. C.





Two rows of twin and triplet mating nuclei in the apiary of John A. McKinnon, St. Eugene, Ont.

ber increases the task does too, and there must surely be some more expeditious way of knocking frames, hives, etc., together than I have yet found. I have an excuse for a jig for nailing frames, but it can be very much improved, and I have a board for wiring, the idea being taken from a book I read, but I still feel I am a long way from having the best methods, and those beekeepers I have since met have not been able to help me much. Apparently, therefore, I am not the only one seeking for better methods of nailing up hives and their parts. Beginners cannot afford to buy the jigs and other appliances which are listed by a few of the manufacturers, and for their sakes some instruction along these lines should be available.

I would like to suggest something along the following lines to beware firms and manufacturers. There will always be beginners, and some of them will have as little

practical knowledge to start with as I had. Would it not be possible, therefore, for manufacturers to send along instructions with all their goods? If this would be too cumbersome, and unnecessary, perhaps, in the great majority of cases, why not print under each item in the catalogue, that has to be put together after being received, simple but complete instructions as to the best methods of nailing hives, how many nails should be used, simplest home-made jigs for frames and wiring, and how best done, and so on with covers, bottoms, division boards, section holders and so on. The firm that first adopts some such plan, in addition to the simplest first instructions for beginners in keeping bees, would find that theirs would be the catalogue most frequently referred to by many, and whose name would be most often in the minds of many, many beekeepers, a great many of whom would not be beginners.

## New Brunswick Beekeepers Progressing

H. B. Duros, Woodstock, N.B.

THE New Brunswick Beekeepers' Association met in annual convention at Fredericton, March 2nd. While the attendance was not large, those present made up in enthusiasm for what they lacked in numbers. Mr. L. T. Floyd presided. The president's address was interesting and optimistic. It spoke of good crops of honey, good markets, and a greatly increased demand for the products of the bee.

The secretary-treasurer reported a membership of fifty-three. He also reported that several hundred dollars worth of supplies had been purchased through the Association by its members, at a very considerable saving to themselves. The Provincial Apiarist, Mr. H. B. Durost, told of a greatly increased interest in bees. Many inquiries for bees and for information regarding their care were being received from all parts of the province.

Mr. F. W. L. Sladen, Dominion Apiarist,

delivered a most interesting and helpful address on general beekeeping practice. The many questions with which the speaker was plied, and the lengthy discussion which followed the address, showed the amount of interest aroused.

The election of officers resulted as follows:

President, Mr. L. T. Floyd, Central Norton; 1st Vice-President, Mr. David Hiscoe, Fredericton; 2nd Vice-President, Mr. G. S. Peabody, Woodstock; Secretary-Treasurer, Mr. H. B. Duros, Woodstock; County Directors—Carleton County, Mr. Everett Montgomery, Woodstock, R. F. D.; Charlotte County, Mr. H. N. Beach, Honeydale; Kings County, Mr. H. A. Wallace, Penobsquis; Queens County, Mr. E. C. Peters, Queens-town; Sunbury County, Mr. H. B. Williams, Tracey Station; Victoria County, Mr. T. H. Manzer, Aroostock Jct.; York County, Mr. Geo. Pugh, Nashwaaksis; Westmorland

County, Mr. J. V. Jackson, Moncton; St. John County, Mr. Harry Armstrong, St. John, 40 Sum. St. The question of handling supplies again this year was left in the hands of the Board of Directors.

## British Columbia

A meeting of members of the Kootenay Beekeepers' Association was held in Nelson, B. C., March 7, at which the President, Major-General Lord Aylmer, formerly of Ottawa, Ont., presided. A demonstration of a new, double-walled hive, made by W. Romain, was given by W. J. Sheppard, who also delivered an address on "Swarm Prevention and Control."

Following the address, George Flemming gave a technical description of a new method of hive building, which he said he was perfecting, calculated to overcome ventilation problems during the severe winter weather. In approaching this problem, which he considered a grave one, he had planned his hive according to knowledge of ventilation requirements gained in many years in the business of house building. Those present took an active interest in the discussions, and many questions were asked and answered. A report of Mr. Sheppard's address is given elsewhere in this issue.

## Toronto Beekeepers

The annual meeting of the Toronto Beekeepers' Association was held March 23rd. The following officers were elected: Chas. E. Hopper, President; R. C. Baillie, 1st Vice-President; Geo. Morrison, 2nd Vice-President; P. Temple, Secy.-Treas.

A full report has been promised by the president for our May issue. The annual field day of the association will be held on May 24th, at the apiary of Mr. Jas. White, 625 Kingston Road, Toronto.

## Items of Interest

An interesting incident was noted by a representative of The Canadian Horticulturist recently. While in the office of Chas. E. Hopper & Co., a pound package of bees arrived from the States on March 27th. As is well known, bees, as a rule, are never received from the States until the early part of May. This package was in first-class condition, only a very few of the bees having died on the way.

I always recommend Italianizing the first thing, in or near diseased territory, because I am fully persuaded that it is the very best thing to do for both the individual and the beekeeping public, and yet it is surprising to see how slowly some beekeepers awaken to this fact. Some think that profit may accrue to the inspector inasmuch as he is so anxious in the matter. Others think they cannot afford it, while the fact is that not one of them can afford not to do it. Some will go to work and treat a large apiary of black or hybrid bees and think that will be the end of it, without Italianizing, but the next season they have most, if not all, of their work to do over again. That means a big additional expense, as the labor involved and the cost of extra foundation, frames, etc., would be worth more than the Italian queen would cost, besides the loss of a portion of the honey crop.—Wheeler D. Wright, Altamont, N. Y.

The resignation, as a member of the Ontario Beekeepers' Association, of Mr. Colin Campbell, R. R. No. 2, Auburn, Ont., has been received. Mr. Campbell has enlisted for overseas service.



## Success and Failure in Cold Storage\*

S. J. T. Bush, Morton, N.Y.

THE cold storage business is of great importance to the fruit industry, but is very little understood or appreciated by growers generally. If it were not for the cold storage houses holding the bulk of the apple crop every year and permitting it to be placed upon the market gradually, there would be mighty little "present," to say nothing of a future, to the apple industry in the United States.

The common storage limit is usually February first, but in chemical plants it is common practice to successfully hold apples into May and June. Just consider for a moment what the conditions would have been in 1914, with the enormous crop, had it been necessary to market it all by February first. As it was, we were able to sell "A" grade Baldwins from cold storage early in June for \$6.00 and \$6.50 per barrel, and got as high as \$4.00 for "B" grade.

My experience in the storing of apples has not been extensive, although I am now very much interested in that business, having organized a company two years ago and built last year at Morton, N.Y., what is conceded to be one of the finest and most up-to-date plants in this country. Our idea was from the start to make it a GROWERS' storage, and we have among our 125 stockholders practically every grower in that vicinity. To begin with, this gives us enough apples produced by our own stockholders to fill our 60,000-barrel plant in any ordinary season. We did not get the plant completed in time to use it last year, but being of reinforced concrete construction, this was really a good thing, as the building had nearly a year to dry out and was in the finest possible condition when we commenced business in August. Building operations should begin not later than April first on a plant of this kind if it is to be ready for use in September or October.

We spent three months and hundreds of dollars in travelling about the country inspecting various plants, interviewing owners and managers, and consulting with manufacturers of refrigerating machinery. Our idea is that the place for economy is in operation of a plant and not in construction, and we carried through the project from start to finish with the idea of getting the best that money would buy.

We were told by cold storage engineers that 100 horse power was altogether sufficient for our requirements, but we installed three 75-horse power units; we were told that two inches of cork insulation was sufficient, but we put on four inches, in two 2-inch sheets with broken joints; we were told that one system, i.e., the direct expansion ammonia system, was all we could possibly have any use for, but we, in addition to that system, installed the most elaborate cold air circulating system to be found in any plant in this country. This gives us two separate and distinct refrigerating systems, enabling us to carry a wider range of commodities and to keep the air in all rooms sweet and pure at all times—carry off the accumulation of gases thrown off by the fruit and prevent the "pocketing" of dead or foul air in any of the rooms.

We were told that it was possible to build a 60,000-barrel house at a maximum cost of \$1.50 per barrel of capacity, but we found that a first class plant of the capacity mentioned cannot be built for a cent less than

\$2.00 per barrel, and for a plant as complete as ours the cost is \$2.50 per barrel.

So far as I know, ours is the only plant in the country using producer gas for power—also the only one of its size using a maximum of one ton of coal per day. Other plants of similar capacity in Western New York use from four to six tons of coal daily.

The fact that we are now able, with the plant filled to its utmost capacity, and with carloads of fruit coming in and going out daily, to hold our temperatures without variation and only operate one engine and one ice machine from two to six hours of each twenty-four, is sufficient justification for our heavy expenditure for the best possible insulation. Our plant being absolutely fireproof, there being no wood about it except the refrigerator doors, we enjoy an insurance rate of thirty cents against a rate of from \$1.00 to \$1.75 (usually the latter figure) applying to other plants in the State.

As fruit growers, having experienced in common with our friends in other sections and States the most inefficient refrigeration service on the part of the railway companies, we decided to have our own ice plant and manufacture our own ice and ice our own cars. This feature has proven to be one of the most satisfactory as well as one of the most profitable features of our proposition. Instead of being compelled to accept a refrigerator car that had been iced inadequately and improperly from twenty-four to seventy-two hours before we got it, and being forced to pay for all the ice the bunkers could hold, notwithstanding the fact that we never got it, we are able to ice our cars to capacity with a far better quality of ice than that supplied by the railway company, and at a lower cost, and when our cars leave Morton the bunkers are full, instead of from one-third to three-quarters empty as in the past.

In building our plant, we had in mind its enlargement at the least possible cost as soon as conditions warranted the outlay. We can double the capacity now without increasing our power plant a single horse power.

We manufacture our own electric current for the operation of two large thirty-barrel elevators, hoisting machinery, lighting system, pumps, grading machines, air circulating system, etc. We also expect to furnish light for the village of Morton as soon as we can get to it. We operate mechanical fruit grading machines for our patrons in large, well-lighted, convenient packing rooms by electric power.

The establishment of such a plant in a large producing section is of inestimable value to the growers. It makes them independent of the "dealer" or speculator. When harvest time arrives, they know that they have as good a place in which to hold their fruit in case the market is unsatisfactory as the dealer can have. It is really worth, conservatively speaking, fifty cents per barrel on their entire crop.

If the grower needs money with which to pay his help and running expenses, he can do just what practically all the dealers do, take his warehouse receipts to his bank and get an advance of from 50c to \$1.50 per barrel and hold his fruit until the market suits him.

Another great advantage to the growers in having such a plant is the facility it affords for the accumulation of small lots of fruit into carloads, which is precisely what the dealer does—precooling it as it is collected and shipping it out in the very best

possible condition to carry well to market.

We are particularly fortunate at Morton in having an apparently inexhaustible supply of sweet, pure, cold water, obtained from wells within one hundred feet of our engine room. Ability to use this water direct from the wells at a temperature of fifty-one degrees, and allow it to run away, increases the efficiency of our ice machines about forty per cent.

As I have said, our proposition at Morton is a growers' proposition. Three years ago I organized the Eastern Fruit and Produce Exchange, with headquarters at Rochester, which supplies our growers with the most complete sales machinery. Next came the cold storage plant, and now we are organizing a bank, and in due course will come the cooper shop, canning factory, dehydrating plant, and vinegar factory, with coal sheds and fertilizer and basket storages.

We are after every nickle that is to be obtained from our business.

We believe that duty and common sense demand that we do our own speculating, and that when it comes to a division of the proceeds and profits obtainable from the results of our toil and investment, that division should be with our own families, and not with those who have taken no risk, borne no hardships, and suffered no anxieties as the seasons have come and gone.

One of the things that surprised me and vexed me greatly when I was trying to collect definite information upon which to base plans for our plant was the great difficulty experienced in finding anyone from whom positive and reliable advice could be obtained. If we had not been possessed with a determination to know all the "whys and wherefores" before going ahead with our plans, I hate to contemplate the mistakes we might have made.

There are so many things done absolutely wrong in many of the plants we visited that I am impelled to utter a friendly warning to my fellow growers and to extend to them all an invitation to visit our plant at Morton and to secure from us the benefit of all that we have learned at a cost of much time and money. We will be only too glad to be of assistance.

There are a few "dons" that occur to us as worth while to pass along to our friends who may soon or sometime be interested in the building of a cold storage plant.

1. Don't use wood—use reinforced concrete, because of the low insurance rate, low cost of upkeep, and lack of depreciation.

2. Don't use granulated cork, as it is of little value as compared with sheet cork.

3. Don't allow the contractor to use steel nails in putting up the sheet cork insulation, as has been done in many, if not most of the plants throughout the country, because it is a perfectly absurd performance and largely destroys the value and efficiency of your insulation. Use nothing but wooden nails, as they are non-conductors. How anyone possessed of any common sense could be induced to pay from \$25,000 to \$30,000 for high-grade insulation and then permit workmen to literally fill it full of holes, which is really what happens when the cork is fastened in place with thousands of steel nails, is beyond our comprehension.

4. Don't make the mistake of having too little packing room space.

5. Don't build your plant so that the long way of your cold rooms will be away from the railroad, but rather have the trucking distance just as short as possible. Labor in handling such a plant is a very large item. At Morton this year we have operated our plant with one-half to one-third the number of employees that are used in plants of similar capacity in western New York.

