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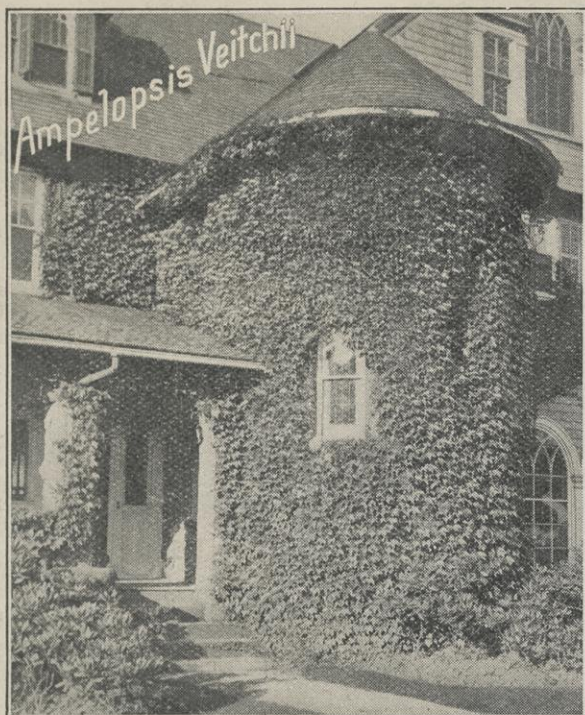
THE

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\$1.00 a Year

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Regular Edition.

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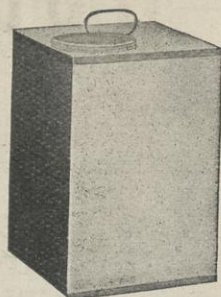
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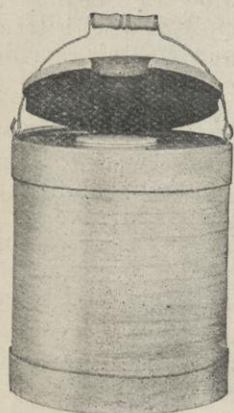
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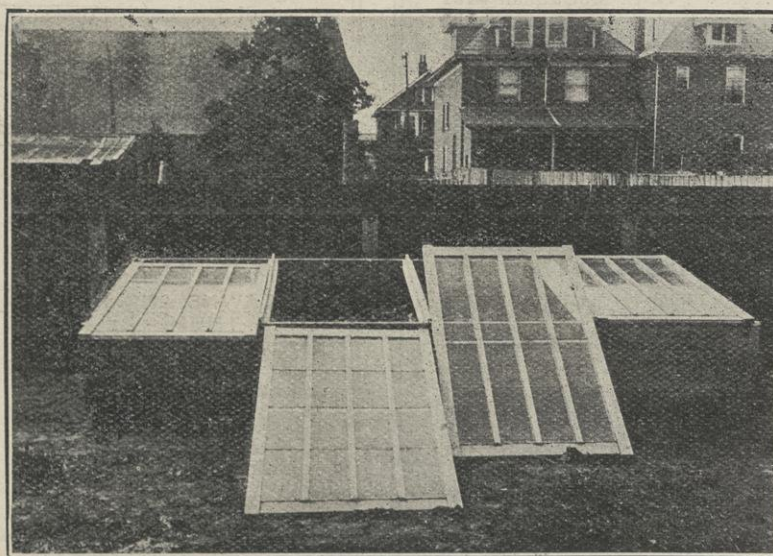
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The Canadian Horticulturist

Vol. XXXVIII

MAY, 1915

No. 5

What Does it Cost to Grow a Barrel of Apples?

By Manning Ells, Port Williams, N. S.

IN the early days of apple growing in America the industry was very profitable. From 1854 to 1878 prices remained uniformly high, and nearly all the bearing orchards in New York State were planted between these dates. Prices then began to decline and planting practically stopped. In 1896 thousands of barrels were left to rot under the trees because there was no market for them. Many orchards were cut down, and others given over to the tender mercies of the San Jose scale. Canker worms and caterpillars each had their day until overcome by their natural enemies. Production was much decreased.

In a few years prices for apples again gained a high level, and planting was stimulated as in the years before 1878. Old orchards were pruned and cleaned up and soon began to bear as if the rest had done them good. The great west, trusting to luck and the government, went to the extreme in planting apple trees as in everything else.

The signs now all point again for the next ten years or so to overproduction and non-profitable prices. Planting already has greatly fallen off, but that will have no immediate effect on the flood of apples. In one county in New York (Munroe county), of the crop of 1908, less than six per cent. was borne on trees planted since 1878. Better methods of distribution will help, but in the days of keen competition between apple growing districts that are coming, the country that can produce good apples cheaply will have a great advantage, and may be able to stay in the game when others not so favorably situated will have to turn to other lines of farming.

It has been said that if the everyday business man knew as little about his business as the average farmer, he would soon go to the wall. Until a few years ago the farmer's ideas of his capital invested, his expenditures and income were of the most hazy character. There are many difficulties in the way of farm bookkeeping that are not met in more exact businesses. A special system had to be devised to meet the farmers' needs. Prof. War-

ren, in his book on farm management, explains a system of cost accounts for the different crops on the farm that would seem to fill a long-felt want. If the work is followed up, a few minutes each evening will give at the close of the year a fairly accurate idea of the actual cost of raising the different crops, and enable the farmer to know where to give his attention for the most profit.

What Is the Cost?

A question often asked in the Annapolis Valley is, "What does it cost to grow a barrel of apples"? With a year like the past, when the price has been the lowest in the history of the business, the question is a pertinent one. It was because of a curiosity to find an answer to this question that the writer kept an account with three different orchards on different parts of the farm last season. While the results are not complete, and at times estimations have to be resorted to, as to the cost of picking for instance, still

an account of these results may bring out some criticisms or experiences of others who have been working along the same line.

I will take up the work of each orchard in detail, and show in what way the different charges are made.

The First Orchard.

Orchard number one has about two and a half acres of full bearing fruit, ordinary commercial varieties. Last year it produced two hundred and sixty-seven barrels of apples. All the orchards were charged with man labor at twenty cents an hour and horse labor at 15 cents an hour.

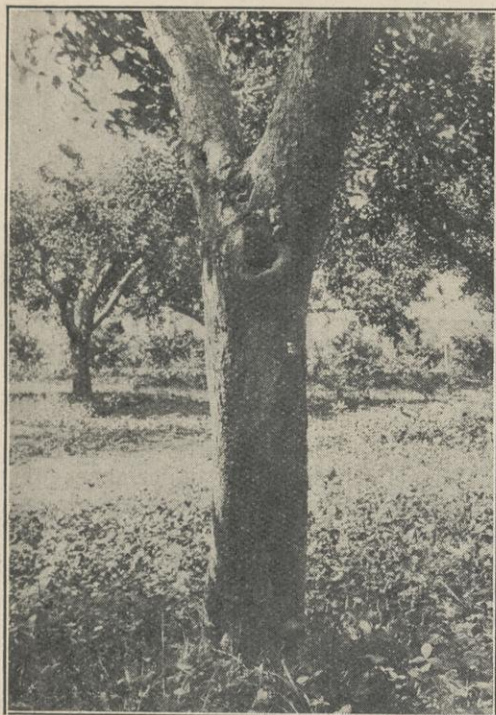
Operation.	Man hours.	Horse hours.
Pruning and hauling off brush ..	31	5
Plowing, harrowing, sowing cover crop	43	84
Spraying	47	28
Total	121	117

From this the account for the orchard is made up as follows:

121 man hours at 20 cents an hour	\$24.20
117 horse hours at 15 cents an hour	17.65
Fertilizer and seed for cover crop	18.25
Cost of spraying material	11.25
Cost of 267 barrels at 30 cents	80.10



Branches cross-grafted to prevent breaking.



Old wounds in need of treatment.—No. 1.

Picking and hauling to warehouse, three miles, at 15c. 40.05
Total cost \$191.50

Average cost per barrel for orchard No. 1—71.7 cents.

Orchard No. 2—About five acres, one third in full bearing, the remainder about equally divided between ten and fifteen year old trees. Crop last year—209 barrels.

120 man hours at 20 cents an hour \$24.00
165 horse hours at 15 cents 24.77
Fertilizer and vetch seed for cover crop. 18.25
Cost of spray material 12.00
Cost of 209 barrels at 30 cents 62.70
Cost of picking and hauling to warehouse at 15c. 31.35
Total cost \$173.07

Cost per barrel Orchard No. 2—82.8 cents.

Orchard No. 3.—About twenty-five acres, all commercial sorts, fifteen acres full bearing, remainder ten and fifteen years set. Crop last year—1,124 barrels.

353 man hours at 20 cents an hour \$70.60
443 horse hours at 15 cents an hour 49.45
Cost of fertilizer and vetch for cover crop 85.00
Cost of spraying material and gasoline .. 50.00
Cost 1,124 barrels at 30 cents 337.20
Picking and hauling to warehouse at 15 cents 168.60

Total cost \$760.85

Cost per barrel Orchard No. 3—67.6 cents.

From these figures, the average cost per barrel on the three orchards on the combined crop of 1,600 barrels is 70.3 cents.

While packing in the warehouse there is a shrinkage of about sixteen per cent., that is, one hundred barrels tree run will pack on the average about eighty-four barrels. These slack sixteen barrels are credited back to the grower at twenty-five cents a barrel, and this should be credited to the

orchard account. In this particular instance the sixteen per cent. slack barrels will reduce our cost just four cents a barrel, making the average cost 66.3 cents.

The reader will notice that in this account no charge is made for management, interest on money invested in equipment, and repairs and renewals or depreciation of same. For instance, the power sprayer cost three hundred dollars, and at least fifty dollars a year should be charged the orchard for wear and tear and interest on the cost of this sprayer. Repairs on the sprayer this past season cost twenty-two dollars, but the machine did outside work for the neighbors, and earned twenty dollars in this way, so that account was about squared for this one season. If fifty dollars was charged the orchard for the use of this sprayer, the cost of raising the 1,600 barrels on the three orchards would be increased about three cents a barrel.

Another item in the cost not considered here, but which always should be considered, is that of interest on capital invested. A fair value to place on orchards such as these under consideration is five hundred dollars an acre. Then against the year's crop of 1,600 barrels should be charged the interest on thirty-two and a half acres at five hundred dollars an acre, or sixteen thousand two hundred and fifty dollars at six per cent. This amounts to nine hundred and seventy-five dollars, or 60.9 cents a barrel. The average operating cost of the three orchards under consideration is 66.3 cents a barrel; allow five cents a barrel for interest and depreciation on tools and equipment, and we have the full account as follows:

	Cents.
Labor cost, fertilizer, spraying, cover crop, etc.	66.3
Interest on tools	5.

Paint and Concrete in the Orchard

H. Arnold Haigh, Stamford, Ont.

ALTHOUGH all large wounds made by the saw in pruning should be painted over, nevertheless, the paint brush is rarely taken into the orchard. This is because the results of neglecting this operation are not apparent for some time, and in many cases the wound closes over and no harm results.

A paint of white lead, with linseed oil and no driers, is as good as anything. Three coats are absolutely safe. One coat is hardly sufficient, but is better than none. Creosote or tar oil are also very good. If pitch is used, it should be applied hot. It has a tendency to run when the sun strikes it. Look over a block of, say, King trees, thirty or more years of age, where painting has been neglected, and note

Interest on investment 60.9

Total cost per barrel \$132.2

While these figures are interesting, still they do not answer the question asked at the head of this article—"What does it cost to grow a barrel of apples"? for they are only based on one year's production. One should have five years' accounts to follow as a guide. The average here given for the three orchards should give, however, a fairly accurate answer, for the size of the crop in apple growing will cause a great difference in the cost per barrel. While the cost for barrels and picking will remain constant, the charges against each barrel for spraying, fertilizing, pruning, cultivating and interest will vary greatly. To illustrate this point: In 1911 the orchards under consideration produced 2,700 barrels. Spraying, cultivating, etc., cost practically the same as last year, so if we charge the same rate for barrels and picking, and five cents a barrel for interest on equipment, we find a total cost, including interest on five hundred dollars an acre valuation, of only 97 cents a barrel, as against a cost of 1.32 cents a barrel when only 1,600 barrels were produced. From this we might reasonably draw the conclusion that the latter figure would be considerably higher than the five-year average.

Right here another question naturally comes to mind: Is there a profit in growing apples at these figures? The prices received for the past four crops will give some light on this question:

In 1911 the price received was \$1.33 a barrel net.
In 1912 the price received was \$1.60 a barrel net.
In 1913 the price received was \$2.01 a barrel net.

For last year, while the account has not been altogether made up at this date, the probable net price will be about \$1.15 a barrel. This shows a loss, one year in four.

the percentage of large pruning wounds that have rotted, often right through the body of the tree to the roots. The King is particularly susceptible, but many varieties of apple and other fruits are more or less so, and there is a big risk with all.

If the rot has started, there is nothing for it but to clean it out, even though you have to cut the tree open to the ground.

The first of the accompanying illustrations shows a tree with two old wounds, one just above the crotch, the other just below it. Gouge and chisel were taken to this tree, and every particle of rotten or dead wood was cut away. The result is shown in the second illustration. Living wood had to be cut away down the body and up

the limb to get at the rotten parts. Having cleaned the holes out thoroughly, the insides were disinfected with a solution of formalin, and a mixture of two to one sand and cement put in. The mixture was made just wet enough to enable it to be worked with a stick to all parts of the hole. To hold this in place until set, thin boards were tacked across the holes. Tar paper, or several thicknesses of brown paper, or even newspapers tied over the hole with twine, will answer the same purpose.

After a few hours, the boards were taken off and the concrete faced with a mixture of fine sand and concrete (1:1) applied with a brush. The latter operation was not necessary, but made the work look neater. The third illustration shows the work finished.

This particular case was a fairly bad one. Often the rot extends only three or four inches from the surface, when little cutting will be required and the

concrete can be put in without the use of forms.

As regards tools, I find that two gouges, one about a half-inch and the other one and a half inches, and one chisel about one inch, are the most convenient cutting tools. Gouges and chisels with curved shanks are very handy in some places, but are expensive unless you have a lot of trees. In buying gouges for this work, be careful to have the bevel on the inside. A brace and a small bit, or a small auger, are sometimes useful to find the direction in which the rot runs, as it is often expedient to open up the side of the tree away from the wound or source of trouble.

This work can be undertaken successfully by anyone who can handle a chisel, and the life of the tree will be prolonged for some years. If your orchard is young, and this rotting has not started, you will find painting cheaper and much easier.

Spraying Cherry and Pear Trees

E. F. Palmer, Assistant Director, Fruit Branch, Toronto, Ont.

PROBABLY every reader of The Canadian Horticulturist realizes the importance and value of spraying the apple orchard to control the codling worm, apple scab, and similar pests, but possibly not all give to their cherries and pears the same attention. Yet spraying these fruits is as essential to success as spraying the apple. Spraying ordinarily will control the brown rot which annually causes great loss to cherry growers, especially those with sweet varieties. Shot-hole fungus on cherries in some years and in certain localities is so bad

as to almost defoliate the trees. The cherry fruit-fly, of which we are just now hearing so much, infests some otherwise good orchards so badly that the fruit cannot be picked. Prof. L. Caesar, Provincial Entomologist, estimates that the loss to cherry growers from the cherry fruit-fly alone must amount to thousands of dollars each year, though less some years than others. The pear slug is equally as troublesome on the cherry as on the pear. The total loss from these and other less important insect pests and diseases of the cherry and pear must amount to many thousands of dollars each year, yet each insect pest and disease can, with the exception of the pear blight, be effectually controlled by proper spraying, and thus many thousands of dollars saved to the cherry growers of Ontario.

Spraying the Cherry.

Of the insects attacking the cherry, the Cherry Fruit-fly is perhaps of the most importance. The adult insects are two-winged flies, about two-thirds the size of the house-fly, and with the wings conspicuously marked with dark crossbands. These flies lay eggs just under the skin of the cherry, and the larvae which hatch are full grown by the time the cherry is ripe. We are told that "What the eye does not see the heart shall not grieve," but when wormy cherries are shipped on to the market and the consuming public get a taste of them, the market for good cherries is injured. People are afraid to buy them, because it is almost impossible to tell whether a cherry is wormy or not until it is opened. Wormy cherries, too, are subject to

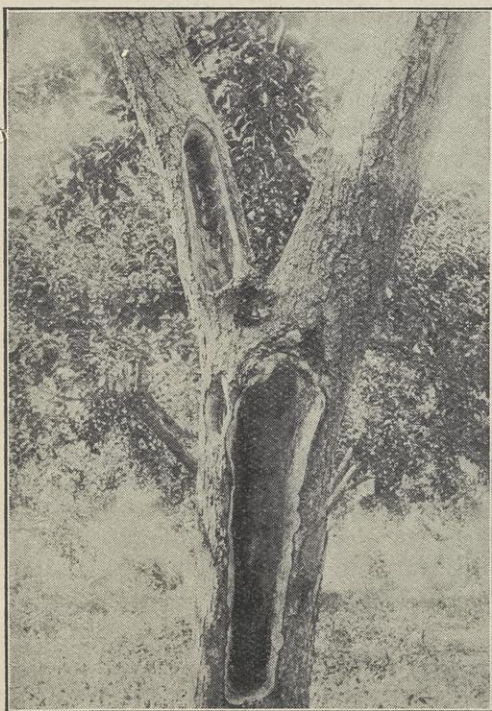


The wounds filled with concrete.—No. 3.

brown rot, and help to spread this disease to sound fruit.

Spraying to Control the Cherry Fruit-Fly: From experimental results obtained in the Niagara district, Prof. L. Caesar recommends the following: Spray with two or three pounds arsenate of lead (paste) to forty gallons water, sweetened by the addition of one gallon of cheap molasses. The molasses should not be added to the water until the day the mixture is to be applied, because it will soon ferment in hot weather and cause the arsenate of lead to be precipitated in a lumpy condition. Spray first as soon as the flies begin to appear, which, in the Niagara district, will be about the end of the first week in June, and in colder districts a few days later. This will be about the time the early Richmonds are showing the first signs of a red blush. Spray again ten or twelve days later, or just before the Montmorency cherries begin to color. None of the early varieties should be sprayed at this second application because of the danger of the spray remaining on until picking time.

