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Peterboro, Ont.: Horticultural Publishing Company, December 1915

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Volume 38  
Number 12

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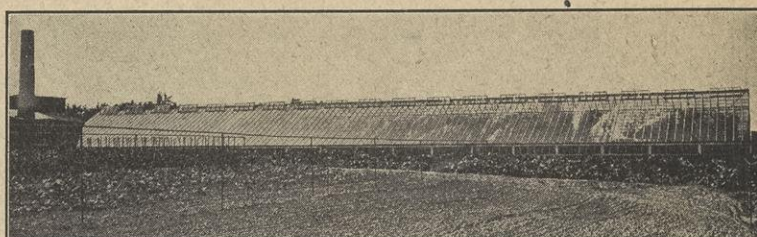
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# The Canadian Horticulturist and Beekeeper

Vol. 23

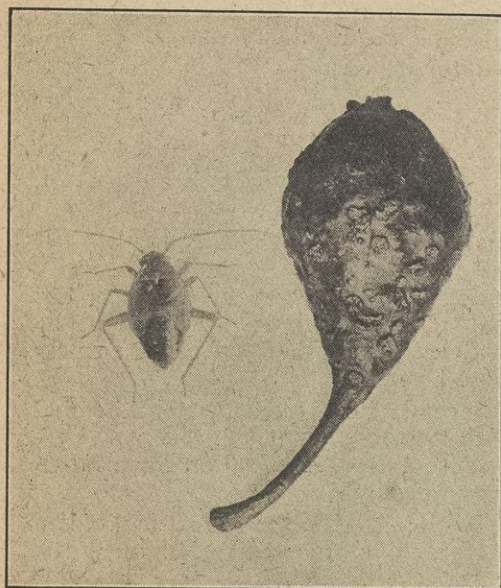
PETERBORO, DECEMBER, 1915

No. 12

## The Green Apple Bug on Apples and Pears

W. H. Brittain, Provincial Entomologist for Nova Scotia

FOR a number of years fruit growers in the Annapolis Valley of Nova Scotia have complained of the non-bearing of certain varieties of apples, especially the Nonpareil. Such



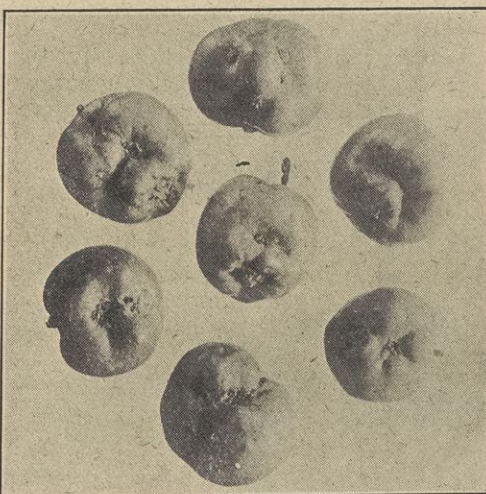
The Green Apple Bug and an injured pear.

trees would bloom heavily every year, but would invariably fail to set a crop of anything but a few gnarled, twisted apples. At the same time there came frequent reports of pears that "grew woody" and were covered with corky, disfiguring scars.

No one appears to have suspected the connection between the trouble in the apple and pears or that either of them was due to an insect. Examination of affected orchards about blossoming time showed them to be swarming with small yellowish or green sucking insects, which, in appearance resembled long-legged plant lice. These insects moved with extraordinary rapidity and had a wonderful ability to hide. They later developed wings and became a delicate brownish insect about one quarter of an inch long. This insect proved to be an insect known as a pear pest in New York State under the name False Tarnished Plant Bug (*Lygus invitus*). Lately it has gained an

unenviable reputation in Nova Scotia as the "Green Bug" or the "Green Apple Bug."

The pest is well distributed through the main fruit producing centres of Hants, Kings, Annapolis and Digby counties, but, though the adult is a fairly strong flier, it does not seem to spread very fast. It is one of the most serious pests in the Annapolis Valley. In fact, where it once becomes established there is no pest to compare with it, either in amount of damage done or in the difficulty of controlling it. That such a pest should have gone so long unnoticed is rather surprising and can only be attributed to the very elusive habits of the insect.



Injury of the Green Apple Bug to apples.

As far as we have determined the insect breeds only on the apple and pear. It has been found feeding on plums in the adult stage, but has not been known to lay its eggs in that plant. When shaken from the tree, the young insects have been observed to feed on various plants growing on the ground, but when it reaches the winged state it always seeks the apple and pear tree to feed and deposit its eggs.

### Life History.

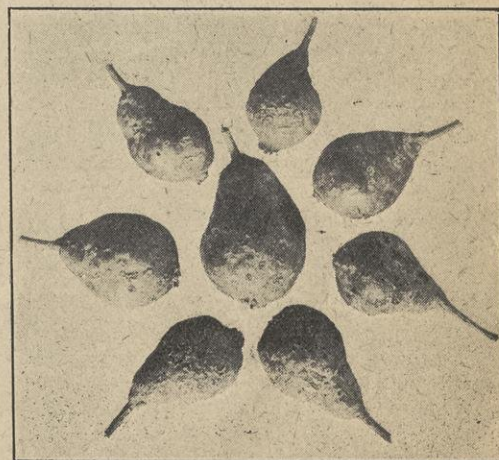
The eggs, which are laid beneath the bark of the twigs, begin to hatch a few days before the blossoms open. The height of the emergence coincides with

the opening of the blossoms and practically all are out by the time the last blossoms fall. From thirty-one to thirty-four days elapses from the time the insect hatches until it gets its wings. Soon after hatching the eggs are laid, after which the adult insects begin to die off, few remaining after a month has passed.