6. Don't make the mistake of having nar-

\* An address delivered at the recent annual convention of the Niagara District Fruit Growers' Association.



row shipping or receiving platforms—it will be found that sixteen feet is none too wide, and the longer they are the better; and so far as it is possible have them covered. Service is the thing to be considered first, last, and all the time.

7. Don't keep your patrons waiting—have facilities for unloading half a dozen cars and wagons at the same time.

8. Don't undertake to operate your plant with a short stub switch, but have a track (on your own land if possible) that will hold twenty-four or more refrigerator cars, and which has double ends, so that the cars may pass the plant for loading or unloading and not have to be pulled out where they came in, and thus cause all sorts of delay and inconvenience. With your track on a very slight grade, you can easily start the loaded or unloaded cars on their way as soon as they are ready, in case there is no shifting engine available, and there never is, at all times.

9. Don't have your air ducts built of anything but wood, as metal air ducts will sweat and drip and cause much trouble and annoyance; and don't let anyone talk you out of installing a cold air ventilating system, because it is one of the important things to have in connection with any cold storage plant.

10. Don't let anyone talk you into piping your house at a ratio less than 18 to 1, and if you are going to handle peaches or other fruits that do not call for temperatures lower than 34 degrees, do not have the pipes in rooms that are to be held at 34 or above hung on the ceiling, as they will drip and cause you all kinds of trouble; but have them hung on the side walls, one above the other, so that one drip pan will catch and carry off all of the drip and prevent it getting on the fruit. The cold blast system is much the best for peaches.

11. Don't build your plant where the drainage is poor.

12. Don't build a house without means of passing from one side to the other without opening doors to cold rooms. Our plant is the only one that I know of that has a passage way from one side to the other which permits employees to get quickly across the building without opening and closing cold room doors a hundred times daily in the busy season; this feature is of inestimable value.

13. Don't forget that different kinds of products require that they be held at different temperatures, and that, as an illustration, Twenty Ounce apples will freeze solid in a room where Baldwins will not be even touched. Unfortunately, you will not find anyone to tell you all these things; the manufacturers of ice machines ought to know all of these things, and do know many of them, but they seem to be principally interested in selling their machines and don't trouble themselves to put you wise.

14. Don't have any windows in your cold rooms, the air ducts will give all the ventilation required and the best; and be sure to have vestibules and curtains at entrances to the rooms that are used the most; and, finally, don't get the idea that it is an easy or simple matter to raise \$100,000 or \$150,000 in a rural community, or that as a grower you can afford, from a business standpoint and a matter of self-preservation, to refuse to go in with your neighbors and fellow fruitgrowers to the extent of your ability and secure for yourselves the facilities and advantages I have outlined.

If your apples are going into cold storage at all, they should if possible go in the same day they are picked, and in any case with the least possible delay.

I fully realize that it is not possible to have a 50,000-barrel plant at many points, and while a plant of that capacity is more economically operated than a smaller one for obvious reasons, it is desirable to have these facilities for holding your fruit even though on a much smaller scale, as the advantages and "dividends" to be received are not confined by any means to those received in the nature of stock dividends.

The business of farming and fruitgrowing is the greatest business in the land. The

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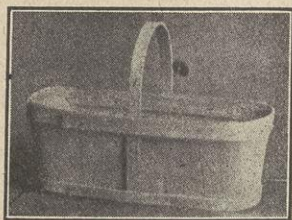
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| Hemerocallis, 3 sorts, each .....                                                       | 20c |
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The first to produce 5 mature grains in a spikelet. It is medium early, ear thick set and spreading, grain plump, white, thin husk, straw strong, of fine quality. It will give a greater yield than any other cereal in cultivation, and is adaptable to any soil. Peck 75c., bushel \$2.00 here. Postpaid, 25c. lb.

**BRUCE'S CONQUEROR.** A new variety from Northern Europe, very heavy yielder, straw is strong, of medium height, grain is plump, thin skinned, pearly white, and makes splendid Oat Meal. It is hardy and ripens medium early. Peck 40c., bushel \$1.25 here. Postpaid 25c. lb., 5 lbs. for \$1.00.

**NEW O.A.C. NO. 72.** A new variety of exceptional merit, an immense yielder and of fine appearance. It is a branching White Oat, early, and the straw is good and strong, the hull is thin and the grain weighs well. Peck 60c., bushel \$2.00 here. Postpaid 25c. lb., 5 lbs. for \$1.00. New 2½ bushel cotton bags 30c. each extra.

**FREE** Our handsomely illustrated 128-page catalogue of Vegetable, Farm and Flower Seeds, Plants, Bulbs, Poultry Supplies, Garden Implements, etc., for 1916. Send for it.

**JOHN A. BRUCE & CO., LIMITED**  
HAMILTON, CANADA



Business  
Established  
1850



**BEES FOR SALE**

Italian Bees, lb., \$2.25; 5 lbs., \$10.50; 1-L Frame, \$2.00; 2 Fr. Nuc., \$3.00; All with Queens. Italian Queens, 75c each; 6 for \$4.00. Complete Catalogue Free. Listing Beginner's Outfit.

**THE DEROW TAYLOR CO.**  
Box C., NEWARK, N.Y., U.S.A.

**Northern Bred Italian Queens**

Prolific and hard for the north. None better. Plans of "Introducing Queens and Increase," 25c.

**E. E. MOTT**

Glenwood - - - Michigan

**PRODUCTIVE BEEKEEPING**

is the title of a new book of 326 pages by Mr. Frank C. Pellett, State Apiarist of Iowa.

As the name of this book indicates it is especially adapted to the needs of the practical beekeeper. Not a discussion of scientific principles, but of practical methods.

Sources of Nectar, Wintering, Marketing, and Laws that Concern the Beekeeper, are titles of chapters of special interest.

Regular price \$1.50 postage extra.

We offer this latest book with the American Bee Journal one year, both for \$2.00, Canadian postage 15 cents extra.

134 illustrations, attractive cloth binding.

**AMERICAN BEE JOURNAL,**

**Hamilton, Illinois**

**NOTICE TO CANADIAN BEEKEEPERS**

We are making a specialty of the pound package trade. Our improvement on the package, making it larger and lighter and giving it more ventilation, enables us to guarantee its safe arrival. We will ship from our yards in Alabama during April, May and June, packages and queens at the following prices:

Pound package without queen, \$1.25—with queen, \$2.00; 2-pound package with queen, \$2.65—without queen, \$1.90; 3-pound package with queen, \$3.50—without queen, \$2.75. Queens, untested—one for \$1.00, six for \$4.50, 12 for \$8.50. Select, tested, \$2.00; breeders, \$3.00.

Our stock of 3 band Italians have stood the test for 20 years; there is none better. We guarantee them to be free from disease. Pure mating and no inbreeding. Your money refunded if not satisfied. We sold the A. I. Root Co. two carloads, and will sell them this season. Our aim is to carry a surplus of stock so as to fill all orders by return mail. 5 per cent. discount on all orders before March 15th.

Reference—American Exchange Bank of Apalachicola, Fla., and the A. I. Root Co.

After March 15th our address will be Fitzpatrick, Ala.

**MARCHANT BROS., SUMATRA, FLA.**

**The Rarest and Best Offer Yet**

A daughter of one of Dr. Miller's best honey getting queens and the Beekeeper's Review one year for only \$2.00. Every one will want a daughter of those famous world champion honey producers. Listen to the record: a yard of 72 colonies produced in one season 17,684 finished sections of comb honey, or an average of 245 sections per colony. This is without a doubt the world's record crop from a yard of that size. Start breeding up a honey strain of bees by using one of those famous daughters this season. This is the first time stock from this noted yard has been on sale. Our breeder, one of the very best in the gulf states, will breed from one of those best queens, and as his original stock is of the best three banded stock, wonderful results are to be expected. Let us book your order at this time for one of those fine queens, for we only have for sale something like 500 for June delivery. The queen is well worth all we are asking, \$2.00 and the Review a year.

**1000 Pound Packages of Combless Bees For Sale with Queen**

Did you ever ask a breeder to quote you a price upon a thousand pound packages of combless bees? If you did, you will have noticed that he took his pencil from his pocket and began to figure what such a sale would save him in advertising, postage, office help, etc., and the result would be that he would make you a very close price. Now we have that very close price on one pound packages of bees, and, as is usual with us to charge no profit on supplies furnished subscribers of the Review, none will be charged upon those, but our subscriber will get all the advantage of this good buy. Notice that this close price is not for a late fall delivery, but for April and May delivery—later deliveries at a less price that will be quoted later, or by mail for the asking. Upon this deal we have two big points: First, the price; second, an old experienced breeder who has spent his life breeding bees and queens for the market. We mention this so you will not get it into your heads that this is a "cheap John" lot of goods, but that they are as good as money can buy, no matter what price you pay. The price is \$16.00 for ten pound packages of these combless bees, each containing a young untested three banded Italian queen of this season's rearing. Additional pound packages, without queens, one dollar each. For larger lots ask for special price, stating how many you can use and when the delivery is to be made. They are shipped from Alabama, in light, well ventilated cages, by express. Just a word to the wise: Book your order early! Address

**THE BEEKEEPERS' REVIEW, Northstar, Michigan**

telligence and the ambitions of men. Let us accept the responsibility that goes with our calling and bend our efforts to the improvement of all conditions affecting our lives and our business.

With our faces turned toward the morning, and our wagon hitched to a star, let there be a common bond of sympathy and interest stretching from every farm on every hillside, plain, and valley of this broad Dominion to every other farm and fireside, carrying and embodying good cheer and fellowship among all the sons and daughters of agriculture and horticulture, to the end that your calling may be dignified, your living made easier and better, and your lives nobler and purer as they are lived close to Nature and Nature's God.

**The Effect of the Increased Duty**

Editor—The Canadian Horticulturist: I have read with interest your editorial in the March issue of The Canadian Horticulturist upon the increased duty upon apples, and desire to express my belief in the correctness of your view. While the increased duty will give some temporary relief to the growers of British Columbia, it will not be of permanent benefit. Not only will the financial benefits be capitalized upon the value of the orchards, but it will act as a hindrance to prevent the removal of the real handicaps which burden the development of all land property in the great province.

Our protective tariff policy imposed a greater burden upon the agricultural progress of British Columbia than upon that of other provinces, owing to the expense of irrigation in the dry districts and the high cost of clearing the heavily-timbered parts of the coast lands and other districts. The high cost of living during years of bringing the land under cultivation, and the necessity for intense cultivation of the available lands, has led largely to the growing of truck crops and of fruits, the perishable nature of which—or the competition of which from local points—makes it a practical impossibility to obtain any fair return in the provincial or prairie markets open to them.

Not only has this prevented profitable results, but the high tariff caused a special injury to the fruit industry (1st) by encouraging the dishonest booming of land, (2nd) by leading growers to engage in reckless planting of all kinds of fruit of almost every variety known, which too often was planted so close together that proper development was not possible, until one marvels at the folly and waste of a large part of British Columbia orchards.

The high tariff was used to bolster up the prohibitory railway and express charges which have seriously militated against the well-being and progress of the province.

Two illustrations may make my argument clear. Freight charges last year on commercial fertilizers from Victoria to Summerland, on Lake Okanagan, were \$18.00 a ton, making the cost of superphosphate about \$40.00 a ton, while here it was bought for \$22.00 a ton; and ground rock phosphate was delivered for \$9.00 per ton by the carload from Tennessee. Grain from Calgary points to British Columbia buyers in the interior or at Vancouver was charged 19c freight per bushel for distances of 500 to 650 miles, while from Calgary to Fort William, 1,227 miles, the freight was 13 3-10c per bushel. In such ways high tariffs have worked to cause that province far greater losses than the extra price it has brought to fruit growers could begin to pay for. My conviction is that only after high tariffs are removed will the Pacific Province fully come to its own.



I believe that a fair competition with the Oregon and Washington fruit growers would in the result be better for the growers of British Columbia than protection which in the end costs more than it benefits.

Yours truly,  
HENRY MOYLE.

The Fall Packing and Exhibition Number in September of The Canadian Horticulturist was the best magazine I have ever seen. It gives a good account of the month's work in the garden.—H. A. Nicholls, F.R.H.S., London, Ont.

### "POUNDS OF BEES"

To the practical Beekeepers of Canada. Past experience proves to us that it does not pay to sell bees in pound packages earlier than May 1st, but after that date, which is just after our Orange Blossom flow, finds our hives full of young bees and sealed brood. So we can offer bees after May 1st, 1 pound, \$1.50; 5 pound lots, \$1.25; 10 pound lots, \$1.00 per lb. In lots of 100 pounds in separate pound packages, 90c. per pound F.O.B. Rialto, Cal. Untested queens to go with them, \$1.00 each, \$4.25 for six, \$8.00 per dozen; \$60.00 per 100, or queens by mail at above prices. Safe arrival and satisfaction to all customers. Express charges to or near Toronto, around 25c. per pound in lots of 10 or more at one time.

RIALTO HONEY CO., Rialto, Cal., U.S.A.

## BEEKEEPERS!



Jones' Weed Process Comb Foundation, Wax worked into Foundation, Italian Bees in Pound Packages, Improved Model Hives, and a full line of Bee Supplies. Catalogue free.

Write us if you have any BEES-WAX to offer.