When applying the spray the trees should be given a moderately thorough application, so that nearly every leaf will be lightly covered. Varieties like Early Richmond and early sweet cherries are almost exempt from attack by the fruit-fly. The later sour and sweet varieties, especially Montmorency and Morello, are all attacked. The treatment advocated will effectually control this pest. The adult flies suck up the poison spray from the leaves and die before laying their eggs. The cost of spraying is small, Prof.



Wounds cleaned out, ready for filling.—No. 2.



A power sprayer at work in the orchard of Egbert Smith, Winona, Ont.

Caesar estimating that five cents per tree should cover the total cost for two sprayings on trees fourteen years old.

The Plum Curculio, which stings the cherries, causing them to drop, can be controlled by spraying either with concentrated lime-sulphur, specific gravity 1.009, or Bordeaux mixture, with three pounds of arsenate of lead added to every forty gallons of water. The arsenate of lead controls the curculio, while the lime-sulphur or Bordeaux assists in the control of brown rot, shot-hole fungus, and powdery mildew. Another spray, using the same material and strength as for the above, should be given about two weeks later to further assist in the control of these diseases and the curculio. For the shot-hole fungus or leaf spot, as it is often called, it will sometimes be found necessary to spray again just after the fruit is picked.

For sweet cherries it would perhaps be advisable to use Bordeaux mixture for all but the first spray, as sweet cherry foliage is tender, and is liable to be burned by lime-sulphur spray. However, several growers use only the lime-sulphur spray, with excellent results.

If the pear slug is bad on either cherry or pear trees, spray with arsenate of lead, two to three pounds to forty gallons of water, whenever the slugs are numerous enough to warrant it, unless the fruit is beginning to ripen. Apply the spray to the upper surface of leaves, as it is there that the slugs feed. Dusting with hellebore, air slaked lime, or almost any finely divided dust, will also destroy most of the larvae, which are very readily killed.

It is, of course, too late now for pears to receive the regular first spray—concentrated lime-sulphur one gallon to seven gallons of water, applied just before the leaf-buds burst. If this spray has not been put on then later sprays are all the more important.

The second spray, concentrated lime-sulphur, one gallon to thirty to thirty-five gallons water, with two or three pounds arsenate of lead to forty gallons of liquid should be applied just before the blossom buds burst. This, and the next or codling moth spray are very necessary in the control of the scab, and if this disease is unusually bad, these sprays should never be neglected.

Spray again, with the same mixture and strength as for the above spray, just after the blossoms have all or nearly all fallen. This application assists in the control of the scab, and is also the codling worm spray. It is important that it be applied just after the blossoms have fallen, and under fairly high pressure, driving the spray, particularly into the calyx-end of the young fruit, as it is at this point that the majority of the worms enter. Add Black Leaf forty to this spray at the strength recommended on the cans, to control the Pear Psylla, if this pest is sufficiently serious to warrant it.

If the variety of pears grown is one very subject to scab, such as Flemish Beauty, they should receive another application, the same as that given, ten days after the Codling Moth spray. If the Pear Slug is bad, spray as for the slug on the cherry.

Spraying will not control the blight. The only way to control this disease is by keeping the infected parts cut

out. Cut out carefully in winter all blighted branches and twigs, cutting a foot or more below the diseased part. If the trees are too severely blighted to save, cut them out completely and burn them. Throughout the growing season watch for and cut out promptly all blighted twigs as they appear. Burn all prunings. Disinfect pruning tools and cuts with corrosive sublimate, one to one thousand.

Preventatives in the Vineyard*

Grape vines are not often subject to attacks by scale insects, so there is seldom need for a spraying with strong lime-sulphur before growth starts. Do not use the diluted lime-sulphur at any time for grape spraying. It stunts or checks the growth of the berries. Use the Bordeaux mixture.

Downy mildew, commonly called "Red Grape," was very destructive last season, and caused large financial losses to growers who did not spray. Black rot has been a serious disease in recent seasons. Growers cannot afford to risk the loss it may cause by neglecting to spray. These diseases and others will be prevented very largely by spraying as follows:

When the shoots are about eight to ten inches long, spray with Bordeaux mixture for black rot and downy mildew.

Just before blooming spray again with Bordeaux mixture for black rot and downy mildew, and to every fifty gallons of Bordeaux add two or three pounds of arsenate of lead to poison the grape berry moth and the rose-chaffer. If this latter is serious use stronger poison even up to five pounds to fifty gallons. A pint of the cheapest molasses added may help.

Just as the blossoms are falling, make another spraying like the above.

About ten days or two weeks later, it may be necessary to make another spraying like the two previous, but this will depend upon the weather conditions and the amount of rot and mildew prevalent. If later sprayings are thought to be necessary, some material should be used that will not stain the fruit, such as weak copper sulphate solution.

Flea-beetles may appear at any time, but are most likely to come as the buds open in the early spring. Spray with Bordeaux mixture and a strong poison, three or four pounds of arsenate of lead to every fifty gallons of the Bordeaux, if early in spring. Later use less poison.

For climbing cut-worms, use cotton bands or bands of sticky mixture. On tender growth these can be put on strips of paper.

*From the annual report of the Michigan State Board of Agriculture for 1914.

Preparing the Vegetable Plot

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

THE preparation of the soil for the subsequent planting of vegetable crops is one of a series of important and interesting operations of which all have their uses, and upon which depends success in the culture of any garden crop. When the soil is thoroughly pulverized in advance of planting, then, and then only, will it be possible to harvest abundant crops of first quality. A soil that is but half dug or merely scratched with a disc or cultivator will not produce maximum crops of any kind. Tap rooted crops like carrots, parsnips, beets and turnips, will invariably fail. If tap rooted crops are to be grown to perfection, that is, to exhibition quality and shape; the soil must be thoroughly and deeply worked, the necessary manure being incorporated during the operation.

Fall is the best time to dig or plough vacant lots or gardens previously uncropped, as during winter the sod will partly decompose and so supply organic matter or humus. If this was not done last fall the alternative is to plough or dig at once, burying the sod about a foot deep. It is not well, however, to plant many varieties of vegetables upon a lot broken for the first time and previously uncultivated, therefore plant potatoes and a few cabbages and so obtain good crops. Potatoes do well upon freshly broken ground.

The householder must take the soil as he finds it. He must remember, however, that upon its physical condition depends the treatment it ought to receive. A heavy clay must be lightened and aerated, a light sand should, by the addition of good soil and organic matter in the form of manure, be made more retentive of moisture, and so more productive. Many garden soils are too heavy or too light to be profitably cropped. There is, however, a way of making even the worst kind of soil yield good returns, namely, trenching. Many gardens would prove a source of greater remuneration and pleasure to their owners were they trenched in the making, and subsequently every fourth year. By this operation it is possible to deepen and to aerate the tilth, thus favoring the admission of warmth and oxygen, and the conversion of many poisonous substances into plant foods.

Trenching.

Having selected your lot or portion of land to be cropped, spread rotted manure over its entire surface, dig out a trench three feet wide and about fifteen inches deep, and deposit the soil

from the excavation at the far end of the plot in a straight line, to be used in filling the final trench. With a garden line mark off another three feet, and invert the top spit into the trench. Now if the lower spit or subsoil is very heavy simply invert it one spade deep in the bottom of the trench, at the same time mixing in a considerable quantity of manure. Upon this again invert the surface soil, repeating the operation until the work is complete. In this manner you will deepen your tilth and render it more fertile, in fact sometimes to such an extent that when you again undertake to trench your ground the lower spit may be safely removed and deposited on the surface.

In proper trenching the lower spit or subsoil is brought to the surface, the surface soil being deposited in the bottom of the trench. It is a practice to be commended wherever the subsoil is not likely to deleteriously affect the crops. In any case, however, under the influence of sunshine and air coupled with cultural operations even a poisonous subsoil may be so ameliorated and improved as to produce the best of crops.

When trenching always pare the sod and weeds from the surface and bury them in the bottom of the trench. Keep the trenches straight by means of the line; this will ensure every square inch being thoroughly worked and will give the appearance of neatness which characterizes the true gardener. Always have a barrow or box at hand to re-

ceive tap rooted weeds like dandelions, or other undesirables, such as couch grass (twitch or spear grass), or wild convolvulus, also sticks and stones. It is a cleanly and economic practice, as apart from appearance it precludes much labor in collecting these things when the work of trenching is finished. All harmful weeds should be burned, otherwise they are liable to reappear.

Whether you have thoroughly trenched or simply dug your lot in the ordinary way you will now be concerned with the seed bed. Seeds of all kinds require a well worked and finely broken soil. Break every clod, not merely upon the surface, but throughout the entire tilth (that portion which plants grow in). It is thus better to fork rather than spade the area to receive the seeds, especially the smaller kinds.

A small quantity of finely screened wood ashes, or stable manure, will oftentimes greatly benefit seedlings, if worked into the soil. It is, however, unwise to apply soluble, artificial or special manures to the seed bed or to small seedlings which are intended as transplants. For permanent crops the soil should be richly manured. In this category are carrots, turnips, beets, parsnips, peas, beans and similar crops. These occupy their positions from seed time till harvest, and are, therefore, dependent upon the soil in which they are originally sown. Transplants are not. The reader should bear in mind that the degree of success in gardening is measured by the degree of thoroughness exercised in the preparation of the garden to receive its subjects.



Anemone (2) thalictroides (Rue Anemone), domesticated, and growing in a Hamilton garden.



A portion of the perennial border in the garden of Mr. T. H. Taylor, Hamilton, Ont.

An Amateur Rose Garden

R. Brodie, Montreal, Que.

ALTHOUGH in our severe climate, with its cold winter and hot, dry summer, we can't grow roses to such perfection as they do in the Old Country or on the Pacific Coast, yet with care we can have an abundant supply of roses in June and July, with a fair supply through the summer months till frost touches them. Last summer, when in Victoria, B.C., I spent a pleasant hour in the beautiful rose garden in front of the Parliament Buildings. There was a great variety of color, and the plants were labelled with the name of their variety, which made the display very instructive and interesting.

Roses do best in a good, strong soil, well underdrained. If it is a light, sandy soil use well rotted cow manure in beds. Place hybrid perpetuals in rows three feet apart and two feet apart in the row, the first row two feet from the side of the bed. For hybrid teas use rows two feet apart and eighteen inches in the row. In planting out budded or grafted roses cut them back to within a few buds of the stock and plant deep enough to almost cover the tips of the branches. If the season is dry water often and cultivate. The first year will give a number of blossoms.

For the winter protection of roses we gather the branches together with binder twine, dig a spade full of soil away from side of the plant and bend over and pin to the ground. Lay the bushes all one way. The first few years I covered with earth from between the rows, but now the bushes are too large, so we nail boards together A shaped and cover the bushes with them. The winter of 1913-14

was a very severe one, yet our roses came through in good condition. Our first plantation contained over 100 bushes, mostly hybrid perpetuals, although we still had a number of the old varieties, set out by my grandfather, like the old Moss Rose, the Cabbage or Province, the Maiden's Blush, etc.

The following are my favorite varieties:

White: Frau Karl Druschki, Mabel Morrison, Margaret Dickson, Mdm. Plantier.

Pink: Baroness Rothschild, Mrs. John Laing, John Hopper, Capt. Christy.

Red: Ulrich Brunner, General Jacqueminot, Alfred Colomb, Capt. Hayward.

Dark Red: Prince Camille de Rohan, Baron de Bonstetten.

Yellow: Soleil d'Or, Gloire Lyonnaise, Persian Yellow.

Hybrid Teas: La France, Pink Killarney, White Killarney.

Pick Sunny Spots for Shrubs

A. E. Thatcher

All hardy shrubs, except those which are naturally more at home beneath the shade of trees, succeed best in an open sunny position where they receive the full benefit of light and air. This is particularly true of those grown for their floral beauty. It is important, therefore, to select if possible a position which, while being sheltered from rough and cold winds, is fully exposed to the beneficial influence of the sun. This enables the wood of the current season's growth to become thoroughly ripened and consequently much better able to pass through the winter without harm.

Having selected the position, it is of paramount importance that the ground be properly and thoroughly prepared, first by seeing that it is well drained, as very few shrubs will succeed in a waterlogged soil, and then by having it well broken up to a depth of at least two feet. If the soil is naturally very heavy it is a good plan to freely incorporate decayed leaf mould and sand, but if very light and dry in character nothing is better than a good heavy loam. Well decayed manure will prove of much benefit to the shrubs if it can be worked deeply into the ground, but not otherwise.

All hardy shrubs will succeed in a loamy or peaty soil, providing it is well drained and deeply worked. It may seem to some that it is unnecessary to prepare it so deeply. It is, however, highly important, even if the expense is somewhat larger, for the difference between shrubs planted in ground which has been properly prepared and those in poorly worked soil is remarkable, and no one will question the advisability after seeing its results.

Making Garden Walks

Arthur Waller, Cobourg, Ont.

This is the way my garden walks are made: Along the edges I place a row of stones about the size of a person's fist. Ashes are then spread and raked off level. Some fine ash dust is then sifted over the surface, sprinkled with water, and rolled. After a few rollings I have a good walk that is easily kept free from weeds. I keep the walks rolled after every rain.

Floral Reminders

Pergolas or summer-houses may be made not only beautiful but useful by growing the wild grape or Beta grape over them.

Use plenty of manure in the garden. Good cultivation and plenty of plant food is responsible for most of the "good luck."

Many flowering annuals, such as petunias and portulacas, may be sown in the open ground as soon as it is well warmed.

It is easier to put up the pea trellis before the peas come up.

There is still time to do some top-working and to set out some ornamental plants and shrubs about the house.

To get a succession of gladioli, make several plantings of the bulbs.

Do not prune spring-flowering shrubs until after they have flowered.

Gladioli and dahlias may be set out the latter part of the month.

Protect and shelter the birds as much as possible. A few windbreaks or thickets of brush give the birds a nesting-place, and they pay for it by catching many injurious insects.

Growing Dahlias in the Home Garden

By Henry Gibson

THE introduction of the Cactus type gave an impetus to dahlia culture that was undreamed of by even the most sanguine, and awakened an interest that is world-wide and of growing influence. This type is the most popular, and bids fair to remain so indefinitely. Hybridizers the world over are devoting much attention to it, and the results achieved are commensurate with the efforts put forth.

Among other types of dahlias we have the "Decorative," the "Quilled," the "Singles," and the latest, the paeony-flowered type.

The single type was the original dahlia, and it must be admitted that its development by hybridization has been sensational. The small star-shaped flowers have been replaced by the large round-petalled sorts of today, with rays overlapping, color intensified, and symmetry of form which demonstrates man's ideal has been indelibly stamped upon them.

Soil and Preparation.

Dahlias will succeed in any soil that will produce good corn or potatoes; but if one can make a choice it would be better to select one rather light, well-drained, and fairly rich. More flowers, and of a better quality, will be

produced in such a soil than on a heavy one with a clay bottom. In fact, the latter kind of soil is most unsuitable for the cultivation of dahlias. Should such a soil be all that is available, the subsoil will need to be broken up by trenching or double digging, and coarse sand or coal ashes added to the top soil to lighten it. Early in spring, or preferably in the fall, put on well-rotted barnyard manure, two or three inches deep, and dig or plough it to thoroughly incorporate it with the soil. Previous to planting, break up and smooth out the soil as much as possible—a very important cultural item for most crops.

Situation.

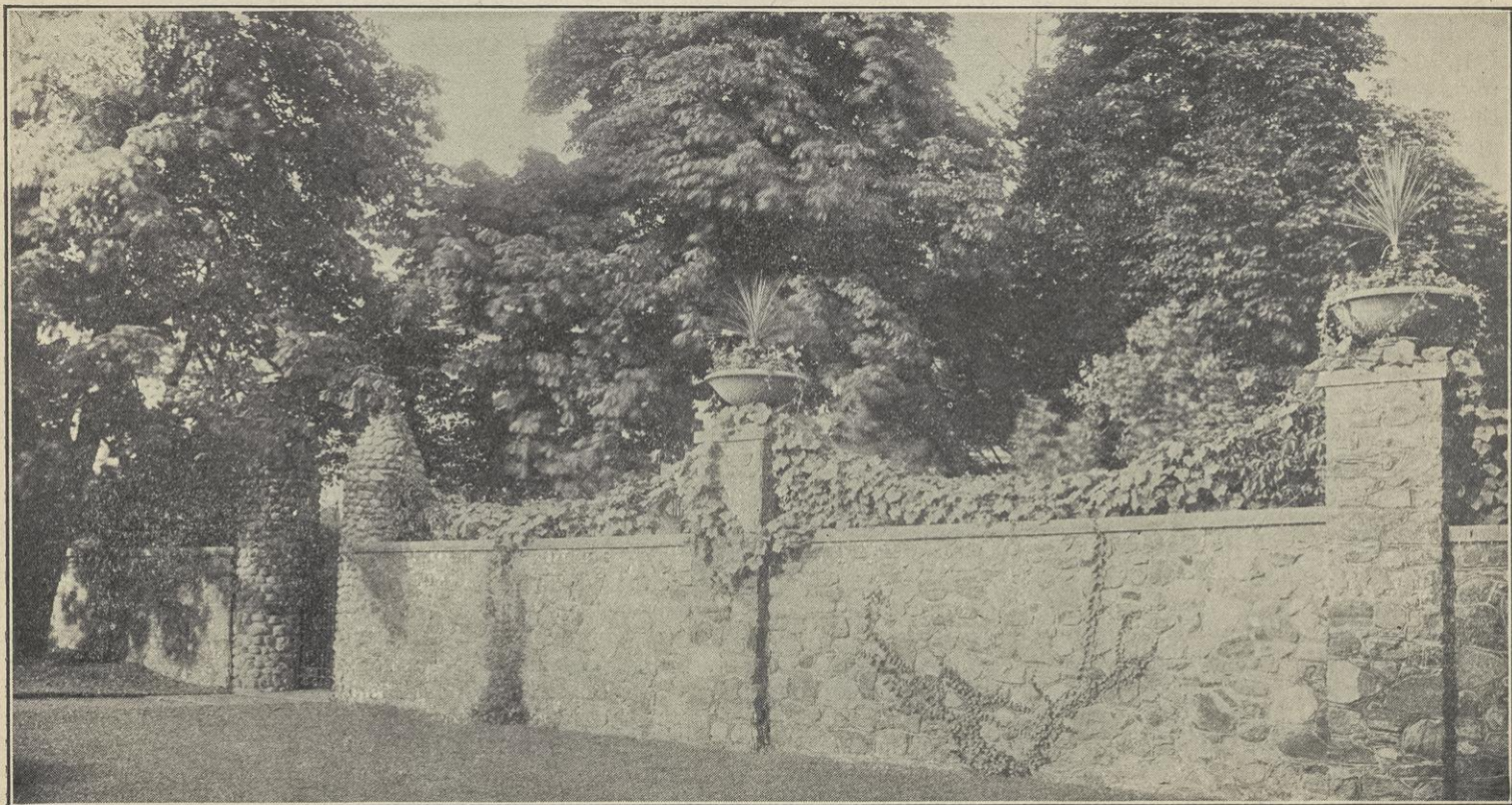
The situation is a matter of prime importance. Never plant dahlias in close proximity to large trees which would shade them and rob the soil of its fertility. Avoid the shade of buildings also. Dahlias will grow and give some blooms under such conditions, but the results from planting in the open ground away from shade are more satisfactory.