The young bugs are very active and when disturbed run rapidly, hiding in the axils of the leaves or any place that affords concealment. When suddenly disturbed they frequently drop, but generally alight on another branch before reaching the ground. When forced to drop by heavy rains, winds, sprays, etc., they may reascend the tree or they may feed on the herbage at its base until their wings are obtained, when they will fly up into the trees again.

Experiments have shown that insects that fall to the ground are capable of feeding on, completing their transformations on timothy, red clover, couch grass, dandelion and a great variety of other plants.

In feeding, the young insects prefer the young leaves of apple and pear, but also puncture the tender twigs. Later on they attack blossoms, but when the fruit is set, they feed on it to the exclusion of other food. The later stages will not feed on the leaves if other food can be obtained.



Injury of the Green Apple Bug to pears.



Injured apples.

Adult insects are, like their young, very active and take to flight readily when disturbed. The nymphs prefer green pears to all other food, but also feed upon the fruit of apples and plums. Pear trees kept free from the young insects by spraying had their crop destroyed later by bugs flying in from nearby apple trees.

The first evidence of injury to the apple is to the tender foliage in the form of purplish spots upon the surface of the affected leaves, accompanied in severe cases by a slight tendency to curl. As the leaves unfold and later reach full size, the discoloration disappears, but if affected leaves are held to the light they will be found to be pierced through and through with small holes. In very severe cases they have a ragged, frayed appearance.

The tender, succulent twigs are favorite points of attack and as the insect removes its beak a clear drop of liquid oozes through the bark. Later, as the twig increases in size, quite a decided lump may develop at the point of puncture, with, in severe cases, a cracking of the bark. In heavily infested orchards where insects are present in hundreds of thousands, the twigs may be literally stung to death, and afterwards remain clinging to the tree for some time, in a brown, dried up condition.

Blossoms are attacked with equal freedom, and like them may frequently be stung to death by the countless numbers of beaks, all withdrawing their sap at the same time. The dead, dry blossoms usually fall to the ground in a short time. These facts explain why susceptible varieties bloom year after year without giving any crop.

As soon as the young fruit has set, drops of gum oozing through the skin, reveal the spot of the insect's attack.

A slight, reddish purple will mark the puncture and the young apple generally drops after being stung. Fruit that is able to still cling to the tree, or that is not attacked until it has reached some size, is usually badly gnarled and twisted as a result of the insects' attack. The failure of the tissue about the puncture to develop results in a one sided apple, with a pronounced depression, surrounding a brown, slightly raised scar, marking the spot where the insect inserted its beak.

#### Injury to Pears.

Injury to the leaves, stems and blossoms of the pear resembles that of apple, except that in this case the tissue about the puncture turns black. Stinging of the young pears does not often result in dropping as in the case of apples. The effect of the punctures on the fruit is, however, very conspicuous, it being covered with hard, granular, corky scars, which are often split open as in the case of those on the apple. Hard, flinty areas extend into the pulp, making the fruit useless for any purpose whatever.

#### Injury to Plums.

Injury to the fruit of plums is not uncommon, where these trees border on affected apples or pears. Plums injured by the bugs do not usually become scarred and twisted, as in the case of apples and pears, though they may sometimes grow somewhat one-sided. The seat of injury is usually at the extremity of the fruit furthest from the stem. As usual in the case of stone fruits this injury is marked by the exudation of colorless gum which flows through the small puncture, sometimes forming a globule and sometimes a coil of gum which finally hardens in the air.

#### Susceptibility of Varieties.

Nonpareil (Roxbury Russet) is the most susceptible variety of apple, next in order coming Ribstons, Gravensteins, Golden Russets, Blenheim and Greening. There is a tendency in an orchard for the insect to spread from the more susceptible to the less susceptible varieties.

The Bartlett pear is more subject to attack than other varieties, but Clapp's Favorite, Burbridge, Maria and Flemish Beauty are also affected.

#### Conditions Favoring Increase.

As a result of our observations throughout the infested area it appears that the most suitable conditions for an undue increase on the part of the insect are shady orchards with closely planted, thick growing trees, where air drainage is poor and a certain amount of herbage on the ground. These conditions are not essential, however, as

the pest is known to flourish under all conceivable conditions.

Several factors make the control of this pest more difficult than that of any insect with which we have to contend. First, the insect is active, and clever at hiding, making it difficult to hit it with the spray. Second, when the tree is sprayed, large numbers of the young insects drop to the ground and may re-ascend the tree when the spraying is over. On one tree 1,389 insects were found going up it after it had been sprayed—enough to ruin the entire crop. Third, the insects are capable of coming to maturity on timothy, clover, couch grass, and other plants that may be growing at the bottom of the tree, after which they can fly back to the fruit trees and continue their work of destruction.

#### Methods of Control.

The following are therefore the measures to be followed in controlling the Green Apple Bug:

First: In normally planted, well pruned orchards, with only a moderate infestation, spraying the apples with Blackleaf 40, one pint to 100 gals., just before and just after the blossoms fall, and pears just after the blossoms fall and again five days later, should be sufficient. In others special measures must be taken.

Second: The trees must be banded with tree tanglefoot to prevent the re-ascend of those insects that have fallen to the ground.

Third: The orchard must be kept in a state of clean cultivation until the end of the first week in July, in order to starve all insects that have been forced down the tree.

Fourth: The trees must be thoroughly thinned out and pruned, so that all parts can be reached by the spray.

Fifth: A heavy drenching spray must be given.