## F. W. JONES

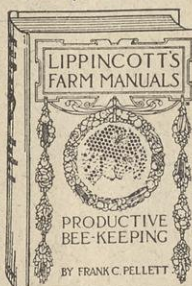
BEDFORD, QUE.

## BEEES

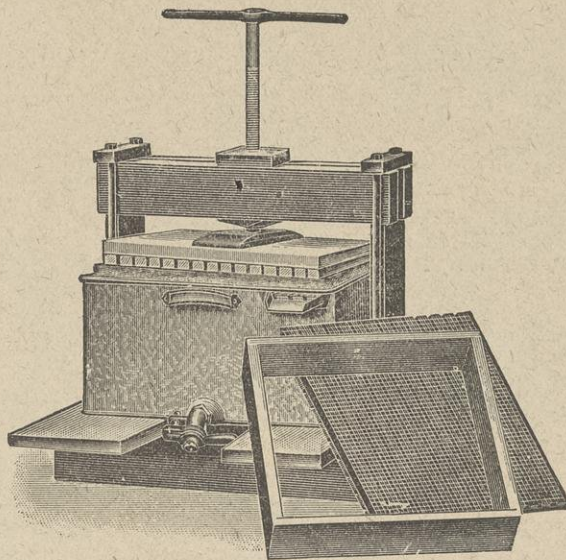
Bees are a money making asset on any farm, bringing annually a far greater return to your table and at the market than they cost in care and expense. Do you know the twentieth century methods? Buy **PRODUCTIVE BEE-KEEPING**, learn how to make a beginning and how to see it through. It gives the methods found to be the best money-makers by extensive honey producers. The illustrations give in pictorial form all that is needed to explain the text.

135 illustrations. 316 pages. Octavo. Handsome cloth. \$1.50 net. Postage or expressage extra 10c.

Address—BOOK DEPT.  
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**Cheap, Strong and Efficient**

NOW is the time to render that pile of old combs into nice cakes of yellow wax. The SIBBALD PRESS is just the machine for the job, it will soon pay for itself in the extra wax obtained. Wax taken in payment or in exchange for goods of any kind.

Two sizes—19 in., \$9.50;  
13 in., \$6.00.

The HAM & NOTT COMPANY, Ltd., Brantford, Ont.



## Southern Headquarters

FOR

## Italian Bees and Queens



Swarms in packages, 1 lb. bees \$1.50, 2 lbs. bees \$2.50; 50 or more packages 12½c. less each. If queens are wanted with the above add price of her to the above. Three band Italian untested queens 75c each; tested \$1.25 each. No reduction for quantity of queens on April and May deliveries. No disease. Safe arrival and pure mating I guarantee. We can supply and satisfy you. We spare no labor nor money to produce the best for you is why we cannot make a lower price. We have long since passed the experimental stage in this business. We will care for your interest.

## W. D. ACHORD

FITZPATRICK

ALA., U.S.A.

"Queen Breeder and Pioneer Successful shipper of bees in packages."

## The Root Canadian House

185 Wright Ave. Toronto, Ont.  
MAPLE SYRUP WANTED.

All kinds of Bee supplies, books and journals. None better in quality. Put in your order now for 1 lb. packages of bees. Satisfaction guaranteed. Early discounts.

## WE STILL MAKE FOUNDATION FOR SALE

We will buy your wax or make it into the best grade of foundation at low rates.

W. A. CHRYSLER & SON  
Rt. No. 5, Chatham, Ont.



## THE BEEKEEPERS' DIRECTORY

The following beekeepers will be able to supply Bees and Queens in any quantity for the season of 1916. Order early.

### E. E. MOTT,

Glenwood, Mich.  
Northern Bred Italian Queens.

### J. P. MOORE,

Morgan, Ky.  
Try Moore's Strain Next Year.

### W. R. STIRLING,

Ridgetown, Ont.  
Fine Italian Queens.

### J. I. BANKS,

Dowelltown, Tenn.  
Italian "Queens of Quality."

### P. TEMPLE,

438 Gladstone Ave., Toronto, Ont.  
Canadian Bred Italian Stock.

### THE DERROY TAYLOR CO.,

Newark, N.Y.  
Northern Bred Italian Bees and Queens.

### M. C. BERRY & CO.,

Successors to Brown & Berry,  
Hayneville, Ala.  
Best bred Italian Queens and Bees.

### THE PENN COMPANY,

Penn, Miss.  
Bees and Queens.

### F. W. JONES,

Bedford, Que.  
Bees by the pound, also best Italian Queens.

### H. C. CLEMONS,

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Three band Italians bred for business.

### THE ROOT CANADIAN HOUSE,

185 Wright Ave., Toronto, Ont.  
Canadian and U.S.A. bred queens and bees. Bees by the pound or colony.

### A. E. CRANDALL & SON,

Berlin, Conn.  
"Quality" Italian Queens.

### JOHN A. MCKINNON,

St. Eugene, Ont.  
Best northern bred stock.

### WM. ATCHLEY,

of Mathis, Texas.  
Wants to sell you your early bees by the pound. Queens in season.

### J. W. K. SHAW & CO.,

Loreauville, La.  
Everyone knows their strain of three-band Italians.

## Better Net Returns

C. F. Howard, Hagersville, Ont.

One of the prime factors in securing better returns for our apples is in maintaining a uniformity of pack. If the consumer can rely upon the stamp on any brand or package to mean uniformity of pack, it will mean a greater demand for our product. Herein lies our greatest weakness, so far as our local Association is concerned. Each member is responsible for the packing of his fruit according to a set of rules laid down by our association, and of course under a rigid inspection, yet there is a far greater variation in grading and packing than there should be. We have endeavored by means of educational work along the line of packing demonstrations and packing schools to overcome this difficulty, and I may say that they are improving the condition to a considerable extent; but, because of the fact that orcharding is mostly a side line in our district, the necessary attention is not given to this work that there should be.

Also, we can increase our net returns greatly by increasing our percentage of No. 1 fruit. The past two or three years have been off years with us, for the growth and spread of the apple scab has got beyond our control to such an extent that the profits have been practically eaten up. Last year we left over 40% of our apples in the orchards, a large part of them being No. 3's, and practically all undisposed of. This year we were hit harder than ever, but fortunately by the introduction of the new apple box, which we made use of, we disposed of our entire crop to good advantage. But I maintain that our growers must study to produce a very high percentage of No. 1 apples in order to realize profits on their apple crop.

In regard to the marketing of our crop, I may say that we have grown up with the Co-operative Fruit Growers of Ontario, Ltd., having been one of its units since the year of its organization. I am an out-and-out supporter of cooperation, and believe that therein lies the solution of our marketing problems. Our association is small, not yet producing 5,000 barrels of apples. To place this amount on the market individually would make it necessary to handle them through a middleman or the ordinary channels of the apple trade. We would also have, separately, to carry the risks involved in shipping and of collecting payments. This has meant a good deal to our association already, for we have saved the loss of a part payment on a car of apples, and the central is now fighting the railroad on the partial loss on another car. In unity there is strength, and the central organization can aid very greatly in these matters, especially the smaller associations.

The control of the market is essential if we are to get better net returns. This does not mean a control that will squeeze the consumer. We must bear in mind that our product is more of a luxury to many than an actual necessity. I mean a control in fairness to the producer as well as consumer. Such control can only be accomplished through provincial wide cooperation. It is utter folly for producing organizations to go out on the markets and compete one against the other. This state of affairs only places us at the mercy of the shrewd dealers.

Again, I claim that through organized effort we are in a better position to direct our product to the markets where prices rule highest, without the usual result of a glutted market and a slump in price. Even

\* A paper read at the last annual convention of the Ontario Fruit Growers' Association.

## QUEENS

REARED IN CANADA

From the BEST Italian Stock

\$1.00 Each; Six for \$5.00

### P. TEMPLE

438 Gladstone Ave.

TORONTO, ONT.

## FOR SALE

### Leather Colored Italian Queens

A few choice breeding queens at \$10.00 each, spring delivery. I guarantee these queens to be as good as any imported queen, barring none. If purchaser is not satisfied after one year's trial return queen and I will refund the \$10.00.

Warranted purely mated queens \$1.00 each or \$10.00 dozen. Untested, after July 1st, 75c each or \$9.00 a doz.

A few choice cols. of Italian bees in 9 frame hives at \$10.00 per col.

Tested Queens \$1.50 each.

### JOHN A. MCKINNON

St. Eugen

Ontario



## Italian Queens Three-Banded

Ready April 1, of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey gatherers. Untested, \$1.00; 3, \$2.75; 6, \$5.00; 12, \$9.00. Tested, \$1.25; 6, \$6.50; 12, \$12.50. Send for my free circular and price list, and see the natural conditions under which my queens are raised. Will book orders now.

JOHN G. MILLER, Corpus Christi, Texas.  
Corner C St., and Coleman Ave.

## Three Band Italian Queens

They are bred from imported mothers. They are the best for honey producing purpose, very gentle and not inclined to swarm.

If you buy once you will buy always.

Guarantee that all queens will reach you in good condition, to be purely mated and will give perfect satisfaction. All orders filled at once.

April 1 to May 1.

|                 | Prices. | 1      | 6       | 12      |
|-----------------|---------|--------|---------|---------|
| Untested        | .....   | \$ .75 | \$ 4.25 | \$ 8.00 |
| Select Untested | .....   | .90    | 5.00    | 9.00    |
| Tested          | .....   | 1.25   | 7.00    | 13.00   |
| Select Tested   | .....   | 2.00   | 11.00   | 20.00   |

### L. L. FOREHAND,

Fort Deposit, Ala.



## Pound Packages and Queens

We have established a Bee and Queen Breeding Yard in the south to handle our growing trade. You should order early to avoid delay. Send order on a postal, —no money until Bees arrive. Delivery begins April 1st. If possible order in 5 lb. lots, it is cheaper in express charges. Satisfaction guaranteed. Price, \$3.25 per lb.

CHAS. E. HOPPER & CO., TORONTO, ONT.



in a year of scarcity like last year, such conditions occurred in many of our markets. In a year of plenty we feel the need of extended markets, which can best be sought out by the central.

The publicity of our business through educational propaganda and press agencies can be far better governed with lesser expense through a central head, and eventually return to the producer in dollars and cents. The advertising of the apple and its many uses will lead to a greater consumption. The varieties of apples are very little known by the consuming public. The Spy seems to have found over-ruling preference, even to the exclusion of many other good varieties in their season. We find it difficult to supply the high percentage of Spys asked for in our orders. Most of our orchards were planted by our forefathers, and we find in them a great collection of varieties, which is a sad mistake from a commercial standpoint. Anyone contemplating a new plantation should give this matter of varieties serious consideration.

Possibly one of the greatest means of increased profit to the grower is a closer connection with the consumer. Doubtless the West will ever continue to be one of the best markets for Ontario apples. It will need developing along the lines of cooperation, the west with the east. Agricultural organizations in the west have already been securing a part of their supply of fruit from our cooperative organizations in Ontario. There seems to be an organized effort in the west to defeat any such negotiations. Even our local association, in their own competition for this market, are hampering the trade to a great extent. But the west, with its ever-increasing population, will create a demand for our Ontario apples that, with proper attention, will mean better net returns for our producers. In conclusion, I would say, let us lend ourselves to a more extended system of cooperation, and thereby make for prosperity in our local association work.

### Fruitgrower Wins Suit

A case which has been hanging fire for some time, and which is of unusual interest to fruitgrowers in general, has just been concluded in the County Court at Hamilton.

This was an action brought by the Whiting Nursery Company of Boston, U.S.A., against C. Coulson, a Beamsville fruit-grower, for \$103, alleged to be due the nursery company for fruit trees supplied him by the plaintiff company.

The defendant, Mr. Coulson, in his statement of the defence, says that after giving the order for the trees, and prior to their delivery, he notified the company in writing to cancel the order. Mr. Coulson also claims that the order was secured through misrepresentation, and because of this, and his notice to the company to cancel the order, he refused to accept the trees when they were later shipped to him, returned the shipment to the company, and refused to pay them.

The plaintiffs state that the order received from Mr. Coulson in writing was marked "not subject to countermand," that the trees were shipped according to agreement, and that the order was not obtained through misrepresentation.

Mr. Whiting, manager of the nursery company, under examination by Mr. Staunton, said he did not grow the trees, but purchased them from a nursery company in Boston, and that the order taken from Mr. Coulson returned the trees to his place the



### SWEET PEAS

Keith's Finest Mixed Spencer Varieties. Postpaid 1 oz. 15c— $\frac{1}{4}$  lb. 50c— $\frac{1}{2}$  lb. 90c—1 lb. \$1.75.

Keith's Sterling Mixture. Large flowering varieties. Postpaid 1 oz. 10c— $\frac{1}{4}$  lb. 20c—1 lb. 70c.

### GLADIOLI

Keith's Best Mixture, 30c per doz., \$1.50 per 100 by express, or postpaid 40c per doz., \$2.00 per 100.

### NASTURTIUMS

Keith's Special Mixture of Dwarf Varieties. Postpaid 1 oz. 10c— $\frac{1}{2}$  lb. 40c—1 lb. 75c.

Keith's Special Mixture of Climbing Varieties. Postpaid 1 oz. 15c— $\frac{1}{2}$  lb. 50c—1 lb. \$1.00.