For general planting, and for those whose facilities for taking care of the green plants previous to planting out are limited, I would recommend field-

grown roots. Green plants (rooted cuttings), if kept growing right along without a check until planting time, give good results; yet it not infrequently happens in some way or other they are neglected, become pot-bound, and dry out two or three times. They then become hard and stunted. A stunted dahlia is absolutely useless, and to plant such is to invite failure and disappointment.

In selecting tubers, choose only those of medium size, plump and clean. Only one tuber is necessary; but if there is danger of cutting too near the "eye," the second one may be allowed to remain. The cut surface should be immediately dipped in a saucer of flowers of sulphur, and any that sticks allowed to remain, but do not rub it in. Any bruises or abrasions may also be sprinkled with sulphur.

Local conditions have a good deal to do in determining the exact time to set the plants out. In the warmer sections of the country, planting can be done much earlier than where late frosts are prevalent. As a general rule, early planting is advisable, but late frosts are to be guarded against, as dahlias are tender plants. The first of June is



This stone fence, surrounding the garden of Mr. A. Austin, is one of the most beautiful in Toronto. On the wall are Virginia Creeper, Boston Ivy, English Ivy and Wild Cucumber, which have draped themselves on the chains. The wall is about two years old and 1,000 feet long. The large vases are thirty-six inches in diameter. At the bottom of each vase is a receptacle for water from which a galvanized iron pipe runs up to the earth in the vase and helps to keep it moist.



Many of the Pentstemon flowers here shown were over one and a half inches in diameter. These flowers should have as dry a situation as possible, as they suffer more from wet than from cold. They are very beautiful, but tender. (Photo by Wm. Hunt, Guelph, Ont.)

soon enough to plant out in Canada, and it would be better to defer the planting of young green plants that have been carried along in the greenhouse a little later than this.

Planting Distance.

The minimum distance apart for all dahlias (save the Pompom varieties, which may be planted from two to two and a half feet apart) should be from three to four feet, and if space is available an even greater distance is desirable.

In planting it is always good practice to set the stakes that are to support the plants first. These should be stout and, if possible, square, inasmuch as a square stake takes a firmer hold of the ground and is not so likely to work loose, as does a round one.

For dormant tubers, dig a hole at the base of each stake about one foot square and eight or nine inches deep, taking care to have all the holes on the same side of the stakes the length of the row. This not only serves as a guide for digging the tubers in the fall, but saves damaging them while cultivating between the rows. When the holes are all dug out, put a double handful of pulverized sheep manure into each one and thoroughly mix it with the soil; then pour in a large pailful of water. When the ground has settled, all is in readiness for the actual planting. Plan to have the tubers five or six inches below the surface when the hole is levelled up. We find it a good plan to just barely cover the tubers and fill up the balance as growth proceeds.

A few days after planting, young shoots will appear, and with these begins the work of pruning and disbudding. A single stem to a plant is to be

preferred; branches not being allowed to form nearer than twelve to fifteen inches from the ground. Of the shoots that start, the best-placed and most promising one should be selected, and all others be rubbed off. Never hesitate to cut away side branches and superfluous growths from about the base of the plants. It may seem like losing a good deal of bloom to do so, but the result will be a better crop of first quality flowers if you sharpen your knife and harden your heart.

Disbudding is an essential feature of the growing of first-class blooms. The buds usually are formed in groups of three; the two side ones should be pinched out, and the central one allowed to remain. This should be done as soon as the buds are large enough to get hold of.

These two items are of first importance in the successful cultivation of dahlias, and are so closely allied to each other that we can well treat them under one heading. The main object to aim at once the plants have started to grow is to keep them growing. Never let them get a check, or they

will become stunted, and we have stated before in this article how utterly valueless is a stunted dahlia. Keep the surface of the soil from becoming baked by frequent stirring with the hand or wheel hoe, going from four or five inches into the ground. Stir round the plants carefully so as to avoid injuring them. As the plants commence to bloom, do not go so deep, but don't fail to keep the surface loose.

Frequent applications of fertilizers are necessary to promote free growth. Sheep manure used alternately with some of the other highly-concentrated fertilizers that are on the market is beneficial. Sprinkle a little "Bon Arbor" around the plants every ten days, and after a similar lapse of time apply a dressing of air-slaked lime and rake it in. Lime corrects any acidity of the soil and also releases the latent properties of the fertilizers that have been applied. Two weeks or so after this, a dressing of bone meal should be applied and pointed in with a spading fork, thus breaking up the surface-feeding roots, checking the rampant growth and causing the plants to set buds.

Basket Gardening

John Gall, Inglewood, Ont.

IN the limited space of a small garden, the owner should try and have as much color as possible. Over the front doorway, probably, arrangements can be made to suspend two or three baskets of growing flowers.

Although the handy man can make his own wire baskets, it scarcely pays, as these receptacles can be purchased for about twenty cents. Some people stand pots amongst moss inside their baskets, but the plants do not thus present a pretty appearance. The best plan is to obtain a piece of turf free from weeds and full of fine grasses. Line the basket with this material, so that the grass faces outward. The second method of lining a basket is with green (live) moss. Of course the sides are always lined as well as the bottom.

Whilst ordinary garden soil is likely to be a success, the ideal compost would be half and half of leaf soil, or peat fibre, and fibrous loam. To this might be added a trifle of well-rotted horse manure. The leafy substance in the leafy soil, the peat, and the manure, is retentive of moisture, and continual dampness is very desirable, seeing that the quantity of soil within the baskets is so small. Always buy pot plants. Loose roots must find difficulty in catching hold in the peculiar soil conditions. Always water with a can which is furnished with a fine rose, to avoid washing the compost out of the baskets. Twice a day is not too often

for watering during the hottest weather in a sunny position, since the drainage is unfortunately too perfect. Do not water around mid-day, rather make time before breakfast and of an evening.

With regard to suitable plants, the fuchsia, erect and trailing, is pre-eminently a basket flower. Foremost among its merits is that the blooms face the ground. Then its habit of growing is so neat. The culture is easy, and the season of flower continuous and lasting throughout the summer and early fall. Fuchsias alone would furnish your baskets, planting an upright variety in the centre of each, and two or more hanging ones around. Another beautiful sight is baskets of ivy geraniums. There might be a couple of small central plants. A shoot could be allotted to each supporting wire, several stems should be trained erectly to sticks, whilst two or more ivies ought to be planted for falling over the edges.

An uncommon and very showy arrangement for an entrance or porch is a basket of antirrhinums. The dwarf varieties could be used for the middle, and the somewhat modern, creeping antirrhinums for hanging down. Similarly can fibrous-looking begonias be planted. The blossoms of this class of the begonia incline to the ground. Plant a trailer or so around an erect-growing variety in the centre.

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× Spring Management

By M. W. Scott, Meyersburg, Ont.

HE who asks for suggestions concerning the "Spring Management" of bees necessarily gets a long answer to a short question, for practically speaking, spring management includes work in every month of the year, except June and July. The fact that there is no set rule for beekeepers to follow allows wide scope for experimenting, and while some may have excellent success along a certain line of procedure, others, for some unaccountable reason, invariably make a failure of the same method.

It is generally ceded that spring management should begin in September, but we believe that "prevention is better than cure," so go back a step farther and begin in August, thus preventing much that makes it necessary. In August each colony is examined to ascertain the quality of the Queen. If any old, or failing, are found, the colonies should be requeened. No colony should go into winter quarters queenless; the chances are that it will not be there in the spring to practice spring management on. I think if each colony were given a new queen every year it would be an excellent life insurance policy for the bees.

In the last week of September, or first of October, spring management crops up again. The colonies should be weighted to determine the amount of feeding necessary. This is most essential to successful springing, for a queenless colony and a starved colony are in the same boat so far as spring management is concerned, for in most cases before spring arrives they will have gone where the good bees go.

If bees are wintered in the cellar, we prefer moving them to the yard about dusk after a warm, sunny day. If they are restless, and you are not particular about putting on a little extra flesh, close the entrances with a wet cloth. After all are placed remove the cloth, and when the bees rush out they will crawl on the front of the hive, and go in again during the night, instead of flying wildly about as they would in the day time before marking their location, or own hive, and consequently be lost.

The next thing to guard against is the unfavorable weather conditions in the spring. While we are powerless

to cope with the weather man, we can protect the bees to a great extent from the ravages of the cold and wind. They should be kept in a sunny, sheltered spot. Spruce hedges make excellent wind breaks, while allowing a free circulation of air. We cannot grow a hedge in a night, so often have to resort to buildings, orchards, and side-hills for shelter. If the weather is cold, white felt paper may be nailed around the hive on back and sides, allowing it to go down over the stand. Heat always goes up, and another plan is to put a shallow super filled with shavings, sawdust, or leaves, with a piece of sacking nailed on the bottom to prevent it getting on the frames below, on the top of the hive, thus preventing the heat escaping. One plan serves to keep the cold out, and the other to keep the heat in, and a combination would be about perfect. When bees are wintered out doors this precaution is unnecessary, and they should be left in the winter packing until fruit bloom.

So much for Prevention,—now for the Cure.

Soon after the bees are put out the hive bodies should be lifted, and bottom boards cleaned. We can do in a few minutes what it would take the bees days to do, and they appreciate help.

Those which have evinced an unusual desire to eat everything within sight during the winter, and are short of stores, should be fed a sugar syrup, consisting of two pounds of sugar to one pound of water with one teaspoon of tartaric acid to every twenty pounds of syrup.

Entrances should be contracted to half an inch, and no big cracks allowed, to keep out robbers. If they insist on hanging around, wipe the crevices with a cloth saturated with kerosene, or paint with fresh paint.

Queenless colonies are requeened, or if weak, are united with another, and weak colonies are also united, or if you are anxious for increase, or wish to save a good queen, give them some baby bees from a strong colony by shaking them off the frames in front of the weak one. Any old bees will fly back home, and the young will go into



The Hill Crest Apiary of E. F. Robinson, Shawnigan Lake, B.C. This shows the bees ready for winter. The photograph was secured September 20, 1914.

the weak colony, giving it, as Mr. Byer says, "Just the stimulus it needs."

Helping weak, queenless, or starving colonies, in the spring,—they are the ones which require most of the spring management,—is a pleasure to us. What we dread is the annual visit of the beekeepers' new guest, "European Foul Brood." But as each year the repulse it meets with shortens its visit, we hope soon the length of its

visit will not be worth its travelling expenses. The spring management of Foul Brood is one of the "extras" and I prefer to leave it to someone who likes to talk about it more than I. As it is altogether probable, sooner or later, most of our beekeepers will have the pleasure (?) of entertaining this destructive, yet interesting enemy of the beekeeper, I would say,—"**Trim your lamps and be ready.**"

A Beekeeper's Experiments

Nathan Martin, Elmira, Ont.

Last August I introduced an Italian queen. In about a week she was out and laying. Brood was found until on in October, when about one-half of the colony seemed to be Italian. In September I tried to have some queens raised from her brood, but although these queens had flights, they apparently weren't mated, even although lots of drones were out. One was left to winter over, the other was replaced, and when I put out the last of my fifteen colonies, the one with the unfertile, drone-laying queen was gone. This colony was put out on the seventh, two days previous, and had about four frames of bees and a patch of drone brood in worker cells. I found the queen afterwards dead before a nearby colony, which the bees had left.

Several colonies came out rather weak and several queens were gone, but other colonies seemed fairly strong, having brood or eggs in one or two combs. I wintered all but one in the cellar, and varied the conditions somewhat to note the effects. One had a super in the cellar. It was very strong last fall, and since then the super has been on. This seemed to do well. There was small loss and the cover was glued down. The other hives in the cellar had wide entrances and a twine rack, or something light and porous, over the frames, as well as their cloth propolized cover.

I gave all the hives, except the one with the super on, top ventilation. I left a margin or space at the back where the cloth cover didn't go over. I did this to have the hive ventilated inside and to counteract the mustiness that hives acquire when in the cellar. It does not prevent mustiness and staleness altogether, but it helps. The cellar temperature varied from 38 to 42 degrees. One colony was very bad with dysentery. The bees left the hive very much, and it was restless all winter, so I put it out on March 22nd to see what was wrong. It was very weak and had hive and combs in a great mess. I found the combs had lots of pollen and little honey, and that was sugared. Many cells had honey on top but pollen underneath. This excess of pollen, with the little honey, had caused it, but I left the bees out and gave fresh combs.

I find it hard to keep the hives reasonably dry in the winter. The breathing of the bees causes wetness, and that in turn sours the combs in places. I think the bees winter fairly well in the cellar when they have a good porous covering over the frames and a ventilating space somewhere in the top to allow the foul air to escape. They want lots of good honey, too.

As all colonies seem to differ from

Will Requeening Prevent Swarming?

John A. McKinnon, St. Eugene, Ont.

AS I have two outyards, I am naturally interested in any plan that will prevent swarming. During past seasons I have tried a good many of the non-swarming plans, as described in the different bee journals, with various results. Young queens, of the current rearing, when introduced into a different colony from which they were raised, will not always prevent swarming. A colony that supersedes, if it does not cast a swarm at time of superseding, will show no inclination to swarm after the young queen has begun laying, even though the old queen remains for some time in the hive. As a rule, the young queen will take full charge of the brood nest, and the old queen will be found in the super if no excluder is used, or on one of the outside combs of the brood chamber.

In re-queening colonies at my home yard the following plan has given the best results: I kill or remove queens from the colonies I wish to re-queen, usually in the month of July, and drop the dead queen between the frames, so that the colony will realize that their old queen is dead. My hives are numbered, and a record is kept of the colonies re-queened. Two days later a ripe queen cell is given, or a young virgin, just hatched, is run in at the entrance. If accepted, she should be mated six or seven days later. Any queen cells that have been started will be torn down and the larvae in them removed. A colony will not show any inclination to swarm once the young queen is mated.

I always examine colonies ten days after killing the old queens. If I find capped queen cells I know that the cell I gave them has been destroyed, or the virgin killed after she emerged from the cell. I then destroy all the cells, going over the frames very carefully to make sure not to miss one, and a young laying queen is introduced, as I consider that ten days is long enough to leave a colony queenless.

I prefer to re-queen with ripe cells whenever possible, as I imagine that these queens give a little better results later, although I am not sure. At any rate, it is cheaper, because the

percentage of loss is no greater from ripe queen cells, or very young virgins, than where laying queens are introduced.

Much has been claimed for the Miller smoke plan of introduction. I advised using the plan myself before I knew better. I used this plan last season, and fifty per cent. of the queens were lost. This season I do not intend to use it except in case of an emergency to save time. With me the plan works about as follows: Within a day or two after a queen has been introduced by the smoke plan the bees begin to ill-treat her by balling her in a half-hearted way, pulling at her wings and legs. They start queen cells in the meantime, and supersede later.

I have had as good results as the smoke method by not using smoke, simply dropping the queen to be introduced among the bees on a frame of brood and watching the behavior of the bees towards the queen. If they showed any hostility the queen was caged at once and introduced by some other method. If the queen showed no fight, and the bees were kindly disposed towards her, the frame was inserted in the hive.

I have removed a queen from a colony and left the frame she was found on leaning against the hive until I got another from a nucleus close by, and in less than five minutes dropped the new queen among the bees and had them accepted. Of course, much depends on the race or temper of the strain of bees and the time of the season this work is done. I would not recommend this plan to beginners.

Candied Honey

I have on hand a quantity of clover honey in sections from 1913 that has become candied. What can I best do with it?—R. M. C.

About the only thing you can do with the granulated comb honey you have is to melt it up, and thus secure the honey and the wax. The honey will doubtless be injured some by the heating, but you will save the wax, and the honey will be good for cooking if not for table use. Some form of capping melter or solar wax extractor is best.



The spring count of this apiary of J. A. McKinnon, of St. Eugene, Ont., showed 235 strong colonies and 400 Q. R. nuclei.

others in certain ways, I generally treat them differently, therefore my methods are varied. I like to read about how other beekeepers do things, even when I don't want to adopt their plan. There usually is some hint in it.

My Italian queen came out all right this spring (had some brood in one comb), but if I want early queens they will have to come from the south I

think. Mine came from Medina last year.

I have no Langstroth hives, and don't intend to get them. My frames run crosswise, twelve to a hive, so that the capacity is about like a ten-frame Langstroth Hive, 20 x 14½ x 11⅞ inches outside.

Editorial Note.—It was perhaps the granulated honey which killed the colonies, and not the excess of pollen.

Spring Work in the Apiary

H. D. McCulloch, North Bruce, Ont.

THE object of spring management is to get all our colonies up to full strength by the beginning of the honey harvest, which in Ontario falls about the middle of June. It is not enough, mark you, to get half or three-quarters, or most of our colonies up to full strength by that time but we must aim to have them all in that condition. Some beekeepers count only on part of their colonies for surplus, expecting of the rest only that they become well built up or possibly that they will swarm toward the close of the flow. That kind of planning is what drags down the average production of our colonies. Further, it is not satisfactory to get our bees up to full strength two weeks or even a few days after the opening of the main honey flow. The duration of the flow rarely exceeds six weeks and it may be considerably shorter. When the harvest is so short two weeks or even a few days lost, makes a big hole in it. Yet often a week or two is lost for want of proper spring management.

