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THE CANADIAN HORTICULTURIST & BEEKEEPER

VOLUME 23, No. 6
\$1.00 a Year

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JUNE, 1915

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The Canadian Horticulturist

Regular Edition.

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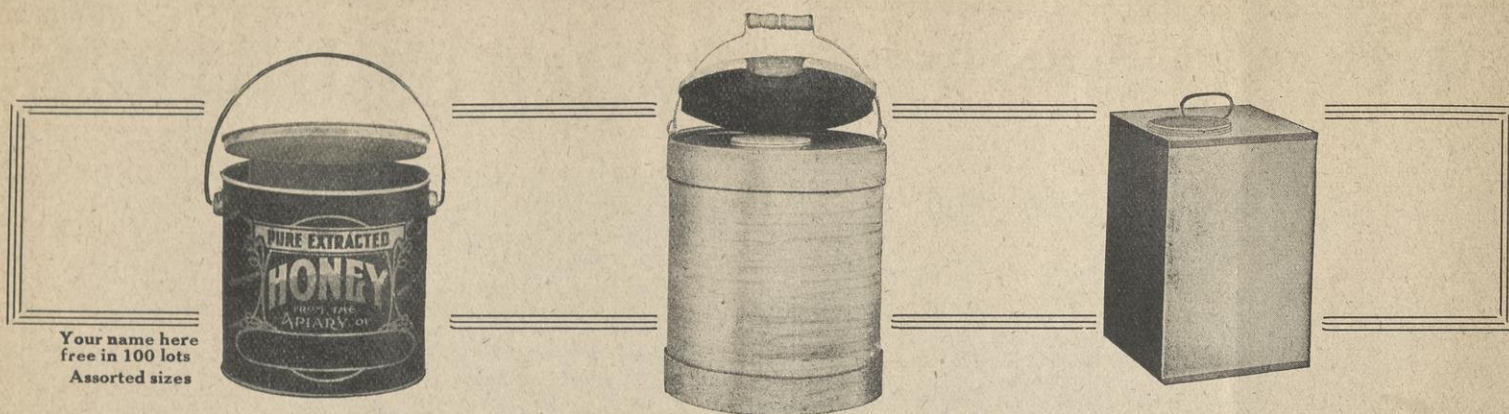
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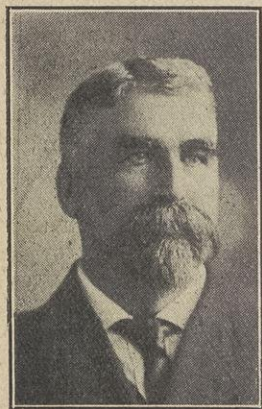
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JUNE, 1915

No. 6

The Methods of a Veteran Fruit Grower.

ONE of the most pleasant places in eastern Canada is the village of Waterville, in King's County, Nova Scotia. Everybody there grows apples. The eye of the visitor is gladdened at this season with rich foliage and a profusion of bloom. Among the prosperous residents is Mr. W. W. Pineo, one of the veteran orchardists of Canada. Mr. Pineo began to plant an orchard forty years ago, and has planted a



W. W. Pineo.

few acres every spring since that time. He now has one hundred and eighty acres under apple trees, of which about twenty acres are in full bearing. His orchard contains 9,000 trees, and he is setting out five hundred additional trees this spring.

The varieties represented in his orchard include Gravensteins, Kings, Blenheims, Northern Spies, Baldwins,

Ben Davis and Starks. He finds Kings and Ben Davis to be the most profitable varieties. "The Tompkins King," he said to a representative of The Canadian Horticulturist, "is perhaps the quickest selling of any of the standard varieties grown in this province. It is in strong demand in the English market around Christmas. It was introduced into this country about sixty years ago, and owing to its size and beauty became rapidly popular. The King is fond of a warm soil, well drained, and likes early cultivation. The claims of the Ben Davis to popularity are based on its long-keeping qualities combined with its excellent yields, and the demand that exists for it among the English costermongers in March and April. Moreover, it blooms late, and that is an advantage in this climate."

The soil of a part of Mr. Pineo's orchard is a sandy loam, and part is a gravelly loam, with a clay subsoil. Mr. Pineo obtains the best results from a gravelly soil. He thinks this is due as much to the depth and natural drainage in such soil as to any other cause. "In Nova Scotia," continued Mr. Pineo, "apples are successfully grown on nearly all kinds of soil from light sand to heavy clay. The sandy soils, when

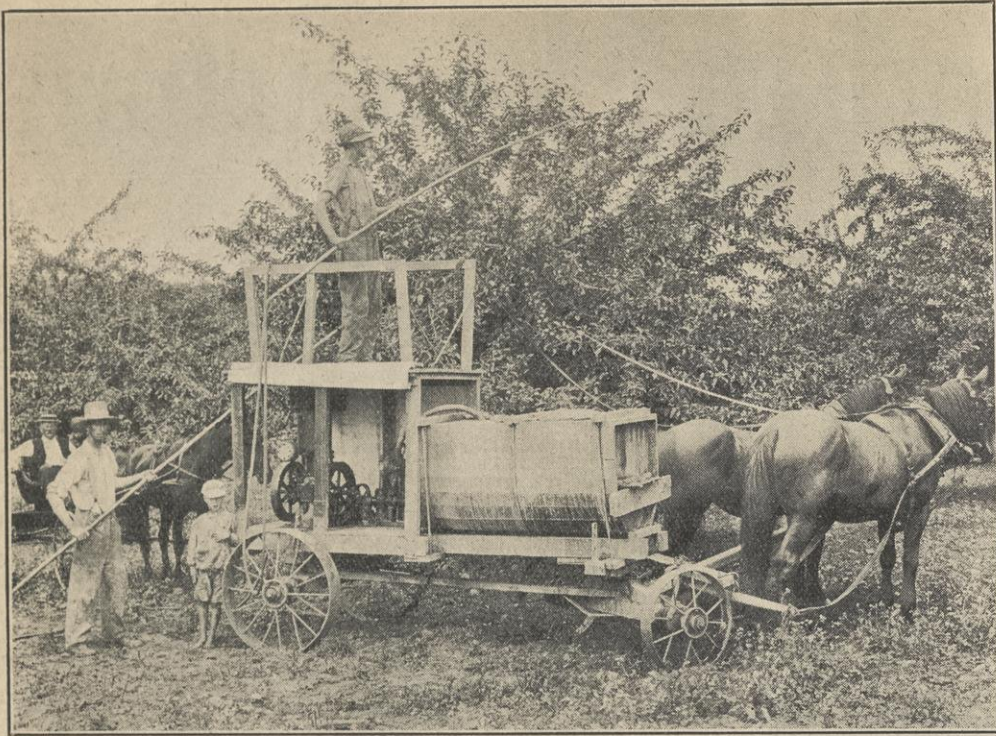
supplied with plant food and humus, become useful for orchard purposes. It is, however, on some kind of loam that most of the orchards in this province are grown. Personally, I prefer a northern slope for apple trees and a site if possible somewhat higher than the adjoining land. On such a situation there is, of course, less chance of injury from frosts, owing to the drainage of the cold air to lower levels. Moreover, I find that a northern slope tends to retard blossoming until after the period of late spring frosts."

Mr. Pineo claims that young trees from a local nursery, if well grown, are preferable to imported ones. The purchaser has the advantage of inspection before buying, gets stock with roots subjected to a minimum amount of exposure, and local stock is less apt to introduce insect pests and diseases. He uses both two-year-old and three-year-old trees, paying from twenty to thirty cents for them.

He prepares the soil thoroughly before setting out the trees. This preparation is begun at least one season ahead. A root crop is generally grown, to which is applied a liberal supply of barnyard manure. He has never utilized sod land for orchard purposes. The



The residence of W. W. Pineo, in pleasant Waterville, Annapolis Valley, Nova Scotia.



Spraying is one of the operations that Mr. Pineo insists must not be neglected. This shows his power sprayer at work.

land is always plowed and harrowed in the fall, and again in the spring before the trees are planted.

The trees are set out as early as possible in the spring, as Mr. Pineo has found that early planting allows the roots to develop ahead of the buds, so that later on the roots are able to supply the moisture evaporated from the leaves. He sets out the trees thirty feet apart each way and does not use fillers. In digging the hole, the top soil and subsoil are often placed in separate piles. In replacing this material, a shovelful of the surface soil is put in first, the tree placed in position, and the remaining top soil filled in around the roots. The subsoil is placed on top. The earth is worked in well around the tree. As soon as the trees are set, the land is given a most thorough cultivation by both plowing and harrowing. Until the trees begin to bear, the intervening ground is planted to potatoes, corn or roots. When the trees come into bearing, the land is cultivated with the harrow or cultivator every week, and after every rain, until the first of July, when a cover crop consisting of clover or buckwheat is sown.

"I am cutting out commercial fertilizers as much as possible," said Mr. Pineo, "and using barnyard manure instead. It has been my experience that not much money can be made in this country in raising apples if the grower has to depend altogether on commercial manures. I use some of the straight fertilizers—nitrate of potash, nitrate of soda and bonemeal. I have not found it profitable to use mixed fertilizers. We are told that in countries where arti-

ficial fertilizers are used in enormous quantities the use of mixed fertilizers has been almost entirely given up. Many growers in the Nova Scotia fruit belt, where the greatest quantities of commercial fertilizers are consumed, are getting more and more into the way of applying fertilizers, such as acid phosphate or muriate of potash, by themselves, according to the needs of their orchards, or of mixing these together at home when they wish to apply all the elements of plant food. I believe it would be well if more farmers would adopt this practice.

"Conditions vary very much. It would be impossible to describe a fertilizer which would be suitable for a certain crop under all conditions, as there are too many factors to be considered. A farmer, to use manures or fertilizers intelligently, must keep in mind the nature of his soil as well as the character of the crop. I keep a large number of live stock and have about eight hundred tons of manure available from that source. In addition, I buy yearly about three hundred tons of this fertilizer at from a dollar and a half to two dollars a ton, according to the state of preservation.

"We are told that a ton of barnyard manure well saved is worth in comparison with commercial fertilizers two dollars and ninety-seven cents a ton. But too often under the ordinary farm conditions the manure available has depreciated in value. Farmers are learning, however, that a manure heap may lose more than half its value in a few months through leaching and fermentation. But too many of them do not

realize that out of a total value of two dollars and ninety-seven cents a ton the liquid part is worth two dollars and six cents, and the solid part but ninety-one cents. Our provincial Agricultural Department is doing excellent work in advising the use of tighter barn floors to prevent leakage, the use of more straw, earth, muck and other material to absorb the liquids and the storing of manure, whether indoors or out, in a place from which drainage is impossible. The manure heap should be kept level and as compact as possible. An uneven surface allows an easy circulation of air and, in consequence, rapid fermentation. The manure from horses, sheep and poultry, being hot, should, if possible, be mixed with the manure from the cows and hogs in one common heap. The heap should be thoroughly and frequently tramped down. The application from time to time of quantities of dry earth is useful, as the earth absorbs nitrogen and other organic gases which would otherwise be lost.

"I do not use more than ten tons of manure to the acre in my orchard. More than this sometimes causes an over-stimulation of wood growth."

Pruning Methods.

Mr. Pineo prunes lightly from the outside every June. He prunes the young stock so as to develop symmetrical, well-balanced trees. Bearing trees are pruned so that the tops are opened up for sunlight and the height kept convenient for spraying and picking. The only fungicide employed is lime-sulphur. The proportions used are six gallons of commercial lime-sulphur to two hundred gallons of water. About two pounds of arsenate of lead are incorporated with every forty gallons of the mixture. Spraying is begun just before the fruit buds burst. The young leaves are well covered with the spray and protected against scab until the second application, just after the blossoms fall, can be given. Two and often three additional sprayings are applied with intervals of ten days between. Care is taken that a fine spray is produced. Nevertheless, the trees are very frequently drenched. The proportions used, however, admit of drenching without injuring the foliage, and it pays better to waste lime-sulphur than apples. A power sprayer is used at a pressure of two hundred pounds.

Sprays Thoroughly.

"I believe in the gospel of thorough spraying," said Mr. Pineo. "We must grow clean apples—nothing else counts. The orchardist who is content to grow only spotted apples is on the road to the poorhouse, and the more apples he grows the sooner he will arrive there. Scabby apples will not be worth anything in the very near future. Apples can be kept clean in the worst season if the grower knows his business. Many

people, when they spray, have in mind only the necessity of keeping the apples clean, free from diseases, so that they may look more attractive, keep better and fetch a higher price. But spraying does more than that. It prevents the premature dropping of fruit and keeps the trees in good health, so that they not only produce more fruit but actually destroy the scale insects that suck the life-blood out of the trees. We can understand how the destruction of these pests increases the vitality of the orchard."

While the orchard represents Mr. Pineo's prime interest, he recognizes that there are other means of making a livelihood on the farm. He has an average of forty acres under oats, thirty under corn, forty under rye, seventy under hay, and ten acres under roots. He keeps one hundred head of cattle, seventy-five hogs, and ten horses. He uses a pure-bred Holstein bull with his herd of high-grade Holsteins, and the results are most satisfactory. His cows are giving an average of from thirty-five to sixty pounds of milk per day.

"The cry about over-production of apples does not worry me," said Mr. Pineo, "or I shouldn't be setting out ten additional acres under apple trees this year. But there is no good reason why an orchardist should not have more than one string to his bow. Dairying and orcharding fit in very satisfactorily together. The fruit grower who keeps live stock has an immediate, a convenient, and a profitable market for his culls. A large quantity of manure is produced and returned to the soil. Moreover, while the beginner is waiting for the young orchard to grow, the cows help pay the bills. Then, by rais-

ing some cash crops, such as small fruits and potatoes, he is enabled to make a fair living, and when the trees begin to bear the apples seem to come almost like a present. The combination of dairying and orcharding enables the grower to furnish steady employment to his men during the entire year, thus solving the help question in a measure, for it is when men are idle in the winter months that they become restless and wish to get away to some other country."

Mr. Pineo keeps careful records of his farming operations. By reference to his books he was able to furnish the writer with the following statement of his yearly expenditures and receipts per acre of bearing orchard:

Rent of land	\$30.00
Value of fertilizer used	20.00
Hauling and spreading manure..	3.00
Sowing fertilizer	1.00
Discing and harrowing	2.00
Seed for cover crop	2.00

Sowing cover crop25
Spraying	3.00
Barrels	27.00
Picking, packing and truckage...	25.00
Other expenses	1.00

\$114.25

Each acre of full bearing orchard yields an average of about one hundred and ten barrels. This, at two dollars, gives him a gross income per acre of two hundred and twenty dollars, and, less the expenditure, gives him a net income of one hundred and five dollars and seventy-five cents. Mr. Pineo has several times picked three hundred and fifty barrels from one acre in a season. Those were, of course, exceptional crops. His average crop over a large acreage is as stated. His average total crop per year is 5,000 barrels. It must be remembered that this is not a bit of farming on paper, but the concrete results that follow the intelligent efforts of a skilled orchardist.