### BEGONIAS

Crimson, Pink, White, Yellow. Single 6c each, 50c doz. Double 10c each, 75c doz., Postpaid.

## GEO. KEITH & SON

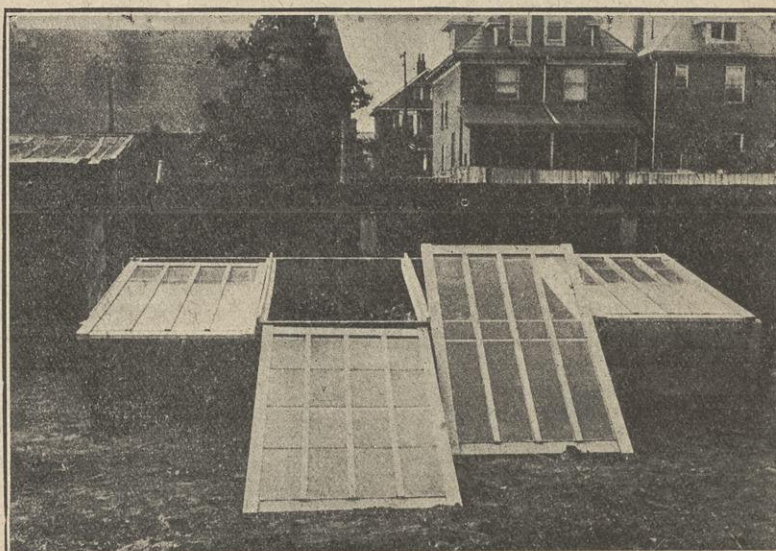
120 King St. E.

Toronto, Ont.

## Start a Backyard Garden This Spring

WHY not decide now to have a garden this spring, and prepare your hot beds at once. In another couple of weeks you should have your seeds such as onions, tomatoes, beets, lettuce, cabbage, and of course a number of varieties of flowers for the flower garden all planted.

Hot  
Bed  
Sash  
  
3 ft.  
x  
6 ft.  
10 inch  
glass.  
  
Price  
\$1.15  
  
In  
Clear  
Red  
Cypress  
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Hot  
Bed  
Sash  
  
8 inch  
glass  
  
Price  
\$1.20  
  
In  
Clear  
Red  
Cypress  
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## BATTS LIMITED

MANUFACTURERS ALSO OF GREENHOUSE BARS AND SASH

366-415 PACIFIC AVENUE

WEST TORONTO



**Spraying Pays**

**SAVES** your crop from loss, helps tree and plant to produce better and larger crops, prevents spread of disease, insures a longer life for trees and a longer growing time for vines each year. Blight hit potatoes in many states in 1915—many million bushels lost. Spraying would have saved them.

**IRON AGE Sprayers**

Include bucket, barrel, power and potato sprayers in many sizes and variety of equipment to suit each man's needs. We want to show you what each one is, how they are made and what they will do. Ask your dealer to show you these tools and write us for booklet describing all of them fully. We also have a spraying guide which we are glad to send.

The Bateman-Wilkinson Co., L't'd, 464 Symington Ave. Toronto, Ontario.  
Also Potato Machinery, Garden Tools, Fertilizer Distributors, etc:

## The Williams Strawberry

This famous strawberry still maintains its lead over all others in this district as a commercial berry. We have a fine stock of plants for spring setting, and can quote favorable rates on large or small orders. Satisfaction guaranteed. Send for circular.

**W. H. BUNTING**

The Carleton Fruit Farm, St. Catharines, Ont.

## FRUIT MACHINERY CO.

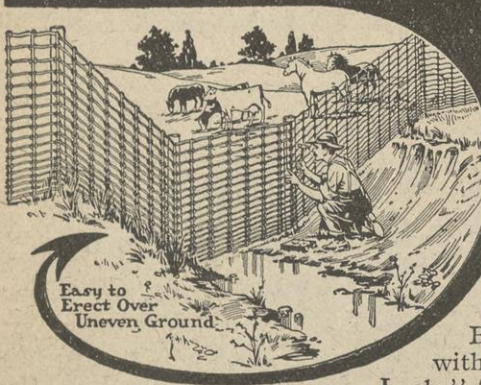
INGERSOLL, ONT.

Manufacturers of the Ontario Power Sprayer Model 2-B, the handiest of them all. Engine fills the tank. Also a complete line of Apple Evaporating Machinery and power evaporator equipment. Our complete power systems for evaporating as we install them are practical, sanitary and labor saving.

Write for free illustrated catalogue on spraying and evaporating.

## PEERLESS PERFECTION

### THE FENCE THAT STAYS "PUT"



**PEERLESS** Perfection is one of the easiest fences to erect, because it stays "put." It can be erected over the most hilly and uneven ground, without buckling, snapping or kinking.

Every joint is locked together with the well-known "Peerless Lock."

The heavy stay wires we use prevent sagging and require only about half as many posts as other fences.

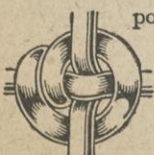
## Peerless Farm Fence

is made of the best Open Hearth steel fence wire. All the impurities of the steel are burned out and all the strength and toughness left in. Makes the fence elastic and springy. It will not snap or break under sudden shocks or quick atmospheric changes. Our method of galvanizing prevents rust and the coating will not flake, peel or chip off.

Send for catalog. It also describes our farm gates, poultry fencing and ornamental fencing.

**Agents nearly everywhere. Agents wanted in unassigned territory.**

**The Banwell-Hoxie Wire Fence Co., Ltd.**  
Winnipeg, Manitoba      Hamilton, Ontario



same day that he, Mr. Oliver, delivered them to Mr. Coulson.

Mr. Daley, manager of the E. D. Smith nursery, Winona, called as witness for the defendant, stated that Shiro plum trees, sold Mr. Coulson as special varieties at 75 cents each, were a very ordinary variety and were sold by Canadian nurserymen at 30 cents each. He had examined the trees shipped to Coulson from the Boston company, and found some of them first-class and some others of an inferior quality.

After remaining out nearly two hours, the jury brought in a verdict in favor of the defendant, Coulson.

## The Poultry Yard

F. C. Elford, Experimental Farm, Ottawa

### Operating the Incubator

A few instructions for operating the machine are given here, but it must be borne in mind that, as a rule, the general directions given by the manufacturers should be followed fairly closely, at least until they have proven unsatisfactory for local conditions. One of the reasons why first hatches often are so successful is because rules for operation are closely adhered to, but by the time the operator has run off two or three hatches, he begins to think he knows more than the manufacturers, and makes rules of his own, which are sometimes followed by disastrous results. Therefore, whatever shall be said is to be taken in a general way and not to replace direct instructions intended for any particular make of incubator, but to help out in case these instructions do not prove, in your individual case, the best.

#### The Temperature.

There are two kinds of thermometers in general use, those that hang up and those that stand or rest on the eggs. Usually 102½ degrees is recommended for the standing thermometer and 103 for the hanging thermometers.

In starting the machine, run it for several days without the eggs so as to insure good regulation, and when the eggs are put in, see that the temperature comes up in a reasonable time. If the hatches are slow in coming off, raise the temperature in succeeding hatches and vice versa. It is a good plan to have an extra thermometer on hand in case of accident, and thermometers should be tested each spring before the incubation season.

#### Humidity.

Climatic conditions in most parts of Canada are such as to make it advisable to supply moisture. A relative humidity of from 50 to 60 inside the egg chamber gives most satisfactory results. Moisture checks the undue evaporation of the eggs, and, as a rule, the more ventilation that is given the more moisture will be required. When there is no hygrometer to register humidity, a fair indication of the proper amount can be ascertained by watching the air cell. At the first test on the seventh day, the air space ought to be about one-eighth the size of the egg, and on the sixteenth day about one-fourth.

Moisture can be applied in a pan beneath the egg tray, or, in some makes of machines, a wet sponge can be placed above the hot-air pipes with satisfaction.

As a rule, if at hatching time the chicks





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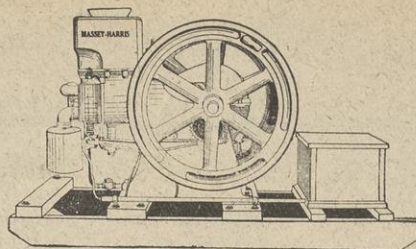
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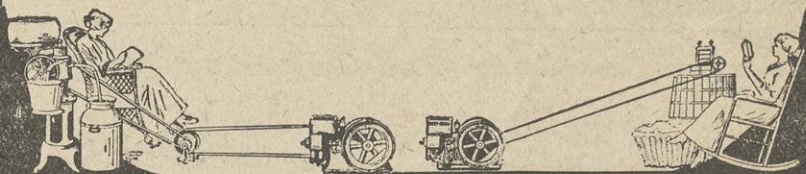
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are dried up and the air space large, too much ventilation has been allowed, or not enough moisture given, or both, and if, on the other hand, the chicks look as though they were drowned and a very little air space is seen, there has been too little ventilation or too much moisture or both.

### Cooling and Turning.

From the second day to the seventeenth, the eggs should be turned twice a day and cooled once; in very warm weather they may be cooled twice a day. No stated time can be given for cooling, so much depends upon the temperature of the room and the ventilation and moisture given. In turning, it is not necessary to turn each individual egg over, but rather to shuffle the eggs, and in doing so, work those at the outside to the centre and vice versa.

### Testing.

Usually two tests are sufficient, one for fertility and one for dead germs. The test for fertility should take place on the seventh or eighth day of incubation. At this time, as the eggs are held before a light the infertile eggs will appear uniformly bright, while the fertile eggs will show a dark spot with a cloudy portion around it. At the second test, which is for the purpose of detecting the dead germs, an egg with a live germ will have an appearance much the same as that on the seventh day, only the germ will appear larger and darker; probably one-half of the egg will appear dark, and the air space will be larger. The dead germ will not be much larger than when seen at the first test, which would indicate that it had not grown as the others had. It also may be stuck to the shell and look like a red streak, or as it is called, a blood ring. All of these should be discarded, as they will not develop into chicks.

Practice only will make one perfect in testing. It is a good plan to crack an egg occasionally to see what is inside, but if you are not sure whether the germ is alive or not, and do not want to break the egg, mark it so that you will know what it looked like when you see whether it hatches or not.

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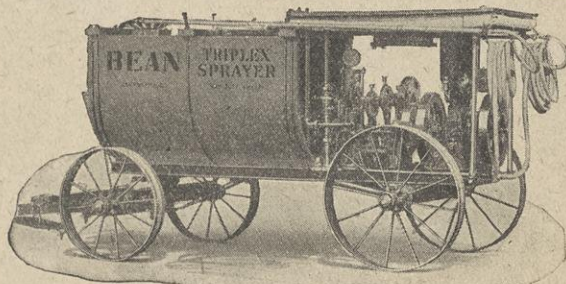
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awa, past president of the Ontario Fruit Growers' Association, in a recent issue of the Toronto Globe. "Before the war we had begun to develop an outlet in Copenhagen. We should give special attention to that market when peace is restored. Just beyond Copenhagen lies Russia, with its teeming millions, and an almost unlimited market can be found there for our Ben Davis, which is peculiarly well fitted for long-distance carriage.

Hull is another point that should not be overlooked. Golden Russets will do better in London than anywhere else. Manchester is the best market for Spies. These are all points to be considered in connection with the 'after-the-war' situation. A most important point to bear in mind is the necessity of taking the management of our export apple business into our own hands, just as we are doing in the case of our western apple trade."

### Packages for Tender Fruit\*

J. M. Creelman, Grimsby, Ont.

THE question of fruit packages has been much discussed for some time now, and has led to an estimable aim for the standardization of fruit packages. Needless to say it is a hard question to handle, and, so far, no one has completely coped with it. I do not mean to recommend any standards, but simply to give you the results of our experiments at Grimsby with some packages for the shipments of strawberries, cherries and peaches.

We did not try all the packages used in different parts of this continent. It is hardly possible to test them all at once. However, we did have most of those which we believed to be the best.

I intend to treat this subject only from the standpoint of long distance shipments. The local markets are a different phase, but a package which is suitable for long distance shipments is usually suitable for local disposition, unless too expensive. That is, the local market may not pay a sufficiently remunerative price to pay to pack in such a package.

The points which any package must have to be satisfactory are diverse, but all are essential. First, a package must be strong enough to stand shipment without serious damage to itself or to its contents. Secondly, it must be so constructed as to give the maximum of protection to the contents. Thirdly, it should be attractive in appearance. Fourthly, yes, I put it last on purpose, the cost of the package must not be prohibitive. There is a fifth point which, although not absolutely necessary, nevertheless, is one which should not be overlooked. The package ought to be planned for efficiency in loading and handling. This is a point well worth some good sound thinking. You must also consider the market's demands, but this is of lesser account, because this can be changed by education.

Another thing we must take into consideration is the tendency apparent to reduce the size of fruit packages. We see in the case of apples the tendency is to use the box rather than the barrel. For soft fruits we see an increased use of the six-quart basket where formerly the eleven-quart basket was used nearly altogether.

The twenty-four-quart crate commonly used for the shipment of strawberries in Ontario does not measure up to any of the requirements which we named. It is more or less fragile, often being broken in transit.

\* Extract from a paper read at the last annual convention of the Ontario Fruit Growers' Association.