Try to give employment to very strong colonies even before the honey flow. Endeavor to keep them booming. Avoid bringing your bees to swarming strength before the flow only to find with vain regrets that they swarm anyway as soon after the flow

comes as they get strong enough. I do not counsel early swarming, but wish to persuade beginners not to allow the fear of swarming to prevent them from getting all the bees they can into their yard by the clover season. Do not be afraid of over-encouraging even the best colony but give to each and all the very best care possible in the way of stimulative feeding as well as in other ways. Next study some of the good plans that appear from time to time for controlling and using the strong force of bees than results from your care.

Most of your colonies may look quite safe from the swarming fever. You may even be discouraged because they look so unlike harvesters of bumper crops, and our springs are so subject to cold winds even if the weather does happen to be fairly bright. But do not yield to discouragement. Just wait and work. If you work the waiting will be easy, and the experience of many successful beemen teaches that with the best of care bees can be brought to good condition with our springs even as they are. Remember, however, that there is no time to spare because settled weather and rapid brood-rearing seldom come before May 1st, which leaves just about six more weeks in which to get ready.

Do not be in a rush about early

brood-rearing. Instead, try to conserve the old bees in vigor and then when brood-rearing starts in earnest from natural causes, chief of those I have in mind being pollen-gathering; see that it goes in fast and without a check, if possible, right up to the time of clover honey. Here are a few things you may do to save your old bees: Shade the entrance by leaning over it a small bit of board, say six inches by 4 inches, so that the direct rays of the sun may not tempt them to fly on days that are too cold. When it is warm and the bees are flying freely you can save them trouble by removing these shade boards; and if they are not quite small it is almost imperative to move them.

See that the floor boards are free from filthy accumulations of dead bees, mould and other rubbish, the presence of which must tend to discourage a colony and especially since a colony having such an accumulation is apt to be a weak one and unable to clear such a floor speedily.

TIMELY REMINDERS.

Use every precaution and watchfulness to prevent robbing. Do not under any circumstances leave combs of honey out for the bees to clean up. Any honey you have is likely to contain germs which would scatter disease in your healthy colonies. On account of the prevalence of disease in unexpected places it is never wise to feed honey to bees, and where disease is known to exist it is the worst of folly.

Beekeepers who within recent years have had foul brood in their apiaries should be particularly careful to prevent robbing during the warm days of spring. All hives where bees have died must be taken indoors away from all possible robbing. It is not enough to close them, because robbers will often gain an entrance when least expected. All entrances of live colonies should be made quite small, especially where the bees are weak in numbers.

Every beekeeper should understand fully the symptoms and cure of Foul Brood, then he can be his own doctor.

In May, steps must be taken to discourage swarming in populous colonies by first, allowing at least ten Langstroth frames for brood rearing, two, providing ample space to cluster and store honey in supers, and three, giving abundant ventilation by enlarging the entrance.

QUESTION BOX

Is it advisable to give combs with eggs and larvae to a hive with an infertile queen?

The bees will probably raise cells and an afterswarm will come out. The young queen may be lost.

Would you advise a beginner to always start with full colonies?

Yes.

Experiments in Beekeeping

THE following is a continuation of the report on different experiments in beekeeping, presented at the last annual meeting of the Ontario Experimental Union by Mr. Morley Pettit, of the Guelph Agricultural College. The first part of this report was published in the February issue:

A method of spring feeding to stimulate brood rearing, and also a method of packing bees when taking them from the cellar.—These two experiments were combined and the same instructions sent to applicants for either. The instructions are embodied in a twelve page booklet, which first tells how to take bees out of the cellar, then how to feed those that need special feeding for stores. It afterwards gives a simple method of providing protection to colonies which have been removed from the cellar early in the spring. A method of stimulative feeding is then described, and three or four different kinds of feeders which may be used for this purpose.

There were fifty-four applications for this experiment and six reports were received. These reported 243 colonies spring count and 269 colonies fall count with a total honey crop of 5,325 lbs., being an average of 32 lbs. per colony. Results show that colonies fed stimulative and given spring protection gave a slight increase in the honey crop for the season, but owing to the fact that the spring was particularly good for colonies building up under any conditions, and the summer was particularly bad for storing a honey crop, too much importance cannot be attached to the results obtained in such an unfavorable season.

Fred Smith of Craigvale, reports that he is satisfied that feeding is effective in preparing bees for an early honey flow, while F. G. Miller of Hawkesbury, states that the weather was fine all spring and lots of nectar came along so did not need stimulative feeding. He is satisfied however that spring protection pays well for his bees did better than his neighbor's across the road. Mr. Reynnders is convinced that there is not much need of spring feeding as he saw no perceptible difference between good colonies fed or not fed.

It may be stated here that the advantage of spring protection of cellar wintered bees is probably settled without a doubt, but the advantage of spring stimulative feeding is still very much in question. We find equally successful beekeepers ranged on both sides. In apiaries troubled with European Foul Brood, however, it is generally conceded that after the introduction of Italian queens, the next most important thing is to see that there is a continuous supply of feed from day to day whether from natural sources or given artificially.

The Smoke Method—Experiment No. 7.

Introducing a queen to a full colony, by whatever method, is one of the important and difficult operations of the apiary. The usual plan recommended by those who sell queens is a good one, but is not always successful. The following plan, reported in "Gleanings in Bee Culture," in June, 1913, by Arthur C. Miller, of Providence, R.I., has proven successful in the hands of those who have tried it.

The system is as follows: A colony to receive a queen has the entrance reduced to about a square inch with whatever is convenient, as grass, weeds, rags, or wood, and then about three puffs of thick, white smoke is blown in and the entrance closed. It should be explained that there is seven-

eighths of an inch space below the frames, so that the smoke blown in at the entrance readily spreads and penetrates to all parts of the hive. In from fifteen to twenty seconds that colony will be roaring. The small space at the entrance is now opened; the queen is run in, followed by a gentle puff of smoke, and the space again closed and left closed for about ten minutes, when it is reopened and the bees are allowed to ventilate and to quiet down. The full entrance is not given for an hour or more, or even until the next day.

To colonies long queenless—particularly if suspected of having a virgin queen—it has been found advantageous to give a comb with eggs and young larvae just before running in the queen. The theory of the cause of the success of this method is this: Bees in distress, whether workers, drones, or queen, know no enemy or alien, and every one is turning to some other for "help" or food, and every bee which comes within the influence of the uproar of a distressed colony seems to be seized with the same emotion. The closing of the entrance after the queen is in is to ensure the distressed condition throughout the entire colony, and keeping it closed for ten or fifteen minutes is to prevent too speedy relief. The inexperienced and the thoughtless need to be cautious as to two things, namely, closing in a full colony without giving the bees room to spread into and get off from the brood, and closing in a full colony sitting in the sun in the middle of a sweltering day.

There were 112 applications for this experiment, and thirty reports were received. Eighteen of these were successful and twelve were unsuccessful. The cause of failure was usually the failure to follow directions closely, the worst trouble being that so many experimenters cannot have patience to leave the hive alone for four or five days after introducing the queen. This is one of the most important points in using any method of queen introduction. Some report looking in the next day or the day after and seeing the queen balled right before their eyes. This was caused, of course, by opening the hive too soon after introducing the queen.

I cannot do better now than quote from some of the letters received with reference to this experiment:

"I have found it exceptionally satisfactory. Have introduced this season by the smoke method about fifteen queens. Only once did the bees kill the queen, but I blame my own actions rather than the method for this."—J. A. Caldwell, Smithville, Ont.

"I have only tried the smoke method of introducing queens with three so far. I lost one out of the three. The one I lost was in a single story, while the other two had one super on each. I have been using the fasting method and have been very successful, having lost only one queen in about one hundred during the last two years. I think the smoke method should be very valuable, as it is quickly done, if it can be made a success."—Horace Haines, Rt. 2, Welland, Ont.

Mr. C. Lawton, of Cookstown, who is farm manager for the Hon. J. S. Duff, Minister of Agriculture, gives the following detailed report: "May 29.—Cool weather. One queen to a two-frame nucleus taken same day from parent hive; accepted. June 7.—To a nucleus made May 28, cut out cell at time of introducing; accepted. Very hot. White clover coming nicely, but no nectar. June 10.—One safely introduced to a nucleus made May 31. Left queen cell, which was destroyed; no honey coming in. June 14.—One safely introduced to a hive which had been a five-pound package from Florida and

had killed its queen; also one introduced by cage method. This queen was laying June 17. Weather showery; no nectar coming in, but feeding syrup. June 10.—Five safely introduced to nuclei made June 7. All laying in three days. One introduced to a hive with a last year's queen, which was killed by the new queen. June 17.—Tried six, but only one was accepted. Day was cool and showery, and I was in a hurry, as I had to leave home. Returned five hours later and found robbing going on."

Mr. Lawton's experience proves that the method is successful under quite a variety of conditions; also he was successful in one case in requeening without dequeening by this method.

R. H. Bedell, Rt. 5, Belleville, Ontario, reports as follows: "I have had success so far with six queens. The first three were introduced to four and five-frame nuclei. The weather was fair and cool. It was about 2 or 3 p.m., and there was very little honey being gathered. The colonies were hybrids—black and Italian crossed. About one-half or three-quarters of an hour before introducing the queens I had shaken the bees in front of the hive and allowed them to run in through a queen excluder so as to catch the queen and drones. There was no division board in the hive and only three-eighths of an inch space below the frames. On account of the large vacant space in the hives I gave them four puffs of smoke instead of three. The queens which I introduced were accepted. The remaining three were introduced in fair-sized colonies, which had been queenless about five days. The colonies had one super each, and sheets of foundation were scattered through each hive and there were no queen excluders. The queens were young, and had been laying four or five days in nuclei. The space below the frames was only three-eighths of an inch, but I took pains in aiming the smoker at each side of the hive and then at the centre. There was a very slow flow of honey coming in."

Another experimenter reports: "I tried the smoke method on one queen and lost her. I thought I had the smoker going about right, but later a picture in Gleanings showed that the smoker was not going nearly well enough. This shows the importance of attention to little details in applying the method." Another man writes: "I have introduced about twenty-eight queens this season—five by the smoke method and the rest by the fasting method. The five were all lost but two, and the others were all safely introduced by the fasting method."

By the fasting method referred to the queen is placed in a cage without attendants and without food for about thirty minutes. She is then allowed to enter the hive which has been previously dequeened, and is accepted because she is so hungry that she shows neither fight nor fear.

Manitoba Notes.

S. A. Bedford, Dept. of Agriculture, Winnipeg

The Manitoba Department of Agriculture has engaged permanently Mr. R. M. Muckle as Foul Brood Inspector and General Apiarist for the Province. Mr. Muckle's duties commenced April 15th.

The Colonies on the Provincial Demonstration Farms at Warren and Harding have wintered without any loss. There has been no loss at Baldur Demonstration Farm, but the bees are not as strong as we would wish; this is largely attributable, I think, to the condition of the cellar, which was a new one, and rather damp. Vegetation is remarkably early this year. Colonies were set out about the middle of the month in all parts of the Province.

Winter Losses

In a letter to "The Beekeeper," received about the first of April, Mr. Morley Pettit, of Guelph, wrote as follows: It is too early to give any definite report on how bees have wintered in Ontario, but letters are beginning to come in and heavy loss is expected in all apiaries which were not carefully fed last fall. This is only what is to be expected, as the failure of the honey crop in 1914 left the hives weak in stores and the failure to rear young brood properly the latter part of the season made most of the clusters small for going into winter quarters. To make matters worse the outbreak of the European war caused a sharp rise in the price of sugar, just before feeding time, and those who had not purchased sugar early experienced difficulty in getting a supply at any price. Although the Dominion Government rendered considerable assistance by corresponding with sugar refiners and urging them to make sure that beekeepers got their required supply, many beekeepers who were not specialists decided that they would let the bees take their chances as they had not given any profit during the season.

The few reports which have been received indicate that clover may not be in the best of condition. They also indicate a continued live interest in beekeeping as renewals of memberships to the Beekeepers' Association are coming in freely. Numerous requests are being received for information as to where bees can be purchased.

Apiary Demonstrations, 1915

Fifty-five demonstrations were held in the apiaries of beekeepers throughout Ontario last year. These were conducted along similar lines to those of previous years. In 1912 the average attendance was 25, and in 1914 this had increased to 34. That many beekeepers find it both interesting and profitable to attend these field meetings season after season is evident from comments gleaned from letters written to the Department of Apiculture. The gatherings are held in the apiaries of well-known beekeepers, and with the apiary and the beekeeping equipment at his disposal the demonstrator can illustrate his remarks and make many valuable suggestions that would otherwise be unmentioned.

Foul brood, both American and European, have always formed an important number on the programme. Wintering, spring management, swarm control, extracting and requeening, have also been discussed. To the beginner the opening of the hive, finding the queen, explaining the bee space, the different stages of the brood and the different kinds of cells is very interesting.

Already arrangements are being made for apiary demonstrations for the coming season. The demonstrator will be supplied with a set of models, including the 4-hive wintering case. About two in every county will be held during the month of June or early in July. Notices will be sent to the date and place of meeting. The efforts of the Provincial Apiarist, Mr. Morley Pettit, to make these meetings a success, are bound to meet with greater interest and increased attendance.—G. F. K.

Peterboro' Convention.—An address by Prof. Morley Pettit, Provincial Apiarist, that was illustrated by lantern slides, was given on April 24th at the annual meeting of the Peterboro' County Beekeepers' Association. The president, Mr. Anderson, presided. Mr. papers and to the beekeepers, giving the Pettit always imparts much valuable infor-

mation, and makes a most favorable impression whenever he speaks in the county, and this occasion was no exception. Last year's officers were re-elected, including Mr. Anderson as President, and Mr. McRae, of Norwood, as secretary.

Nova Scotia Beekeepers Organize

C. Hogan, Cornwallis, N. S.

MR. SLADEN, of Ottawa, Dominion Apiculturist, last summer, while on a tour of the Maritime Provinces, discovered that American foul brood was widespread there. As a number of apiaries in the Annapolis Valley were found to be affected, a campaign was commenced in order to awaken interest and educate beekeepers to the necessity of taking steps for its control. A meeting was held on April 20 last, in the Court House, Kentville, to discuss the situation and bring before the Government the necessity of affording assistance by the passing of a foul brood act and the appointment of inspectors.

Prof. Brittain, of Truro, promised the assistance of his department, and hoped that it would be possible before long to fall into line with the other provinces in this respect. Prof. Saxby Blair, of Kentville, who occupied the chair, also gave encouragement, and pointed out the value of the industry to the orchardists of this valley. A paper was given by Mr. C. Hogan on "Foul Brood: Its Symptoms and Control," who also showed samples of infected comb. In the discussion that followed, Mr. Duncanson, of Gaspereau, related that he discovered the existence of the disease in his apiary five years ago, and gave treatment, and by careful inspection had been able to keep his hives clear of the trouble since.

It was decided to form a local branch of the Maritime Beekeepers' Association, to be called the Annapolis Valley Branch. The following officers were elected: Prof. Saxby Blair, honorary president; C. R. Pines, president; E. Duncanson, vice-president; C. Hogan, secretary-treasurer. A number of those present joined. It is hoped to have further meetings and to carry on a campaign of education during the summer.

As over seventy-five per cent. of the orchards of Kings County are sprayed, and with foul brood to contend with, the beekeepers here are placed, as it were, between the devil and the deep sea. However, if it eventually means the elimination of the careless beekeeper and the adoption of up-to-date methods, the trouble may prove a blessing in disguise. It had been thought that Nova Scotia was one of those favored spots where the bees were free from disease, but that something was wrong had been the general opinion for some time. Now that a clear cause for the trouble has been shown, the fight will hereafter be in the open.

Carleton County Association.—The directors of the Carleton County Beekeepers' Association met at the Experimental Farm Ottawa, lately, and it turned out fine. The directors are all in favor of pushing the bee business ahead, and they are all going to try to do something in their own township this year. We intend to hold one demonstration at the apiary of H. D. McDiarmid, Dalmeny, and hold a field day at the Central Experimental Farm in connection with the annual farmers' excursion to that place.

We have enjoyed reading the Beekeeper very much, especially since it was combined with The Horticulturist.—Mrs. Geo. Clark, Halloway, Ont.

Prospects for 1915

John A. McKinnon, St. Eugene, Ont.

PROSPPECTS are very bright for clover in Prescott County. It did not winter-kill any, and I never saw it more abundant. Unless we have some very severe and untimely frosts, those of us who have saved our bees are going to reap the benefit or I'm a poor prophet. Another thing, there are very few small beekeepers left on account of the rather poor season last year and the high price of sugar.

There has been a very heavy loss due to starvation. One man who wintered about twenty colonies has three left, two of which will die if we have a few days of bad weather. Another lost five out of nine, and that would be about the general average. Mine are in first-class shape—in fact, I never saw them stronger so early in the season. Young bees are showing up already in great numbers. However, I have had to feed already, not to stimulate, but to prevent starvation. Sugar now is high-priced. I fed 4,000 pounds last fall, but my bees at the home yard seem to eat more than the average. One colony starved outright in the cellar, after consuming at least 40 pounds of feed last October. I gave this colony six full combs of honey and 20 pounds of sugar syrup, and took it out dead this spring. I have too many bees to winter properly in my cellar. I am going to try to winter part of them outdoors. My biggest trouble is to keep the cellar cool enough. With half the number I believe they would winter on half the amount of stores per colony. I know there is a big difference in cellars. At one of my outyards the dead bees on the floor would not make a cupful per colony, and it would do you good to see the army of workers going in and out of the entrances at this yard. If supers were not given early I believe there would be swarms galore in fruit bloom. Drones are flying at the home-yard.