I believe in the future of the Nova Scotia apple industry. We are in a strategic situation here for catering to the British market, and so far as I can see our position in the future will grow more and more secure. The major portion of the production of Ontario and British Columbia will in time be taken care of by the growing populations of our prairie provinces and of our rapidly-expanding inland cities. We shall be able to do something in those directions, too, but our principal market will always lie across the Atlantic. Dealers and consumers over there are becoming more widely acquainted with our product every year, and the greater the spread of this knowledge the stronger the demand.—W. W. Pineo, Waterville, N.S.

## Common Vegetable Crop Insects and Their Control\*

Arthur Gibson, in Charge of Vegetable and Field Crop Insect Investigations, Department of Agriculture, Ottawa

THE Entomological Branch of the Dominion Department of Agriculture has recently been conducting important experiments in the control of such serious pests of the market gardener as cutworms, root maggots, and locusts. Vegetables of all kinds suffered severely from cutworms during 1915. In Eastern Canada the species which caused most destruction were the Red-backed Cutworm, the Striped Cutworm, and the Dark-sided Cutworm. The habits of these species are similar, and all are surface-feeding cutworms.

During the past season the poisoned bran remedy, as recommended in our bulletin, "Cutworms and Their Control," with fruit added, as recommended for locusts, was used in our experiments near Ottawa, and outbreaks of cutworms quickly controlled. In one large field of onions, where the cutworms were especially abundant and destructive, a single application of the poisoned bait stopped the outbreak, and no further injury by these insects took place. The twenty pounds of bran mixture has been found sufficient to treat about three acres. The poisoned bait should be spread thinly in order to destroy the greatest number of cutworms, and when thus spread there is no danger of birds, poultry, or live stock being poisoned. A single poisoned flake of bran is sufficient to kill a cutworm.

\*A paper submitted at the recent convention in Toronto, of the Ontario Vegetable Growers' Association.

Like the old poisoned bran bait, the new mixture containing fruit juice should be distributed over the land in the early evening, so that it will be in the best condition to attract the cutworms when they come out to feed at night. This new poisoned bait is a cheap, reliable remedy for cutworms, and should be promptly used by every grower on the first sign of injury. If the cutworms are known to be present in the land in the spring, it is a wise precaution to scatter the poisoned bait after the ground has been worked, and several days before seeding or planting.

In widespread infestations of cutworms in 1915, we observed that the eggs had been laid during the late summer of 1914 on weeds or other plants growing on higher locations and left standing, and that the cutworms which hibernated nearby in their younger stages migrated in May to other parts of the field where food was in plenty. The importance of keeping down weeds and other useless plants, so that the cutworm moths will not be attracted to the land for egg-laying purposes, is therefore very important. If in spring the cutworms are noticed to be working chiefly on the higher elevations, large numbers may be destroyed before they begin to migrate by prompt application of the new poisoned bait.

### Root Maggots.

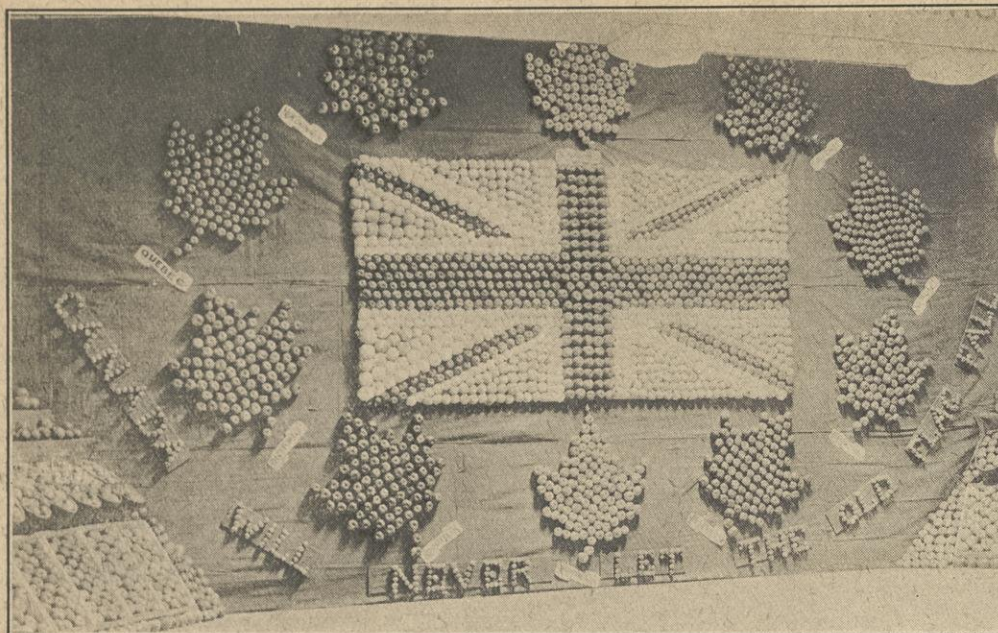
We have this year continued our experiments on the control of root maggots, and have again thoroughly demon-

strated the value of the felt tarred paper discs to protect cabbages and cauliflowers. In one field near Ottawa, owned by a prominent market gardener, we placed these discs around about 1,600 plants at the time of planting. Before this planting the grower had lost a large percentage of his early cauliflowers, and even after we applied the discs to the second planting of 1,600 plants, many plants in adjoining rows were rendered useless owing to attack by the maggot. Of the 1,600 plants above mentioned, practically the whole number were protected from the maggot. This was an excellent demonstration of the value of the disc, and will lead many of the Ottawa growers to adopt this form of protection next year. It is practically the only satisfactory remedy which we have for protecting cabbages and cauliflowers from the ravages of root maggots.