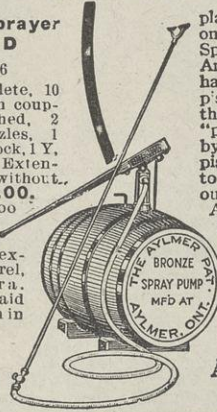
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Fig. 176

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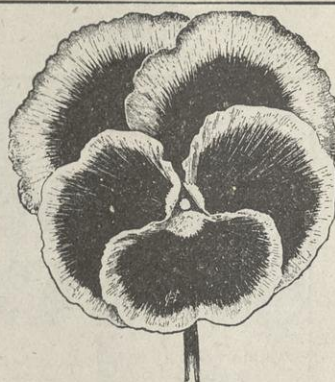
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MONTREAL



It is a rough, unattractive looking package, and does not, as a consequence, do the fruit justice. It is easily pilfered, and in car lots loads very badly on account of the handles.

Its greatest fault is in the dividers. These are of veneer and rest on the fruit rather than on the boxes. In this way the whole weight of the two upper layers is on the lower ones and the separators resting on the fruit crush it. With this form of separators or dividers it is impossible to fill the cups without crushing, and if not the fruit inspector will have you over the coals for not filling them. It has been found also that the fruit upon shipment settles so that it appears to have been only partly filled. Here, again, the inspector may get after a man even when he filled the boxes before shipment.

An experimental shipment was made through our plant last summer by the Vineland Growers Cooperative Company. These berries were in Ontario twenty-four-quart crates and were shipped by Refrigerated Express. Included in the car were lots of the B.C. 4-5 quart and B.C. full pint crates. These are the two packages used by the shipping districts of the western States and British Columbia.

The fruit in the Ontario crates was found to be rather unattractive in appearance. The crates were somewhat damaged and the berries were badly settled in the cups.

The B.C. 4-5 quart was in better shape, but here, again, the berries were settled in the cups so as to look as if they had not been properly filled.

The B.C. full pint was in the best shape. The berries were not settled and were bright and attractive, and along with the 4-5 quart this package was much more attractive to look at.

However, it was when the financial returns were examined that the big difference was apparent. It was found that the B.C. 4-5 quart was only selling for 20c more a crate than the B.C. pint, which, in turn, was selling for 10c more than the Ontario crate. Figure that out. The B.C. pint was selling for 10c more than the Ontario twenty-four-quart crate, although it contained only about half as much fruit.

This package, the western full pint, is the one used principally by the shippers of Hood River, Oregon and Spokane, Washington, and British Columbia. It has very largely supplanted the larger 4-5 quart, as it brings higher net returns. In Winnipeg it brings from \$3.00 to \$4.00 to the wholesaler.

So far I have considered only shipments to the west, where I feel safe in saying that if we are to compete in that market we must use the Pint Hallock Crate.

In the western markets we have a separate and distinct problem. As stated, the Ontario twenty-four-quart crate is unsatisfactory, and is of no use for western shipments. Now, the pint package is not likely to ever find favor in the east, as it is a package for use where high prices rule. Then as for the 4-5 quart, it is also rather doubtful, as the easterners look askance at the raised bottom and call them "cheaters." The package that is more likely to be of use is one of the type of the American crate or our twenty-seven-quart or thirty-six-quart, with thicker stripes in the dividers. This would tend to reduce crushing, and would still retain the cups the market is used to; also this type is larger and more pilfer proof, and is easier to load as it has no handles. Further, it is more attractive in itself and displays the fruit better.

In summing up the strawberry work it seems to resolve itself into this: For shipments to the west use the B.C. full pint

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ONTARIO

FRESH PAINT





crate, and for eastern shipments we will have to adapt either the American crate or the twenty-seven-quart or thirty-six-quart to our needs.

We assured ourselves by practical experiments in the season of 1914 that sour cherries could be marketed in good condition in Winnipeg, and then we wondered whether we were using the proper packages. This question was also in the minds of the British Columbia growers, and so we decided to test the relative merits of the Ontario six-quart Climax basket and the four-basket plum crate which was used by the British Columbia people.

A mixed carload shipment was made, and a comparison was thus arrived at. There was not much to choose between them as for condition, but there was a difference in returns. The six-quart Climax sold at an average price of 60c, which netted the grower 38c; while the four-basket crate averaged \$1.46, which is a net return of 85.1c.

Then there was a factor which cannot be expressed in figures or illustrated, but it was found that the six-quart basket sold much more readily than the four-basket crate.

#### Further Tests.

Having satisfied ourselves we could ship sour cherries to Winnipeg, we decided to try some sweet ones. Also, we decided to make a package test. With this end in view, shipment was made to Winnipeg in the B.C. full pint, the B.C. 4-5 quart, the four-basket crate, and the Woolverton crate; this last is a crate containing 3-6 quart leno baskets. It was found that the fruit in the best condition was in the B.C. 4-5 quart and pint. The pint also gave the best returns, as it averaged the grower a net return of 14.3c per pound, with the 4-5 quart second with 11.5c per pound.

The Woolverton crate shows itself to be a commendable package for shipment from the field without repacking. I forgot to mention it, but the other packages were all repacked and faced in the warehouse. It comes a close third with an average of 10.3c per pound net. The four-basket crate was a poor fourth, with only a net return of 6.5c per pound.

This seems to be simple, as here we have again the same package as we recommended for strawberries. This package also sold fairly well in Montreal. They do not seem so adverse to taking cherries in it as they do strawberries.

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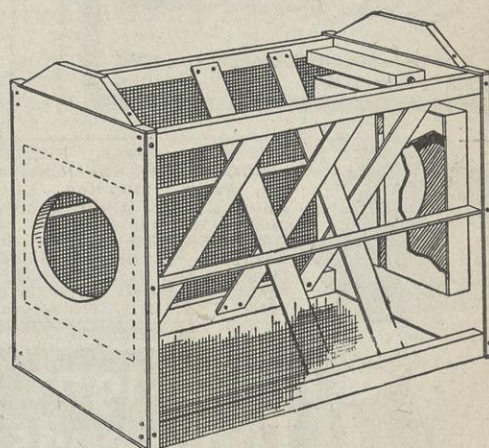
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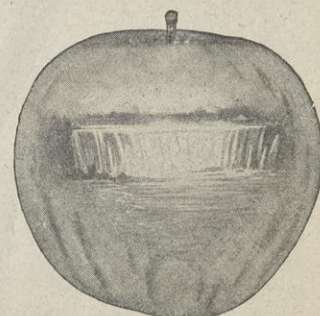
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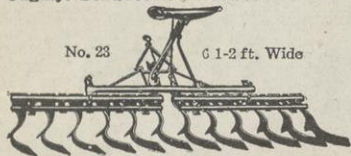


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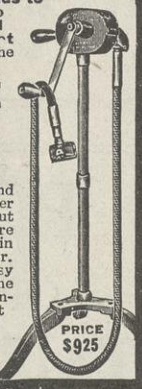
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\$9.25



### SMALL FRUIT PLANTS.

GOOSEBERRIES—Josselyn, Red Jacket, Downing, Pearl, Houghton. CURRANTS—Perfection, Ruby, Cherry, White Grape, Lee's Profile, Champion, Black Naples, Black Victoria, Boskoop Giant. RASPBERRIES—Herbert, Plum Farmer, St. Regis, Cuthbert, Marlboro, Golden Queen, Brinckle's Orange, etc. etc. GARDEN ROOTS, Strawberry Plants, Rhubarb. Write for Catalogue. WM. FLEMING, Nurseryman, 496-4th Ave. W., OWEN SOUND, ONT.



## Fire Blight Destroys Thousands of Trees

FIRE BLIGHT OF THE APPLE  
IS SPREAD BY APHIS

APHIS CHECKS GROWTH OF TREES  
APHIS CAUSES LEAVES TO CURL  
APHIS DEFORMS FRUIT

DESTROY APHIS WITH  
"BLACK LEAF 40"

Guaranteed 40% Nicotine

Your dealer will furnish you this effective insecticide in concentrated form—200 gallons of spray from the 2-lb. can costs \$2.50—1,000 gallons from the 10-lb. can costs \$10.75. If he will not supply you we will send it to you, express prepaid, upon receipt of price. Write for Free Bulletins to the address below.



"BLACK LEAF 40"

40% Nicotine

The KENTUCKY TOBACCO PRODUCT CO.

INCORPORATED  
LOUISVILLE, KENTUCKY.

## Shipping Immature Fruit\*

F. Carpenter

With the results of immature fruit reaching the consumer apparent, is it not a fact that it is difficult to appreciate the amount of damage done to our market by shipping it? Jellot Coit, of California, states that for every dollar made on green fruit by the extra early shipper, perhaps ten are lost later by conservative shippers through general depreciation of the market. Low prices are caused directly through a few sales of immature fruit.

Who is at fault? Is the grower only to be censured for the shipping of this class of fruit? Or is it the dealer, or both? Does the climate govern the time of picking and maturity? Or does the price? As an example in the past fruit season:—The season was late, the consumers, especially in the west, were asking for grapes, or, in other words, the demand was good. The wholesale houses there wired back to their dealers in the Niagara district offering or guaranteeing a good price. The dealer went to the grower and possibly spurred on by the fact that he could make a good profit for himself before the rush of fruit started, advised him that his fruit was ready for picking and offered him from two to three cents a basket more than he would be likely to obtain when the main crop was moving. Do you blame the grower for taking the offer, and rushing his picking, though he knew himself that the fruit was not in the best condition for consumption? Do you blame the dealer for shipping? There is no law against it, so he possibly concluded that the law favored it.

During the shipping season the average grower or shipper is so busy that in some cases the dictates of his own conscience are apparently overlooked. What is the result? Some consumers will possibly get enough fruit in one basket to do for the whole season; and the whole industry suffers as a consequence. It seems that the righteous have to answer for the sins of the wicked, and that something is wrong when practically worthless fruit brings high prices and good fruit goes begging a few weeks later. Some might claim that the Boards of Health have jurisdiction over such packages on the grounds that they are unfit for human consumption. If the fruit is mildewed, or otherwise diseased or over-ripe, or covered with scale or fly specks, they might take action; but in so far as the average officer of a Board of Health is competent to judge of maturity in fruit he would be little, if any, better than the average consumer.

Practically all kinds of fruit are more or less affected, some more than others, depending on several factors such as supply and demand, season and ignorance and indifference on the part of grower or shipper. An example of the working of the factor supply and demand could be cited in the case of the sale of Riene Claude plums for green gauges, some two to four weeks before the Riene Claudes are matured. The later the season, the more there is of immature fruit shipped. There are some places in Ontario where they are trying to grow commercially certain kinds of tender fruits where they can be brought to maturity only in favorable seasons. In these places the growth should be discouraged.

### The Remedy.

From observations here and in other fruit districts the question appears serious enough to demand a remedy. Co-operation is and will no doubt in the future play an important part in the solution of the prob-

\*(Continued from March issue.)



### Cheap Copper Sulphate

can no longer be had but growers of Potatoes, Grapes and Vegetables who have used Sulfocide for the past 5 or 6 years say that they prefer it to Bordeaux mixture as it is cheaper and easier to use and equally effective. 1 gallon makes 200 gallons of Spray. Write today for booklet.

**B. G. Pratt Company**  
Dept. 43  
50 Church St. - New York

## GLADIOLUS

Cultural Directions Free.  
List of varieties of superior merit.

**H. P. VANWAGNER**  
R. R. No. 5 Hamilton, Ont.

### PRIZE DAHLIAS

Grown in Canada.  
Twenty named varieties, \$1.00. Fifteen choice named varieties, \$1.00. Ten Giant prize-winners, all correctly named, \$1.00. Four different colors, 25c. All are field-grown roots. Postpaid. Send for Catalogue of over 200 beautiful varieties.

MISS G. S. DOUGLASS, Buctouche, N. B.

## NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.

**Perry's Hardy Plant Farm**  
ENFIELD, MIDDLESEX, ENG.

## Dahlias, Gladiolus and Perennial Phlox

15 choice Dahlias, all different, postpaid .....\$1.15  
50 choice large flowering Gladiolus, postpaid ..... 1.15  
12 Perennial Phlox, new, large flowering, postpaid ..... 1.15  
5 Dahlias, 12 choice Gladiolus, 5 Per. Phlox, postpaid ..... 1.15  
Sask., Maritime Provinces, Alberta and British Columbia, postage 5c. extra.

**GEO. E. EGERTON,**  
112 Chalmers St., - Galt, Ont.

## Kelly's TREES



**Guaranteed  
to  
"MAKE  
GOOD"**

That means a lot to every buyer—guaranteed Sturdy, Healthy and true to name by a firm that has been growing trees right for 32 years—Apple, Pear, Peach, Plum, Cherry and Quince Trees, also Small Fruits and Ornamental Stock.

Direct to You at Grower's Prices

Quality before price is our motto, but our personal supervision of all trees from our nurseries to you, together with up-to-date facilities, enables us to sell Kelly Trees at low prices.

Our catalog tells all about our trees and prices. It is our only salesman, and you can order from the catalog just as well as if you visited us here in Dansville—Why not do both?

Write for catalog to-day—It's worth while.