There should be a good demand for honey this year, as last year's crop must be pretty well sold out by now, and the last poor season and E. F. B. must have lessened the numbers of colonies in the province. But, for my choice, there is nothing to take the place of beekeeping. There is that uncertainty about it that makes a fellow try to win out, and then a fellow never knows what he is going to have until he has it and, then again, it leaves a fellow free to hunt in the winter; and, best of all, he is his own boss, which means a good deal to a chap who is naturally inclined to be lazy.

"I have put my bees out, and will run about twenty per cent. loss this year, the most I have had for a good many years. The honey granulated in the combs and the bees starved to death. The remaining ones are doing fine. It is a great spring for them. They are busy carrying pollen and building up fast. There is going to be quite a loss, I think, among the bees this spring, as far as I have found out already, but it is a little early yet."—Alf. Denison, Edwards, Ont.

"Now," said the farmer to the new hand from the city. "I want you to clean up the pig-sty, and the stable and the henhouse, and all the other houses of the stock."

The new hand worked vigorously for a couple of days. Then he appeared before his employer with both eyes nearly closed, his mouth swollen and lumps all over his face and neck and hands.

"Gimme my money," he said; "I'm a-goin' to quit."

"What's the matter?" asked the farmer.

"I don't know what's the matter," said the victim, "but it happened when I started to clean the beehive."

Concerning Future Production of Apples

A MEMORANDUM has been prepared for the British Columbia Fruit Growers' Association touching on some of the essential conditions affecting the success of Canada's apple industry. The points covered include: First, the production of apples in the United States; second, the possibilities of Western Canada as a market for apples; third, the influence of United States apples in Canadian markets; fourth, Canada's orchard industry; and, fifth, British Columbia's apple industry. The bulletin was prepared with the object of showing the need for greater protection for Canadian apples. As the points touched upon are of almost as great interest to apple growers in the other fruit-growing provinces of Canada as they are to those of British Columbia, the following extracts from the memorandum are here given:

Production in the United States.

In the period 1900 to 1910 the average commercial production of apples in the United States was about 35,000,000 barrels, which, in relation to the demand, usually ensured fair prices to producers. The industry naturally began to expand, and by 1912 it was evident that production had overtaken demand. In 1914, the total production, according to the United States Department of Agriculture, equalled 86,300,000 barrels, of which about 45,000,000 went into commercial channels and much of the balance went to waste. Prices declined to a low level in 1912, and to a point disastrous to the grower in 1914.

In conjunction with the general increase in the United States production and decline in prices there must be noted the phenomenal development of apple-orcharding in the four north-western states—Washington, Oregon, Montana, and Idaho—which sections are special competitors of British Columbia. The north-western states were almost negligible in apple production even as late as ten years ago. Tremendous areas had been and were being planted, however, estimated by the state departments at about 550,000 acres of apples; and though only a small portion of this is yet in bearing, the commercial production of 1914 was about 14,000 carloads. The most conservative estimates of those intimate with the facts placed the estimated production at the present rate of increase in these States in 1920 at 40,000 to 50,000 carloads.

The United States, generally, is evidently reaching a period of very heavy production of apples, and in the north-western states there will be a heavy overproduction in relation to normal markets for these apples in the United States.

While prices were low in 1912, they were disastrously so in 1914. In the past season the north-western states consigned to western Canada hundreds of carloads, either without any guarantee as to minimum price, or with a guarantee of 30 cents a box on the cars at shipping point. Quite aside from all the costs of growing the apples, the 30 cents does not equal the packing and shipping costs.

Western Canada as a Market for Apples.

It is in the four western provinces that the British Columbia apple crop must be largely marketed. In 1913 the American shipments into this district aggregated nearly 2,000 carloads, and in 1914, despite tremendous crops in Ontario and British Columbia, they still equalled 556 carloads; the total consumption of the four western provinces was about 3,475 carloads in 1914.

The proportion of fruit from the different sources of supply does not even suggest the effect which the American supply has had, and will continue ever-increasingly to

have, unless the evil be remedied on the price.

It is true that, as to quantity, we have more than held our own. At a disastrous sacrifice of value our apples have been sold and put into consumption. The American fruit, however, sets the price, and that with the "C" grade article, which must be kept off the United States markets for higher grades, and which is surplus stock. The American fruit-grower is prepared to let that surplus stock go outside his own best markets at any price calculated to equal his out-of-pocket charges. These apples are consigned or dumped to get something back; preferably they are dumped on Canadian markets. There is a sufficient surplus to fill the whole of our market.

Under present conditions the figure at which the American will let this stuff go sets the price. This figure is never fixed, dropping lower and lower as the American stock in hand gets more congested and as the American loses confidence in his ability to move it. In these conditions and against these figures we have to market our entire crop. Our growers have done so, compelled to meet the slaughter-price quotations, and unable in time to make fixed contracts as to prices, an intolerable market condition. Having disastrous American prices for dumped fruit quoted against us daily, it has taken all our energies to distribute our stuff and get it into the market in preference to American. Had we attempted to secure reasonable prices, there is an ever-ready supply of American apples loaded on the cars to go on our markets.

Canada's Orchard Industry.

Notwithstanding the considerable imports of American apples, Canada has within her own borders an ample production of apples to meet all demands. According to the census of 1911, there were in Canada 14,830,492 apple trees, of which about 60 per cent. only were in bearing. The average production is about 5,000,000 barrels per year, equal to 15,000,000 boxes. Canada exports about 1,250,000 barrels per year. The capital invested in the orchard industry of the Dominion in 1910 was estimated by W. W. Moore, Chief of the Markets Division, Department of Agriculture, Ottawa, at \$127,000,000.

British Columbia's Orchard Industry.

Encouraged by both the Governments and by the favorable market conditions prevailing up to 1910, there was a general development of the orchard industry in British Columbia, increasing, according to the census, from 8,100 acres in 1900 to 33,606 acres in 1910; and in 1913, according to the Provincial orchard survey, to 38,200 acres, an increase in thirteen years of 372 per cent.; 73.6 per cent. of the trees are apples, and in 1910 the percentage of those of bearing age was only 28.3 per cent. The value of British Columbia fruits in 1900 was \$436,000, and in 1910, also according to the census, was \$1,000,335.

The Provincial Statistician in his report values the British Columbia fruit crop, 1913, at \$1,022,216; the crop increased about 25 per cent. in 1914, but its total value was only \$996,071.

The Department of Agriculture has estimated that the capital directly invested in our orchard industry amounts to over \$20,000,000, while there are directly interested some 2,500 to 2,800 orchard-owners. The British Columbia apple crop is steadily increasing in quantity: 1912 being 430,000 boxes; 1913, 477,000 boxes; and 1914, 685,000 boxes.

The statements of orchard areas and production show amply that all of Canada's

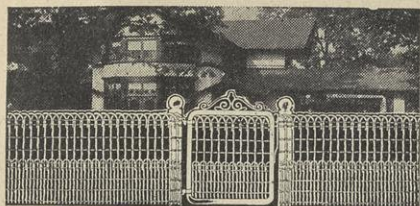
apple consumption can readily be supplied from within our own borders. British Columbia has always looked to finding an ample market in Western Canada for the product of our rapidly growing orchards. The destructive and eminently unfair American competition is the only essential reason why we should not get the market. It is true that we can market our apples by accepting low prices. But this means ruin to our growers, and the destruction of our orchard industry would be a serious thing for our province. The orchard industry is a fundamental one, and it is of the greatest consequence to our mercantile life that it succeed.

If the failure of the fruit industry would be bad for British Columbia, it would be equally bad for the prairie provinces. British Columbia buys annually from the prairies about \$12,000,000 of grain, flour, meat, hay, and other agricultural products. This is a valuable asset for the prairies, especially Alberta. Interprovincial trade—trade within Canada—we all desire to foster. Its advantages are great, and the question, in this aspect, is a national one.

In another way, the consumers of the prairies and of British Columbia are vitally interested in the success of our industry. The wholesale fruit trade is highly organized, and dominated by a powerful, almost monopolistic, organization, known as the Nash houses or the American ring. The supply of imported fruit in our markets and its price rests with the wholesalers. The records of the Department of Agriculture show that, as long as there is no British Columbia fruit of any certain kind on the market, these houses hold down the importations and hold up the prices. British Columbia fruit brings down these prices at once, and the quantity increases. Were there no British Columbia fruit, the jobbers would join together to control entirely the supply of imported fruit, and increase the rate of their profits. The consumer would be handicapped permanently in his efforts to get a liberal supply of fruit at a moderate price.

The demand is for increased protection. This increase must be to the point of sufficiency—adequacy. The present duty is 40 cents per barrel and 13 1-3 cents per box. These figures were originally fixed by the rough-and-ready method of considering the quantity of the contents of the package—roughly, a barrel contains three times as much fruit as a box—without taking into consideration the quality and greater relative cost of production (as to packing and package) of the boxed article. That the increase in the duty be adequate is essential. Ontario is responsible for the suggestion that the figures should be \$1 per barrel and 33 1-3 cents per box. If \$1 be taken as the proper figure for the barrel, it should be 40 to 50 cents on the box. Meantime, to avoid possible contention, British Columbia would concede that 35 cents per box would be adequate.

"The Disease Resistance of Potatoes," is the title of Bulletin No. 179 of the Vermont Agricultural Experiment Station, Burlington, Vt., The Virginia Polytechnic Institute, Blacksburg, Va., in Bulletin 208, describes the "Preparation of Nicotine Extracts on the farm." The Connecticut Experiment Station, New Haven, Conn., describes "Spray Treatment for Orchards" in Bulletin 184, and "Tests of Soy Beans" in Bulletin 185. The University of Florida, Gainesville, Fla., in Bulletin 125 deals with "Tomato Insects," "Root-Knot," and "White Mould." The Iowa College of Agriculture, Ames, Iowa, in Bulletin 153, gives the results of "An Apple Orchard Survey of South Mills."



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ORNAMENTAL fencing serves a double purpose. It not only enhances the beauty of your premises, but also protects it and your children and property—as well. It keeps out marauding animals and trespassers. It protects your lawns and flowers and always gives your home grounds that orderly, pleasing appearance.

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Winnipeg, Man. Hamilton, Ont.

Marketing the Peach Crop.

C. W. Baxter, Chief Fruit Inspector for Eastern Ontario and Quebec.

OWING to the increased planting of peach trees in Ontario during the past few years, many of which will come into bearing this season, and owing to the anticipated large yield from the older trees, it is expected that the 1915 peach crop will be large.

The killing of the peach buds during the winter of 1913-14 was followed by an excellent growing season. The result was that the trees went into last winter under ideal conditions and with a large increase in the number of fruit spurs. Reports received up to date show that the trees have wintered well. There has been no killing of the buds by frost, and should nothing of a serious nature occur it is reasonable to predict a peach crop which will be the largest in the history of Canada.

The peach growers of Ontario experienced difficulties in marketing the large crop of 1913, and many marketed their fruit at a loss. It is necessary, on account of the very perishable nature of peaches, that the crop be moved quickly, and it is obvious that some provision should be made to obtain a wider and more systematic distribution if the difficulties experienced in 1913 are to be avoided in 1915.

With this object in view, the writer was

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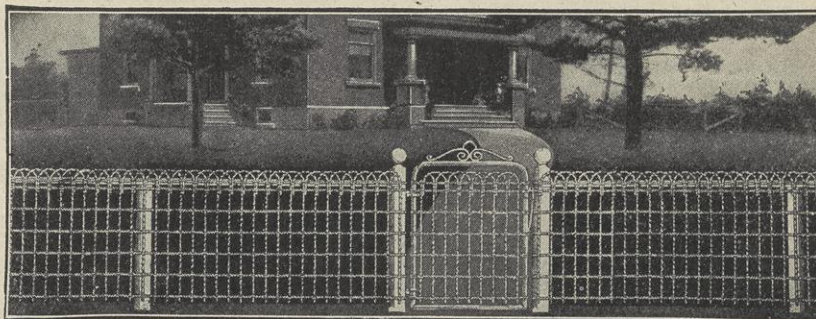
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Write to-day and secure this splendid collection of Gladiolus bulbs for only \$1.00, pre-paid to your home, anywhere in Canada, with our 1915 Spring Catalogue.

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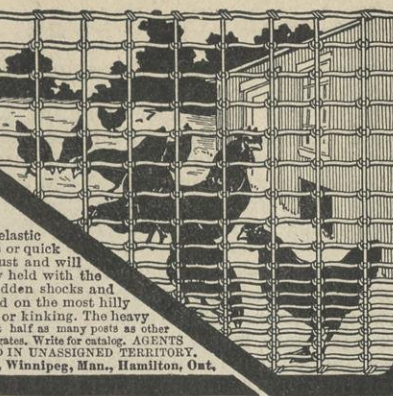
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applies to our Poultry Fencing just right. It keeps your chickens at home—and their enemies out. Each intersection securely locked—the kind that stays "put."

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Baldwin, Tolman Sweet, Blenheim Orange, Stark, Wolf River, King, Pewaukee, etc., while they last, at \$10.00 per hundred, \$6.00 per fifty, \$3.50 per twenty-five.

Also some dandy Kieffer Pears at \$15. These are all first-class trees in every way—2 and 3 years.

And a fine block of Silver Maples at right prices. Seed potatoes, "Early Six Weeks," and others.

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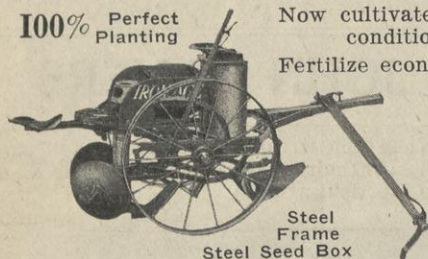
FIRST, get good seed.

Next, a good seed bed, as good as you can make it.

Then, make every seed piece count, one in every space and one only.

You save seed, at least a bushel per acre.

100% Perfect Planting



Now cultivate often and just the right way to suit your conditions.

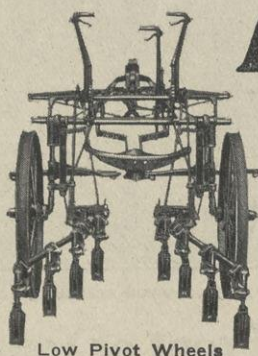
Fertilize economically, in the row where it does the most good.

Spray often with the right materials and a good machine—one with plenty of pressure or it won't do any good.

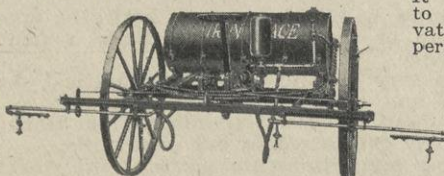
Dig by machine fast and safely, when the crop is right and the market ready.

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are made with just these points in view—made by people who grow potatoes for profit—made with variety in style and equipment to meet conditions in all potato growing sections. Don't buy without studying planter, cultivator, sprayer and digger—the selection may decide profit or no profit.

It costs no more to fertilize, cultivate and spray a perfect stand—so it is naturally every man's ambition to plant that way, and it pays big in yield and better growth.

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For heaviest conditions.

100 Per Cent. Planters place one seed piece in every space and one only, save at least one bushel of seed to every acre, spread the fertilizer so it won't injure the seed, and carry no infectious disease. Sold with or without fertilizer distributors in two sizes. Plants 8 to 24 inches apart in the row.

Riding and Walking Cultivators are exactly adjustable to proper working of the potato crop at all stages, have high or low pivot or fixed wheels, with dust proof grease cup hubs, parallel motion of teeth when you shift, etc.

Four or Six Row Sprayers, 55 or 100 gallon cypress tanks, double acting pumps, hemp packing, bronze ball valves, easy to get at, no corrosion. For one or two horses. Takes practical orchard attachment.

Diggers, four styles to suit your conditions. Plenty of power and elevator room. Close adjustment of plow to get the potatoes, but not too much ground, and perfect separation of ground, crop and vines.

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instructed by Mr. D. Johnson, Dominion Fruit Commissioner, to visit the peach growing sections in the state of Georgia, to enquire into the methods employed in marketing Georgia peaches, and to secure any other information which might be applicable and of value to fruit growers in Canada.

Although much has been accomplished by co-operative associations, and although some individual efforts have proved successful, yet there is not to-day in Eastern Canada a central organization specially engaging in marketing tender fruit. When the peach crop is heavy, the large consuming centres are usually flooded with fruit, which means ruinous prices to the grower. At the same time many of the smaller towns and villages are paying such high prices that the consumption is materially lessened.

To successfully market a large crop of peaches it is necessary to make an early estimate of the total crop, to employ methods which will increase consumption, and to take the necessary steps to secure a wide and even distribution. The Georgia Fruit Exchange has accomplished these and other things for the peach growers of that State. This organization is an incorporated body, organized primarily for the purpose of selling and marketing fruit and vegetables, but, owing to the great increase in the production of peaches during the past few years, efforts are now practically confined to the marketing of that fruit.

In 1910 the Georgia Fruit Exchange marketed in only 80 cities. In 1914 this number was increased to 197. Previous to this extension of markets over 80 per cent. of the total crop was shipped to three centres, which were overstocked, little or no profit was returned to the producers.

In 1914 the same organization handled 68 per cent. of the total crop. The fact that 197 cities and towns were supplied, enabled individual shippers to obtain much better prices at the three centres mentioned. For example, 29 per cent. of the total crop was shipped to New York City. Of these shipments only 18 per cent. were made by the Exchange and 52 per cent. by individual shippers. Forty-three per cent. of the total crop was shipped to three other cities, and of this fruit 28 per cent. was shipped by the Exchange and 76 per cent. by private individuals.

Wider distribution is essential in the marketing of the Canadian peach crop. It

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Bred from Tested Stock
Untested Queens, \$1 each, \$5 for six
Selected untested, \$1.25 each, \$7 for six
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Queens, \$2 each
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OUR REPUTATION stands behind them for every purpose, and you will find them all PURE SUGAR, therefore the very best obtainable for your Bee feeding. They are sold by all the leading grocers throughout Canada.

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Northern Bred Italian Queens

Guaranteed as can be had. Leaflet, "How to Introduce Queens," 15c; "How to Increase," 15c; both, 25c.

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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.

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Untested Queens, \$1.00 each, \$10.00 dozen; warranted Queens, \$1.10 each, \$12.00 dozen; tested after July 1, \$1.50 each; breeding Queens, \$5.00 each. Place your orders early. I guarantee you a square deal.