Pruning Principles Simplified*

PRUNING is one of the oldest of orchard practices, and a very essential one; but without soil fertility, spraying, and cultivation, pruning will be of little value. Our object in pruning is to make the plants vigorous; to give them some desired shape; to strengthen the framework of the trees; to make them fruitful; to allow sunlight and air and to regulate the heat and sunlight so as to prevent sunburn; to aid in such orchard work as spraying, thinning and harvesting. In studying pruning, we must make

* Paper read at Grand Forks Farmers' Institute.

ourselves acquainted with the general principles, and we should make a special study of the buds. In many cases heavy top pruning will produce heavy wood growth, and have a tendency to rejuvenate the tree. Too heavy pruning may develop a strong growth of watersprouts, which is an indication of a lack of balance between top and roots, and causes one part of the tree to live at the expense of the other.

The growth habits of trees vary a great deal. Some have a close and upright habit of growth, while others are spreading growers. Some are strong and others are weak growers. These factors must all be considered in pruning the different varieties. Fruit bearing becomes very much a habit with trees. We are able to change this habit to some extent by pruning.

Summer pruning, if done at the right time and moderately, will have a tendency to produce fruit buds, while on the other hand, winter pruning has a tendency to produce wood growth. Summer pruning is usually practiced on young trees which are producing excess wood growth at the expense of fruit spur formation, up to about the sixth year. The time to summer prune will depend upon the different varieties and the length of the growing season, as we find some varieties grow much later than others, and also our trees will grow much later one year than in another.

We should aim to summer prune just before growth stops, by pinching back or cutting back part of the terminal. Pruning at this time tends to produce fruit buds. If you summer prune too early, you will get second



A four-year-old peach tree before pruning.



The same peach tree after pruning. Note the pruning tools used.

growth, which is tender and will freeze back. If you summer prune too late after growth is stopped, you have lost your aim, and summer pruning then becomes a case of early winter pruning.

In pruning young trees, such as apples, pears, plums and cherries, which bear their fruit on spurs, it is best to use the semi-pyramid form or shape of tree. We find that fruit trees of this type will carry a crop much easier and of more uniform size and color than the vase or pyramid form of tree. The vase or open tree is a very good form to use for peach trees. The peach tree bears its fruit on one-year-old wood. Thus, in order to keep good strong bearing wood low down on our trees, we must prune our trees hard and to an open top.

The success of our orchards will depend a great deal upon the early training of our trees. Endeavor, when possible, to secure one-year-old branch trees. The lateral branches on these trees are growing at right angles to the trunk. Head the tree to about twenty-four to thirty inches from the ground, and select three or four of the best side branches; cut them back to a bud on the top side and about eight or ten inches from the ground. The one-year-old straight or whip tree, when planted, should be cut back to a bud about thirty inches from the surface of the ground. If good growth takes place, we will get five or six side branches out from the trunk the first year. The lower branches grow at much wider angles to the trunk than those nearer the top; so remove one or two of the limbs near the top, so as to

eliminate the weak crotches; start the first side limb about fifteen inches from the ground, and select three or four of these side branches well spaced on the trunk, and growing as near as possible at right angles to the trunk.

This will form the framework of the tree. Then cut the side branches back to a bud on the top side, and about eight to ten inches from the trunk of the tree. Prune the leader to a bud towards the centre of the tree. The leader should not be allowed to become more than a foot longer than the side by cutting back to a weak side limb.

The pruning of the trees after the first year, and the amount of growth to cut back, will be determined by the pruners. No fixed rule can be followed in their habit of growth. With young trees, up to about the sixth or seventh year, aim to prune to strengthen the framework of the tree and to encourage fruit spur formation.

We always find in our trees a number of small lateral branches which are a foot or less in length. By allowing these small branches to grow from the terminal bud and not pruning them back, a large portion of the side buds will develop into fruit spurs. By this practice we can force our trees into bearing much earlier. Sometimes we can let our young trees go for one year without pruning back any of the terminal growth, and encourage fruit spur formation all along the main branches. These main branches can then be strengthened by pruning them back the next year.

After the trees commence to bear, prune to keep the trees well open to

allow the air and sunlight into them to strengthen the tree and to thin the fruit. Aim as nearly as possible to let the fruit regulate the growth of the tree.

An Amateur's Fruit Garden

M. B. Davis, B.S.A., Experimental Farm,
Ottawa, Ont.

FOR the amateur fruit grower, summer pruning of trees is to be recommended. In small gardens, where it is desired to keep the size of the trees down as much as possible, summer pruning is better than spring pruning. The latter part of June is an excellent time for this operation.

Bush fruits should have been pruned last month, but if this was neglected they may still be thinned out if necessary, especially the old raspberry canes, which should have been removed last fall.

Strawberries.

The new strawberry plot has probably been set out by this time. Constant cultivation will now be necessary to assist the young plants in making plenty of growth. Keep all the blossoms picked off the first year, and as soon as the young runners appear place them in the rows and place a handful of dirt on the top to hold them in position.

Spraying should have commenced earlier, but there is still need for it, as insect pests will be continually needing attention. The caterpillars on the apple trees and other tree fruits can be controlled by the use of paris green at the rate of one ounce to eight gallons of water, mixed with a little milk of lime and sprayed on the trees. This will control all biting insects on trees and bush fruits. For the currant worms, which will be now in evidence, this is excellent, until the fruit sets, when hellebore should be used instead.

For the aphid or plant lice on the young trees or bushes, kerosene emulsion made according to the following formula will do well. Tobacco extract, as purchased at the seedsman's, is also excellent and gives a little less trouble. As these are contact sprays, several sprayings may be necessary to control the pest.

Formula for kerosene emulsion:

Coal Oil (Kerosene), 2 gallons.

Rain Water, 1 gallon.

Soap, One-half pound.

Dissolve soap in water by boiling, take from fire, and while hot turn in kerosene and churn briskly for five minutes. Dilute before use with nine pints of water.

Old apple trees should be scraped at least once in three years for the removal of rough bark that may harbor insect enemies. A hoe, hollowed out in the centre to fit the round of the tree, is the most efficient tool for the purpose.

Plant Lilies in Your Garden

B. C. Tillett, Hamilton, Ont.

IN beauty and in stateliness the lilies are unsurpassed. There is a charm, almost a mysterious enchantment about them, that is as ancient as the proverbial beauty of the rose. The superb elegance of their blooms, of wax-like whiteness, bright orange scarlet, or yellow in color, on their stately stems, compel our admiration. One wonders that the lily seems to be so often overlooked, but if it is somewhat of a rarity, this should add the more to its charms. But perhaps one reason they are not more often seen is that the bulbs, of some of them at least, take a year to bloom. Another reason may be the price of the bulbs. In considering the price of the bulbs, however, it must be remembered that, although the bulbs may cost ten to twenty cents or more each, and of some of the rarer sorts such as *lilium regal*, as much as two dollars each, they remain in the soil flowering year after year, and do not, like many of the cheaper bulbs, require replacing every few years. Apart from this, the magnificence of their blooms more than repays the little extra expenditure on their production.

However small a garden it is not so small, if it possesses a flower border, but that space can be found for one clump of lilies, especially as the plants do well in partial shade. The culture of the hardy kinds is very simple. The results depend largely upon the care taken in selecting varieties suitable to our climatic conditions, for some kinds are considerably hardier than others. The well-known tiger lily, *lilium tigrinum*, will succeed almost anywhere if conditions are at all favorable.

The golden-banded lily of Japan, *lilium auratum*, with its unusually large and fragrant white flowers—often twelve inches across—is by many considered the most beautiful of the lilies. It is not always quite so easy to succeed with as is *speciosum* and its varieties. *Lilium speciosum*, one of the hardiest of the lilies, although fragile in appearance, serves admirably as a pot plant as well as for the border, especially the pure white variety known as *album Kratzeri*. Other beautiful varieties of *speciosum* are *S. roseum superbum*, with large blooms; *S. macranthum*, with its deep rose flowers, and *S. Henryi*, which is decidedly attractive with its brilliant orange-yellow blooms. Bulbs of both *auratum* and *speciosum* cost from twenty to twenty-five cents each. *Speciosum rubrum* is another exceedingly handsome variety and very hardy.

Lilium candidum, often called the Annunciation, or Madonna lily, is one

of the handsomest of the pure white lilies, in fact, it seems to impress one with a sense of refinement by the purity of its wax-like flowers. June sees it in all its glory, and three or four plants of this lily in full bloom make an exceedingly effective addition to the bor-

has this advantage, that the blooms can be brought on at almost any time of the year, at Christmas or midsummer, Easter or November. If potted in August, flowers can be had in November, and a succession of blooms obtained from thence on till May, with



Lilium Auratum, the golden banded lily of Japan, is a white lily, spotted with gold and with golden ribs. It is considered by many the most beautiful of the lilies.

der. It is also another of the hardy kinds, and once well established in a border should be left undisturbed. Planted early in autumn, leaves will soon appear, and the stems often bear as many as twenty blooms.

Lilium longiflorum is another of the snow-white lilies, the chief characteristic of which is its long, trumpet-like flowers, from six to eight inches in length. It flowers in June and July, and, like *speciosum*, is well suited for pot culture.

In a somewhat shaded position, preferably among evergreens, a striking feature can be made with a single bulb of *lilium giganteum*, the Easter lily of Bermuda. Towering to a height of eight or ten feet on a strong stem, and throwing out a dozen wax-white blooms, nothing could be more effective. This is a lily which produces a surprising number of blooms, and it

the use of a cold frame. The flowers are delightfully fragrant, and if cut when only partially open, will keep for two or three weeks. Bulbs of this grand lily are very reasonable in price and can be purchased for twenty cents each.

Give Good Drainage.

The great secret of success with lilies is proper drainage for the bulbs. If this is secured, the cultivation of all the hardy kinds is very simple. Lilies require a very rich soil, slightly sandy. Where the soil is too clayey or loamy, it can be brought into suitable condition by adding a few shovelfuls of wood or coal ash, and sand or fine gravel, with a good heavy dressing of leaf mould well worked in. There is no better material with which to enrich soil for lilies than well rotted stable manure, the older it is the better. In addition to this, some good bone dust



Lilium Longiflorum, another snow-white lily with long trumpet-like flowers, which appear in June and July.

should be thrown into the soil. Chemical fertilizers and fresh manure should be avoided, as they are liable to injure the bulbs.

If the soil is naturally light, the best way to prepare a place for the bulbs is to trench a piece of ground about two feet square, to a depth of about eighteen inches. After the soil has been taken out, a foundation for the bed should be made with pieces of old broken bricks and stones. Over this place the prepared compost consisting of good manure, leaf mould, and well rotted stable manure, bringing this up to within six inches of the top of the hole. On this give a good sprinkling of sand and everything is now ready for planting the bulbs. Place these in the hole at distances of fourteen inches apart, putting under each bulb a handful of sand, and another handful or two around the bulb. The compost may then be gently filled in, taking care not to disturb the position of the bulbs, and firmly pressed down but not rammed.

An important point to remember when planting lilies is that some varieties have two sets of roots, one at the base of the bulb and the other at the base of the stem. To distinguish this kind they are usually called stem-rooting lilies. They include *l. auratum*, *l. longiflorum*, *l. speciosum*, *l. tigrinum*, etc. All these should be planted at a depth of six inches, or so that the top of the bulb is at least five inches from the surface. Those having roots at the base only, need not be planted quite so

deep and four inches from the surface will be sufficient. Many growers plant *auratum* eight inches deep, and an exception to the rule is *l. candidum*, which is not stem-rooting and must not be planted more than three inches deep. Much depends upon the soil, for in light soils the bulbs may be put an inch or so deeper than in a heavy one. In damp situations it is a good plan to plant the loosely-formed bulbs—among these are *candidum* and *speciosum*—on their sides.

If the bulbs are to be planted in a hardy border or shrubbery, it is not always practicable to trench the bed, and the better way to proceed is to dig a hole large enough and deep enough to contain a shovelful of sand or gravel at the bottom and over this several inches of the compost above mentioned, surrounding the bulb with sand when planting. If a single bulb is being planted, a large enough hole can be made with a trowel or post-hole digger, treating the hole in the same way with sand and compost. The roots and stem will easily find their way through the sand and this porous wall will prevent standing water, manure, fertilizer, or other injurious substance in the soil from reaching the bulb.

Where it is intended to grow lilies in a collection or to obtain effect from a mass there is no better plan than making a raised bed and edging it with turf. This will both show them off to the best advantage and ensure good drainage.

October is the best month for plant-

ing most of the lilies, but the *Madonna* lily, *testaceum*, and *auratum*, should be put in not later than August or September. Once planted, the bulbs do not need to be disturbed, and each year become more valuable through the increasing spikes they bear. If left undisturbed the lilies will remain for years, and, if desired, the stock can be increased by saving the small bulbs or "offsets" which are formed every year. These may be planted out in the flower border. All that needs to be done is to give a mulch of dead leaves every winter when the first frosts set in, and the ground all about the bed should be well covered to the depth of a foot. A little soil may be sprinkled over these to keep them in place. When spring comes round this mulching should be gradually taken away, and when all has been removed, a little bone dust or old manure may be dug in. After the plant has finished flowering and the stems have begun to dry these should be cut off.

It would be impossible to conclude without a reference to a few other choice kinds—*Chaleedoniusn*, with its vivid scarlet flowers on tall slender stems; *Hansoin*, with its deep yellow flowers mottled with black; *Lancifolium rubrum*, an exquisite kind, with bright rose-colored flowers dotted with crimson spots, and what is perhaps the prettiest of all the small kinds, *Tennifolium*, with its small brilliant crimson flowers and delicate foliage.

Tomato Growing for the Amateur

John Gall, Ingewood, Ont.

Neither the farm house nor the town lot should be without tomatoes for home use. They are easily grown, but good seed and good cultivation are the chief factors which lead to success. I would recommend *Earliana* as the variety to grow. It is extremely early, prolific, smooth, large, of the richest scarlet color, and is not prone to rot before ripening.

Generally speaking, it is more satisfactory to raise your own plants. You will then know what variety you have, and not be disappointed that the "big red kind" which you bought at the greenhouse, proves to be late and a poor bearer.

Anybody can easily grow the plants in the house window, shifting into large pots as necessary, and find the work enjoyable. In transplanting to the garden, always set them deep. Roots will form wherever the stem comes in contact with the soil, thus deep planting not only secures firmer anchorage and more numerous sources of sustenance, but the deeper the roots sink into the soil, the greater will be the resisting power in time of drought.

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Rearing and Introducing Queens*

Mrs. W. H. Hambly, Rose Island, Man.

THE value of a good queen is appreciated by beekeepers. Virgil, the prince of Roman poets, who was a beekeeper of renown, says in his noble Georgic of bees:

Put the baser one to death,
That he, mere spendthrift, cumber not
the ground,
And let the better wear his crown
alone.
For lo! two kinds: this one of noble
mien
And ruddy sealed and bright
All starred with even points of purest
gold,
This is the better stock, sweet honey
hence.
Your hands shall strain at proper
time of year
Not only sweet but liquid clear as
well,
And sure to tame the harshness of the
grape."

You will notice that Virgil, in common with all the old writers, makes the curious mistake of speaking of the leader of the colony as the King.

For a number of reasons, including gentleness, greater immunity from disease, and larger honey yield, it is generally conceded that the Italian bee is superior to all others; but just as in a herd of pure bred dairy cattle, one cow will surpass any other in her yield of butter fat, so in an apiary of Italian bees it will be found that some colonies gather more honey than others. Since the queen is responsible for the good or bad qualities of her children, we cannot afford to keep inferior queens.