Experiments were also conducted with a poisoned bait spray to attract and kill the adult flies before they deposited their eggs. This work, however, we hope will be continued next year. In Wisconsin a poisoned spray, which has been used successfully to kill the Onion Maggot Fly, is made in the proportion of five grains of sodium arsenate dissolved in a gallon of boiling water, into which is thoroughly mixed one pint of molasses. This mixture is applied as a coarse spray of large drops once a week in strips across onion fields throughout the summer. It is claimed that the results show almost perfect control of the insect at a cost of from fifty to seventy-five cents an acre for summer treatment. At Ottawa this year we also continued our experiments with various mixtures applied by means



The development that is taking place in the fruit industry in New Brunswick is indicated by the size of this nursery at Albert, N. B., which contains 100,000 three-year-old apple trees.



This patriotic design was much appreciated by the public who attended the Fredericton, N.B. Exhibition last fall. A description of it is published on this page.

of a watering can to the rows of radishes and similar plants, to destroy the eggs and young maggots. In small gardens, three applications made once a week from the time the plants appeared, of two ounces of white hellebore to one gallon of water, or fresh pyrethrum insect powder in the same strength, again gave fair results, as did also mixtures containing borax. In one experiment in which borax was used at a strength of one and one-half ounces to the gallon of water, only nine per cent. of the radishes were found to be infested by the maggot, while in a check row close by as high as sixty per cent. were infested.

#### White Grubs.

In co-operation with the United States Bureau of Entomology, we are making a study of the various species of white grubs which are so destructive to garden and field crops. These grubs feed naturally on the roots of the various grasses, and where grass land is ploughed up and used for agricultural purposes, their natural food is thereby reduced and crops planted on such land is often attacked, particularly if the same is potatoes or corn. During 1915, white grubs caused much damage in Canada. In the United States, in Iowa, Wisconsin, Illinois, Michigan, and Ohio, corn growers have this year lost millions of dollars owing to these grubs.

The species of grub which this year was so destructive requires three years to complete its life cycle, and a warning was recently issued by the entomologists of the United States Department of Agriculture for the year 1918. The grubs of this particular species will be more or less destructive up to the end of May or early June in 1916. They will then make earthen cells in the

ground preparatory to changing to the beetle state. The beetles from these grubs do not leave the soil until the spring of 1917, when they will appear and lay eggs in land covered with vegetation, such as where such crops as the small grains and timothy are being grown. Land overgrown with weeds will also attract the beetles. In 1915, therefore, such land to which the beetle will likely be attracted in 1917 should not be used for such crops as corn, potatoes, or strawberries.

Land in which white grubs are now known to be injuriously present should be ploughed, if at all possible, as soon after the middle of July, 1916, as is practicable. The date, July 15, is recommended by the United States Department of Agriculture for the above-mentioned States, and will doubtless apply also to Ontario, particularly the southern portions. The ploughing of course is to break up the tender pupal and beetle cells, which results in the death of the insects. A plough which will break up the soil is, of course, preferable, but if such an implement is not at hand the ground should be deeply disked. Chickens are fond of these grubs, and if available should be allowed to remain in the field during cultivation. Hogs are also useful in ridding small areas of white grubs.

#### A Striking Design

THE exhibit of the fruit division of the New Brunswick Department of Agriculture at the Fredericton Exhibition this fall consisted of the striking patriotic design illustrated on this page, which was erected in a booth about twenty-four feet long and ten feet wide. The design was worked out in apples and consisted of a large Union

Jack, nine feet by five feet, surrounded by ten maple leaves, one for each province of Canada, and one for the Yukon Territory. The background was covered with dark green cloth, which contrasted effectively with the brilliant colors of the flag, which was in itself almost a perfect representation, both as to color and shape. The blue and white was obtained by wrapping the apples in paper.

The maple leaves were in various colors. The following varieties of apples were used in their make-up: Golden Russet, semi-matured Wealthy, Crimson Beauty, Switzer, and Hallett's White (a local apple). The sign: "Canada Will Never Let the Old Flag Fall," was worked in Montreal Beauty crabs. The centre design was flanked on each side by a pyramidal display of apples in half boxes and baskets, and in cones, and trimmed with dark green.

#### Fall Care of Strawberry Patch

A. C. Gorham, Macdonald College, Que.

STRAWBERRIES may be planted either in the fall or spring, providing the soil conditions are favorable. But I prefer, especially for colder sections, to plant in the spring. Then if they are planted in May the season as it advances becomes more favorable, the young plants become established and throw off runners which will take hold before fall, whereas the fall set plants do not have as great an opportunity to become established, and in this condition are not so likely to come through the winter. The later they are planted the less is their chance of coming through.

A deep clay loam or sandy loam well supplied with humus is best. They should never be planted where water stands on the land or where water runs down and freezes over them, as they are sure to kill out. Cultivation should be kept up through the first season to keep down the weeds, conserve the moisture and turn the runners in to make a more compact row.

Strawberries need some winter protection. Late in the fall, after growth has ceased and the ground becomes frozen, cover the plants well with some good clean straw, hay or spruce boughs if they can easily be obtained. These boughs can be removed in spring, giving a chance for further cultivation, but in the case of the straw or hay it is lifted from the plants and placed between the rows. This should not be done too early, as it would allow the plants to develop buds which would be killed by early frosts. The straw makes a mulch which holds the moisture, and makes cultivation unnecessary. It also helps to keep the berries clean and provides a soft mat for pickers to kneel on.

# Garden Roses\*

Percival H. Mitchell, Toronto, Ont.