**KELLY BROS., Wholesale Nurseries**  
148 Main Street, Dansville, N. Y.  
You'll never regret planting Kelly Trees.

## THE COMPLETE LINE

# Harab-Davies FERTILIZERS

## GROW BIGGER CROPS

Notwithstanding scarcity of all fertilizer materials and the very high cost of same as compared with other years, we are offering again this year a most complete line of Harab-Davies Fertilizers at very reasonable prices. We can supply you with brands containing up to 3% Potash.

Write for our 1916 Booklet. We will mail it to you promptly, free of charge, and will have our local agent in your locality call and give you further particulars and prices. Now is the time to figure out your requirements for this coming season. Write us to-day.

Made in Canada, by

## The Ontario Fertilizers Limited

West Toronto, Ontario

## Practical Gardening Tools

TOOLS like these will do all of the necessary work (except plowing and harrowing) economically, whether for home, farm or market gardens. You can plant certain crops close and straight, and work them close and safely, with wheel hoes. You save ground, save heavy investment for tools at the start and yet do the best kind of work with profitable results.

### IRON AGE Hand Seed Drills and Wheel Hoes

Will sow, cultivate, ridge, furrow, etc. better than you can with any old fashioned tools and ten times quicker. Pushed ahead a step at a time, these tools can be worked by women, or grown boys or girls. We show here a few only but we make 38 styles and combinations from which to choose. Prices, \$3.00 to \$14.50. There are also many attachments for special work.

Ask your dealer to show them and write us for booklet "Gardening With Modern Tools." Also, for horse hoes, harrows and cultivators, sprayers, etc.

The Bateman-Wilkinson Co., Ltd. 462 Symington Ave. Toronto, Ontario.



## Northern Grown Nursery Stock For Sale

Our nurseries are situated on the table land of the Ottawa Valley. We are the originators and direct propagators of the famous McIntosh Red Apple tree. We do all our own grafting on crab roots, which assures a strong, hardy root system. All of our scions are taken from our thoroughbred McIntosh Red Orchard. Every tree in this orchard was grafted from the original tree that gives the fruit the same beautiful color and delicious flavor as the original. We also grow a full line of other hardy varieties of apple, pear, plum, cherry, small fruits, flowering shrubs, shade and ornamental trees. We never had San Jose scale or any insect pests. Send want list for prices.

**McINTOSH NURSERY CO., Dundalk, Ontario**



# A CORRECTION

From the "Canadian Countryman" Feb. 22, 1916

In our issue of DECEMBER 18, a leading article was published entitled "Fruit Growers Entering an Era of Prosperity," written by Dan Johnson, Dominion Fruit Commissioner. In describing the orchard and operations of B. J. Case, of Sodus, New York, the statement was made that Mr. Case sprayed his orchard three times with a solution of lime sulphur.

In a recent communication regarding this matter, Mr. Johnson writes: "THE ORCHARD OF MR. B. J. CASE, OF SODUS, N.Y., WAS SPRAYED WITH SOLUBLE SULPHUR AND NOT WITH ORDINARY LIME SULPHUR."

Send for Bulletin No. 4, on

## SOLUBLE SULPHUR

Niagara Brand Spray Co., Limited, Burlington, Ontario

Everything for Spraying:—Soluble Sulphur, Lime Sulphur, Arsenate of Lead, Dust Sprays and Dusters, Hand and Power Pumps.

lem. A manager of a co-operative association, if he is sincere, and working for the best interests of his members, will ship a class of goods that will meet with the approval of his customers and this will bar immature fruit. However, in order to be of immediate benefit to the industry it appears as if some prohibitory legislation should be enacted. A law regulating it, though it might seldom be necessary to enforce it, might have a good moral effect on the grower and shipper. I am indebted to Professor Crow at Guelph for information in regards to its regulation in other fruit districts. In Florida there is a law regulating the maturity of fruit for shipping, which allows only a maximum acidity according to the kind of fruit. It is a comparatively easy acid test which can be performed by any one who has the equipment and follows the directions. For example: Florida grapes packed for table use shall be well matured and show a sugar content of not less than seventeen per cent. Ballings scale, etc. As to bringing a law of that nature into effect here, it appears to me that considerable experimental work would have to be done to determine the maximum acidity to allow in the different kinds of fruit. A general discussion by the growers, shippers and others will possibly be a means of solving the question.

### Fruit Notes

F. G. H. Pattison, Winona, Ont.

The outlook for the sale of the 1916 crop of apples does not appear to be very good, as far as the export trade to Great Britain is concerned. Even if apples are accepted for shipment, the delays all along the route and the high freight rates will be almost prohibitive for Ontario apples. Probably Nova Scotia will continue to ship to Great Britain, as their freight rates are lower. They have a much shorter haul, by their own steamers, and can control their shipments better. Should there be a large crop, as is quite probable, the home market will be scarcely large enough to consume Ontario's entire product, except at a moderate price. The Western market, however, may prove the Ontario apple growers' salvation, as the advance in duty to 90 cents a barrel will give him a better show in that market, even although he may have to meet strong competition from British Columbia.

The following history of a box of Spy apples is interesting. This box was the gift from a Hamilton man to an officer at the front, and was grown and packed at Burlington. The apples were shipped in November, 1915, and forwarded to France. The officer, to whom they were consigned

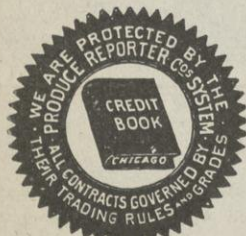
### Parsons' Strawberry Plants for Sale

It is an established fact that the "Parsons" have become a universal favorite at the canning factory and at the home, possessing many good qualities, viz., a vigorous grower, excellent flavor and exceedingly productive. This season's stock comes from a piece of new ground (the first strawberry plant crop), therefore will be free from all plant disease. These plants will be carefully packed in slatted crates, with plenty of moss to protect roots. Shipped by express to any address in Canada. \$3.75 per M. F.O.B. Niagara Falls, Ont. Cash with order.



A two-acre field of strawberries 5 months after setting the plants.

R.R. No. 3, Portage Road, W. E. FITCH, NIAGARA FALLS, Ont.



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

Send for  
Shipping Stamp

## Fruit and Vegetables Solicited

WE GET YOU BEST PRICES

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.

### H. PETERS

88 Front St. East, Toronto

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





was transferred to Alexandria, and the apples followed. Before the gift reached him he was again transferred, and he first made the acquaintance of the box in Greece, during the last week of February, 1916. In spite of all the delays, etc., every apple in the box was in first-class condition when the gift was received.

## A Tulip Festival.

The St. Thomas Horticultural Society, which is the largest and most progressive in Ontario, is holding a Tulip Festival on May 11 to 14, which promises to bring a large attendance from all parts of Ontario. This event is being held under the auspices of the Ontario Horticultural Association, with the object of showing the representatives of the smaller societies the methods followed by the banner society.

A tulip show will be the main feature, but visitors will be shown about the city, where 160 public boulevard beds containing 25,000 tulips planted by the society will be in full bloom. In the parks and private gardens, which will be open to inspection, will be found 200,000 more. Sunday, the 14th, will be "Tulip Sunday."

There will be reduced railroad rates, and valuable prizes will be given at the flower show. The exhibit of tulips will comprise 200 varieties. It will probably be the finest collection ever shown in Canada.

Reports having been circulated that the entire plant of The Lord & Burnham Co., at St. Catharines, Ontario, had been turned over to the militia for militia purposes, The Canadian Horticulturist has been asked to state that when this plant was built it was made large enough to take care of all expansion for the next five years. Only about one-seventh of the floor space not immediately needed for business purposes has been turned over to the militia. The rest of the building is in constant use by the company in connection with their Canadian business.



**Why Not Make More Wool Money?**

You can easily net from 15 to 20 per cent more on every sheep. Don't shear, in the old hard sweaty way. Don't have aching, swollen wrists. Shear with

**The Stewart Shearing Machine**

Has ball bearings in every part where friction or wear occurs. Has a ball bearing shearing head of latest improved Stewart pattern. Complete, including four combs and four cutters of the celebrated Stewart quality \$14.25. Get one from your dealer, or send \$2.00 and we will ship C. O. D. for balance.

Chicago Flexible Shaft Co.  
E 6 2 N.  
LaSalle St.  
Chicago

Price \$14.25

Write for complete new catalog

**GREATER WOOL PROFIT**



26 babies poisoned in 11 states; fortunately some recovered.

Save the Babies

# TANGLEFOOT

Catch the disease-carrying fly that strays into your home with safe, efficient, non-poisonous TANGLEFOOT; not arsenic poison in an open saucer set within reach of the baby, or a can from which a poisoned wick protrudes, sweetened to attract both flies and babies.

Flies kill many babies, and fly poison more than all other poisons combined—

—But in homes where careful mothers have protected their babies from such risks by using only TANGLEFOOT, both dangers are avoided.

The Journal of the Michigan

Made in Canada by THE O. & W. THUM CO., Walkerville, Ontario  
American Address: Grand Rapids, Mich.

State Medical Society reports 26 cases of arsenical poisoning from fly destroyers in 1915 in only 11 states; in 1914 there were 46 cases in 14 states.

It states editorially:

"Symptoms of arsenical poisoning are very similar to those of cholera infantum; undoubtedly a number of cases of cholera infantum were really cases of arsenical poisoning, but death, if occurring, was attributed to cholera infantum.

"We repeat, arsenical fly-destroying devices are dangerous and should be abolished. Health officials should become aroused to prevent further loss of life from their source. Our Michigan Legislature, this last session, passed a law regulating the sale of poisonous fly papers."

(70)

## New Brunswick Seed Potatoes

Choice seed potatoes will be almost impossible to get at planting time. Order your requirements now while I have some to sell.

Write for price list.

C. FRED FAWCETT, - UPPER SACKVILLE, N.B.



The Modern Method

## Remember the Day You Sprinkled the Potatoes?

You used a sprinkling can and barrel. About half-way through the rain came up, washed off the solution and made it necessary for you to do the work all over again. The chances are if you had had a

# Spramotor

It isn't a SPRAMOTOR unless we made it

you would have been able to do the spraying soon enough for the plants to get the benefit. With a Spramotor remember, you can spray an acre of potatoes thoroughly in 15 minutes. It sprays four rows at once—three nozzles to a row—and is adjustable up to 40 inches. It has a capacity of 12 nozzles with a guaranteed pressure

of 125 lbs. at every one: all working. The fact that the Spramotor has over 100 Gold Medals and First Awards to its credit, shows that it is able to do the work the way you want it done. The cost, too, is lower than you imagine—as low as \$6 up to \$400. Booklet on request. Made in Canada. No duty to pay.

Spramotor Works, 2710 King Street, London, Canada





**Put in as Big a Garden  
as you Possibly can  
this Spring**

—but be sure you put it in **RIGHT!** Thorough tilling and plenty of fertilizer are both important, but not more so than the choice of seeds. "Like produces like", and you cannot expect fine crops from inferior seeds.

**Ewing's Reliable Seeds**

are grown from selected plants of the very best strains. They are clean, vigorous, sure to grow—and for over Forty Years have been producing the finest gardens in Canada.

Your first step will be a wise one if you choose Ewing's Seeds. Get them from your dealer, or if he hasn't them order from us direct.

**THE WILLIAM EWING CO., LIMITED**  
Seed Merchants, McGill Street, Montreal 43



### Items of Interest

The Vineland (Ont.) Horticultural Experiment Station has home-grown onion and beet seed for distribution in small quantities. Any person may have either one, or both kinds, as desired, by sending his name and address to the Experiment Station at Vineland Station. Each person is asked to report on the success obtained from this seed in comparison with other seeds used. This seed was produced on the Station farm last season from selected stock, and is of excellent quality. Anyone desiring to select plants from this seed for further seed production would have good stock to select from.

I have small fruits, raspberries, currants, strawberries, and some young apple trees which are doing very well. Some of the trees do well here. I have box elder, caragana, lilac, mountain ash, American elm, Russian poplar, laurel, leaved willow, roses of several kinds (the roses are slightly covered with earth for winter). Nearly all perennials do well.—R. W. McIntyre, Edmonton, Alta.

During the years in which I have subscribed for The Canadian Horticulturist, I have derived great pleasure and profit from it.—A. Carson, Barrie, Ont.

### Strawberry Plants

**PAUL JONES,**

The most productive variety offered for sale to-day. Rewastick, Hub, Bethel, Winner, Manhattan. All the standards—50 varieties.

**E. B. STEVENSON,**

270 Grange St. - Guelph, Ont.



**100,000 Farms  
run on his Schedule**

Put your early rising problems in Big Ben's hands—just tell him what time in the morning you want to get things stirring around your place.

He's calling time and keeping time now for five million families—more than a hun-

dred thousand of them live on farms.

See Big Ben today at your dealer's. 7 inches tall, handsome, built to last for years. Rings two ways—once for five straight minutes, or at half-minute intervals for ten minutes, unless you shut him off. Price \$2.50 in the States, \$3.00 in Canada.

If your dealer hasn't him, send a money order to his makers and he'll come direct by parcel post, all charges prepaid.

**Western Clock Co.**

La Salle, Ill., U.S.A.

Makers of Westclox

### FLOWER POTS



We have a Large Stock of all sized

**FLOWER POTS**

**FERN OR BULB PANS**

**<sup>3</sup>/<sub>4</sub> AZALEA POTS**

and

**RIMLESS PANS**

Orders Filled Promptly. Send for Prices.

**The Foster Pottery Co., Ltd.**

**HAMILTON, ONT.**



## Pointers for Fruit Growers

Seth J. T. Bush, Morton, N.Y.