In our apiary a record is kept of each colony. The number of the hive, age and pedigree of the queen, dates of supering and swarming, honey returns, disposition of the bees, and other data are entered in a book that hangs conveniently on the door of the workshop with a pencil beside it. Only the choicest of the queens are permitted to celebrate their third birthday, and it is from those that have been under observation for at least two seasons, that we select our breeding stock.

The man who is specializing in alfalfa or corn makes a point of obtaining seed matured as far north as possible, and very few of us setting out a strawberry patch in Manitoba, would think of sending to Florida or California for our plants. I believe the same principle of hardening by acclimatization holds good with bees, and that it is to our advantage to rear our queens more largely instead of importing them. I like to think the time will come when Manitoba queens will hold the same place in the esteem of beekeepers that Manitoba wheat holds in the markets of the world, and we shall be selling to, instead of buying from our good neighbors to the south.

Early Queens.

When we desire early queens we commence operations so that they will be hatching by the time the first drones are flying, and we endeavor to make this as early as possible by helping the bees to build up quickly in the spring. To this end, including of course the general prosperity of the apiary, a little assistance in the fall is necessary.

Most of our re-queening is done in August, and last year because of the hail and drought in our locality very little nectar was coming in at that time, and the young queens were slow about commencing to lay, and some of

the old queens had discontinued. Entrances were contracted, and a pint of half and half syrup fed daily for a few days. This started brood rearing at once. We also found several colonies at the point of starvation. In addition to the syrup these were given some frames of sealed honey. Later in the season it was necessary to increase the winter stores, and for this purpose an average of ten pounds of sugar per colony was fed as a syrup, an unusually large amount compared with the two or three pounds of normal years. Plenty of young bees and ample stores are essential factors in successful wintering.

Just before the hives are taken from the cellar in the spring, we make up candy in pieces about six inches square and one inch thick. It is not advisable to make too much at one sugaring off, as long boiling will spoil it. Granulated sugar is dissolved in a little water at the back of the stove, and then boiled rapidly without stirring till it forms a soft ball when a spoonful is dropped in cold water. After cooling a few minutes it is beaten till white and turned out in tins. The candy is placed over the cluster with a couple of little sticks above and below it so that the bees may have access on all sides. The quilt is replaced and supplemented by



Among the enterprising beekeepers in the Province of Quebec is W. A. Oswald, of Petite Brule. Note the summer house at the back where supers and extra hives are sorted.

*Extract from a paper read at the last annual convention of the Manitoba Beekeepers' Association.

two thicknesses of newspaper, and a super containing a chaff cushion set on. We prefer this to syrup for stimulative purposes in the first chilly days of spring. As soon as a real warm day comes along, stores are equalized where necessary. If a hive is too heavy with honey a couple of frames are taken out and exchanged for empty ones from a light hive. At the same time we examine to see if any queens have died during the winter. Too much sealed honey in the spring is not an advantage, as the queen may be cramped for room to lay her eggs.

A queen lays two kinds of eggs, fertilized, developing into workers or queens, and unfertilized, developing into drones. There are three natural conditions under which they wish to replace an old or failing queen or when some accident has rendered them queenless.

In swarming and supersedure the bees start some circular cells, the base

covering about three times the space of the hexagonal worker cell, and the queen deposits an egg in each. In three days the egg will develop into a larva, and find itself provided with a rich predigested food known as royal jelly. The building out of the cell will keep pace with the growth of the larva and royal jelly will be lavishly supplied.

In eight days from the laying of the egg the cell will be ready to seal, and in seven or eight days more a queen will emerge. A queen is a queen by virtue of a larger cell, and richer food while in the larval state. If an egg is lifted from a queen cell and a worker egg put in its place, a queen will be developed in the time and manner described.

In the case of a queenless colony having neither eggs nor unsealed brood if a frame of young larvae is given them, they will enlarge a worker cell, provision it with royal jelly, and rear a queen in ten days.

A frequent cause of chilled brood and discouraged bees is spreading brood. This should be resorted to only with great caution. As a rule a queen that does not respond to stimulative feeding will not be driven on by spreading brood. Still do not be afraid to open up the brood-nest on a balmy day.

See that the queen is clipped and that there are no large patches of drone comb. If there are, cut them out and fill the holes so made with worker comb.

If too much room is occupied with sealed stores uncap or even extract it. Then guard, if necessary, by feeding against a set back to brood rearing between fruit bloom and clover, which more frequently results from a scarcity of nectar for gathering than from a shortage of stores in the hive.

Was This a Non-Swarming Colony?

John A. McKinnon, St. Eugene, Ont.

I began queen rearing operations last year, the first part of June. Number eighty-seven was one of my best and strongest colonies. It had two full-depth supers on during fruit-bloom, one of which it filled and capped. The partly filled super was placed next the brood nest and the full one on top. These full combs of early honey were used later in making nuclei, or given to weak colonies that were in need between fruit bloom and clover. My records show that the first bar of grafted queen cells were given this colony on the eighth of June. Every ten days the ripe cells were taken and distributed to nuclei and a fresh batch given.

On the ninth of August I had more cells than I could use and during the press of other work this last batch were allowed to mature and hatch. A couple of days later I discovered about a dozen dead virgins on the ground at the entrance, none of which looked as if they had been dragged through the excluder. Going behind the colony and lifting the supers between the colonies I discovered that no excluder had been used. In other words I had raised cells in this colony all the season, contrary to our best authorities on bees, who tell us that one sealed cell in a super is sufficient inducement for a colony to cast a swarm. This goes to show that bees don't go by any set rule in regard to swarming, and that there is more in a non-swarming strain of bees than most bee-keepers are aware of.

I would strongly urge all to Italianize, for if disease never reaches you your honey crop will be increased and your bees worth more if you wish to sell them.
—Chas. Stewart, Albany, N.Y.

Early Season Care of the Bees

H. D. McCulloch, North Bruce, Ont.

HIVE stands should have a wide alighting board from the ground up. I have noticed in a time of rapid pollen gathering that the evening chill causes some to fall short of the doorstep. Many are too cold to take wing again and if there is no such runway they remain out and are often lost, especially when the next day is rainy. Some go so far as to say that the lack of a proper alighting board is frequently an important cause of spring dwindling. It is important not to waste bees in the spring, as each one saved means several more young bees for the harvest.

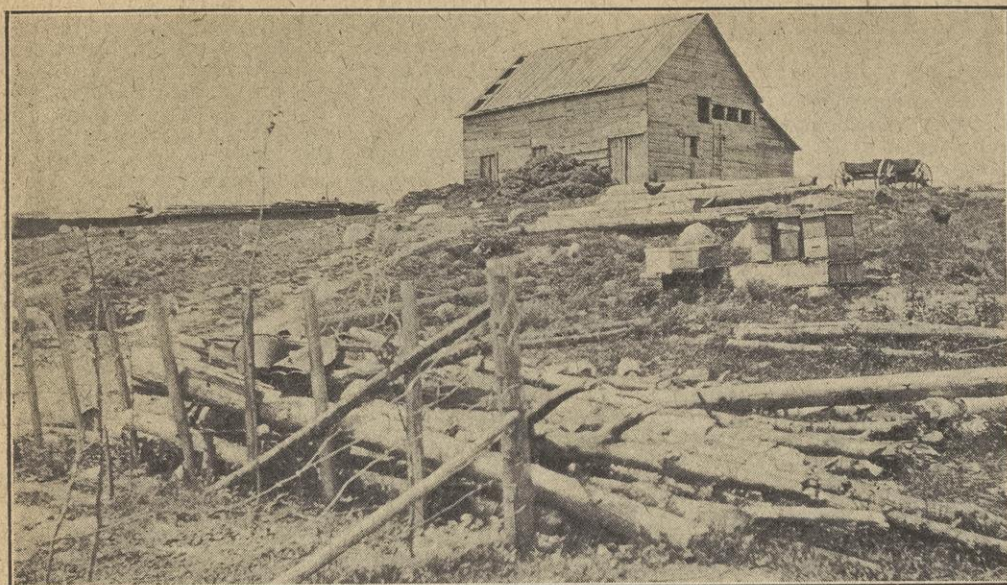
With your hives properly protected, snug and warm, stores and bee strength are economized and you need never fear over-stimulation in brood rearing once pollen commences to come in freely.

When pollen time arrives, having saved your bees well in bad weather they will proceed vigorously to save the colony by spending themselves. You need not be afraid of over-working them. Feed them small quantities of warm syrup every night unless nectar has been coming in well during the day. Next day they will rush out with double zeal in search of pollen and nectar. Mr. E. W. Alexander held that fifty cents worth of sugar so fed to each might make all the difference between a failure and a good crop. With this treatment colonies of average strength will soon have a good body of sealed brood with which the bees have no further work and which is out of the danger of chilling. Then that critical period, when the large number of dead bees carried out of the

hives after a few rainy days almost alarms you, will soon be over for young bees will be emerging much faster than the old ones are wearing out.

Weak colonies may often be saved by adding to them young bees from other colonies, but perhaps the most satisfactory method of handling them is to set them on a queen excluder over a strong colony according to the Alexander plan. For stronger colonies, which have a couple of frames of bees, it may be advisable, besides doing all you can to help them help themselves, to strengthen them at the expense of very strong colonies. It is safer to do this by giving them frames of sealed brood in exchange for frames with unsealed brood, than by giving young bees, because the temper of even quite weak colonies is uncertain and they might to your chagrin massacre every one of a quart of beautiful young bees that have just rolled out of their cocoons. Methods, of course, must be adapted to suit circumstances, yet ever the aim should be to give every queen sufficient bees to enable her to lay well at the time when her laying is most urgently needed.

A very fine way to use the very strong colonies when their hive is well filled with brood is to raise the brood-nest off the bottom board and to place under it another body containing a set of brood combs. By this means I have secured as much as sixteen frames of brood in a colony. Even if these combs are not occupied their presence does not rob the brood-nest of heat as it would do if they were placed over the brood-nest.



A neglected apiary in the Parry Sound District of New Ontario. While this is not a typical apiary it represents the amount of care most of the bees receive.

A Novel Method that Succeeded*

O. L. Hershisier, Kenmore, N.Y.

Important discoveries are sometimes made by accident, and, in despair, unusual methods are occasionally employed, not with any particular expectation of success, but because approved methods and treatments have failed and there appears to be nothing else to do. Thus, accidentally, was introduced a queen to a very stubborn colony by a method not heretofore tried by the writer.

A strong colony was made up of hatching brood and a capped queen cell given, which was destroyed. A second queen cell met with a like fate. An attempt to introduce a laying queen by the wire cloth cage plan resulted in failure. (This method is the caging of the queen with young worker attendants from the colony to which the queen is being introduced, in a wire cloth cage, on the side of a brood comb and kept so confined with the colony for from 24 to 48 hours before releasing). After the colony had rejected the laying queen the presence of fertile workers was discovered, and the colony was treated by shaking the bees from the combs at a distance of 75 or 100 feet from the hive and giving them two more frames of brood. A second attempt was made at introducing a laying queen by the wire cloth method which failed. I had a dark, but otherwise desirable, queen, that had been caged and kept for a possible emergency for about three weeks, and when I experienced the second failure at introducing a laying queen, I determined to try this one. But, upon examination, I found her attendants all dead from starvation and the queen so weak she could hardly move. I thought it not

worth while to try to introduce her, as she appeared to be almost dead. However, I opened the hive and dumped her on the centre of the cluster, gave a puff or two of smoke on the top and at the entrance, and left her to her fate.

She was accepted and now heads a good colony.

Is this the starvation method of introducing queens?

Bees at Monteith Wintered Well

IN the March issue of The Beekeeper Mr. Wm. Agar, of Thornloe, described an interesting experiment that was started last fall in the wintering of bees at Monteith, in New Ontario. The following report from Mr. Clemens, the manager of the Monteith Farm, describes how the bees wintered:

"Our bees have wintered well indeed, and are gathering pollen on every nice day. Their feet seem to be loaded with balls of yellow pollen and the bees are flying about each hive in large numbers. We first noticed them flying about on January 28th, when some of them dropped down on the snow. We noticed them flying again on March 22 with the maximum temperature 37 degrees. After this they came out more frequently and could be seen about in the air almost every nice day. In opening them up I found them with plenty of stores and some of them are now rearing brood and have been doing so for some time.

"We really only had two hives last fall, as one was very weak and did not have a queen, for the drones could be seen about the hive even in November. This hive, of course, perished, but we could not expect anything else, and so could scarcely charge that up against the bees or the climate and put it in a report. Thus we had two good hives

in the fall and two good ones in the spring."

Sweet Clover Again

Two new Sweet Clover bulletins have been issued recently, one from Kansas and one from West Virginia. These indicate that it is one of the most valuable legumes for putting nitrogen into the soil although its value as a honey plant is still doubted by some of our leading beekeepers.

Dr. C. C. James, Canadian Commissioner of Agriculture, advocates the use of such a soil restorer. During a recent address he said: "The most important problem of the agricultural world is that of putting nitrogen into the growing plants. The man who fully solves that problem has found the key to perfect farming." Prof. Hughes of Ames (Iowa) Experimental Station says about it: "It is recognized as the greatest soil builder we have. Each acre of sweet clover will add three to four times as much nitrogen to the farm as will red clover. It has other uses, however, in addition to soil-building properties. At our station it has been grown and fed for several years, and each year we come to think more of it. Live stock eat the hay with relish after they become accustomed to it if it is cut when about two feet high. It has apparently the same feeding value as lucerne. It has been used very successfully for pasture purposes."

Clipping Queens

R. M. Muckle, Winnipeg

The method of clipping queens' wings which we like the best is clipping on the comb by using a small scissors with a bent point. It is said that practice makes perfect, so we first practice on drones until we become proficient. We do not go so far as to say that a bee-keeper should change from his method and do as we do, but we have found that this is the method we like best because it is quick, safe, and easy.

We have been using the smoke method of introducing queens, and have been successful in introducing in every case, when the bees were queenless, or even when they had queen cells or laying workers. It is not well to use an overdose of smoke because it is not needed and is cruel to the bees. The smoke method of introducing is of great benefit to bee-keepers because it means a big saving of time and money, especially to queen-breeders.

Fifty to one hundred colonies may be kept in one spot. Large apiaries, however, should be not less than three miles apart.—F. W. L. Sladen, C.E.F., Ottawa.

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

Good clover this for clipping

Toronto Beekeepers' Field Meet

A GOOD day's outing was enjoyed on May 24th last by the Toronto Beekeepers and their friends at the apiary of Mr. R. E. Adamson at Erindale. The C.P.R. train left Toronto at 7.00 a.m. and carried a portion of the crowd to the Erindale Station. Mr. Adamson's apiary is located about one and a quarter miles by road from the station, on what is known as the Dundas Road between Toronto and Hamilton. This is a popular road with motorists, and many of the beekeepers combined the pleasure of a motor trip with the picnic arrangement. A clear, blue sky and warm sun favored the occasion. There are about sixteen acres of orchard under Mr. Adamson's care, and his beeyard numbers around one hundred colonies. These are kept in double-walled hives, accommodating combination size frames. The hives are packed for winter with eight frames in the brood chamber, and expand to accommodate twelve frames in summer. All are very conveniently arranged, facing the lawn, with plenty of space between them for work. The honey house occupies a site just behind the last row, amid the shade of the trees.

Fruit bloom was pretty well advanced, and the bees were, as Mr. Adamson himself put it, "particularly quiet." Members and their friends moved freely among the flying bees with only an occasional instance of stinging.