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Bred from good, hardy, industrious stock in a locality where disease has never been known. We have a large, well-equipped queen rearing yard, and can usually fill all orders promptly. Purity of mating, safe arrival and satisfaction guaranteed. Ready in May.

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1/2 lb. package of bees \$1.50 each
1 lb. package of bees \$2.50 each
Add the price of Queen if wanted.

Prices for larger quantities furnished on application. Send for a price list.

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Untested75	\$4.00	\$7.50
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Bees, by the pound, \$1.50. Better let me book your orders now.

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Delivery after May 15, depending on the season somewhat.

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Is out on a hunt for new subscribers and has a special offer to make to those subscribing at the present time. The regular subscription price of The Review is \$1 a year. Our special offer is to give the last nine months of 1914 and all of 1915 at the regular annual price. The nine months of 1914 contain all the valuable papers read at the National Convention at St. Louis, Mo., last February, including one from Prof. Morley Pettit, and one from Prof. F. W. Sladen, of Canada, besides many from over the border. Twenty-one months for a dollar. A bargain worth considering. No extra charge for Canadian postage.

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I have the goods. The pure three-banded Italians and the pure Carniolans, both races from imported mothers. Prices, untested, each 75c; dozen, \$8.00. Tested, \$1.25 each; dozen, \$12.00. Circular Free.

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By return mail, after June 5th to 10th, or money refunded; bred from best red clover strains in United States, in full colonies, from my Superior Breeders, northern bred for business, long tongued, three-banded, gentle, winter well, hustlers. Not inclined to swarm; roll honey in. 1 untested, \$1.00; 6, \$5.00; 12, \$9.00. 1 selected, untested, \$1.25; 6, \$6.00; 12, \$11.00. A specialist of 18 years' experience. Safe arrival and satisfaction guaranteed.

I. F. MILLER, Brockville, Pa., U.S.A.

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from the best Italian stock

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Prices, including an untested Italian Queen:

	June.	July 1 to Sept. 15.
1-lb. package	\$3.50	\$2.50
2-lb. package	4.50	3.50
3-lb. package	5.50	4.50

Tested Queen included with above, 50c extra. Select tested, \$1.00 extra, or best breeding Queen, \$4.00 each extra. Best Italian Queens, untested \$1.00; tested Queens, \$1.50, and select tested, \$2.00 each. Usual discounts by dozen or more.

Write us if you have any Beeswax to offer. Catalogue upon application.

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We will be glad to give you any information we can, or suggest what we think would help your plant if you will write us.

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will result in better prices for the producer and will be a guarantee of lower prices to the consumers, as a whole.

A pamphlet dealing with the marketing of peaches in Georgia will shortly be issued by the Fruit Commissioner's Branch, and will be mailed free to any grower requesting it.

Losses Caused by Insects

Prof. L. Caesar, B.S.A., Guelph, Ont.

It is nothing but the merest of guesswork to attempt to give an estimate of the damage done to the Canadian fruit crop by insects in 1914 in the form of dollars and cents. As a rule the great mass of people who have small orchards seldom get anything worth speaking of for their fruit. This is as much because they do not know how to sell it, even if it were clean, as because of insect injuries. Three years ago I passed through the county of Oxford, when there were at least ten thousand barrels of good fruit lying on the ground. This was because the people did not know how to reach the markets with it, and there were no buyers sufficiently interested to think it worth while to purchase them.

The great mass of our best fruit is put on the market by men who are spraying their orchards, cultivating and giving them the necessary care. In these orchards, in many cases, not more than five per cent. of the apples are injured by insects. I know of many an orchard in Ontario where the insect injury is not even five per cent. In unsprayed orchards, especially in the Niagara District and the warmer parts of the province, the insect injury may amount to as high as eighty or even ninety per cent., and in the colder parts, where the Codling Moth is not nearly so abundant and there is no San Jose Scale, the injury amounts to from five to fifty per cent. The last few years this has been chiefly due to Codling Moth and Tent Caterpillars. The Plum Curculio is also a great pest and sometimes damages a high percentage of not only plums, but of apples and pears and other fruits. The probability is that in unsprayed orchards, taking the province as a whole, fifty per cent. of the fruit would be rendered culls by insects. There are, of course, a number of orchards that are sprayed and in which the insects are not at all satisfactorily controlled, because the owners do not know how to spray thoroughly and do not take the necessary pains to learn how. Such orchards might be classed among the unsprayed.

Another difficulty in arriving at an estimate of the amount of injury from insects is that in the fruit area, especially with apples, the fruit is made unsaleable both by insects and by disease; in fact, Apple Scab is probably a much greater foe in the fruit area to the fruit grower than any of our insects, that is, taking the province as a whole. An apple will often be infected both by an insect and by disease. In such a case it is unfair to attribute the injury merely to the one cause, because it would exist without the insect.

I do not know what the percentage of injury from insects would be in Nova Scotia or in Quebec, but think it would be smaller than the average for Ontario if you will take the neglected orchards into account in Ontario. The Codling Moth is not nearly so serious a pest in Nova Scotia. The Bud Moth, on the other hand, is a more serious pest. Aphids are more troublesome there than here, but Apple Scab is the great bugbear in Nova Scotia.

In British Columbia diseases are much more important than insects except that Aphids are a great trouble in parts of that province, and are likely always to be a greater trouble than in Ontario.

Prairie Dealers' Comments on the Fruit They Handle

KEEN competition has developed during the past few years among the fruit-growing sections of Canada and the United States to capture as large a share as practicable of the prairie markets. The following comments from firms on the prairies that handle considerable quantities of apples each year, in reference to the apples—more particularly those from Ontario—are full of interest:

Plunkett & Savage, Calgary, Alberta: "The Calgary market prefers apples packed in boxes. The size of the box does not matter very much, but it is our opinion that you can pack and make a more attractive package of the $18\frac{1}{4} \times 11\frac{1}{2} \times 10\frac{1}{2}$, which is the Washington standard box. These are put up in attractive style, paper-lined, and all fruit wrapped, which is a help to the apples for long keeping.

"Our trouble with Eastern apples has been to get an honest pack. We have handled thousands of barrels from Ontario, and, with possibly two or three exceptions, none of the stock has turned out satisfactorily. Apples, many times, when leaving the east, appear to be very nice, but within a month or six weeks there is a dark fungi growth and decay starts, giving the fruit a bad appearance and practically stopping its sale, excepting at a low price.

"Attractive fruit of good keeping quality and color will always demand a good price in the west. Until such time as the province of Ontario can put up such fruit, their chances of getting in on this market are very small.

"British Columbia is a strong contender in the western market. They are putting up their stock better every year and are going in for more hardy varieties and less soft varieties than formerly. The experimental stage is now past as far as growing is concerned: they are down now to well-known, stable varieties. For instance, we will give preference to British Columbia on McIntosh, Gravensteins and Wealthies over any other section in Canada or the Northwestern States that we know of, for the reason that these three varieties grow to perfection, particularly the McIntosh and Wealthies. We cannot say as much for their Spies and Baldwins; they do not appear to have as good color as the east, but on account of the fruit being large, it is attractive and is very desirable."

The Regina Trading Co., Regina, Sask.: "Ontario fruit is holding its own on the Regina market although we receive large quantities from British Columbia and Washington. For flavor and general appearance, there is nothing to equal an Ontario North-

ern Spy. The packing and style of the Ontario apples (in boxes) compares favorably with the districts mentioned. The boxes $18\frac{1}{4} \times 11\frac{1}{2} \times 10\frac{1}{2}$ are the best for this market.

"There is a demand for Ontario barrel apples in the country, but in the cities the trade requires boxes. While there is still a call for barrels in the city, the demand lessens each year. The grade of Ontario apples in former years has been poor. The pack has been poor. The barrels of No. 1 apples were in nearly every case No. 2 in the centre of the barrels. We handled four cars of Ontario apples one week last year, and only one came up to the standard. It was a Norfolk pack. The general outlook for Ontario fruit in the west was never better than it is to-day. The smaller fruits—plums, peaches, and pears—are in great demand.

"In the case of plums, tomatoes, and pears, the baskets in too many cases are broken. We would advise packing in the best baskets possible. One improvement last year was the new top for the baskets, instead of the ordinary net top."

Sharp Criticism.

Campbell, Wilson & Horne, Ltd., Lethbridge, Alberta: "Ontario apples have practically lost their sale on this market. The last Ontario fruit we received was in 1911. Although bought for No. 1 grade, it was very poor quality and did not compare with either British Columbia or Washington fruit.

"The Ontario fruit packed in boxes that we have received has been all right, as far as the packing goes, in comparison with other districts. The standard boxes that are put on this market are supposed to contain 50 net of apples. These are the most satisfactory. We advise all Ontario apples to be packed in boxes for this market, as they usually arrive in much better condition than those in barrels.

"The last Ontario fruit cars we received did not compare in quality nor were they of the same uniform sizes as those we received from packers to the west of us. The fruit was scabby and did not hold up, and we nearly lost a couple of cars by the Provincial Inspector. Unless a radical improvement is made, the time will come when it will be almost impossible for Ontario fruit to compete out here with other districts. We also believe that it will not be many years hence when apples are grown in the district surrounding Lethbridge. A number of trees are already bearing here and also in Magrath and Stirling."

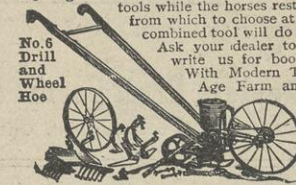
A FARMER'S GARDEN

Helps his wife to plan her table in busy times. Saves work and worry, saves buying so much meat, gives better satisfaction to the help. A good garden will be almost impossible in your busy life without proper tools. They cost little and save much hard work.

IRON AGE WHEEL HOES AND DRILLS

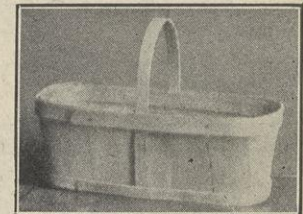
will sow, cultivate, ridge, furrow, etc., better than you can with old-fashioned tools and ten times quicker. A woman, boy or girl can do it. Can plant closer and work these hand tools while the horses rest. 38 combinations from which to choose at \$3.00 to \$14. One combined tool will do all of the work. Ask your dealer to show them and write us for booklet, "Gardening With Modern Tools" and "Iron Age Farm and Garden News" both free.

No. 6 Drill and Wheel Hoe



The Bateman-Wilkinson Co., Limited
462 Symington Ave., Toronto, Can.

Peerless Climax Fruit Baskets



Heaviest, Strongest and Best

In the market. Especially suitable for long distance shipping.

Protect your requirements by ordering **EARLY**

Canada Wood Products Co.
St. Thomas, Ont.

WHITE & CO., Ltd.

Church & Front Streets
TORONTO ONT.

AS one of the largest and oldest commission houses on Front Street, we have a claim on your confidence and favor possessed by few others. The two things—perhaps there are three—that matter to you are: (1) the reliability of the house you deal with; (2) the ability to sell consignment quickly; and the third matter of importance is the ability of your commission agent to get top prices. We are 100% efficient in regard to these three items. We can and

Correspond with us first, if you wish. Ship without waiting to write, if your matter is urgent. Shipping Stamps and Market Reports supplied on request.

**WILL SELL
YOUR FRUIT AND VEGETABLES.**

MAY
1915

Strawberries

50 varieties

Raspberries

13 varieties

Seed Potatoes

10 varieties

FREE CATALOGUE

The Lakeview Fruit Farm

H. L. McConnell & Son, Port Burwell, Ont.

Landscape Gardening

A course for Gardeners, Florists and Home-makers, taught by Prof. Beal, of Cornell University.

Progressive Florists recognize the growing importance of a knowledge of Landscape art.

We also offer a practical course in Floriculture, including Greenhouse Construction and Management.

Send for Catalogue. Address

THE HOME CORRESPONDENCE SCHOOL
DEPT. C.F. - SPRINGFIELD, MASS.

Resolutions Passed by British Columbia Fruit Growers

IN addition to the resolutions passed at the last annual convention of the British Columbia Fruit Growers' Association, some of the more important of which were published in the March issue of The Canadian Horticulturist, the following resolutions were adopted:

That whereas the American product in apples is getting too great a proportion of the Canadian north-west and Pacific coast markets to the exclusion of British Columbia fruit: "This Association, while appreciating the assistance that has in the past been given by the British Columbia Government, would urge on them that this industry, as yet in its infancy, is in urgent need of financial help, and more particularly in advertising (so as to reach the consumer) for fruit grown in British Columbia."

Resolved, That this Association heartily endorses the advertising campaign instituted by both the Dominion and Provincial Governments, and in the opinion of this Association the system of advertising should be continued and extended.

Co-operation of Selling Agencies.

Whereas the great growth of the fruit industry both in Canada and the United States has caused it to be more difficult to get profitable markets; and whereas it has been pretty well proved and is generally agreed that the cutting of prices, in order to obtain sales by agents, dealers, and others, including growers themselves, has greatly lessened the amount of money that might have been received for the fruit; and whereas the getting together of those handling fruit at least in some way that will keep prices from being unnecessarily lowered, to the ruin of the grower and injury of the whole population, is necessary: Be it therefore Resolved, That all Fruit-growers' Associations, Farmers' Institutes, Boards of Trade, business-men, newspapers, and the Government of the Province be asked to help create such a public sentiment that will demand that fruit be not slaughtered by unseemly competition. And be it further Resolved, That the British Columbia Fruit-growers' Association appoint a committee to seek to solve this problem and to help to bring together the heads of the various selling agencies.

Tariff.

Resolved, That this Association should make the strongest possible representations to the Dominion Government as to the pressing need of increased protection by duty on apples.

Cheap Money.

(1) Resolved, That in the interests of the fruit-growers there should be some means of procuring loans at a cheaper rate and on better terms than is possible under present conditions.

(2) Be it therefore Resolved, That we unite with other agricultural bodies in asking the Government as speedily as possible to arrange for loans to settlers at a low rate of interest, for improvements to farms, purchase of stock, etc., and that the funds should be administered by an impartial non-political Commission.

Control of Fruit Pests.

Resolved, That we hereby commend the Department of Agriculture and the Government for their efforts to keep fruit pests out of the Province and to clean out the blight, and we hereby pray that their activities in these lines may continue, and we pledge ourselves to co-operate with them in this as far as possible.

Reciprocity With Australia.

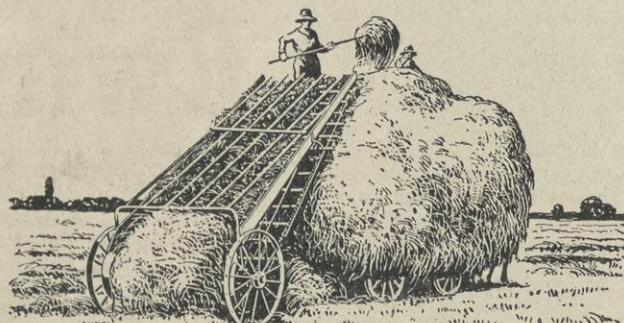
Whereas Canada is in a position to supply the apples required by Australia during the months of September, October, Novem-

Bezzo's Famous Prize Asters

Prizes wherever shown—New York State Fair, Toronto Exhibition, and many other places. All shades of color in about 20 different varieties in early and late branching: Royals, Mikadoes, Rochesters, Cregas, etc. Truly the Aristocrats of the Aster Family. Plants \$1.00 per hundred by express; \$1.10 by mail. Packed and labelled, in wet moss and safe arrival guaranteed. Express charges prepaid on orders over 250. Special prices to Horticultural Societies. All plants cold frame (not hotbed) grown. Order early. Bezzo's Aster Plant Food, 10c. per lb. by express. Remit by Money Order.

C. MORTIMER BEZZO

BERLIN, Canada

Deering Haying Machines

ALTHOUGH the weather and the hay crop are beyond your control, your success at haying time in getting the crop safely into barn or stack depends largely on methods and machines.

Many years of trying out in many fields have proved that you cannot do better than to make your choice from the **Deering** line of haying tools—mowers, rakes, tedders, side delivery rakes, windrow hay loaders, etc.

Deering haying tools are carried in stock or sold by **IHC** local agents who can take care of you quickly in case of accident. It is their business to see that you are satisfied with the **Deering** haying machines and tools you buy from them.

Write to the nearest branch house for the name of the nearest dealer handling **Deering** haying tools, and we will also send you catalogues on the machines in which you are interested.

**International Harvester Company of Canada, Ltd.****BRANCH HOUSES**

At Brandon, Calgary, Edmonton, Estevan, Hamilton, Lethbridge, London, Montreal, N. Battleford, Ottawa, Quebec, Regina, Saskatoon, St. John, Winnipeg, Yorkton

Write for prices on farm, lawn and Iron fencing. Dyer has largest range of Iron and Wire Fencing for every purpose.

Write

E. L. DYER, The Fence Man
47 B, East Wellington St., Toronto, Ont.

We have a large
stock of all size



FLOWER POTS

FERN OR BULB PANS

¾ AZALEA POTS and Rimless Pans

Orders Filled Promptly. Send for Prices.

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



**True to Name
— Free From
Disease**

Mr. Fruit Grower, you are looking for the best Apple, Pear, Peach, Plum, Cherry and Quince Trees you can buy.

Kelly Trees are sold at Growers' Prices

Shipped direct from our own nurseries in Dansville, N.Y., and guaranteed sturdy, free from disease and True to Name.

For 35 years we have had the name of knowing how to grow trees right. From seedling to freight car we watch our own trees personally and know we are shipping just what you order. We have an up-to-date nursery plant and can ship all orders promptly, as well as grow and ship at a low cost. We give you every advantage on price.

Write for our catalogue TO-DAY, and get our prices.

KELLY BROS. Wholesale
Nurseries
305 Main St., DANVILLE, N.Y.

You'll never regret planting Kelly Trees.

ber, and December, and in that market has already proved the excellence of the Canadian product; and whereas there is an opening for apples in our coast markets in April, May, and June, which Australia could supply: Be it therefore Resolved, That, while recognizing the good work done in the past towards the end in view, the Dominion Government be respectfully urged to continue to use every endeavor to bring about an arrangement which will give our apples and pears free entry to the Australian market and to offer reciprocal terms. Should Australia desire it, there would be no objection to their restricting the free entry to their country of our product to their off-season as mentioned, we protecting ourselves in the same way. And that there may be no check in the harmonious working of any arrangement to be made, care be taken that no regulation or law be passed dealing with size or shape of package that might later interfere with the full benefits of such arrangement.