Agriculture and horticulture are the rocks upon which all true prosperity must rest. When the farmer and fruitgrower are prosperous and happy, their condition is reflected in every line of trade, and the whole country prospers.

When conditions are reversed, business stagnation and poverty follow.

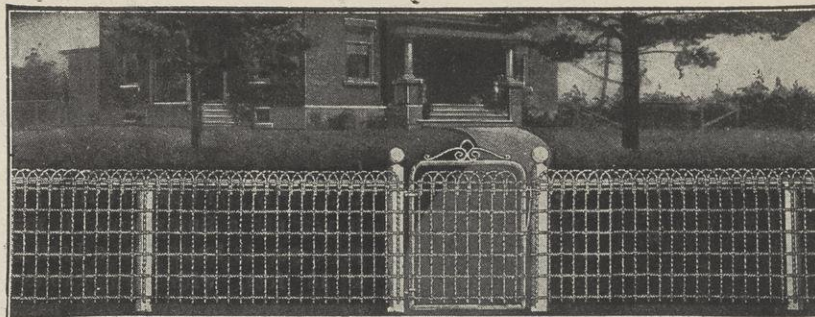
The farmers and fruitgrowers hold their prosperity as well as their destiny in their own hands—they have hesitated and followed slipshod methods long enough. They have got to get together and stick together, if they hope to reap the reward to which their labor and investment entitles them.

While the grower has been trying to hide his inferior fruit in the middle of the barrel, he has been at the same time "hiding his light under a bushel," in spite of the Divine command not to do so.

The consumer is obliged to pay for his fruit with a standard dollar, and he is entitled to a standard package.

The grower who is unwilling to join with his neighbors in an honest effort to improve conditions which affect his business, deserves nothing better than the thirty-five cents out of the dollar that he receives, and stands a fair chance of always carrying with him a "patch on the seat of his breeches" as an indication of his enterprise and resourcefulness.

There is never but one reason why a dealer or speculator will not buy as readily from an exchange manager as from the grower direct, and that reason is because



(Style "L"—Long stay on wood scantling and posts.)

## Improve the Front of Your Property

Nothing will add more to both the appearance and value of private or public property than a neat Frost Improved Lawn Fence.

It is very artistic in its symmetrical design, and has the strength and quality for long, long service, because we make it throughout of special standard Frost Hard Steel Wire, made and heavily galvanized in our own mills.

Proper proportions and perfect fabric are ensured by weaving on the latest automatic power machine—the only one of its kind in all Canada.

## FROST IMPROVED LAWN FENCE

is based upon the "Quality First" idea from start to finish. The heavy zinc coating it receives is more durable than paint and will not crack and peel off, besides being fully rustproof.

Laterals are formed of two No. 13 wires tightly cabled. Stays are evenly spaced, uniform and straight-standing.

Can also be erected on iron posts with pipe railing. Write for illustrated lawn fence booklet in two colors, free. 60

Frost Wire Fence Co., Ltd., - - Hamilton, Ont.

### ASK

our sales office nearest you for prices and terms on fertilizers adapted to your soil and crops



Send for Canada Booklet-Free

The American Agricultural Chemical Co.

New York, Boston, Buffalo, Detroit

## SANDER & SONS ST. ALBANS, ENGLAND

ORCHID GROWERS. The Finest

Stock in the World.

Catalogue on Application

## Northern Grown Apple Trees

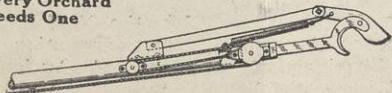
\$18.00 per hundred.

C.O.D.

Albert Nurseries, Albert, New Brunswick

## The Georgian Bay Tree Pruner

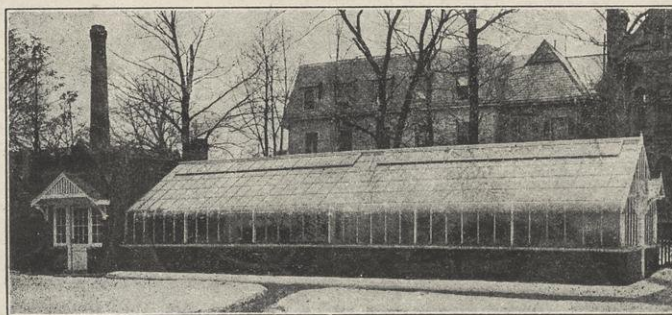
Saves in Many Ways  
Every Orchard  
Needs One



The Price is \$2.50

Write to G. W. BULL, Mfr., Wiarton, Ont.

## What Is A Conservatory Going To Cost ?



THE truth is we can erect you a greenhouse for any sum you care to mention, within reason.

We can deliver a small house in sections and erect it in a few hours with connections to your present heating apparatus—on the other hand, we have all the facilities to erect the largest commercial greenhouse, complete with heating, ventilating and drainage.

There's no need to pay extravagant prices for your greenhouse when our prices are as low as is consistent with the high quality of material and workmanship we maintain.

Write us now while this address is before you. One of our greenhouses would add more than its cost to the value of your home.

## GLASS GARDEN BUILDERS, Limited

Dept. B, 201 Church Street, TORONTO

Transportation Bldg., St. James St. Montreal





## Why Don't You Paint the Barn?

Costs too much just now, you say. Ordinarily you would be right; but not if you use a Spramotor. It may surprise you to know that a barn 40 x 60 x 18 feet, with two gables—4,320 square feet to cover with paint—can be covered with 200 pounds of fireproof paint for \$18, and can be done in half a day, with two men. The

**Spramotor**  
It isn't a SPRAMOTOR unless we made it

applies the paint as fast as twenty men with brushes, and it drives it into every crack and crevice. It is possible and profitable to make your buildings fire-proof and sanitary at a cost of one-tenth the price of oil paints. Then in addition to this you have the Spramotor for other uses. Divide its cost by the number of things you can use it for and you'll be surprised to find how quickly a Spramotor pays for itself.

MADE IN CANADA—NO DUTY TO PAY.

**Spramotor Works, 2711 King Street., London, Canada**

## More Potato Profits

MACHINERY may make all the difference between profit and no profit in growing potatoes. Get the right ones. We make complete lines of planting, weeding, cultivating, spraying, ridging and digging tools, all of which we guarantee. 80 years of factory and farm experience back of them. We'd like to tell you about all

### IRON AGE

potato machines but have room here for one only. **Potato Planters** put one piece in every space and only one. Isn't it better to plant right to make every foot of ground count and none of the rest of the work wasted? Saves one or two bushels of seed on every acre. Sold with or without fertilizer distributor. Other potato machines are **Riding and Walking Cultivators**, **Four and Six Row Sprayers** (also one with low nozzles to reach underside of leaves), **Potato Diggers** and **Ridgers**. Also makers of famous **Wilkinson Plows**.

Ask your dealer to show them but write us for separate book for each line. Sent **Free** to all who state in which they are interested. How many acres are you going to plant?

**The Bateman-Wilkinson Co., Ltd., 465 Symington Ave. Toronto, Ont.**  
We also make **Garden Tools** for practical farmers and **Sprayers** of every kind.



100 Per Cent Planter

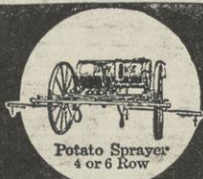


Wilkinson Plows

and Repairs



Riding Cultivator

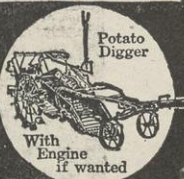


Potato Sprayer  
4 or 6 Row



Potato Ridger

With Disks if wanted



Potato Digger

With Engine if wanted

# RENNIES SEEDS

PUREST-CLEANEST  
MOST RELIABLE  
GET CATALOGUE  
AT BEST DEALERS  
OR DIRECT  
TORONTO - MONTREAL  
WINNIPEG - VANCOUVER.

he can buy cheaper from the grower direct. If he can't buy from the grower, he **MUST** buy from the exchange manager.

A good many simpletons are constantly laying the flattering unction to their souls that they are a good deal smarter than their neighbors, and can "put one over" the other fellow very easily; but they are living in a fool's paradise and deceiving no one but themselves. I would urge every grower who is proud of his business and hopes for the reward to which his investment and labor entitle him to do everything in his power to help to elevate the standard of his products and increase his own prosperity.

Don't be content to be "dumb driven cattle," but rise above the petty neighborhood suspicions and jealousies and show the world that there may be "captains of industry" on the farms as well as in the industrial centres of your great country.

Cease to permit yourself to be exploited and used by speculators, to be played one against the other, to force prices down; but, standing together, reverse the order and play speculator against speculator to force prices to a point that will insure you honor and prosperity among your fellow men.

## Niagara District Fruit Notes

F. G. H. Pattison, Winona

Generally speaking, fruit trees, vines and bushes have come through the winter well. In one or two localities some damage is reported to have been done to peach buds. Nursery stock sales have reached the lowest point in years. Even baskets are not selling as well as usual. In spite of this condition, however, a good many car loads of manure have come into the district, so the matter of keeping up fertility is not being neglected. Pruning is well forward amongst all progressive fruit growers. Labor of a kind worth having is decidedly scarce and wages are inclined to be higher than last year.

A report from Beamsville says that tomato growers in that neighborhood are not likely to plant a large acreage this spring on account of the labor situation, and the small price being paid per basket by the canning factories. No great quantity has been contracted for as yet.

A good deal of uneasiness prevails amongst the fruit growers over the prospects of a probable shortage of experienced help when the season opens. This is forecasted by the number of advertisements in the district papers for fruit farm help, and by the number asking for berry pickers months in advance of the season. As to prices for the coming crop of tender fruits, there are two features that are decidedly encouraging and these are: (1) That unemployment in the cities is almost unknown, all mechanics, etc., being employed at good—and in a number of cases at record wages. These classes are the largest buyers of fruit when they have the money; (2) The canning factories will be forced to purchase more fruit and vegetables than they have in the past two years, if they wish to keep their plants going to meet the increased demand likely to come soon.

The advertising campaign, so successful last season, is to be placed on a wider and more far reaching basis, and steps will be taken towards further co-operation in distribution and marketing.

On March 8th and 9th, the Norfolk Fruit Growers' Association in connection with the Provincial Department of Agriculture held a successful Fruit convention at Simcoe. President Joseph Gilbertson declared that now was the time for fruit growers to give their orchards the best attention on ac-



**STRAWBERRY PLANTS**

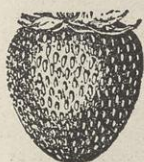
If you are interested in the growing of this fine fruit, write for price list of varieties and valuable information how to grow healthy plants and best quality berries.

JAS. E. JOHNSON & BROS., SIMCOE, ONT.

**EVER BEARING STRAWBERRIES**

Fine quality and wonderful in bearing all season. Get some and plant them this spring and pick berries all summer till they freeze up. 50 plants for \$1.00. 100 plants for \$1.75.

In U. S. money. We pay the postage.  
Lost Springs Nursery and Fruit Farm,  
Lost Springs, Kansas, U.S.A.


**MALLORY'S  
Strawberry Plants**

give satisfaction  
enjoyment  
profit

Dunlap, Wonder, Williams, \$4.00;  
Arnout, Uncle Jim, \$5.00 per 1000.  
200 plants, 50 each of four  
varieties for \$1.00.

We also have good **Seed Corn**. Send for Price List.

N. E. MALLORY, :: Blenheim, Ontario

Order

**Canadian Grown Nursery Stock**

direct from our Nurseries, and save all middlemen's profits. Write at once for our descriptive catalogue and special prices for fruit trees, small fruits, Roses, Shrubs, etc. Address

**J. H. McCOMBS**

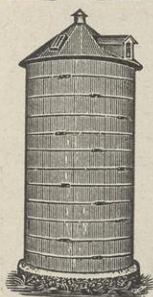
Union Wholesale Nurseries

Fonthill, Ontario

**SKINNER  
SYSTEM OF IRRIGATION**

Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for \$11.75. Send for new Bulletin.

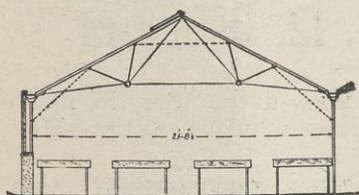
The Skinner Irrigation Co.  
217 Water Street Troy, Ohio.



**10-15-20**  
Years from now the Bissell Silo will be giving good service. It is built of selected timber, treated with wood preservatives that prevent decay. It has strong, rigid walls, air-tight doors, and hoops of heavy steel. Therefore it lasts, simply because it can't very well do anything else. Our folder explains more fully — write Dept. N.

T. E. BISSELL CO., Ltd., Flora, Ont.

See advt. also on page 107.



STYLE C

This is a New Model for 1915, the result of fifteen years' experience in Greenhouse construction for Canada.

Dotted lines show location of wind-ties that positively prevents vibration of the sash. Supplied in widths up to 25 feet 2 1/4 inches from post to post.

KING CONSTRUCTION CO.,  
40 Dovercourt Road Toronto.

# "One Man" Spraying

## Another Solution to Your Hired Help Problem



Sprayer Complete as you see it, with wheels, etc.—\$200.00.

Not only is it important that you should get the most and the best that your orchard, field and garden will produce, but the alert farmer and fruit grower will diminish his need for hired help by using labor-saving methods.