With the advent of noon, two events were "run" off. One was according to schedule, and the other was not. Preparations for the noon-day meal were nearly complete when a swarm came out from one of the strong colonies. The interest of all was centred on their manoeuvres, and it was seen they were going to settle quietly on one of the nearby apple trees.

Leaving the swarm to settle down, for the queen was with them, the picnickers sat down to lunch, about fifty strong. Before the repast was complete, about twenty-five more had joined us, and made up a second table. While these late ones were dining the "early birds" were treated to a demonstration on "How to hive a swarm." The swarm had settled in a very inconvenient place, viz., on one of the large limbs where two smaller branches caused a fork, and not a little expertness was required to handle it. The successful method was shown by Mr. H. G. Sibbald, of Claude, who, after protecting himself with a veil and developing a good, thick smoke in the smoker, placed a ladder, reaching conveniently close to the swarm. For want of something handler Mr. Sibbald took, the loan of Mr. Adamson's soft felt hat, and reaching up to the swarm, placed the hat so that a few bees would run up on to it when smoked. Quite a few did so, and the hat was then held slightly above the swarm, and the swarm was given the full benefit of the smoke. The remaining bees flew off the limb gradually, circled around and settled on the hat, being attracted by the small cluster of bees thereon. They were now easily taken down and shaken in front of their new home on the old stand.

The tables cleared, Mr. T. D. Evans, of Islington, took the chair. Ninety-two persons were present for the afternoon proceedings. Mr. Evans announced the following interesting programme: "Winter and Spring Management," by Prof. Morley Pettit, Provincial Apiarist, Guelph, Ont.; "Swarming Bees—How to Handle Them," by H. G. Sibbald, of Claude, Ont.; "Discussion," led by Mr. Ketchen, Toronto, Ont.; "Bee Diseases," by Wm. Arden, Inspector

for York County, Toronto, Ont.; "General Bee Management," by Wm. Couse, Streetsville, Ont.; "Demonstration in Bee Manipulation," by H. G. Sibbald, of Claude. When homeward-bound trains and vehicles left at last, everybody—man, woman and child, felt it had been a day rich in pleasure and profit.

Apiary Demonstrations 1915

Great interest has been shown in the apiary demonstrations conducted throughout the Province under the direction of Mr. Morley Pettit, Provincial Apiarist. The attendance at the fifty-five meetings held during the season of 1914, averaged 34, while in 1912 the average was 25.

The use of models of a wintering case for wintering four colonies outdoors will be an interesting addition to the meetings to be held this season. Already arrangements are under way for two demonstrations in each county. The date and place of meeting will be announced in the papers and on cards sent to the beekeepers. From present indications these meetings will be more widely attended and of greater value to the beekeepers than ever before. For particulars apply to the Apiculture Department, Ontario Agricultural College, Guelph.

Spring Report on Beekeeping in Ontario

Arranged by Morley Pettit, Provincial Apiarist

DURING the latter part of April reports were sent by the Department of Agriculture to a large number of beekeepers in Ontario. These were filled out and returned and the following summary of the winter loss, condition of the bees and honey crop prospects for 1915 taken from them.

Nine hundred and ninety-three beekeepers reported 37,317 colonies in the fall, and 31,310 colonies in the spring, showing a winter loss of 6,007 colonies or 16.1 per cent. This was largely due to the unfavorable breeding season of 1914, causing many colonies to go into winter quarters with large numbers of old bees; also to the poor quality of the stores, causing granulation, which gives unfavorable results, as in the districts where much sugar syrup was fed in the fall the losses are comparatively small.

This is the heaviest winter loss reported for some years, and if we were to judge by last year's crop failure following the lightest winter loss reported for years we would expect a bumper crop.

In considering these reports it must be remembered that only one in seven who received the blanks sent reports, also that the inclination is not to report failures but only successes. One hundred additional blanks came back with the statement that the sender was "not a beekeeper," in many cases having lost all of his small apiary without giving numbers which could be used in making an estimate. It has also been learned that some extensive beekeepers have lost heavily without reporting in the regular way. It seems that either the wintering problem has not been entirely solved, even by the specialist, or else he is not always putting all his knowledge into practice.

The colonies that survived had an early cleansing flight and brood rearing started during the warm spell in April. The first reports received indicated that the bees were in a weak condition, but reports that

arrived later show the bees to be building up rapidly and in fairly good condition.

The honey crop prospects vary considerably in the different districts. In the southern counties, the clover is reported in good condition and the prospects extremely bright. The crop outlook about the Georgian Bay is only fair. Farther east—Ontario and Victoria counties—both condition of bees and crop prospects are poor. In the extreme east the early reports were bright, but later ones show spring dwindling and a darkening prospect of the honey crop.

It is impossible to determine with any certainty the honey crop prospect at this date as a late frost or a prolonged dry spell might cause serious loss, but generally speaking, while the winter loss is discouraging, the rapidity of the building up of the colonies, the great quantity of pollen collected, and the generally promising appearance of the clover crop would indicate a favorable season for the beekeepers who have wintered their bees.

Judging by the heavy winter loss, however, and the crop failure of 1914, there does not seem to be much danger of an over-production of honey this year.

Important Work Undertaken

Prof. B. N. Gates, Amherst, Mass.

The Massachusetts Agricultural College, through the courtesy of the Botanical Department, Prof. A. V. Osmun in charge, has consented to serve as a repository for specimens of honey and pollen plants from various parts of the country. The year 1915 seems to be devoted to the study of this subject, especially by the beekeeping press. It is, moreover, fundamentally important and is so recognized by the progressive beekeepers, for only by a thorough understanding of the flora can the most successful honey cropping be accomplished. From time to time the flora of a given locality changes. New honey sources appear. Some seasons one honey plant may predominate; in another season other plants may predominate. Furthermore, a given plant may yield nectar, as for instance, alfalfa, in one locality and not in another. The reasons for some of these phenomena are not fully understood. It is with a view to determine the range of honey plants and the locations of their highest efficiency that this Institution proposes to serve the beekeepers.

In so far as possible, too, the Institution will assist beekeepers in the determination of unknown honey plants. Furthermore, specimens received according to the directions given, will be filed in a permanent herbarium of nectar and pollen yielding flora. This collection should become invaluable as a source of reference during years to come. Beekeepers are, therefore, invited to furnish for this collection, according to the following directions, specimens of their local sources of nectar and pollen. Plants should be pressed and dried for shipping, as there is always danger that when shipped in fresh condition they will not reach their destination in good condition for preserving and identification.

Directions.

1. Plants for pressing should be in full blossom and should go into the press while fresh.
2. Newspapers may be used as driers, if care is taken to change them each day until the plants are perfectly dry, otherwise moldy specimens will be the result. Place the plant between several thicknesses of paper. If a plant is taller than the length of the paper it may be folded over to fit.
3. Use the margins of the newspapers on which to write necessary data, including

name of plant—common or scientific—place and date of collection, name and address of collector, and a note of the value of the plant in your locality for honey or pollen. (Extended remarks should be sent in a separate letter, but be sure to refer to your specimens sent under separate cover.) It is desirable that several specimens of each kind of plant be prepared.

4. Press papers may be laid on the floor with a board of the proper size on top. On

the board place a weight (as stones) of about thirty-five pounds. Too much weight is not desirable.

5. For shipping, place the folder containing plant and data between pieces of binder's board or heavy cardboard, wrap and tie securely, and label, "dried plants," with your name and address as sender.

6. Address the parcel to: Prof. A. Vincent Osmun, Clark Hall, Massachusetts Agricultural College, Amherst, Mass.

Apicultural Conditions in Canada

F. W. L. Sladen, Ottawa, Apiculturist, Dominion Experimental Farms

THE deplorable European war has had the effect of increasing the value of certain staple articles of food and reducing the value of certain luxuries. Honey being something between a necessity and a luxury has not been much affected in price by war conditions, though it has been affected by the price of other things and the usual fluctuating market. At present, owing to the poor honey crop in Ontario in 1914 and the abnormally high price of sugar, the price of honey is good, and it behooves every beekeeper to do his utmost to produce a large crop of honey in 1915. With proper distribution the demand for extracted honey in Canada is excellent, but the demand for comb honey, which is more of a luxury, is limited. With a given number of bees about double as much extracted honey as comb honey can be produced, and the production of extracted honey is easier because swarming can be more readily controlled. It will, therefore, be seen that it generally pays better to produce extracted honey than comb honey, and the present conditions somewhat accentuate this dictum. The best package for extracted honey in commercial quantities is the three-pound and ten-pound tin honey "pail." The cost of this package is much less than that of glass jars in comparison with the value of the honey content, and the honey can be kept good in such a package for any reasonable length of time if stored in a dry place.

It is, in a sense, regrettable that in the temperate region of North America, owing partly to the superior quality of the honey produced and the high cost of living, the cost of honey is higher than elsewhere, because this, with the duty on honey entering Canada (three cents a pound, and seven and a half per cent ad valorem from the United States, etc., and two cents a pound with five per cent ad valorem from countries enjoying the British preferential tariff) makes the price of honey in Canada so high that it practically prohibits the exportation of Canadian honey. Nevertheless, these conditions make intelligent beekeeping profitable in good regions and seasons.

Among the great variety of grades of honey produced in Canada two may be singled out: First, clover honey produced from white Dutch clover (*Trifolium repens*) and alsike clover (*T. hybridum*), plants which grow abundantly, wild and cultivated, in all the farming regions of Canada excepting the drier portions of the prairies; and, second, fire-weed (*Epilobium angustifolium*) honey gathered from the great willow herb or fire-weed, a common weed in forest clearings, especially after devastation by fire, and often abundant in certain places in the north. Clover honey has been by far the most important commercial product, and its quality in the opinion of most consumers is unexcelled, but its production is rendered uncertain from year to year by draught and other causes. On the other hand, fire-weed

honey, though somewhat insipid in flavor, is little affected by weather conditions, and enormous crops of it have been harvested in apiaries situated where much fire-weed grows. A maximum of five hundred pounds of honey, mainly from this source, was taken from one hive in the bush twenty miles north of Maniwaki, Que., in 1914.

In general it may be said that the abundance of nectar producing flowers, the long summer season, the usually sufficient rainfall, and the comparatively high price of honey make beekeeping in Canada a profitable industry, and it might be engaged in

+ Straining at a Gnat and Swallowing a Camel

J. M. Munro, Slate River, Ont.

OF late I have seen and read so much about foul brood and proposed legislation and requests for government grants that I can't help saying: "Straining at a gnat and swallowing a camel."

With the treatment for foul brood so simple, what is the need for so many laws and grants and inspectors?

Every beekeeper should be his own inspector, and look carefully through every hive and over every comb in his yard at least once a month for symptoms of foul brood. He should also have to give a sworn statement to the government apiarist that his apiary is free from foul brood before being allowed to sell any honey, and in violation of this a minimum fine of \$100 should be imposed, and on a second violation a fine of \$500. All diseased colonies found by the government inspector should be burned in a pit and the ashes covered with earth. If the foregoing simple and drastic rules were carried out the apiarian inspectors would soon lose their jobs, and foul brood among bees would be rare indeed.

What is the use of any beekeeper or government inspector trying to combat foul brood when honey from diseased apiaries is allowed to be sold broadcast over the country? A person's next door neighbor may buy some of this diseased honey, and, after emptying the contents of the container, throw the can outdoors for the surrounding bees to lick at, and so carry contagion to their hives. We might as well try to extinguish fire with coal oil.

No wonder one writer in *The Beekeeper* admits that, with all the government grants, legislation, and inspectors, that foul brood is on the increase. I feel safe in saying that foul brood will never be stamped out until each individual beekeeper is made to feel his own responsibility and, if need be, made to smart for any carelessness. Some people never wake up until you touch their pockets.

I have kept bees for twenty-eight years, and never during this time had foul brood but twice. These occasions were when I bought bees from two different parties and found that both had foul brood. I make it a practice, from the time I take out my bees in

much more than it is. The outcry about a slight fall in price by some of the extensive beekeepers in Ontario when a large crop of clover honey is harvested is hardly well founded, for the markets in the prairie provinces are large and growing, and honey has a ready sale in all villages everywhere if put up cleanly in neat packages. Besides, extracted honey will keep, properly stored, from year to year, without deterioration. It is only by an abundant display of honey in our stores that the demand for it will continue and increase.

The three principal problems in beekeeping—swarming, disease, and wintering—are all capable of successful solution with care. What is most needed is intelligent and careful methods of beekeeping. Our public schools are turning out men and women who will read our publications and make use of the information contained therein, decimation by disease is, in some districts, eliminating the neglectful keeper of bees in old-fashioned box-hives, and the provincial governments have and are doing good educational work through their bee-disease inspectors, appointed through the bee disease laws that have been passed in most of the provinces. The beekeepers' associations, also, are showing much activity and usefulness.

the spring, to examine every hive every ten days, with the following objects in view: Having a good queen, sufficient stores, worker combs, signs of supersedure, signs of swarming, and, last and most important of all, freedom from disease.

York County Beekeepers

ABOUT fifty York County Beekeepers met at Richmond Hill, May 22. Mr. T. L. Byer, of Cashel, acted as chairman. He emphasized the necessity for getting together on the question of Foul Brood and adopting the slogan, "Every beekeeper his own inspector."

Mr. Wm. Arden, the Inspector of Apiaries for York County, spoke on "Bee Diseases," and dwelt in particular upon "American Foul Brood," the most troublesome one to York County Beekeepers. The members seemed to be of one mind in supporting the slogan, "Every beekeeper his own inspector." All are bent upon getting control of the Foul Brood menace, so far as this county is concerned. To further this end the inspector was recommended to adopt more rigorous methods in handling the careless beekeepers.

Prof. Morley Pettit, the Provincial Apiarist, of Guelph, Ont., assured the members that with such a united front the direction of inspection work could be made more efficient. To assist in explaining the method of wintering followed at the Ontario Agricultural College, Prof. Pettit made use of a set of models he had brought with him. The plan of wintering four colonies together is the one in use by Prof. Pettit, and has proven successful in his hands. Mr. T. L. Byer gave a description of his method, viz., individual chaff hives, and the pros and cons were thoroughly thrashed out. Both methods, it was emphasized, are successful and practical, but the details and convenience were left for each member to decide upon.

The following officers were elected: President, G. M. Davison, Unionville, Ont.; Vice-Pres., Wm. Arden, Temperanceville; Secy.-Treas., S. C. Stickley, B.S.A., Newmarket.

Better Methods of Marketing Required

C. W. Baxter, Fruit Division, Ottawa

IS the retailer's profit on apples excessive, and does he control the situation in the matter of increased consumption? I am convinced that in too many cases the profit on apples is exorbitant and much in excess of many articles which the retailer sells. Under our present system the retailers control the situation to a great extent.

Apple growers have devoted their time to production. Few have studied market conditions. They are unorganized, and have done nothing to create a demand or to increase consumption. If we can increase the demand and obtain better distribution, we can secure better prices. Although we are convinced of the excessive profit frequently made on apples, we are also convinced that the net profit of the retailer (with special reference to the grocer) is anything but great. In fact, the net profit is less than on most lines of business which requires so much hard work. And the question here presents itself, does the apple grower contribute to the cost of selling other products? If it costs the retailer, for example, 18 per cent. to do business and he is selling other lines which the organized efforts of manufacturers and keen competition compel him to sell on a 7 or 10 per cent. advance, the difference must be made up on other goods. All too frequently the profits on apples, I believe, do contribute to this deficiency. It is not the fault of the retailer, but the system, and the remedy is in the hands of the grower.