SO much has been written about roses as to the soil, the planting and their care as applicable to our local requirements, that I wish to deal more particularly here with the selection of the roses for the garden, for from the bewildering hundreds of varieties of roses which are to be had to-day it is extremely hard to choose by the mere descriptions given in the catalogue. Accurate as these descriptions may be they are apt to describe the more virtuous attributes of each and leave the grower to discover their other traits.

There are not merely hundreds of varieties of roses, but thousands, and gleaning from this multitude the rose growers of England and Ireland list in their catalogues some 750 varieties each, and yearly about fifty new creations make their debut with the greatest of hopes of their originators behind them. These great hopes are liberally interwoven into the glowing descriptions of their charms, and, alas, at the same time many retire into oblivion after a brief stay, when time has proven that beautiful as every rose may be there are others much more entitled to be included in the list of worthies.

All rose gardens have a beginning, and the realization of first hopes instills that enthusiasm which is the great essential of the future. The proper roses must be secured to start with. There were two determining influences in the selection of my own first roses, my rose growing neighbors who advised the planting of Richmond, and the local nurseryman who made the statement that hybrid perpetuals only should be attempted by the amateur for outside planting, as teas and hybrid teas were too delicate for this climate. To Richmond, once my most beloved rose, do I tender my thanks for an enthusiasm which can never be quenched.

Richmond bloomed that first year many, many times with no apparent exhaustion, and I well remember after an absence from the garden of several days how I found a most perfect scarlet bloom, in the waning days of November, encased in a sheathing of ice. The lack of bloom on my hybrid perpetuals that first year was a disappointment, and that winter when the first real rose list was evolved the blooming quality of the hybrid teas was predominant in my selection. I am afraid that had I gained my first

impressions of rose gardening with the hybrid perpetuals I had bought I would have agreed with the prevailing general opinion that the rose garden was quite beyond the ordinary amateur gardener.

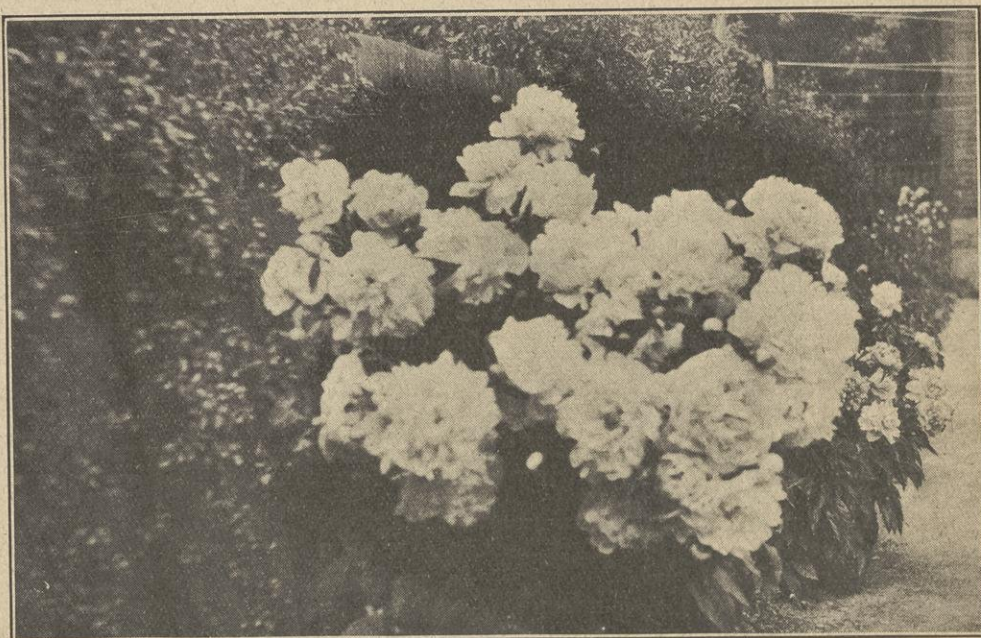
However, by the continual harassing of my rose growing acquaintances, by delving into many rose books written by authoritative authors, and by constantly poring over some English gardening magazines, I eventually compiled a further list, including about a hundred varieties, which were almost from universal opinion considered to be the best for garden growing. From my associations with these during the last few seasons I can say that their suitability for English gardens is quite duplicated for Ontario, and, further, that in several cases the roses have done better here than they are expected to do even in England.

I wish to emphasize that practically every garden rose can be grown in Ontario, and with but a reasonable protection in winter. The cold of winter does not seem to be a harmful element; to my mind it is the thawing and freezing that works the harm, so that it is possibly because of our steady winter weather that rose growing in Ontario is so much more successful than further to the south of us. The protection usually given in winter to roses, by hilling up, is more to keep the rose from thawing until real spring arrives than to keep the rose from freezing.

There are three large classes of roses

—teas, hybrid teas and hybrid perpetuals. The lines between these families are not so distinctly drawn as formerly, as the hybridizing has been productive of many roses having the characteristics of all the classes. Tea roses are straight descendants of *Rosa indica*, a native of China, and from this source it derives its delicacy of form and fragrance, as also its delicacy of constitution. Most of the tea roses can be readily grown here, the great advance in hybrid teas, however, have seen the development of many which readily duplicate most of the characteristics of the teas, but include a vigor which the tea rose lacks. Even in England the tea rose demands attention in cultivation and protection.