The I.X.L. Junior Automatic Power Sprayer enables one man to do the work that usually requires the time of two men. The I.X.L. Junior is made in three sizes. It consists of a 3 H.P. Engine, cypress tank, gear driven vertical cylinder pump, two 25 ft. leads of hose, two visible spray nozzles, complete in all details.

For Garden Spraying we recommend the I.X.L. Vegetable or Potato Sprayer, which can be converted to orchard spraying by attaching spray poles to hose.

Write for price and complete description. Fill out the coupon for our Booklet on Spraying.

## CANADIAN SPRAYER COMPANY

### TRENTON, ONTARIO

Canadian Sprayer Co.  
Trenton, Ont.

Sirs:

Kindly send me your book on Spraying.

Name .....

Prov. ....

Size of Orchard .....



count of many orchards being neglected. The following were the chief speakers: P. J. Curey, Toronto, gave two addresses on "The Packing and Marketing of Fruit." Prof. J. W. Crow, on "Cultivation and Cover Crops for Orchards." F. L. Gabel, Ancaster, on "Strawberry and Raspberry Culture."

District Representative Neff, a general address on "Fruit Growing." R. R. Waddle, Chief Fruit Inspector for Western Ontario, on "Pruning," and Prof. Caesar, on "Apple Scab and Leaf Roller." A very interesting letter was received from Manager Jas. E. Johnson, at present in Florida, of which the

keynote was that apple growers in Norfolk County should produce apples of good quality and then look for good average prices in such fruit during the coming season, and for some years to come.

That the Dominion Cannery lost heavily last season is apparent from their annual report for the year 1915, submitted at the annual meeting held in the head office, Hamilton, on March 1st. This showed a loss for the year of \$294,438, as against a profit in 1914 of \$330,858, in 1913, \$466,415, and in 1912, \$503,409. I am informed on good authority that to break even this coming season is the best they can expect.

For having in his possession three boxes of apples packed contrary to the Inspection and Sales Act, Frank Everett was fined \$10 and costs in the Toronto Police Court by Magistrate Kingsford recently. The magistrate described the offence as being very serious, as it was against the good name of Canada.

Several meetings on the question of amalgamation of the fruit growers and dealers of the Niagara District in one central organization, were held during the past month both at St. Catharines and Grimsby. It was decided that, as the system of marketing in the Western portion is different from that adopted at St. Catharines and East, that it would be better for each to organize separately for the present. Accordingly, the committee appointed to organize District No. 1, from Hamilton to the Sixteen Mile Creek, east of Jordan, is still going on with its work drafting the by-laws, etc., and preparing for organization.

Tomato growers around Grimsby predict that the Canning factories will have to pay 30 cents per bushel for tomatoes before the season comes to a close. They base their predictions on the grounds that tomatoes cannot be grown for 25 cents, and that the factories must have them next fall.

The fruit growers in Genesee and Monroe counties, New York State, are complaining of great damage done to their fruit orchards by the Leaf Roller.

A number of box packing and pruning demonstrations are being held in Wentworth county. On March 22nd, one was held at Waterdown, and on March 23rd at Dundas.

Sugar is advancing in price again and will probably be very high by the time fruit comes in. This situation during the past two years has been a serious detriment to the tender fruit industry.

## CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

### REAL ESTATE

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

NIAGARA DISTRICT FRUIT FARMS—Before buying, it will pay you to consult me. I make a specialty of fruit and grain farms. Melvin Gayman & Co., St. Catharines.

FARMS—All kinds, all sizes, for sale, fruit, stock, grain and dairy farms. Let me know what you are looking for. H. W. Dawson, Brampton, Ont.

CALIFORNIA suburban farms for sale. Easy payments. Write E. R. Waite, Shawnee, Oklahoma.

### SEEDS.

YOU WANT "Reliable Seeds," get our Seed Price List and Save Money. Morgan's Supply House, London.

PRIZE DAHLIAS—Twenty bulbs \$1.00, field grown, very beautiful, all colors, named. Mrs. A. H. Switzer, R. 6, St. Mary's, Ont.

### PLANT AND NURSERY STOCK.

FOR SALE—Choice assortment of flowering perennial plants and vines. List and prices sent on application to E. P. Smart, 64 King Street, Brockville, Ont.

BEAUTIFUL GARDEN FLOWERS—Catalogue describing my collection sent free. The largest collection of perennial plants in Canada. Malcolm Westland, Tambling Corner, London.

STRAWBERRY PLANTS.—Plants from pedigreed stock from \$3.50 per thousand. Send for list. Leavens Orchards, Bloomfield, Ontario.

### SPRAYING.

SAVE MONEY—Get our Spraying and Garden Supply Catalog. Morgan's Supply House, London.

SPRAYERS for every need: Bucket, Knapsack, Barrel, Traction and Gas Engine machines. D. E. Watson, Uxbridge, Ont.

### BEES.

ITALIAN QUEENS and early shipments of bees by the pound from Texas. Write us for prices. R. V. & M. C. Stearns, Brady, Texas.

CARNIOLAN, GOLDEN AND THREE Banded ITALIANS. Bees by the pound, Nuclei. Ready to go April 1st. Write for price list. C. B. Bankston, Buffalo, Leon Co., Texas.

BEES—Per pound, \$2.15; per frame, \$2.35; queen, \$1.00. Address Aurora Apiary, Aurora, Ont.

CHOICE ITALIAN BEES, Langstroth hives, no disease. Chris. Grimoldby, Owen Sound Ont.

FOR SALE—Three hundred pounds Weed Process Comb Foundation, any weight. R. F. Holtermann, Brantford, Ont.

BEES and QUEENS from my New Jersey Apiary. Price list free. J. H. M. Cook, 70 Cortland St., New York City.

BEES FOR SALE—W. S. Walton, Scarborough Jctn, Ont.

ITALIAN BEES AND QUEENS as advertised on page 102. Catalogue free. Deroy Taylor Co., Newark, N.Y.

ITALIAN BEES—good workers, no disease. Lawrence Wheeler, Brussels Ont.

### BEE SUPPLIES.

BEEKEEPERS—Please write for our Catalog. Morgan's Supply House, London.

1,000 GUMMED HONEY LABELS, two colors, any wording, for \$1.30. Catalogue free. Eastern Label Co., Clintonville, Conn.

BARGAIN in 8 frame comb honey supers. About forty with gate separators for no bee-way sections  $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$  inch., most of them filled with sections and foundation, 45c each. I. Langstroth, Forest, Ont.

WANTED—Second hand Honey Extractor. Apply to R. Rear, Penetang, Ont.

### EMPLOYMENT.

GARDENER WANTED to take charge of Springbank Park, London, Canada. Apply to E. V. Buchanan, General Manager, Public Utilities Commission, London, Ontario.

COMPETENT MAN, age 40, wants position, orchard, garden, poultry. Write, Orchardist, c/o Canadian Horticulturist, Peterboro, Ont.

# Festival of Tulips

## ST. THOMAS, MAY 11, 12, 13 and 14

Visit the Flower City of Ontario on these dates. See the finest collection of tulips in Canada. Exhibition of 200 varieties—May 11, 12 and 13. Tulip Sunday, May 14.

See 160 public boulevard beds containing 25,000 tulips planted by the Society in full bloom. Parks and private gardens containing 200,000 more, open to inspection by visitors. Reduced rates on all railroads. Splendid accommodation for visitors. All under the auspices of the Ontario Horticultural Association. For further information write St. Thomas Horticultural Society.



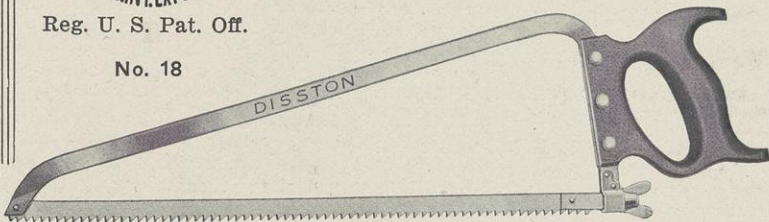
# DISSTON Pruning Saws

—a line comprising styles and sizes for every requirement, all backed by a reputation for Highest Quality and Satisfactory Service.

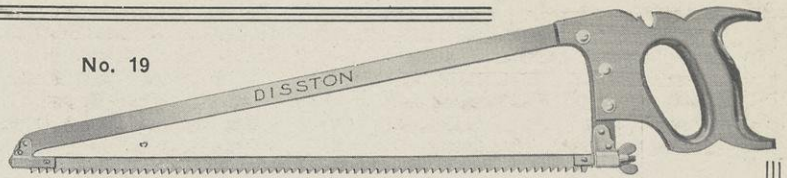


Reg. U. S. Pat. Off.

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York State



D-24



Don't wait until the last moment and then be forced to use whatever saws your dealer may have left in stock; make your selection now and get the saws exactly suited to your requirements.

Our Pruning Saw Catalog will help in your selection. Write to-day for a copy.

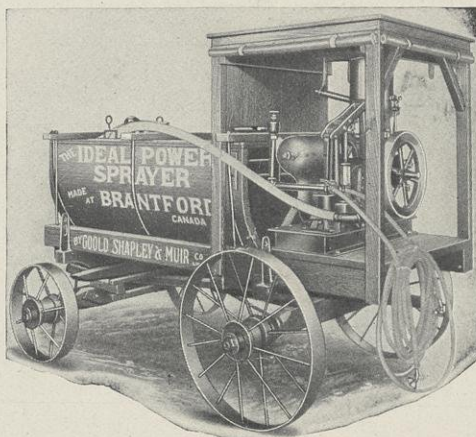
**HENRY DISSTON & SONS, Limited**

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## The Brantford Ideal Power Sprayer

CANNOT BE EXCELLED

Engine, Pump and Pump Gear, mounted on Heavy Steel Beams and cannot get out of alignment.



Phosphor Bronze Bearings used throughout.

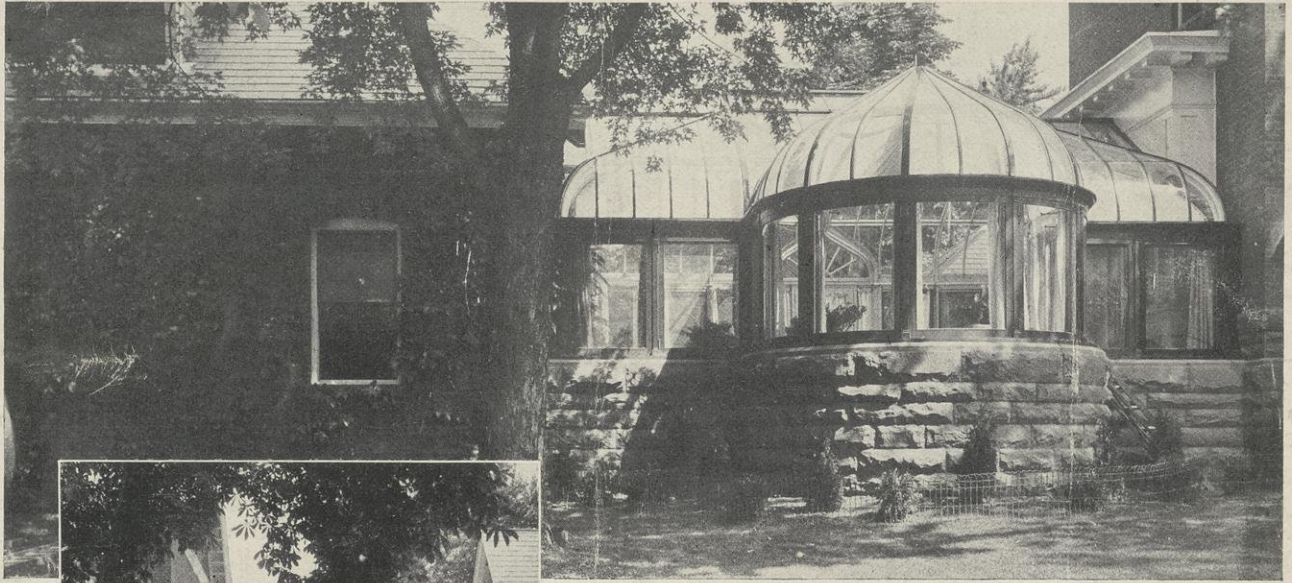
The best and most up-to-date outfit money can buy.

We also manufacture complete lines of Gas and Gasoline Engines, Windmills, Tanks, Grain Grinders, Steel Saw Frames, Water Boxes, Pumps, etc.

CATALOGUES DESCRIBING OUR DIFFERENT LINES, SENT ON REQUEST

**GOOLD, SHAPLEY & MUIR CO. Ltd., BRANTFORD, ONT.**





## Mrs. T. Eaton's Conservatory

Toronto, Ont.

THIS is one of the most interesting conservatories we have recently built in Canada.

In materials, workmanship and equipment it is one of the finest we have had the pleasure of setting our conservatory experts at work on.

Its curved end bay and variant curved glass roof made a construction problem that required great accuracy and nicety of handling.

Let us send you our Two G's Booklet, or Glass Gardens—A Peep Into Their Delights.

Rear view showing the outside entrance.



The plant tables are marble-topped and the heating pipes placed underneath, out of sight, behind bronze grilles.

**Lord & Burnham Co.** *Limited of Canada*  
*Greenhouse Designers and Manufacturers*

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Factory, St. Catharines, Ont.

Transportation Bldg., Montreal