Another important feature connected with the retail end of apple selling is the question of waste. The waste is altogether too great and the retailer must protect himself against this. Whether the fruit has been sold f. o. b. cars or in the orchard unpacked, the distributor must take all chances against waste, and owing to the very careless methods of handling the fruit in picking and packing, the waste is enormous. The practice of picking and packing a few windfalls, which at the time appear to be undermarked, with hand-picked fruit which in winter varieties is bound to fall down in a short time, is responsible for a portion of this waste. Overpressing is another reason for waste. I am satisfied that overpressing is responsible for three-quarters of it. In the course of our inspection work we frequently find long keeping varieties with apples split open, one-third down in the barrel. Just so long as this condition of packing exists, just so long will the retailer provide for this waste.

We have mentioned some of the evils of the industry from the point of production to the consumer and can only conclude that the fault does not lie with the producer, nor yet with the distributor, but with the system. The remedy for most of these evils is in the hands of the growers.

Just as a number of the evils of the marketing and distribution of the fruit of growers in Nova Scotia and the Pacific Coast states have been overcome by the organization of a central body, the same business methods applied to the industry in Ontario and Quebec would bring about similar results. In order to obtain this, growers must first organize into local associations. A central selling organization of the fruit growers of the province of Quebec may seem to be impracticable, but local conditions are excellent for local organizations, and if this were done a central body would surely follow.

In British Columbia there are certain

varieties of apples which grow better there than anywhere else. It is the same in Ontario and the Maritime Provinces. Nowhere can the famous McIntosh Red and Fameuse apples be grown as well as in the province of Quebec and eastern Ontario. These two varieties, admittedly the best of all desert varieties, are of the highest commercial value. Has the grower of these varieties received a fair share of the price paid for them by the consumer? Compare the price the consumer is paying to-day for these varieties, with the price the grower received. Some may say that the difference is due to the unsettled condition of the mar-

ket, but so far as these varieties are concerned, this year does not differ from any other, for the reason that the supply has not been equal to the demand at the prevailing prices of other good varieties, and the consumer is prepared to pay a higher price.

Organization has not yet overcome all the evils connected with the marketing and distribution of fruit. We have, however, excellent examples of the great advantages it has over individual efforts. The solving of these problems is too great a task to be accomplished by the individual grower. The only remedy is through systematic co-operation, and the adoption of twentieth century business methods, which will give the grower control of his fruit from orchard to market and a more equitable division of the profits.

Fruit Refrigeration Investigation at Grimsby

By Edwin Smith, B.Sc., in Cold Storage Experimental Plant, Grimsby, Ont.

IT has for a long time been believed that refrigeration facilities located in country points for the use of fruit-growers and shippers in the pre-cooling, assembling or cold storing of tender fruits, offered great possibilities for the improvement of the fruit trade. Many of these possibilities were demonstrated and their value realized in practical use last season in connection with the experimental pre-cooling and fruit storage warehouse at Grimsby, Ontario.

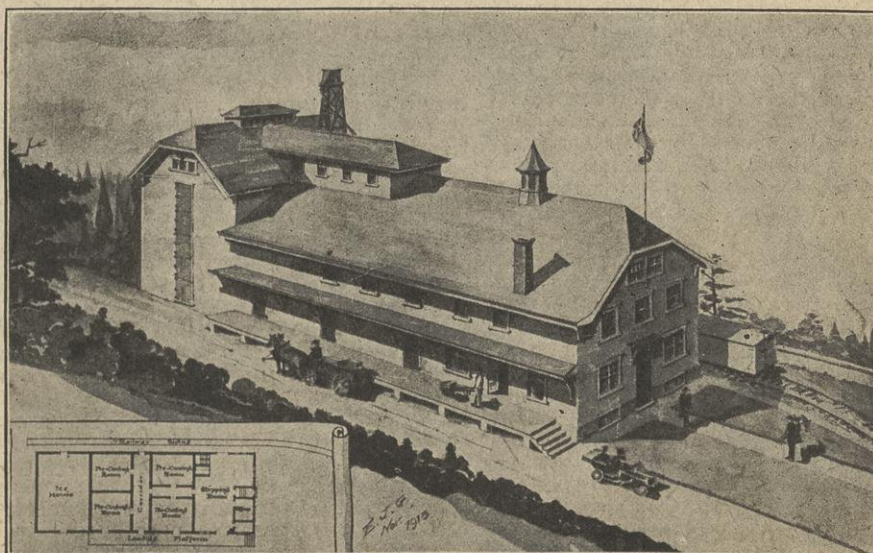
The total failure of the peach crop in this part of Ontario greatly cut down the fresh fruit shipments, but even with cherries, plums, tomatoes and pears the plant operated at about one quarter full capacity. Thirty-nine cars of pre-cooled fruit were handled, many of which were assembled over three or four days. Many growers held medium or small lots of tender fruits for a few days for better markets. Blockades in transportation and marketing that often cause heavy losses in tender fruits were met by holding fruit a few days in cold storage. During the winter the warehouse was used for the cold storage of apples, pears and cabbage.

The project is having its greatest effect in a demonstrative way. In many instances from \$50 to \$200 per car was gained by taking advantage of this plant. In the case of the raspberry crop, which is not important

in this district, \$3,000 was saved the vicinity in a single week.

During the winter and spring the Grimsby equipment has been put into shape to operate at full capacity during the coming season, in view of the present prospects for a heavy fruit crop. The services of Mr. J. M. Creelman of Guelph, have been secured as scientific assistant. Mr. Creelman has had a wide experience in handling fruit in Ontario, British Columbia and California.

The work during 1915 will be carried on in three divisions: (1) Commercial Service; (2) Experiments and Demonstrations in Shipping; (3) Scientific Records on Fruits under different Cold Storage Conditions. The first division will cover the pre-cooling and shipping of fruit for shippers and growers in a strict commercial manner, charging fixed rates for the service. The second will take up the handling of fruit as well as its refrigeration; experimental shipments in carload lots will be carried out, using packages and methods that are not now in vogue in the Niagara district, but which are satisfactory in other fruit districts and markets; a study of the costs and returns from these methods and packages; the effect of careful handling upon long distance shipments; methods of loading and icing refrigerator cars; the rate of pre-cooling and its effect on fruit, etc.



Government Pre-cooling and Cold Storage Plant at Grimsby, Ont. The refrigerator capacity is 50,000 cubic feet. The space on the ground floor is divided into four rooms, each large enough to handle two carloads of fruit at the same time.

Under the third division comes the experiments with small lots of the leading varieties of fruits under different cold storage conditions, carrying on the work started last year which covered the following:—

Strawberry—Williams.
Cherries—Governor Wood, Early Richmond, Montmorency.
Gooseberries — Columbus (European), Downing (American).
Black Currant—Prince of Wales.
Red Currant—Red Dutch.
Blackberry—Lawton.
Blueberry—Canada.
Raspberry—Cuthbert.
Plums—Bradshaw, Washington Gage, Yellow Egg, Reine Claude, Grand Duke.
Tomatoes—Earliana, Chalk's Jewel, Danish Export.
Grapes—Niagara, Concord, Agawam, Lindley, Wilder, Catawba, Vergenne.

Canada's Fruit Exhibit

Wm. Hutchinson, Canadian Commissioner General

The Canadian Palace at the Panama Exposition in San Francisco, Cal., is a rectangular building 330 x 210 feet, and a welding of New-Greek and Colonial architecture. Impressive British lions guard the main entrances, and numerous huge columns all around the building contribute to give it an imposing and stately appearance. Gardens surround the majestic edifice. The materials used in the construction of the pavilion are wood, plaster and cement.

Perhaps Canada's boldest display is in her fruit, for here she brings her strawberries, her pears, her peaches, her apples and all her native fruits to compete with the great products of California. Here Canada hears California in her own den, as it were, and

the display of fruit she makes is an admirable one. The blush of nature has not yet left it and it looks very fresh, very inviting and very beautiful.

In one corner are shown the orchards from which all this delightful fruit comes. These orchards placed among fields of blue grass are inhabited by men, women and children in miniature, busily engaged in gathering apples, pears, plums and peaches. On the ground are seen hundreds of baskets of real fruit, put there to show the world the sort that Canada grows. In another part, in jars, is a display of table fruits and jams.

Quebec's Demonstration Orchards

Prof. T. G. Bunting, B.S.A., Macdonald College
THERE have been a number of demonstration orchards established in the better-known fruit sections of this province, which have been under the management of the Department of Agriculture and the Pomological and Fruit Growing Society, and these have been successful in encouraging the taking of greater interest in the many old orchards of these respective sections.

In recent years there has been a very keen demand for information and instruction in apple growing in some sections where apple growing has not been put on a firm basis. Realizing this, the Horticulture Department of Macdonald College has been holding orchard demonstrations in pruning, spraying, grafting, and management of orchards in various districts. These meetings have been held in orchards at the following places:—Ayer's Cliff, North Hatley, Smith's Mills, Rockburn and Shawville, and at other points as opportunity occurred. In addition, it has been deemed wise to establish a number of illustration orchards at central points in sections outside of the better-known apple districts. At Lennoxville and at Shawville, small apple orchards of 50 trees of McIntosh and Fameuse have been planted, and it is the intention to add more varieties to these in the near future and also to establish other plantings of a similar nature elsewhere. Only those varieties that are perfectly hardy and most likely to be satisfactory are being planted. The orchards are intended to be a gathering place for meetings in the future as well as a demonstration of just what may be accomplished in apple growing in these sections.

The two orchards already planted are under the management of the Macdonald College demonstrators located at Shawville and Lennoxville, and both of these orchards have done exceptionally well during the past year. Plans are now being made for the planting of several more orchards in the spring.

British Columbia Fruit Prospects

R. M. Winslow, Victoria, B.C., Provincial Horticulturist

The general outlook is for a fruit crop in British Columbia slightly in excess of last year. There has been very little winter injury and only slight injury from spring frosts. Soil moisture conditions are generally favorable throughout the interior, but unusually dry weather in all Coast and Island sections to date makes considerable rain necessary for normal yields.

Orchards are generally receiving care, at least as good as previously, while generally better care is noted in most interior sections. Dormant sprays were applied on about 75 per cent. of cared-for orchards in the Island and Coast sections, while about 25 per cent. of Dry Belt orchards were given the dormant spray. In the interior humid

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We name below a few things that we desire to emphasize, viz.: Anemone Japonica, "Alba" and "Mont Rose," each 15c, 10 for \$1.25; Aquilegia (Columbine), each 15c, 10 for \$1.25; Arabis Alpina, each 15c, 10 for \$1.25, 100 for \$10.00; Artemisia Lactiflora (new), each 25c; Asters, hardy (Michaelmas Daisies), 12 varieties, each 15c, 10 for \$1.25; Delphiniums (Gold Medal Hybrids), each 20c, 10 for \$1.50; Helenium, "Riverton Beauty" and "R. Gem," each 20c; Hemerocallis, 3 sorts, each 15c and 20c, 10 for \$1.25 and \$1.50; Kniphofia (Tritoma) "Pfitzeri," each 15c, 10 for \$1.25; Pansies, in separate colors, 10 for 45c; Shasta Daisies, 3 sorts, each 25c, 3 of each for \$1.80; Dahlias (plants only), 10 sorts, each 15c, 10 for \$1.25; China Asters, grown in pots, 6 sorts, 10 for 25c, 100 for \$1.25; Antirrhinums, including Silver Pink, 10 for 60c; Salvia, "Bonfire," each 10c, 10 for 75c; Hollyhocks, 5 sorts, each 20c; Hardy Garden Pink, "Mrs. Sinkins," each 20c; Digitalis (Foxglove), 4 sorts, 1-year plants, each 20c. Geraniums, Scabiosa, Stocks, Gladioli.

Please add postage, as per schedule, when remitting.

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Three-Banded Italians

Twenty years' selection and breeding is why Murry's queens are better. A trial order will convince you. Safe arrival and Satisfaction guaranteed. Prices after May 1st:

	1	6	12
Untested75	\$4.00	\$7.50
Tested	\$1.25	6.50	12.00

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

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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.

Untested Queens, \$1 each; 6, \$5; 12, \$9. Tested, \$1.50 each. Select tested, \$2.50 each. Breeding Queens, \$5.

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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Untested Queens, \$1 each, \$9 dozen; Tested Queens, \$1.50 each, \$12 dozen; 1 lb. package, with Queen, \$2.50.

Delivery after May 15, depending on the season somewhat.

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A choice stock of Italian Queens from northern bred stock will be ready for shipping from either of our apiaries after June 20th.

At \$1.00 each, or 6 for \$5.00. Also some fine tested one-year-old queens from our Marshfield apiary at \$1.00.

At the end of June when re-queening we will have a number not quite so good at 50c. You can depend upon our service, backed as it is with 45 years of experience.

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CANADIAN-BRED, LEATHER COLORED, ITALIAN QUEENS

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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	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.

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sections the use of lime sulphur before buds open is declining, but scab spraying is much more general. Fruit pests are in evidence. Various insects, especially aphids, are more in evidence than usual, and much peach leaf curl is reported in the Lower Okanagan. Fire Blight is only occasionally active as yet, which is promising.

Strawberries.—The bearing acreage is about equal to 1914. In the Coast sections rain is needed to give crops equal to last year. Dry Belt strawberries usually promise a much better yield, while in the West Kootenay the yield is likely to be lighter than last year.

Raspberries.—The bearing acreage has increased slightly, and all districts report plantations as promising for good yields.

Sour Cherries.—The condition is about the same as last year, with prospects for about the same production, or slight increase.

Sweet Cherries.—Generally in fair condition, with prospects for practically as large a yield in the interior but a considerable decrease on the Coast.

Peaches.—In the Okanagan many trees have been cut out and a serious amount of peach leaf curl is present, but the set is exceptionally heavy with prospects for shipments much greater than last year.

Plums.—In nearly all sections there are prospects for a plum crop just about equal to last year, occasionally heavier, but in the Okanagan a yield of two-thirds of last year is to be expected.

Pears.—Blossomed heavily in all districts, and usually a crop equal to last year and increases up to 25 per cent. greater are reported.

Apples.—The Coast apple crop seems likely to equal 1914, the winter varieties being in best condition. In the Thompson River section the yield will not equal last year, the present prospect being for 60 per cent. In Salmon Arm-Armstrong district the old trees are generally rather light, and the total yield will be somewhat less than last year. In the Okanagan, Vernon is reported as having a very fair increase in prospect, while Lake Points show a slight decrease. Total shipments may slightly exceed last year. In the Boundary, the apple crop will be slightly less than last year, while in the West Kootenay the increase will be very considerable. While the season is generally reported as a week or ten days ahead of normal, prospects are still far from definite, and this report gives only the most general outline, which may be modified very considerably before the end of June.

Northwestern States.—It seems certain that the apple crop of the Northwestern States will fall short of 1914, especially in Yakima and Spokane. Wenatchee expects much the same apple crop as last year.

Marketing Immature Fruit

D. Johnson, Fruit Commissioner, Ottawa

The Dominion Fruit Inspectors will be instructed this season to pay particular attention to the matter of maturity of the different fruits as they come upon the market. Objections have been raised in the past to the packing of grapes, for instance, before they were properly mature. Some shippers have even gone so far as to over-face their baskets, placing well-ripened grapes on the top row, while underneath the fruit was so green as to be unfit for use.