The great modern class of roses is formed of the hybrid teas. The hybrid perpetual was the forerunner in popularity and the rather meagre second blooming of this class, quite sufficient in its day of only June blooming roses to justify its title of "perpetual," was a great boon to the rosarian. The hybrid perpetual and the hybrid tea are very closely related. The hybrid perpetual was derived from the crossing of the tea rose ancestors and *Rosa gallica*, which is the parent of the cabbage rose of our grandparents' day and the mosses and damask roses, and is the element which has produced the showiness of the hybrid perpetual. The hybrid teas in turn have been produced by the crossing of the teas and hybrid perpetuals, and from these sources



Paeonies such as these are helping to make this flower one of the most popular grown in our Canadian gardens. This variety is the *festiva maxima*. The bush had 114 blooms. It was grown in the garden of Mr. A. H. Baker, Hamilton, Ont.

\*Extract from paper read at the recent convention in Toronto of the Ontario Horticultural Association.



The beautifying effect of vines is well illustrated on this residence. What would many homes be without them?

have acquired their delicacy, colors, fragrance, hardiness and a remarkable blooming quality. In 1867, when *La France*, the first hybrid tea, was evolved, one can imagine the great joy of the rosarian in his proud possession of a rose that never seems to tire of blooming from early summer until winter sets in.

A new class of roses has been appearing in the last few years which has great promise. This has been evolved from the crossing of the Persian yellow briar rose with various hybrids. *Soleil d'or* was the first of these, and many of the later varieties have *Soleil d'or* as a parent. It has been quite fitting that the originator, Monsieur Pernet Ducher, of Lyons, France, should be honored by the class being named *Pernetiana*. Many of the *Pernetiana* roses are the most popular to-day on account of the wonderful yellow and shaded colors which predominate.

The *Rugosa* roses and their hybrids are of Japanese origin, the *Rugosa* being a common wild rose of the east. The great bold growth obtainable and the extreme hardiness as a class make them most valuable.

The Moss rose finds many friends and deserves a place in every garden.

The Dwarf Polyantha roses, which are commonly known here as Baby Ramblers, have many delightful varieties, and as several keep continuously in bloom for many months, these will appeal to all. The flowers in the Polyantha or Multiflora classes are small but in large clusters, and the bushes are completely clothed in bloom.

Climbers, pillar roses and roses which will form large bushes are derived from many classes. Multifloras and Wichuraianas comprise a large num-

ber, while the several classes just described contribute to a great extent. The Wichuraianas are developed from a Japanese wild rose of creeping habits. The Multifloras are quite similar.

The Penzance Briar is a charming class of rose, being a development of the English Sweet Briar. Lord Penzance introduced a large number of these, most of which bear the names of Scott's heroines. They are of a bushy or climbing nature and perfume the air with the fragrance of their leaves.

### Climbers for Greenhouses

B. C. Tillett, Hamilton, Ont.

The general fine appearance of a glasshouse is greatly enhanced when a few climbing plants are trained under the roof-glass or to the sides of the walls on any pillars. We know how empty and bare the glasshouse looks before we put any pot plants in it; in the same degree is its appearance improved by a few climbers as when we introduced the first few plants. In the same way a winter garden may be made doubly interesting and twice as attractive to the visitor if a few suitable climbing plants are introduced and trained over the walls.

In low houses, climbers that are somewhat close-growing look the best, as those making long pendulous shoots would come in the way of persons entering the house; and, furthermore, the full beauty of the plants would not be appreciated.

In high houses, some of the most vigorous of climbers may be planted with advantage. For example, plumbagos and bougainvilleas may be given positions. The former will bear shoots

with flowers two feet six inches long; the latter, shoots with bract flowers five feet long when well grown, and three feet when the rooting medium is rather a poor one.

*Clematis indivisa*, grown in a mixture of fibrous loam, peat, leaf-mould, and sand, will do nicely trained directly over the paths in any greenhouse and in any aspect. It is a climber that does well in a glasshouse in a town, where possibly much light and sunshine are shut out by high walls or buildings.

In sunny positions, bougainvillea glabra, plumbago—the blue and white kinds—and heliotrope all thrive and blossom remarkably well.

Fuchsias make capital climbing plants and are specially suitable for pillars and for positions where the strongest sunshine does not reach. One of the best is *Rose of Castile Improved*.

The red and white flowered lapagerias, especially the white, with its hanging wax-like flowers, do best trained to trellises on the north side of a span-roofed house or the back wall of a lean-to facing south or west. The lapagerias need very little heat.

The passifloras—passion flowers—are suitable for training under glass of high structures. They will grow twenty feet high, and their long shoots show to best advantage where there is plenty of space for them to show off.

The climbing lace fern—*asparagus plumosus*—and the beautiful smilax are two favorites which must not be overlooked. The asparagus fern is too well known to need description. Not only will it succeed under almost any conditions, but it is a most useful plant to grow for cutting. The smilax, with its dark glossy foliage, is also useful for decoration.

The foregoing are a few climbers from which a selection can be made to cover up a wall and to give a more tropical appearance to the glasshouse. Where there is a very large wall space to cover, the following suggestion is made, and I once saw it carried out with great success. Some fine-mesh wire netting (one-inch mesh) was stretched along the bottom of the wall and fastened along the bottom and ends, but not at the top. Behind this moss was rammed in so that the netting was forced out about three inches from the wall, and then another strip was similarly fastened and wired to the bottom strip, and so on to within a foot of the roof. In a very little while the newness of the netting wore off and it became quite invisible. Over this various climbing plants were trained, such as *Euphorbia Splendens*—Crown of Thorns—the brilliant red flowers showing off to perfection against the dark moss background. The effect was most pleasing to the eye, and the bare wall disappeared.