The Apple as the National Dish.

Resolved, That this Association heartily recommends the general endorsation of the apple as the national dish of Canada.

Women on Board of Horticulture.

Whereas it has been brought to the notice of this annual meeting of British Columbia Fruit-growers' Association that women are eligible to serve on the Board of Horticulture; and whereas, up to the present time, no woman has ever been appointed to fill any vacancy on that Board: Be it therefore Resolved, That the Minister of Agriculture be requested to give due consideration to the claims of such women as are competent to fill the position when making future appointments to fill vacancies occurring on the Board of Horticulture.

In view of the present condition of the fruit industry in British Columbia, the question of reductions in freight rates to north-west and Coast points have become of urgent importance, and that accordingly this Association shall make every effort to obtain substantial reductions in existing rates east and west, and favorable rates via the new Kettle Valley route to the coast.

Reduction in Freight Rates.

Resolved, That freight rates from British Columbia to the Prairie Provinces, as compared with those from the eastern to the western Provinces, appear unduly heavy, and we recommend the attention of the Transportation Committee of the British Columbia Fruit-growers' Association to this matter for their earnest consideration.

Express Minimum.

Resolved, That we endeavor to have the minimum weight of car shipments by express lowered from 20,000 lbs. to 15,000 lb., and that the Transportation Committee endeavor to get a lower minimum from the Canadian Northern.

Ventilated Car Service by Express.

Resolved, That for the proper marketing of our berries a ventilated car service should be put on from June 1st.

ITEMS OF INTEREST.

The Niagara Peninsula Fruit Growers' Association has a committee of five at work devising ways and means to advertise the fruit grown in the district. It has been decided to have a number of small booklets printed, in which advertisements will be inserted. Advertisements will be published in papers in different towns and villages throughout Ontario advertising the fruit of the district and inviting the public to send for the booklet. Thus only those likely to be interested will receive the booklets.



Fresh Vegetables From Your Own Garden

make the meals so much more tempting—as well as much more healthful and less expensive.

But of course for a really successful garden you need the very best seeds. So it's worth while to see that you get

Ewing's

Reliable Seeds

They have produced 44 successive crops in Canadian gardens and fields—they have rarely disappointed—and have so often pleased beyond all expectations.

Write at once for our Illustrated Catalogue, and if your Dealer hasn't Ewing's Seeds, order from us direct.



The
William Ewing
Co. Limited
SEED MERCHANTS

**McGill Street
Montreal
41**

A Perfect Tomato

has been produced by us, and one which we want you to test. It is acknowledged by all who have tasted the fruit to be the finest in flavor they have eaten.

It is a great drought resister, a heavy yielder, and does not revert to "type." You want to try a packet, so drop a postal **RIGHT AWAY**, and for particulars of premium offer to

HILLSTDE FRUIT FARM, Dept. C.,
SIMCOE, ONT.

PATRIOTISM and PRODUCTION. Hon. Martin Burrell, Minister of Agriculture says: "There will be a demand for food that the world will find great difficulty in supplying."

Great Britain needs Food

Therefore the Canadian Department of Agriculture is wisely urging farmers to increase their production of staple crops. To encourage the use of Fertilizers the Government has exempted them from the extra war tax of 7½%.

Canada needs Bowker's Fertilizers

FOR THREE REASONS; to feed crops in order to increase yield; to hasten maturity, and to improve quality. They will ensure a yield by getting crops ahead of the frost—they virtually lengthen the growing season 15 to 20 days. Try them and see. They are no experiment. They have been used in the States 42 years and in Canada for 30 years.

If you find no Local Agent near you, write us for prices and terms.

BOWKER FERTILIZER CO.
43 Chatham St., Boston

STRAWBERRY GROWERS ATTENTION

For choice, well selected stock of all the standard varieties of strawberry plants, send us your order. List free.

ONTARIO NURSERY CO., Wellington, Ont.

HANDIEST IMPLEMENT YOU CAN HAVE

You'll find a hundred uses for the Bissel Steel Stone Boat. Every Fruit Grower needs one. Made in several styles and sizes. Stiff, durable, unbreakable.

T. E. B SSELL Company Limited, ELORA, ONT.

Write
Dept. N
for
Folder
to-day



FREE LAND For the SETTLER in NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

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

H. A. Macdonell

Director of Colonization

Parliament Buildings, TORONTO

HON. JAS. S. DUFF,

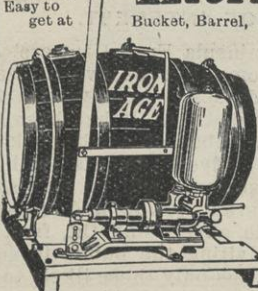
Minister of Agriculture
Parliament Bldgs., Toronto

Don't Stop Spraying

It is easier to keep up than catch up. It takes two years for trees to bear after the foliage is destroyed. Remember, too, that dormant spraying is important, and in some states spraying is compulsory. Sprayed fruit is good fruit, and good fruit always brings a good price in any season.

Outside
Pumps
Bronze
Ball
Valves
Hemp
Packing
Easy to
get at

IRON AGE



Use in any wagon.

The Bateman-Wilkinson Co., Limited
464 Symington Ave. - - Toronto, Can.

Annapolis Valley Notes

The spring is not an early one in Nova Scotia. To this date, (April 20th) the buds on the apple trees have not begun to swell. Pruning is about finished, and except in very early land the farmer has time to take a long breath before the general rush of work that will begin after a few days of drying weather. Apple prices are still reported steady in the Old Country markets. This is very satisfactory to the Co-operative Companies, for this winter they have extended their shipping season much later than usual, because the Australian crop, which usually comes to England about April the first, was a failure. The irregular boat service from Halifax made a shipping season of unusual difficulty that is now drawing to a fairly successful close.

Very few apple trees are being planted this spring, but spraying will be more general than ever; the attitude of the fruit grower being to sit tight and take good care of what he has. Considerable attention is being given to strawberry culture, the high prices of the last few years will increase the planting until a big crop sends the price down. The United Fruit Companies are advising all their members to plant potatoes this summer, prophesying high prices in the fall. Their business, opened in Halifax last month to handle all kinds of farm produce grown by their 1,500 members, has already gained a large trade, and is reaching out to other parts of the province, making new connections and forming a very short link between the producer and the ultimate consumer.—Manning Ells.

Methods of Advertising Apples

Prof. F. C. Sears, Amherst, N. S.

ADVERTISING is one of the biggest questions that faces fruit-growers today. Here are just a few sample schemes for advertising: First, use advertising displays in store windows. Here is one plan that we worked out down in Massachusetts. In the town of Brockton, about the size of Halifax, the Board of Trade became interested last autumn and thought it would be a fine thing to offer prizes to all their store keepers for the best advertising window, using apples for display. The first prize, I think, was \$100, and others in proportion. It was really wonderful what they did, the forty or fifty competitors. Some of the windows were really works of art. The man who got second prize thought he would do a little advertising the week before, so he made up a window, and as a result of the advertising of that window, the week previous to the campaign he sold all the apples he had on hand and had to lay in a new stock. And the day the prizes were awarded this man sold sixty-seven barrels before one o'clock, and he had a comparatively small store at that!

A friend of mine who had charge of a big orchard estate near Newburyport, got S. S. Pierce & Company, in Boston, to let him have the use of one of their windows and put out an exhibit. It was a very attractive exhibit. One barrel of Greenings was tipped out, another of Baldwins tipped out, both showing the fine quality of the fruit. Then there were fancy packages, and orchard scenes and so on. As a result of that exhibit being there only a few days this man got over five hundred inquiries from people who had seen it, and wanted to know where they could buy such apples. At Filenes, in Boston, we put in a little exhibit in one window, and the police actually had to make them take it out.

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

the people stopped the traffic so.

Second: Another thing which the individual grower could do is to send out small individual cartons with a single apple in each. Put in your card saying you are willing to ship this kind of apples at such and such a price, and send to a list of possible customers. I believe this could be done so as to develop a large trade and a particularly profitable one.

Third: We ought to do more demonstrating. If we show a person anything he is much more likely to take to it than if we merely talk to him about it. Down in our part of the country you will find demonstrating going on in one store or another all the time, demonstrating Jell-O, or Aunt Jemima's Pancake Flour, or somebody's soap or somebody's tea. But did you ever see anybody demonstrating apples! I never did except once out at Spokane, Washington, at their National Apple Show. They had a room fitted up and the whole thing put in charge of the Domestic Science Department of the Agricultural College. There were a lot of gas ranges along one side of the room and girls cooking every sort of thing you can imagine and a great many that you can't, all of apples, apples, apples. And then they had the best looking girl of the lot going around and selling a pamphlet on "One hundred and Ninety-Seven Ways of Cooking Apples." This is a serious question, a question worth looking into—what can we do to induce people to eat more apples?

Fifth: My last point I will merely mention. It is that we ought to advertise more in the papers. We have some interesting information as to what has been done in this line by the citrus people. The manager of their association determined to take up the question of what could be done in the way of increasing the consumption of oranges by advertising in the local papers. They selected four of the middle western states, Nebraska, Kansas, Missouri and Iowa I think it was, and put attractive advertisements in the local papers, and as a result of this they increased their sales in that section between two hundred and three hundred per cent. That shows what can be done in one single line of newspaper advertising.

Bulletins and Reports

The Wisconsin Agricultural Experiment Station, Madison, Wisconsin, is circulating Bulletin 248, entitled "Strawberry Culture in Wisconsin."

Circular No. 151 of the Agricultural Experiment Station, Wooster, Ohio, is entitled "Methods of Soil Sterilization for Plant Beds and Greenhouses." The best tree fillings and wound dressings for orchard and shade trees are outlined in Circular No. 150, issued by the same station.

"The Gypsy Moth" is the title of Bulletin 186, published by the Connecticut Experiment Station, New Haven, Conn.

The Michigan Agricultural College, East Lansing, Michigan, has issued Bulletin 273, entitled "The Utilization of Muck Lands."

Rose growers will be interested in Bulletin 233 of the Maine Agricultural Station, Orono, entitled "Maine Aphids of the Rose Family."

The Ontario Department of Agriculture has issued Bulletin 224, by S. C. Johnston, Vegetable Specialist, entitled "Greenhouse Construction." It has also issued Bulletin

Strawberry Plants

Stocky and well rooted plants. Carefully packed. Free catalogue and price list.

S. H. Rittenhouse, Jordan Harbor, Ont.

IMPORT BULBS

Import your bulbs direct from Holland for less than half price.

Get our import catalogue at once.

Orders must be in by June.

Morgans Supply House

London, Ont.

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.

FRUIT MACHINERY CO.

INGERSOLL, ONT.

Manufacturers of Fruit Sprayers
and a complete line of

Apple Evaporating Machinery

Our complete POWER SYSTEMS for evaporating, when installed by our experienced millwrights are the most practical, sanitary and labor saving to be found anywhere. Our prices and terms always reasonable.

Write for Illustrated Catalogue.

Implements for Orchard and Vineyard

Spring Tooth Harrows

10, 15, or 17 Teeth

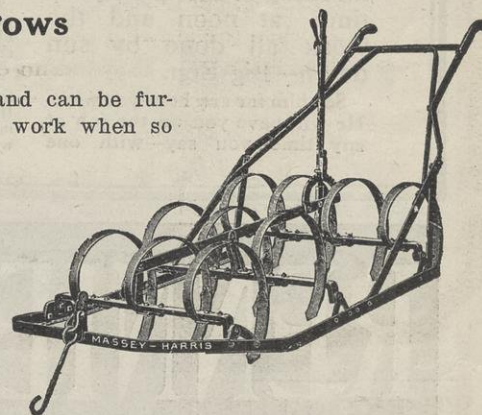
The 10-Tooth size is in one Section and can be furnished with handles for vineyard work when so ordered.

Spraying Outfits

Small outfits on skids—large outfits on wheels.

Vineyard Plows

Both Walking and Riding Plows especially built for orchard and vineyard work.



Orchard Disc Harrows

REVERSIBLE

To throw the dirt to or from the trees or vines.

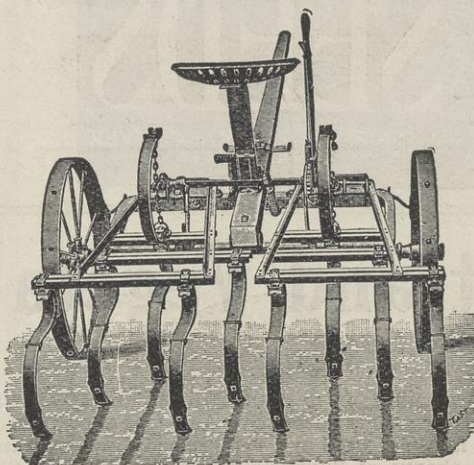
ADJUSTABLE

Gangs can be adjusted as required. Extension can be furnished for working under branches.

Cultivators

A great variety—for cultivating small fruit—for vineyards—for orchards.

Grape and Berry Hoes, etc.



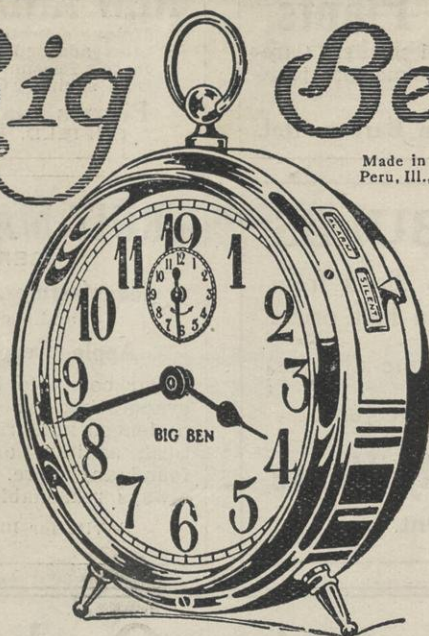
TORONTO
MONTREAL
MONCTON
WINNIPEG
REGINA

Massey-Harris
Co., Limited

SASKATOON
YORKTON
SWIFT CURRENT
CALGARY
EDMONTON

Big Ben

Made in La Salle and
Peru, Ill., by Westclox



For That Big Monday

Right after that Sunday rest-up—for a running start at that job Monday morning with plenty of time at noon and the work all done by sun down—Big Ben.

Set him for any hour you wish. He will have you on the job at any time you say—with one

straight five-minute ring that can't miss fire or with ten gentler taps every other half minute for ten minutes.

Big Ben stands seven inches high with a clear, deep-toned bell, large black hands and bold numerals which show up clearly in the dim early light.

His price is \$2.50 in the States—\$3.00 in Canada. See him at your dealer's. If not there, a money order to his makers, "Westclox, La Salle, Illinois," will bring him to your address—postpaid.

RENNIE'S FARM AND GARDEN SEEDS

Sold by leading merchants.

Catalogues FREE.

WM. RENNIE Co.
LIMITED

TORONTO

MONTREAL

WINNIPEG

VANCOUVER

No. 226, entitled "Plum Culture in Ontario," by F. M. Clement, B.S.A.

Foreign bulletins include the following. "Comparative Cooking Qualities of Some of the Common Varieties of Apples Grown in Oregon" and "Windbreaks, Hedges and Ornamentals for Irrigated Sandy Soils of Eastern Oregon," both issued by the Oregon Agricultural College, Corvallis, Oregon.

Bulletins 171 and 172 of the New Hampshire Agricultural Experiment Station, Durham, New Hampshire, are entitled respectively "The Apple Maggot," by Mr. W. C. O'Kane, and "Mendelism in Melons," by David Lumsden. Both bulletins deal fully with the subjects mentioned.

The University of Illinois, Urbana, Ill., has issued the following: Bulletin 174, "An Efficient and Practicable Method for Controlling Melon Lice," by C. E. Durst, Bulletin 175, "Experiments in Onion Culture," by John W. Lloyd, Bulletin 176 "The use of Commercial Fertilizers in Growing Carnations," by H. B. Dorner, F. W. Muncie, and A. H. Nehrling, and Circular No. 176, "Practical help on Landscape Gardening," by Wilhelm Miller.

Bees Increased the Crop

Many remarkable facts have been noticed by fruit inspectors, while on their regular tours of inspection, regarding the importance of bees in orchards in spring during the apple-blossoming period. In the county of Middlesex, Ontario, there were comparatively few apples one season. Practically the only exception was an orchard of twelve or fourteen acres, the proprietor of which was also an extensive bee-keeper. The explanation given was that, as the bees were kept in the orchard, they were able during even the short periods of sunshine, to fertilize the blossoms fairly well.

Bee-keeping is a paying and profitable occupation; one that should receive much more attention than is given to this very important industry. Fruit blossoms of nearly all kinds depend almost exclusively upon insects for their pollenization. The wild bees include about fifty per cent. of the insects useful to the fruit grower for this purpose, but in large plantations, such as orchards, plantations of strawberries or bush fruits, the large number of blossoms coming in at the same time overtax the usual number of wild bees in the neighborhood, so that it is advisable to have a special stock of honey bees to supplement them. More than this, tame bees kept in the immediate neighborhood, or directly in the fruit plantations, are more useful than wild bees, which may, in many cases, have to fly long distances, and cannot reach the orchards during the mild spells between showers.



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



Major Kimmins Killed in Action.

The announcement of the death, during the recent severe fighting in France in which the Canadian troops played such a conspicuous part, of Major Albert E. Kimmins, of Winona, Ont., was heard with great regret by the fruit growers of the Niagara District,



MAJOR ALBERT E. KIMMINS

by practically all of whom he was known personally. A memorial service was held in the English Church, Winona, on April 27, at which the loss felt by the community was clearly revealed.