Practices such as those described have had a very depressing effect upon the market, as the consumer who once bought a basket of such fruit would not buy again. Our inspectors are being instructed to take special precautions to see that no such fruit goes on the market this season. Any cases

of over-facing arising from the packing of immature fruit will be followed by prosecution for violation of section 321 (c) of the Inspection and Sale Act, Part IX.

NOVA SCOTIA SHIPMENTS.

Shipments of last season's crop of apples were made by the United Fruit Growers of Nova Scotia, Ltd., as follows:

London	155,813 barrels
Liverpool	83,704 "
Glasgow	25,087 "
Manchester	36,138 "
Newfoundland	7,912 "
Western Canada ...	22,351 "
Local Sales	41,836 "
Local Consigned ...	18,356 "
Boston	2,096 "
South Africa	1,008 "
South America	12,000 "
Total	406,301 "
Potatoes	64,405 "

470,706

In the figures given boxes are included, reckoned as three for a barrel. The frost in the Baldwins caused a tremendous shrinkage, and also caused many thousands of barrels to be packed under individual names, as the Company prevented, as far as possible, any fruit thus affected bearing the U.F.C. Brand.

Bulletins and Reports

Recent bulletins and reports which have reached The Canadian Horticulturist include the following: "Marketing Georgia Peaches," by C. W. Baxter, being circular No. 1 of the Dominion Fruit Division, Ottawa. "Manures and Fertilizers," by Frank T. Shutt, being circular No. 8 of the Dominion Experimental Farm, Ottawa. The Central Experimental Farm has also issued a Summary of Results in Horticulture for 1914. It tells the story of results experimentally achieved in all parts of the country and under varying conditions in the cultivation of many species of vegetables, fruits, trees, plants and flowers. Results of hot-house as well as outdoor experiments are detailed. Two other bulletins of the second series distributed by the Central Experimental Farm are entitled: "The Planting and Care of Shade Trees," by F. E. Buck, B.S.A.; and "Growing Field Root, Vegetable and Flower Seeds in Canada," by M. O. Malte, Ph.D., Dominion Agrostologist, and W. T. Macoun, Dominion Horticulturist. An interesting announcement contained in this latter bulletin is that the Dominion Government is willing to aid seed growers by cash subventions, particulars of which may be obtained from the Seed Branch, Department of Agriculture, Ottawa.

SUGAR

When ordering further supplies of sugar for your Bees

BE SURE TO SPECIFY DOMINION CRYSTALS

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.

ESPECIALLY RECOMMENDED FOR PRESERVING
Correspondence solicited.

DOMINION SUGAR CO., LIMITED
Wallaceburg and Berlin, Ont.

IF GOOD QUEENS ARE WANTED

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.

GRANT ANDERSON, SAN BENITO, TEXAS

Miller's Strain Italian Queens

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.

BEES FOR SALE

Italian Bees, lb., \$2.25; 5 lbs., \$10.50; 1-L Frame, \$2.00; 2 Fr. Nuc., \$3.00; all with Queens. Italian Queens, 75c each; 6 for \$4.00. Complete catalogue free.

THE DERBY TAYLOR CO.

BOX C - NEWARK, N.Y., U.S.A.

PRICE LIST

of
Three Banded Red Clover
Italian Queens

Bred from Tested Stock
Untested Queens, \$1 each, \$5 for six
Selected untested, \$1.25 each, \$7 for six
Tested Selected Guaranteed Queens, \$2 each
Cash With Order

W. R. STIRLING

Box 214 Ridgetown, Ont.



The Beekeepers' Review

The Beekeepers' Review is now just beginning to publish those valuable papers read at the National Beekeepers' Convention at Denver last February. If you were to begin your subscription with the May number none would be missed. We will be pleased to receive your subscription for the last eight months of the year for an even 50c, post-paid to Canadian subscribers. In remitting, say begin with the May number, so as to miss none of those valuable papers. Those papers are only a part of the valuable material we have on hand that will appear during this year, so we are very sure you will receive your money's worth by subscribing for the Review at this time. The Review is Owned and Published by the Honey Producers Themselves, consequently is published wholly to our interest. Kindly remit by postal note, not stamps, as we cannot use Canadian stamps. Address, with remittance, The Beekeepers' Review, Northstar, Mich.

The Beekeepers' Review, Northstar, Michigan

THOROUGHbred QUEENS

Three-band and Golden Italians my stock. I secured the best stock obtainable, unexcelled for honey gathering and very gentle. No better queens to be had, no matter what price you pay.

	May 1st to July 1st.			July 1st to Nov. 1st.		
	1	6	12	1	6	12
Untested	\$1.00	\$ 5.00	\$ 9.00	\$.75	\$ 4.00	\$ 7.75
Select, untested	1.25	6.00	11.00	1.00	5.00	9.00
Tested	1.50	7.50	12.00	1.25	6.00	10.00
Select, tested	2.00	10.75	18.00	1.75	9.00	16.00
Breeding queens	5.00					
Nuclei—1 frame	1.50	8.00	15.00			
Nuclei—2 frame	2.50	12.00	22.00			

When ordering Nuclei select the queen you wish from the above list and add price to same. No foul brood or diseases. Safe arrival and satisfaction guaranteed to all in the United States and Canada. Address

L. MORRISON, R.M.D. No. 1, Argenta, Ark., U.S.A.

YOU ARE INTERESTED IN BEES

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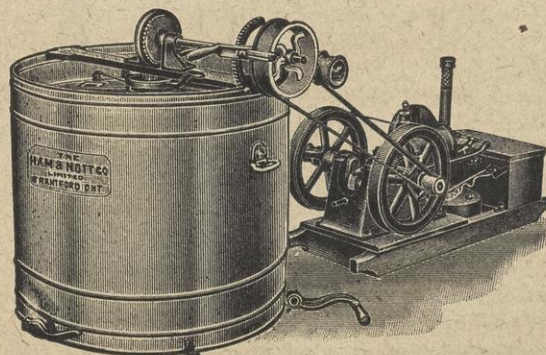
Some SPECIAL FEATURES for 1915 are a series of articles by FRANK C. PELLETT on "Honey Flora," and C. P. DADANT'S articles on his trip abroad and "Queen Rearing in Italy."

We have many of the world's best bee writers as contributors.

J. L. BYER conducts our Canadian Department. DR. C. C. MILLER writes editorials and answers questions.

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Power Honey Extractors

Friction drive or with special cut gears, smooth and easy running. Speed control is perfect and simple. If you are thinking of purchasing a power outfit, write us at once.

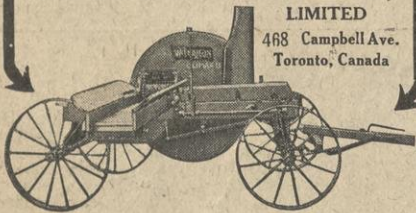
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BRANTFORD, ONT.

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Wilkinson Climax B
REGISTERED
**Ensilage and
Straw Cutter**

Our "B" machine, built especially for the farmer. A combination machine—it will cut and deliver green corn into the highest silo or dry straw or hay into the mow. 12-inch throat, rolls raise 6 inches and set close to knives—solid, compact cutting surface. Can change cut without stopping. Can be reversed instantly. Direct pneumatic delivery. Knife wheel carries fans. No lodging, everything cut, wheel always in balance. Steel fan case.

Made in two styles—mounted or unmounted. We also make larger type machine for custom work. Ask your dealer about this well-known machine and write us for new catalog showing all styles.

THE BATEMAN-WILKINSON CO., LIMITED
468 Campbell Ave.
Toronto, Canada



The Entomological Division of the Dominion Department of Agriculture, Ottawa, is distributing bulletin No. 9, entitled: "The Army Worm," by Arthur Gibson, Chief Assistant Entomologist. The habits of the worm and methods of destroying it are described.

The Annual Report of the Fruit Growers' Association of Ontario for 1914 is being distributed by the Ontario Department of Agriculture.

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ST. ALBANS, ENGLAND

ORCHID GROWERS. The Finest
Stock in the World

Catalogue on Application

HANDIEST IMPLEMENT YOU CAN HAVE

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

T. E. BISSELL Company Limited, ELORA, ONT.

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Make Your Farm PAY

WITH a good prospect of high prices for farm products in sympathy with the advance now taking place in wheat and grains, the coming year should be a good one to crowd production, and make your farm *pay*.

You Can Do It With Bradley's Fertilizers

They have been for over fifty years the standard by which other fertilizers are judged. They have always brought good crops and improved the soil. They are "*crop producers and cost reducers*." Old friends will continue to use them. We invite new ones to investigate their merits. Send for descriptive booklet.

The American Agricultural Chemical Co.,

92 State Street, Boston 2 Rector Street, New York
Buffalo, Philadelphia, Baltimore, Etc.

"Experimental Results in Young Orchards in Pennsylvania" is the title of bulletin No. 134, issued in April by the School of Agriculture, State College, Pennsylvania. The Wisconsin Agricultural Experimental Station at Madison, Wis., has issued bulletin No. 252, entitled: "Potato Seed Certification in Wisconsin," by J. G. Milward.

British Columbia

Considerable attention is being given by fruit companies in the Summerland District to the export trade with Australia, New Zealand, The Orient, South America and South Africa. One firm has received more foreign orders than it will be able to fill.

The executive of The United Growers in the Summerland District has decided to make a change in the method of grading apples. Summer and fall varieties will be packed in different groups. The O.K. brand of the main crop will be reduced to twelve varieties and graded Nos. 1, 2 and 3. These varieties are: Delicious, Grimes' Golden, Jonathan, McIntosh Red, Winter Banana, Yellow Newton Pippin, Northern Spy, Ontario, Wealthy, Wagner, Spitzenburg and Winesap. The other varieties formerly marketed under this brand and the best varieties marketed last year under No. 2 special will form another brand similarly graded into Nos. 1, 2 and 3. All others will be shipped as orchard run under a third brand, probably "Economy."

It is probable that a veneer box with solid ends will be used for No. 3 apples, and a slat crate for orchard run.

Inspector Cunningham stated recently that the financial stringency and low prices obtained for last year's crop have not prevented orchards being kept this year in even better condition than they were a year ago. In the Summerland District 90 barrels of Lime Sulphur were used in the spring as compared with 20 barrels during the same period last year. Much of this spraying was against the Peach Borer, which caused heavy losses last year. Peach Leaf Curl is prevalent in some orchards.

As a result of the change in the duty on Black Leaf Forty, the price this year has been \$12.50 a can as against \$18.50 last year.

The Coldstream Estate has discontinued its nursery. This will mean a considerable loss to the fruit interests of the Province.

Mr. Randall, who was the horticulturist at the Coldstream Estate for a number of years, has been appointed to succeed Mr. Treese as Inspector for Summerland and Naramata.

A conference of Union managers was held in Vernon about the middle of May with Mr. Jackson, the new Manager of the Central Agency, and with former Manager Robertson. It was decided to reduce the wages paid fruit packers. The price paid for packing apple boxes will be five cents instead of six cents as formerly, and peach crates two and a half cents instead of three cents. Basket packing will be done by day work instead of by piece work. Some experimental shipping will be done in connection with baskets for plums, cherries, prunes, peaches, grapes, apricots and crab apples. The baskets will be four, six and eleven pounds, the latter being almost equal to the ordinary peach crate or box. If they prove successful for the soft fruits they may be more largely used in future.

The crate will be introduced for orchard-run apples, replacing the box. Thus the cost of orchard-run apples will be made as low as possible. No. 3 apples will also be shipped in crates. Arrangements will probably be made so that both orchard run and No. 3 will be packed in the orchards

instead of at the packing houses, for the sake of economy. Some of the very early apples such as Red Astrachans, Yellow Transparent and Early Harvests, will be shipped in the eleven pound baskets.

NOVA SCOTIA PRICES.

The following average prices on last year's apple shipments were realized by members of the United Fruit Growers' Co., Ltd., of Nova Scotia:

	No. 1	No. 2	Co- op.	No. 3	No. bbls.
Blenheims	\$1.54	\$1.30	\$1.00	\$.90	6,451
Baldwins	1.76	1.50	1.08	.90	58,510
Bishop Pippins ...	1.38	1.11	.89	.75	5,550
Gravensteins—					
1st averaging ...	1.80	1.41	1.50	.90	9,860
2nd averaging ...	1.16	.90	.67	..	55,714
Mean averaging ...	1.31	1.05	.75
R.I. Greenings ...	2.00	1.50	1.00	.90	8,231
Kings	2.04	1.75	1.30	1.02	32,197
Pewaukee	1.70	1.38	.90	.90	2,422
Ribston	1.50	1.33	1.03	..	31,604
Starks	1.75	1.51	1.14	.90	12,061
Seeks	1.85	1.40	1.25	.85	1,485
Twenty Ounce ...	1.70	1.46	1.13	.90	1,403
Wealthy, 1st aver.	1.86	1.63	1.02	..	206
Wealthy, 2nd aver.	1.30	1.03	.70	.70	998
Wagner	1.60	1.40	.90	.80	3,171
Wellington	1.82	1.40	1.20	..	2,184

ITEMS OF INTEREST.

A heavy frost was experienced practically all over Ontario the night of May 26th. It was one of the worst frosts experienced at that season of the year in twenty-five years. In some districts the fruit crop will be affected.

Reports from Buffalo concerning the damage to fruit and vegetables caused by the heavy frost of May 27th place the damage for eight western New York counties at \$2,000,000. The temperature dropped as low as 26 degrees. Some districts suffered heavily, while other nearby sections escaped.

The executive of the Niagara District Fruit Growers' Association will conduct an advertising campaign in about 250 papers, located in the chief consuming centres of Canada. The first fruits of this year's crop will be sent to invalided soldiers of Canada on overseas service for the Empire.

The Canadian Express Company has issued instructions to its agents to sell shipments of fruit which miss train connections and which would be likely to deteriorate if held over for later trains. In all such cases the agents at the shipping points must be notified by telegram. This action has been taken after consultation with many of the shippers in the Niagara District.

The death occurred recently in Toronto of Mr. Ernest T. Cook, F.L.S., F.R.H.S. Mr. Cook was a well-known author on horticultural subjects, and for some years was the editor of one of the leading horticultural magazines in England. Since coming to Canada a few years ago he succeeded in forming the Ontario Rose Society, of which he was the first president.

Protecting Vines Against Frosts

A system of protection against spring frosts was organized in the district of Sauternes (Gironde) in 1913, with good results. The land of each commune was divided into a number of sections; in each commune one of the growers volunteered to give the alarm; he issued a notice at night-fall if a frost seems likely, and when the fires were to be lit, and again in the morning when the temperature rose above freezing-point.

Fire places were fixed in the alleys of each section at intervals of ten to thirty yards,



What a Million Mothers Avoid

More than a million careful mothers have intuitively known the dangers of poisonous fly destroyers. They have known that such preparations contain arsenic in deadly quantities. They have realized the peril to little children that accompanies the use of fly poisons.

But for those who have not learned of these dangers, we quote from a recent issue of the Child Betterment Magazine, which comments upon 35 cases of children being poisoned last year:

"The danger to children is great, and the danger to adults is by no means inconsiderable."