# Poison Sprays and Poison Baits in Their Relation to Bees\*

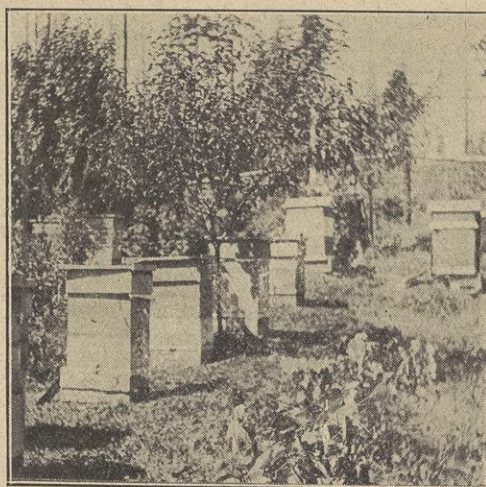
Prof. L. Caesar, O.A.C., Guelph, Ont.

ON this important subject of the danger of killing bees by the use of poison sprays or poison baits, I shall first discuss what in my belief is the most important point of all, namely: the spraying of fruit trees with a poisonous mixture when they are in full bloom. Professor F. M. Webster, formerly of Ohio, has shown clearly that such spraying is ruinous to the bees. I believe almost every entomologist and every beekeeper agrees with him. Unfortunately my time is so taken up with investigation work at that season of the year, that I have seldom been able to travel around and see for myself how much, if any, spraying was being done during the blooming period. My experience this year, however, shows that there is more of it than I had expected. In the Niagara district I happened to visit a certain locality to see when the bloom would be off so that I might be ready at the proper time to spray for the Codling Moth and Apple Scab, and to my surprise I found two men spraying apples and pears though the latter were in full bloom. I notified them to stop, which they promptly did with apologies. They were inexperienced growers, and not deliberate sinners. I suspect, however, that there are a few experienced growers who spray just when it suits them, though the law clearly states that no poisonous spray must be applied to trees when in bloom, under a penalty not exceeding \$25.00. Beekeepers will of course have to lay their own complaints, where there is infraction of such law. It will be well for them to visit orchards in question, take a witness along, make notes on the amount of bloom, see the spraying done and discover, if possible, the mixture used, so that there may be no loophole of escape. So much for compulsion.

## Spraying in Bloom no Benefit.

As to the matter of whether there is anything to gain from spraying during bloom, I may simply say that if they spray then it usually means that they will have to respray to accomplish the end in view, namely, obtaining clean fruit. This is because at such a time there will be many late blossoms not open and so these will not be sprayed; moreover the presence of the blossom makes it difficult to cover the part beneath it, which develops into the fruit and which must be covered with the mixture to keep off fungus diseases

like Apple Scab. Hence it is not merely for the sake of the bees, but also for the sake of economy, and the obtaining of the cleanest fruit that I, along with all other entomologists, in the Spray Calendar, recommend that fruit trees be sprayed just before bloom and again immediately after bloom, or when almost all the bloom is off. We have observed that if we wait until all is off the early blossoming trees and is nearly off the later, the bees will have by this time deserted the orchard for other flowers. It is my belief that nearly all the poisoning of bees is done by the breaking of this law against spraying during bloom. Every fruit grower, therefore, should as a matter of justice to beekeepers, and in the long run to himself, because insects are essential to



Hillcrest Apiary, Shawnigan Lake, B.C., another case where bees and fruit do well together. The proprietor is E. F. Robinson.

the proper setting of fruit, voluntarily refrain from spraying when the trees are in bloom.

## Sweetened Arsenical Sprays.

Very little has yet been done by farmers or fruitgrowers with arsenical sprays containing molasses to sweeten them, but we have at least three pests that in some localities are very destructive and that cannot be controlled satisfactorily in any other way than by a sweetened poison spray. These pests are the two species of Cherry Fruit-flies that often cause over 75 per cent. of the later cherries like Montmorency to be maggoty, and the Apple Maggot, that in a few places ruins most of the apples. The time of application of the sweetened sprays for these pests is not until some time after bloom is over.

For the Cherry Fruit Flies, the first application is given when Early Richmond cherries are just showing the

slightest sign of a red blush, and the second about two weeks later. Cherries nearly ripe are not sprayed. Only two applications are given. For the Apple Maggot three applications are given if the season is wet, and two if it is dry. The date of the first of these varies with the locality, but is in July, and the second usually early in August.

No spray is put on apples nearly ripe. It will be observed that at these dates the orchards under ordinary conditions would be deserted by the bees. However, someone will say that the bees would be attracted to the sprayed trees and get poisoned. I have watched this point for three years, and in seven orchards sprayed by myself and assistants. I have also asked them to observe and we have not yet seen a bee feeding on a cherry, apple or any other tree sprayed with such a mixture. Further, at Mountain, on the farm of Mr. J. P. Smith, I mixed up the mixture day after day for over twenty acres of apples. His bee hives were within about one hundred feet of where the mixing was done, yet no bees came to the molasses or paid any attention to it, though many flies were attracted and became a nuisance. In addition, there is the fact that such sprays have been used in Italy, France and South Africa for many years for the Olive Fly, and there have been no complaints of injury to the bees, so far as I know, where the ordinary cheap molasses was used, though where honey was added to the mixture, and in some cases where sugar was used instead of molasses, bees have been attracted.

Three weeks ago Prof. Lounsberry, of South Africa, told me the sweetened poison spray was just as common in South Africa among growers as the Codling Moth spray in North America; so they evidently do not fear injury to the bees there. I confess that at first I believed that such sprays could not be used because of the danger to the bees; hence it was a great relief to me to find that the bees were not attracted by them. I mean, of course, where molasses was used, and we do not recommend any sweetening, but the cheapest of molasses.