Major Kimmins was manager of the fruit purchasing and selling department of the well-known firm of E. D. Smith & Son, Limited, with which he had been identified for twenty-one years. During the frequent absences of Senator Smith he acted as general manager. Writing to The Canadian Horticulturist about Major Kimmins since his death, Senator E. D. Smith speaks concerning him as follows:

"Twenty-one years ago, when Major Kimmins came with us, he was a bright, smart young man. Wages at that time were low. He got the first year thirty dollars a month. His energy, honesty, and business ability soon enabled him to merit and get from us advances in pay from year to year, until last year his salary reached nearly ten times the figure that he got the first year he was with us. I do not know that I can pay any greater tribute to his business ability than that.

"He was a man who hated shams, cheats, and frauds, and as such no doubt made an occasional enemy, for he was outspoken and candid, but for every enemy he made a score of friends. Those who knew him best liked him best. He was one of the noblest characters I have ever known. While practising temperance principles of all kinds, I believe to the extent of total abstinence from either drinking or even smoking, he never obtruded his opinions upon others, though a man vigorous in speech and action. He had a strong musical bent, and was one of the leading members of the famous Elgar Choir, Hamilton. He was leader of the choir in our little English Church in Winona, which he attended regularly, practically every Sunday, and most of the time at both services, morning and evening, as leader of the choir. As a soldier it would be difficult to conceive

Flowering Bulbs GLADIOLUS

These are most effective in the flower garden, the colors are magnificent and they are easily grown. Prices are here—we offer:

Choice Mixed—10 for 30c, 25 for 65c, \$2.00 for 100.
Groff's Hybrid Seedling Mixed—10 for 40c, 25 for 75c, \$2.50 for 100.

Bruce's White and Light Shades—10 for 50c, 25 for \$1.00, \$3.50 for 100.

Childs Mixed—10 for 60c, 25 for \$1.25, \$4.50 for 100.

Bruce's Superb Mixed—made up by ourselves from all varieties—the best, 10 for 60c, 25 for \$1.35, \$5.00 for 100. If to be mailed add Postage at rate of 10c. for 10, 20c. for 25, and 50c. for 100.

Named Varieties—any color (see catalogue) 10c. to 50c. each; Postpaid.

DAHLIAS

Splendid Named Sorts—all colors—20c. each, 3 for 55c, \$2.00 for 1 dozen.

Ordinary Varieties—Mixed 10c. each, 3 for 30c, \$1.00 for 1 dozen.

If to be mailed add Postage at rate of 5c. each, 50c. dozen. Where there are Express Offices, Express is cheaper than Mail for lots of over 6 Dahlias or over 35 Gladiolus.

FREE—Our handsomely illustrated 112-page catalogue of Vegetable, Flower and Farm Seeds, Bulbs, Plants, Poultry Supplies, Garden Implements, etc. Write for it.

JOHN A. BRUCE & CO., LIMITED

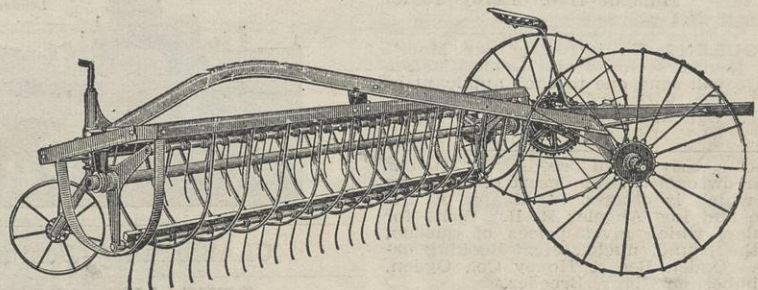
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HAMILTON, ONT.



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YOUR haying tools must be strong and steady; they must work easily and smoothly; they must get all the hay and put it into the best shape possible. That is why you should consider McCormick haying machines—mowers, rakes, tedders, side delivery rakes, windrow hay loaders, etc.—for **IHC** hay machines have never been beaten for good work in the field or for durability, at any time or place.

McCormick local agents sell these machines. When they sell you a **McCormick** machine for the harvesting of your hay crop, they sell you the best in hay machine design and construction that the market affords. Canadian farmers have called **McCormick** standard for many years. You buy a machine that you can depend upon; that will give you perfectly satisfactory service.

Drop a line to the nearest branch house and we will direct you to the nearest agent handling our machines, and will also send you interesting catalogues on any of these machines you may be interested in.



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ALL KINDS OF FARMS—Fruits farms a specialty. 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 Gaymon & Co., St. Catharines.

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GOLDEN AND 3-BAND ITALIAN, also Carniolan queens. Tested, each, \$1.00; 3 to 6, 95c; 6 or more, 85c. Untested, 75c; 3 to 6, 70c; 6 or more, 65c. Bees, per pound, \$1.50. Nuclei, per frame, \$1.50. C. B. Bankston, Buffalo, Leon Co., Texas.

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BEEES AND QUEENS—Pure bred Poultry, prize winners, stock and eggs. Rose Comb Brown Leghorns and Black Minorcas, White Rocks, Black Langshams, White Minorcas. W. P. Collins, Boulder, Col., U.S.A.

ITALIAN BEEES AND QUEENS, reared for Canadians. Hardy, winter well. Send for circular. Standard bee hives shipped direct from factory in Iowa at \$1.20 each. Stover Apiaries, Mayhew, Miss.

ITALIAN BEEES AND QUEENS as advertised on page 137. Catalogue free. Deroy Taylor Co., Newark, N.Y.

SAMPLE QUEENS—To introduce our Moor's strain of Leather colored and Golden Italian Queens, we will send one to each applicant at 40c each, cash with order. Ogden Bee & Honey Co., Ogden, Utah. Timberline Riggs, Breeder.

QUEENS—Our early queen breeding location is a long narrow oasis in the desert of Southern Nevada, which is crossed at Moapa by the Salt Lake and Los Angeles R. R. Write for our circular, which gives prices of queens; bees by the pound, nuclei, etc. Booking orders now. Ogden Bee & Honey Co., Ogden, Utah. Timberline Riggs, Breeder.

QUEENS OF QUALITY—I am booking orders for early queens now. Three-banded Italians only. Circular free. J. I. Banks, Dowlstown, Tenn.

BEST ITALIAN QUEENS AND BEEES at most reasonable prices. J. H. Haughey, Berrien Springs, Mich.

BEEES AND QUEENS—During spring and summer months we requeen all our two thousand colonies to prevent swarming. The queens removed from these hives are only one year old and of best Italian stock. We offer these queens at 50c each, \$5.40 per dozen. Satisfaction guaranteed or money back. No disease. Spencer Apiaries Co., Nordhoff, Cal., U.S.A.

BEEES AND QUEENS—California queens, nuclei and bees, bred from the best Doolittle stock. Our customers say they are hustlers. A sample order will prove it to you. We can fill any sized order at once. Queens, untested 75c, dozen \$8.00; select \$1.00, dozen \$10.00; tested \$1.25, dozen \$12.00; select \$1.50, dozen \$15.00; tested 1 year old 75c, dozen \$8.00; select \$1.00, dozen \$10.00; nuclei, 2 frames, \$1.50; 3 frames, \$2.25; 5 frames, \$3.00; 10-frame colony, \$4.50. Bees by the pound, 1/2-lb. package, 75c; 1-lb. pkg., \$1.00; 2-lb. pkg., \$1.75; 5-lb. pkg., \$4.00. Add price of queens desired to all above prices of bees and nuclei. Special discounts on lots of 100 or more. Any one of the above queens free, or 10 per cent. discount from your order, if you will send us the names and addresses of your neighbor beekeepers. Delivery guaranteed. No disease. Spencer Apiaries Co., Nordhoff, Cal.

GOLDEN 3-BANDED ITALIANS, also Carniolan queens. Tested, \$1.00 each, 6 or more, 85c each. Untested, 75c each, 6 or more, 65c each. Everything guaranteed to reach you in good shape. No disease. I. N. Bankston, Buffalo, Texas, Box 135.

of one better fitted to be a leader. Being absolutely fearless, and possessing boundless energy and conspicuous ability, he was a most excellent officer. I can imagine seeing him leading his men to take the enemy's guns."

Thus died, in the cause of his country, "one of nature's gentlemen."

NIAGARA DISTRICT PROSPECTS.

Seldom have the prospects for a large crop of fruit been as bright in the Niagara District as they are this year. The profusion of bloom has been practically unparalleled in the history of the district. Every tree, even the smallest, has been crowded with buds.

Our oldest fruit growers speak of the prospects as being most unusual in character. Practically all varieties of fruit are equally promising.

What You Want in a Sprayi n

The first essential is thorough spraying efficiency, then freedom from defects, durability, service and dollar-for-dollar value. All this and more you get in the

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The supremacy of the SPRAMOTOR in every class is unquestionable. Every machine bearing the name is built to endure. Its exclusive patented features will compel you to pronounce it the best you ever saw. Write for free booklet to-day.

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CLASSIFIED—Continued

BEEES AND QUEENS

KEYSTONE GOLDEN ITALIAN QUEENS will please you for honey gathering; healthy brood and nice gentle bees; also Red Clover queens, bred in 8 different yards, 5 miles apart. Queens, \$1.00; \$9.00 per dozen. Will H. Carl, Elysburg, Pa.

QUEENS BY RETURN MAIL—When you need queens by return mail we can fill your order. Three-banded Italians only, bred for business. Safe arrival and satisfaction guaranteed. Tested queens, \$1.00 each; untested, \$1.00, \$9.00 per dozen. J. W. K. Shaw & Co., Lorcaville, La.

BEE SUPPLIES

CALIFORNIA RED WOOD HIVES—Single storey, 85c; supers, 25c; frames, 1 1/2c each; 10 per cent. discount in lots of 100 or more of any of above. Special 5 per cent. discount on all supplies. Let us show you some of our bargains by sending our catalogue. It's free. Also a fine hive scraping tool, by mail, free if you will send us names and addresses of your neighbor beekeepers. Spencer Apiaries Co., Nordhoff, Cal., U.S.A.

SEEDS AND PLANTS

READ ABOUT BEZZO'S FAMOUS PRIZE ASTERS on page 140. C. M. Bezzo, Berlin, Ont.

EARLY IRISH COBBLER POTATOES—Specially selected and Government inspected for seed. One dollar per bushel. Cash with order. Special price in lots. Have only limited quantity. H. W. Dawson, Brampton, Ont.

MISCELLANEOUS

1,000 GUMMED MONEY LABELS, two colors, any wording, for \$1.30. Catalogue free. Pearl Card Co., Clintonville, Conn.

Western Marketing Methods.

At a meeting of the fruit growers who are members of the Okanagan United Growers, held about the first of April, the following policy was adopted:

That earnest efforts be made to arrange a working basis with our competitors as to selling policy and prices.

To have one warehouse on the prairie and one or more representatives, the number to be increased as business warrants, and that at Vancouver we have our own representative, with necessary equipment to be obtained as required.

That we sell our own goods.

That garden truck and early soft fruits be placed direct with the retail trade by our own salesmen so far as possible.

That we sell our main carload crop chiefly to the regular wholesale trade on an f.o.b. shipping point basis.

That no goods unsold be shipped out except to our own salesmen.

That cheaper packages be used especially in handling orchard run or off varieties of apples. Baskets will also be used in making experiment shipments of soft fruits, early apples and crab apples.

That our export markets be extended.

Open Packages.

That this Association approves, at least for its own use, the adoption of an open package for apples and plums, of such a nature that the fruit may in most cases be packed in the orchard. In the case of apples the contents to be "orchard run," (without culls) of the net weight of about 40 lbs., and to be a distinct package from that used for cookers or No. 3 and this be done only sufficient to try it out this season.

We recommend the marketing of our crop without the use of brokers and wholesalers as far as possible.

A Minimum Price.

That it shall be considered a part of the duty of the executive to fix for fruit and produce of all kinds and grades a minimum price below which such fruit and produce shall not be sold without warning to the locals of the state of the markets; such minimum price to be such as will leave a small margin to the growers, after all average cost of picking, hauling, packing and selling have been taken into consideration; and that when market prices are approaching this minimum or the markets are glutted and unsettled and the prices ruling low, warning shall be immediately sent to every local which shall notify its associated growers in such way as it may deem best and thus throw upon the grower the responsibility of deciding whether he will continue the harvesting of his crops.

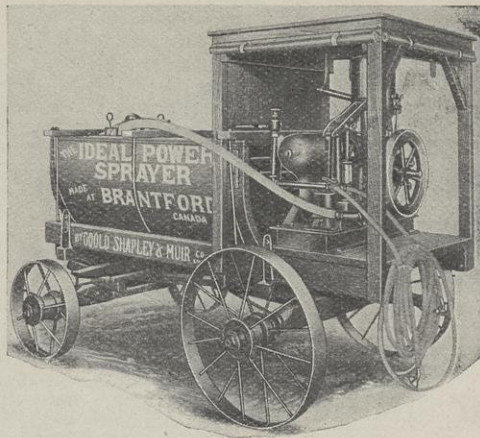
TORONTO

Eighteen streets were selected for street improvement last year by the Toronto Horticultural Society for each of which one silver and two bronze medals were given as prizes. In the working man's homes competitions there were two districts: Riverdale and Wychwood. Cash prizes were given in each. In the poorest parts of the city 12,220 packages of seeds were distributed to 887 families. Sixty-five per cent. of these turned out well; fifteen per cent. fair, and twenty per cent. failures—half of the latter owing to removals. Exhibitions were held as usual in May, June, July and August. The School Children's Home Gardens and exhibitions were a great success. Cash prizes and medals were awarded.

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.

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GOOLD, SHAPLEY & MUIR CO. Ltd., BRANTFORD, Ont.

**This Beautiful Tea Set
of Bavarian China**

FREE



This beautiful Set contains 40 pieces: 1 dozen cups, dozen saucers, dozen plates, 2 cake plates, 1 cream jug and a dreg bowl. The set is Bavarian China, nicely decorated, and the shapes are the very latest.

A large order placed with a local wholesale house enables us to offer these sets to you in return for a very small amount of work on your part and without a cent's expense.

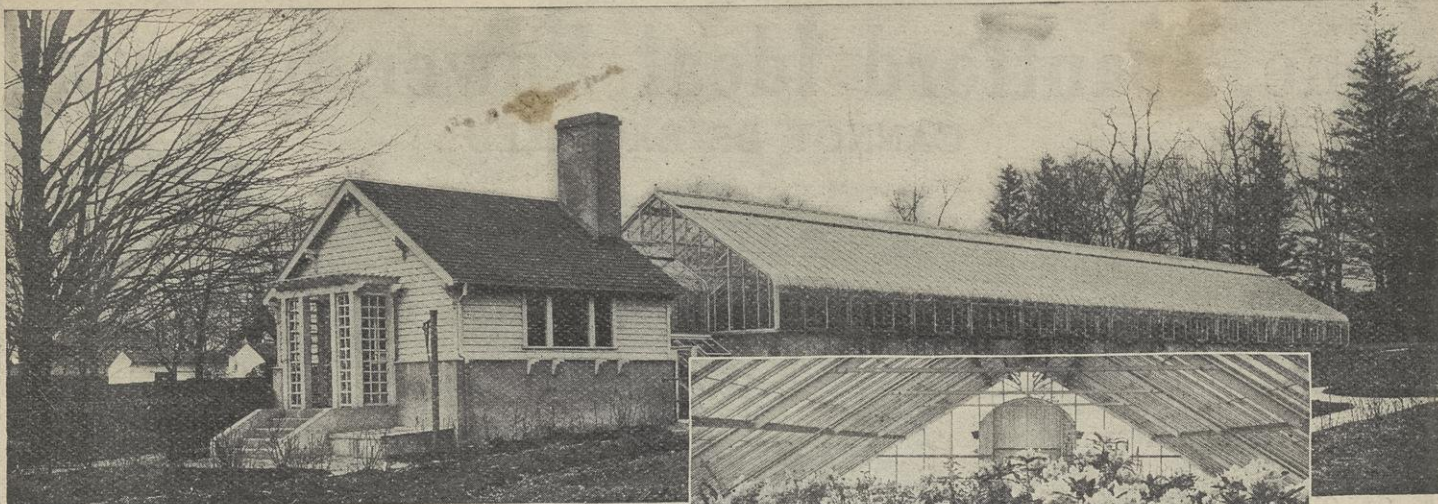
If you will send us 5 new yearly subscriptions to The Canadian Horticulturist at \$1.00 each, or 3 new three-year subscriptions at \$2.00 each, we will send you one of these sets at once.

This is a wonderful opportunity for you to get a Tea Set **FREE**. Write us immediately.

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Dislodge From Your Mind The Mistaken Impression That a Greenhouse is in the Luxury Class

THERE isn't a bit of doubt that they used to be—but that was *then*. This is *now*.

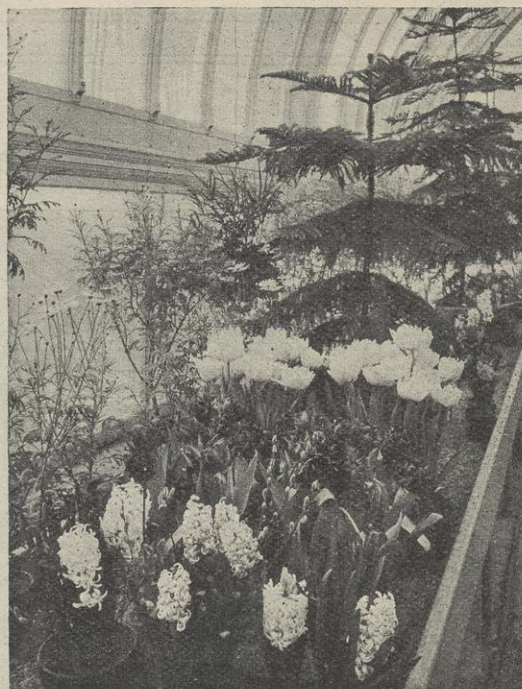
Just think what the last ten years has done for the automobile, in converting it from a luxury into a necessity.

Exactly the same thing has been happening with Greenhouses.

We have developed the construction, improved the heating and all the other equipment, until a surprisingly reasonable amount buys one of our finest curved eave houses, similar to the one above.

To get a rather good line on this question of owning your own greenhouse, let us have your name and address, and we will promptly send you our Two G's Booklet—Glass Gardens, A Peep Into Their Delights.

We have been building greenhouses for over half a century, so we know how to build them.



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