In the December issue of The Journal of the Michigan State Medical Society, an editorial on the same subject cites 47 cases, and goes on to state:

"Arsenical fly poisons are as dangerous as the phosphorous match. They should be abolished. There are as efficient and more sanitary ways of catching or killing flies. And fly poisons, if used at all, should not be used in homes where there are children, or where children visit."

TANGLEFOOT
"The Sanitary Fly Destroyer"
Non-Poisonous

Catches the Germ with the Fly
Made in Canada by

THE O. & W. THUM CO.

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Deering New Ideal The Binder for Your Fields



A Deering New Ideal binder will give you the best possible results at harvest time. However lodged or filled with green undergrowth your crops are, the **Deering** binder harvests all the grain.

The **Deering** binder elevator, open at the rear, delivers the grain properly to the binding attachment. Because the elevator projects ahead of the knife it delivers grain to the binder deck straight. A third discharge arm keeps the bound sheaves free from unbound grain.

The T-shaped cutter bar is almost level with the bottom of the platform and allows the machine to be tilted close to the ground to pick up down and tangled grain without pushing trash in front of the knife. Either smooth section or serrated knives can be used. The **Deering** knoter needs no recommendation.

The **Deering** local agent will show why **Deering** New Ideal binders and binder twine are always satisfactory. See the agent, or, write to the nearest branch house for a catalogue.

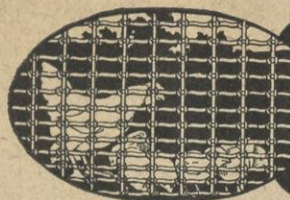


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PEERLESS POULTRY FENCE

A Real Fence—Not Netting

Strongly made and closely spaced—making it a complete barrier against large animals as well as small poultry. Top and bottom wires No. 9—intermediates No. 12 wire—made by the Open Hearth process which time and other tests have proven to be the best. Send for catalog. Ask about our farm and ornamental fencing. Agencies nearly everywhere. Agents wanted in unassigned territory. **The Banwell-Hoxie Wire Fence Company, Ltd.,** Winnipeg, Man., Hamilton, Ont.



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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.

SKINNER SYSTEM THE RAIN MACHINE

OF IRRIGATION Write for six books on indoor and outdoor irrigation.

The Skinner Irrigation Co., 233 Water St., Troy, O.



Cabbage Worms Destroyed by Dusting with Hammond's Slug Shot

So used for 30 years. SOLD BY ALL SEED DEALERS.

For pamphlets worth having, write

B. HAMMOND, Fishkill-on-Hudson, New York.

Implements for Orchard and Vineyard

Spring Tooth Harrows

10, 15, or 17 Teeth

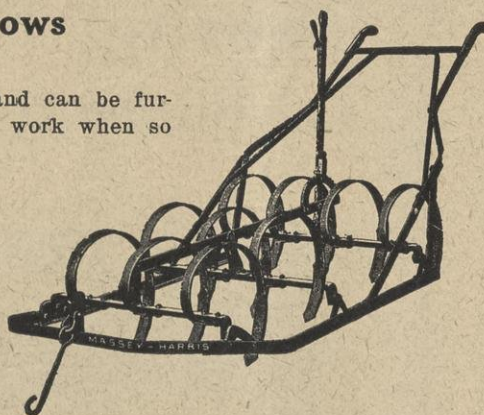
The 10-Tooth size is in one Section and can be furnished with handles for vineyard work when so ordered.

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.

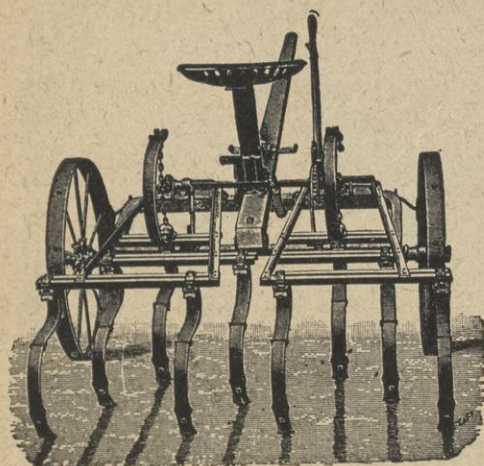
ADJUSTABLE

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.



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REGINA

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Co., Limited

SASKATOON
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SWIFT CURRENT
CALGARY
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and besides them one cauldron on wheels, was supplied for every twelve acres or so; this moved up and down in a cross shape. The cauldron was half full of coal tar, which was lit by means of pine branches; it was occasionally sprinkled with water to increase the denseness of the smoke. The fixed fires were made of green pine branches, litter, and green grass. By this means a dense smoke was obtained, so that it was difficult to find one's way about; this completely prevented further radiation from the ground. In case there is much current of air, it is well to have extra cauldrons producing smoke on the windward side. At Preignac, in 1913, the cost of smudging on three mornings in April for about five hours each was about eighty-five cents per acre for materials alone.

Marketing this Year's Crop

(Co-operative News, Berwick, N.S.)

We have recently advised the management of all companies to discuss with their members the advisability or otherwise of supporting the Nova Scotia Fruit Growers' Association extension of market scheme. We trust that all companies will give this matter their most urgent attention, for should we have the 2,000,000 barrel crop which seems probable the present method of disposing of the apple crop will be totally inadequate.

A really live and vigorous system of market extension is essential and of vital importance, if we desire to maintain our position on the English market. Should two million barrels really materialize, the present haphazard method of shipping the crop will result in disaster. The English people must be educated not only to eat apples, but to eat Nova Scotia apples.

England can take care of about 3,000,000 barrels of imported apples and maintain fairly good prices. Let the importation exceed that quantity, the returns are altogether unprofitable.

As the greater portion of our 2,000,000 must be placed on the English market, there is only a small balance left for the United States and it is a safe prediction that the United States will not be content with the remnants.

Whether we in Nova Scotia are alive to the seriousness of the approaching fight or not, our United States cousins are, for we learn that they have already organized a most formidable combine for the purpose of extending their marketing operations in all directions, including England.

The huge combine will be known as "The General Sales Agency of America" and embraces nearly all the large fruit concerns of America, including such important organizations as The California Fruit Distributors, The North Western Fruit Exchange, and The North American Fruit Exchange. When we see such names as Arthur Rule, Geo. A. Chambers, Chas. Virden and William Farley on the working executive, we know that we have an organization that intends to capture every market entered.

The question is do we intend to act the ostrich and hide our heads in the sand, so that we cannot see the gathering clouds, or are we going to immediately prepare to protect our interests and secure for ourselves an impregnable position in the English market, which is our natural and only market. Prompt action is essential and we rely on our members to do their share by raising a special fund to meet the situation.

Potato Inspection in Practice

By H. T. Gussow, Dominion Botanist

The potato regulations under the "Destructive Insect and Pest Act" have been given a preliminary test as to their practicability, their effect upon general shipping, and the quality of potatoes generally. The inspection of potatoes was primarily undertaken with the view of preventing the disease powdery scab from being dispersed over uninfected areas in Canada, and of controlling it as much as possible within the infected area.

Provision was made under the Act in agreement with the United States, permitting the entry into the United States of potatoes free from powdery scab, subject to rigid inspection and to the condition that all such potatoes were grown from clean seed and on land that has never been infected with powdery scab. For this purpose, growers who had such potatoes (or believed they had) furnished a statement that the conditions were fully complied with. Either the growers have not yet become fully cognizant of the importance of powdery scab, or they cannot distinguish common scab from powdery scab, which is indeed most difficult. The result of this attitude was that the inspectors had frequently to condemn potatoes as unsuitable for "first grade." As far as the inspection of the potatoes themselves was concerned, it was found humanly impossible, under the existing conditions and because of the general distribution of powdery scab, to continue safely the shipments to the United States. Comparatively few carloads were shipped to the United States—only 63 in number—when one car was found by the United States potato inspectors in Boston to contain potatoes affected with powdery scab; which resulted in the withdrawal of the necessary United States permits for the entry of potatoes into the United States for this season.

From December 12th, 1914, when the inspection work commenced in New Brunswick, up to February 24th, 1915, the following quantities of potatoes were shipped from the province of New Brunswick:—

Total number of bushels Table Potatoes inspected from December 12, 1914, to February 20, 1915....	278,927
Total number of bushels First grade Potatoes for U.S.A.....	49,343
Total number of bushels First Grade Potatoes for Canada	4,500
	332,770

The result of the potato inspection this season must be regarded as satisfactory; the preference given to potatoes not affected with powdery scab will eventually induce the growers to take every precaution to get rid of this disease, which he can if he only makes up his mind to do so. The appreciation of the inspected potatoes from New Brunswick clearly shows the value of inspection as an aid to establishing a good name for same. The disease-free New Brunswick potatoes were even given a preference of ten cents a barrel over stock from the state of Maine, when sold in the United States. Growers are again cautioned to take every precaution this spring in planting seed potatoes free from scab of any kind on land that has, preferably, not produced a crop of potatoes before

BEZZO'S FAMOUS PRIZE ASTERS.

A few plants of choice varieties left at \$1.00 per hundred by express, \$1.10 by mail. Charges prepaid on orders over 250. Remit by Money Order.

C. MORTIMER BEZZO,
Berlin, Canada.

GILSON Johnny-on the Spot
A husky trouble chaser. Will pump water, churn, separate cream, run grindstone and do other chores. Lengthen your days by lightening your labors. Write for catalogue. Sizes up to 15 H.P. Gilson Mfg. Company.
5 York St.
Guelph, Canada.

\$47.50

1 1/2 H. P. Gasoline Engine, Skid or truck. Sizes up to 15 H.P.



Apple Box Shooks

Use the package
which gives the
best results. :-

WRITE US FOR PRICES

Wilson Box Co. Ltd.

St. John, N. B.

Mills at Fairville, Westfield
and Bonny River, N. B.

It is not a question of "Do you wash clothes?" but "How do you do your washing?"

On the same old-fashioned back-breaking rub board? The results never can warrant the hard slavery this entails when the

CONNOR Ball-Bearing WASHER

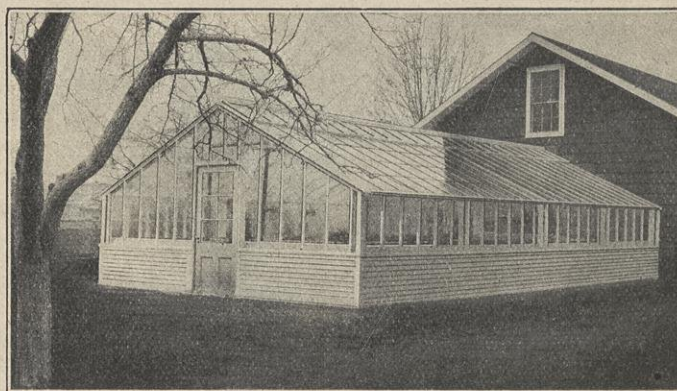
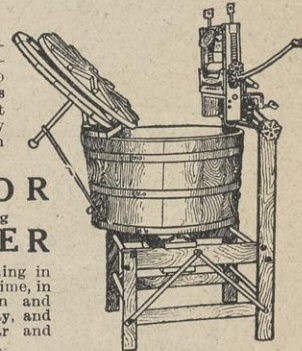
will do the Washing in less than half the time, in the most modern and least fatiguing way, and without any wear and tear on the clothes.

Why not let us send you our booklet on this machine?

We can supply a machine anywhere in Canada

Write to-day to

J. H. CONNOR & SON, Limited
Established in 1881. OTTAWA, ONT.



Let Us Figure on Your Next Greenhouse

There are so many uses for a greenhouse on the farm that we feel sure this house will fill a real need.

As the demand for the food supply of Canada increases, so is it necessary to keep up with that demand by having sufficient glass under which to grow vegetables out of season and bedding out plants for the TRUCK FARM. By building now you can have your house ready in good time for winter. "Procrastination is the thief of time," and nowhere is this more true than in the management of a commercial garden.

The above type is built entirely for efficiency rather than appearance, and consequently is comparatively inexpensive to erect, though it is of the very best materials and design throughout. This is a small size, but we have built houses of this type 61 ft. x 400 ft.

Further information about it and other greenhouses is contained in our booklet B, which we would like to send you.

GLASS GARDEN BUILDERS, LIMITED

Makers of Greenhouses, Heating and Ventilating Apparatus, etc.

Dept. B, 201 Church Street, Toronto
P. O. Box 1042, Montreal

Horticultural Demonstrations in Prince Edward Island

L. Tennant, B. S. A., King's County

THE grant made to Prince Edward Island under The Agricultural Instruction Act has enabled the local Department of Agriculture to do considerable demonstration work along horticultural lines. This work included pruning, spraying, grafting, instruction in the general care and cultivation of orchards, and demonstrations in the grading and packing of apples. Many of the Island orchards were set out some years ago, and in several instances these orchards have become unprofitable, either on account of lack of care or the fact that many of the trees are of poor varieties. The question of the renova-

tion of the orchards of the Island is, therefore, an important one.

Many orchard owners have rather hazy ideas regarding the pruning of an apple tree. Too frequently they measure the success of their operations by the quantity of wood which is removed from the tree. The object of pruning is not to cut out a large amount of wood, but to leave as much bearing wood as possible, to have this wood evenly distributed throughout the different parts of the tree, and to give each branch and twig sufficient light and air so that the fruit it bears will mature and color properly. In our work the cutting out of large branches was avoided as far as possible. The pruning largely consisted in thinning the outer twigs and branches. In some cases where the trees had been neglected for some time it was found necessary to

remove large branches, but wherever this was done the cut was made as close to the main limb as possible, and the wound was covered with a good paint.

Here and there were found trees that would be very liable to split in a high wind, or when carrying a heavy load of fruit. To prevent this, the main branches on opposite sides of the tree were tied together. Screw eyes were placed in these branches between two and three feet from the crotch. These screw eyes were joined together by a loop of heavy galvanized wire, which was twisted tight. By this means the tree was supported and the danger of splitting avoided.

A small amount of grafting was done in a couple of orchards. There are several instances in which top grafting could be done quite profitably. A considerable number of trees in many orchards are either early varieties, or varieties that do not find a ready sale. By changing these trees over to varieties that are in demand and that will keep well, the returns from a large number of orchards would be materially increased.

Demonstration work in spraying was done in several localities last year, and was attended with good results. Home-made concentrated lime-sulphur and arsenate of lead were the materials used. The orchards on the Island were all fairly free from insect attack last year, so that there was not much difference in this respect between sprayed and unsprayed orchards. In a few unsprayed orchards the Oyster Shell Bark Louse is quite bad. In the control of scab, however, there was a big difference between the sprayed and unsprayed orchards. In the sprayed orchard a large percentage of the fruit was No. 1, but in the unsprayed orchard the bulk of the fruit that was marketed was of No. 2 grade, and the percentage of culls often ran as high as 35 to 40. A large quantity of home-made concentrated lime-sulphur was manufactured at Charlottetown and sold at cost.


THE oldest line of steel beam plows in the Dominion, made in the old Wilkinson Plow Co's factory, by old Wilkinson Plow Co. experts—every one of them men who know their business. It is the standard line of plows and includes 25 or more styles to choose from. U. S. S. Soft Center Steel Moldboards, highly tempered and guaranteed to clean in any soil. Steel beams, steel landsides and high carbon steel coulter. Clevises can be used either stiff or swing. Each plow is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plow. Shares of all widths—specials for stony or clay land.

General purpose, light, medium, and heavy, side hill, sod, drill or one horse plows

The plow shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. Ask for new booklet.

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



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Big Ben is known as the watchlike alarm clock with a human brain—a clock smart enough to call just *when* and *as* he's told.

He's ringing up more than three million families each day of the year—some with a steady five-

minute call, and some on the "installment" plan.

Big Ben stands seven inches from tip to toe—big, faithful and exact—with bold numerals and clean-cut hands which show plainly in the dim, early morning light.

The next time you go to town call at your dealer's and ask to see Big Ben. If your dealer hasn't got him, send a money order for \$3.00 to his makers—Westclox, La Salle, Illinois—and he'll come to you prepaid.

Glass vs. Cotton

Referring to the use of cotton instead of glass for covering cold frames and hot beds, Dr. Andrews, of Regina, Sask., writes, "Glass has its uses. But many of our gardeners leave home in the morning, which may be cloudy, clearing up by nine o'clock and our hot sun is apt to raise the temperature too high. Cheesecloth quilted double by sewing across every twelve inches is preferable. It is like ventilated underclothing, open but warm on account of imprisoned air."

"Hard cotton is of little use, or rather of less use than one more open. We are simply using the same protection and means of ventilation which is making the cotton window so satisfactory in some of the public schools, and in sleeping rooms during the winter. I hope many will try the new device. The plants are hardy, and stand transplanting well. The cost of cotton is so low that one can afford to have a large area of cold frames and hot beds for melons, squash, tomatoes and bush beans and protect them from autumn frosts."

The Commission of Conservation of Canada at Ottawa is distributing a little booklet dealing with "Town Planning." It is being a special issue of their magazine, entitled "Conservation of Life."

The Tournament of Roses is an annual event conducted in California that has attracted wide attention. A special booklet dealing with this event and beautifully illustrating this great event and beautifully illustrating it has been issued by the Pasadena Daily News, Pasadena, Cal.

Okanagan Valley, North

Chas. Webster, Armstrong, B.C.

Fruit trees were in bloom quite three weeks earlier than last season, and blossoming time was unusually free from frosts. Sweet cherries, which are not widely grown here because of their susceptibility to frost, are in most cases well set. Apple orchards bearing very heavily last year, are, as a rule, much lighter this season. Altogether, the fruit prospects are equal to a year ago.

Mr. F. T. Jackson, until lately partner and manager in the produce firm of Daykin & Jackson, of Armstrong, has taken the place of Mr. R. R. Robertson, as manager of the Okanagan United Growers, at Vernon. The growers hope for the pursuance of a policy which will leave more returns with them, and less with the fruit brokers and wholesalers.

A slatted crate is to be tried out this season for shipping a portion of the apple crop to the prairie markets. The package will be less costly than the usual one-third barrel box, and packing a little less elaborate. This is another effort on the part of the growers to place apples with customers at a price that will not restrict consumption. By the way, if consumers were making as earnest efforts to deal more directly with the grower as growers have for years been endeavoring to have their fruit sold to the public at a reasonable margin above what they receive, plus transportation charges, there would be more hopes of closer relations. Several public markets have been opened at places on the prairies, some of which I understand are not as well patronized as was expected. Okanagan fruits and vegetables would certainly reach these markets if the people were there to buy them. Perhaps one result of these war times will be less frequent shopping by phone, less patronizing of the palatial but expensive down-town fruit stores, and more attention to the public markets, where one can see what is offered, get a good knowledge of values, and the growers get there almost directly to the buyers.

Smith & Gorham, of the Hullcar Nurseries, Armstrong, have, in spite of the depression in orcharding, found a steady sale for their stock in northern Okanagan, Salmon Arm, etc. Their trees being grown under unirrigated conditions, find favor in these districts.

A large area has been gradually getting into alfalfa around Enderby. A plant was erected some time ago for the production of alfalfa meal for poultry, etc. The output has had a good reception throughout the province.

British Columbia

The following grants for horticultural purposes are called for in the estimates of the British Columbia Government for the year ending 31st March, 1916:—

Board of Horticulture—expenses of members attending meetings, \$500.00; Crop competitions in commercial fruits and vegetables, and garden and vacant lot competitions and demonstrations, \$2,000.00; Demonstration orchards and experimental trees, \$2,000.00; Demonstration spraying, \$1,500; Fruit-handling, cold-storage, and pre-cooling investigation work, \$2,000.00; Fruit-packing Schools, \$2,000.00; In aid of British Columbia Fruit-growers' Association, \$5,000.00; Inspection of nursery-stock, trees, plants, etc., \$20,000.00; Suppression of diseases affecting fruits, vegetables, plants, etc., \$15,000.00.

BASKETS

We supply hand-made fruit baskets, crates, etc. Well made, strong and guaranteed to give every satisfaction.

Let us quote you prices this season. Can supply any quantity.

Hewson & Farrell

Box 244, Grimsby, 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.

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HAMILTON, 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.

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DEPT. C.F. - SPRINGFIELD, MASS.

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.

McCormick Binders



PRACTICAL farmers who know what harvesting difficulties must be overcome in Eastern Canadian fields, urge the use of the **McCormick** binder. Ask them. You will find the **McCormick** has an unusual number of good, strong points that insure as complete a harvest as it is possible to get, even under worst field and grain conditions.

For Eastern Canadian fields the **McCormick** binder is built with a floating elevator which handles varying quantities of grain with equal facility. The binder guards are level with the bottom of the platform so that when the machine is tilted to cut close to the ground there is no ledge to catch stones and trash and push them ahead of the binder to clog the machine. These and other features you will appreciate.

Look for the same high-grade workmanship, the same famous **I H C** quality, in **McCormick** twine and in **McCormick** mowers as well as binders. Make the most of your crops. See the agent for catalogues and full information, or, write the nearest branch house.



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



CLASSIFIED ADVERTISEMENTS

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

REAL ESTATE

ALL KINDS OF FARMS—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.

BEEES AND QUEENS

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.

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.

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.

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.

ITALIAN QUEENS, also the Golden Beauties and Carniolans. Tested, \$1.00. Untested, 75c each. For bees by the pound and queens in lots write for prices. Page Bankston, Buffalo, Texas.

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.

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.

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.

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.

QUEENS OF QUALITY—3 band Italians by return mail, 75c. each, \$8.00 per dozen. J. I. Banks, Dowlstown, Tenn.

ITALIAN BEEES AND QUEENS as advertised on page 159. Catalogue free. Deroy Taylor Co., Newark, N.Y.

BEST THREE BANDED ITALIAN QUEENS—June to October, mothers selected from more than 100 colonies and reared in hives running over with bees, according to the latest scientific methods. Every queen a dandy. Satisfaction guaranteed. Each 75c, per dozen \$7.20, per hundred \$60.00. Also bees and honey. J. H. Haughey, Berrien Springs, Mich.

BEEES AND QUEENS

FOR SALE—Three banded Italian queens, from the best honey-gathering strains, that are hardy and gentle. Untested queens, 75c.; 6, \$4.25; 12, \$8.00. Tested queens, \$1.25; 6, \$7.00; 12, \$13.00. Selected queens, add 25 cts. each to above prices. Breeding queens \$3.00 to \$5.00 each. For queens in larger quantities, write for prices and circulars. Robert B. Spicer, Wharton, N. J.

IMPROVED three banded red clover ITALIANS, bred for business. Untested \$1.00, dozen \$10.00; Select \$1.25, dozen \$12.00; Tested \$1.50 each. Bees in 9 and 10 frame Langstroth Hives, \$9.00 each, price of queen to be added. Safe arrival guaranteed. Charlton & Jones Co., Ltd., Walsh, Ont.

QUEENS OF QUALITY — Our Hand-Moore strain of 3-banded Italians are beautiful and good honey gatherers. Secured 223 sections comb honey from best colony 1914 season. Only drones from selected queens near mating yard. Breed strictly for business. Untested, 75c; half doz., \$4.00; Select, \$1.00. Queens mailed promptly or money returned. W. A. Latshaw Co., Clarion, Mich.

HARDY NORTHERN QUEENS — Moore's strain of Italians. Untested \$1.00 each, 6 for \$5.00. Less in large numbers. P. B. Ramer, Harmony, Minn.

FOR SALE—20 or 30 Colonies of bees to reduce my stock. 10 frame Langstroth. Jacob Alpaugh, 46 Cherry St., Stratford, Ont.

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.

BEE SUPPLIES for beekeepers in Northern Ontario. I have a full supply of goods for shipping on short notice. Write for catalogue. Scott Fraser, Gore Bay, Ont.

WANTED—Second-hand four-frame (Langstroth) reversible extractor. M. L. Newland, R. R. No. 2, Cainsville, Ont.

SEEDS AND PLANTS

READ ABOUT BEZZO'S FAMOUS PRIZE ASTERS on page 163. 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 HONEY LABELS, two colors, any wording, for \$1.30. Catalogue free. Pearl Card Co., Clintonville, Conn.

Annapolis Valley

Manning Ellis

This is one of the coldest and latest springs on record. The oldest inhabitant will have to search his memory to remember another May with as many cold east winds and rainy days. Spraying has not begun, or is only being started May 24th, when at that date in other years the Gravensteins were in bloom. The Valley fruit-grower, unless he uses the spray pump very vigorously this season, is sure of a wonderful crop of Black Spot.

Apples and other fruits give promise of a splendid bloom that two weeks of fine weather, if we get it, will change into growing apples, plums and pears. Strawberries wintered well, and if they get through the frost season will mean money in the fortunate grower's pocket when he needs it the

most. More interest is being given to berry growing, due no doubt to the high prices of the last three years. Many new plantations are being set this spring.

To date, the green aphid, that did such great injury in the Valley two years ago, is not showing on the young twigs, and Prof. Brittain, the Provincial Entomologist, reports there is little danger from them this year. This information will make quite a difference in the spraying expense, as "Black Leaf Forty" is the most expensive of the spraying ingredients.

A local branch of the Maritime Bee Keepers' Association was formed in Kentville this spring to promote more and better bee keeping in the Valley. The importance of bee keeping to the fruit growers is now becoming generally recognized, and many are buying hives to place near their orchards for the good the bees do these with the honey as a secondary consideration. This will lead to a more general consumption of honey in the home, and an appreciation of its value as a food that is now too often overlooked.

Inspection of Basket Factories

D. Johnson, Fruit Commissioner, Ottawa, Ont.

There are in Ontario some twenty-five factories manufacturing fruit packages. The majority of these are in the Niagara Peninsula, though there are individual factories in practically every section of the province.

Formerly there has been no general inspection made of these factories. Occasional visits have been made to them by a qualified officer of this branch, but these visits were not frequent, as it was generally considered that the manufacturers were turning out packages that conformed to the requirements of the Inspection and Sale Act, Part IX.

During the past two years, many complaints have been received from growers regarding the packages supplied to them. The poor quality of the veneer and the faulty nailing were particularly complained of, and in some cases the baskets were not of legal size. On account of these complaints it has been decided that a frequent inspection of basket factories is necessary in order to protect both the shippers and the consumers.

One such inspection has just been made, and certain features noted. The most essential requirement, so far as the manufacturers are concerned, is that any particular package made by one factory should be uniform in size to the same package made by any other factory. Unless that requirement is enforced, there is a strong temptation to make a "short" package, popular to some growers, but unfair to the consuming public and to the honest manufacturer. In order to effect uniformity, a standard form must be introduced which every factory will be required to use.

The use of a two-piece stapled bottom in six and eleven quart baskets, and the inadequate nailing of the side bands and handles are features which in many instances will have to be removed. The immense number of baskets which are broken during the shipping season can be greatly lessened by having every basket nailed in a more secure manner.

During the coming summer every basket factory in Canada will be visited once a month, and by this means it is hoped that more care will be given by manufacturers to the strength and uniformity of the packages they are making.

"The Canadian Horticulturist is an excellent paper, complete with good instructive articles and well worth the money."—H. T. Rutherford, "Graylands," Duncan, B. C.

This Beautiful China Tea Set --FREE

is offered to every one of our readers at the cost of only a little spare time.

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 splendid opportunity for you to get a Tea Set **FREE**. Write us to-day.

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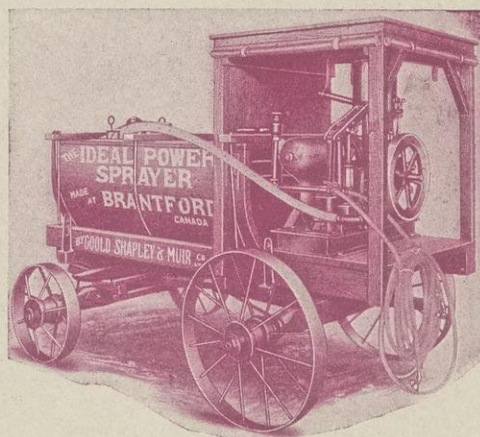
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Engine, Pump and Pump Gear, mounted on Heavy Steel Beams and cannot get out of alignment.



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.

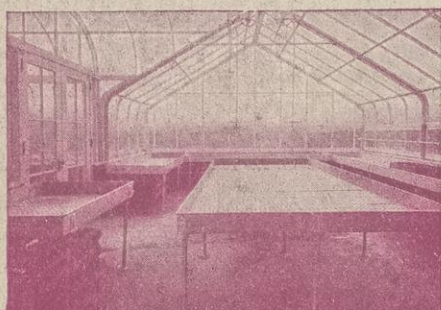
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GOOLD, SHAPLEY & MUIR CO. Ltd., BRANTFORD, Ont.



Greenhouse, garage and stable of J. S. Adriance, at Williamstown, Mass.

A Well Planned Layout Of Especial Interest to Gardeners



Glimpse of the greenhouse interior, looking towards the fine light gable. The benches have galvanized cast iron sides and bottoms. Every bit of iron and steel in the house is galvanized and aluminum finished.



The boiler cellar. The stairs from the garage are at the right. The coal bin is at the left. The work room is seen through the door. The stairs from the greenhouse come down into it.

In the charming old college town of Williamstown, Mass., lives a very practical man. His name is J. S. Adriance.

Under his own personal supervision, he has just completed a stable, garage and greenhouse combination of decided interest.

The design and plan are his.

It was our privilege, as well as pleasure, to work out with him the greenhouse and its equipment.

The work room is downstairs, on one side of which, is the boiler room; and on the other, the mushroom cellar. The Burnham hot water boiler heats greenhouse, garage and stable.

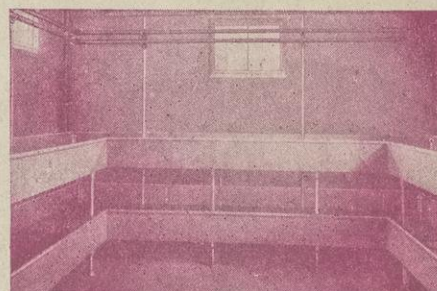
It is just another example of the increasing tendency to join the greenhouse and garage. The tendency is increasing, because it is such a decidedly practical practice. It's a matter of economy, any way you figure it.

If you are interested, we will gladly send you photographs and particulars of several very attractive greenhouse and garage jobs recently completed. Our Two G's Booklet, or Glass Gardens, a Peep into Their Delights, is just the thing to interest owners.

Glad to send you a copy.



There is no connection between the garage and greenhouse, which is exactly as it should be. These windows open in the robe closet and on a stairway.



The mushroom cellar opens off the work room. The cellar is equipped with our latest mushroom beds.

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