## Sweetened Poison Baits.

Sweetened poison baits, especially the so-called Kansas remedy for grasshoppers, are coming into great favor. They are remarkably efficient against cutworms and army worms, as well as against grasshoppers. A modified form

(Continued on page 278.)

\*A paper read at the recent annual convention in Toronto of the Ontario Beekeepers' Association.

# Summer Protection and Swarm Control

F. W. Krouse, Guelph, Ont.

It is better to leave your bees packed all summer. What I mean is to leave the packing all around the brood nest. You would find if you placed two colonies of bees in the sun, one packed and one unpacked, that the temperature in the one that was packed would be much more even than in the one that was not packed. In the heat of the day the temperature of the one that was unpacked would go up quite high, and later, in the cool of the morning, it would drop quite low. In the one that was packed, the temperature would change very little either way.

The kind of winter case I use is as follows: I make a stand out of two-inch by three-inch cedar scantling. The sides are three feet by five and a half inches long. I use twelve-foot scantling, cut it in the middle, and measure thirty inches from each end. This leaves twelve inches between the two marks. Draw a line across the scantling from corner to corner. This gives the slope for the alighting board and gives four side pieces out of one scantling. The cross pieces are twenty inches in length. Nail these together with spikes, then nail on an inch floor, twenty-five inches by twenty inches in length. This stand takes the place of a reversible stand for the hive.

The case is made as follows: It is twenty-five inches wide and thirty inches long. The front is twenty-five inches deep and the sides and back twenty-six inches deep. The front is nailed flush with the posts. The sides and back are one inch below the posts. This lets it telescope over the floor, which keeps the packing dry. The front, as a summer entrance, is cut out one and a half inches deep by sixteen inches long.

The benefits derived by leaving bees packed are as follows: The queen spreads out the brood nest faster and keeps it well filled up. If we are to get a good quantity of honey we must have a good force of bees at the proper time. By having this protection the queen will keep the brood nest well filled up and you will have a good force of bees by the time the honey flow starts.

When you unpack your bees in the spring it may turn cold. If so, your bees will gather closer together and leave some brood unprotected, and it will perish. When they are packed, they do not notice the change in weather. You can make a nuclei much earlier in the season than you can when you do not pack them. In the summer

it would have to turn very cold before it would do any harm when the nuclei is packed.

You can get combs drawn out in colder weather when they are packed. One year I had this demonstrated very clearly. I had a yard of bees that had to start out on full sheets of foundation. About half the yard was packed and the other half were on summer stands. I put the tops on all of them the same day. You will remember that one year ago was the year that we had scarcely any honey. This made it hard to get combs drawn out under any condition. The first time I went to look after this yard of bees, on which I had put supers of full sheets of foundation, I found a sorry sight. All the colonies but one that were not packed had practically destroyed all the foundation I had given them by gnawing holes and cutting it away from the top bar. All but one of those that were packed had drawn out their combs and had them partly filled with honey. I consider this was pretty good proof that it is better to have the bees packed. I am so sure that I get more honey from colonies that are packed than from the ones that are not packed, that it is seldom that you will find a colony in any of my yards that is not packed.

I make most of my increase by nuclei. What few swarms I have are packed at once outside this one yard that I was telling you about. Half of this yard is put in the cellar every year. I do not own this yard of bees or they would be packed too. The man who owns them has always put them in the cellar.

Another great advantage derived from having bees packed is that you have brood rearing much later in the season, and your bees go into winter quarters with more young bees than they would otherwise. We all know that it is necessary to have plenty of young bees for them to winter well.

## British Columbia Conditions

F. D. Todd, Foul Brood Inspector, British Columbia

The climate and seasonal conditions in British Columbia, considered from an apicultural point of view, necessitate a system of management that is peculiar to the region. Pollen is plentiful early in March, the honey flow from clover does not start until the end of June, so that there is a building-up season of no less than four months' duration. This gives opportunity to develop strong colonies for the honey flow which lasts for a week or ten days only. Not for twenty years has there been a honey crop failure on the clover lands of the

Lower Fraser; in fact, the poorest season gave the best beekeeper in the region an average of sixty pounds to the hive.

The best regions on the Lower Fraser are to be found where the prairie lands—alluvial deposits of an ancient delta—meet the foothills. In such places, the floral succession is almost perfect, willows, dandelions, soft maples, vine maples, fruit blossoms, clover, alsike, and fireweed crowd each other from early March to late in August.

As a rule, bees are wintered on summer stands without protection, but a series of experiments that have been carried on for a couple of seasons at the suggestion of the inspector plainly indicate that it pays to surround each colony with a dead air space, from the middle of November until May.

As is naturally to be expected, the Inspectors find bees housed in a great variety of hives of different makes, but by using a little tact they are getting rid of these obstacles to successful apiculture. No foul brood exists in British Columbia.

## Why Some Beekeepers Fail

"Would you advise me to keep bees?" This question is asked by many to-day. My answer is yes and no. Why do I say no? In some cases, for the following reason. A certain beekeeper may have made a financial success of the business. Some of his neighbors become envious of his success. Naturally they think that they can do the same. They start by buying a few colonies without obtaining any advice as to when and where to buy. They buy up some cheap colonies in the fall, set them out in the spring, and the weather being fine the bees start to work well. Their owners neglect to do the first thing to help them. At the same time their successful neighbor is doing all in his power, from early till late and until the season closes, to attend to every little detail. The beginner says, 'I don't see the necessity for so much work.'

When the season is over they can't see why their bees have not done as well as those of their neighbor. Why the difference? First, if you go into any business to-day, I care not what it is, you must mean business, you must push it for all it is worth. It is just the same in the bee business. First get all the information you can. When buying colonies get a good beekeeper to go with you who understands what a good colony is like. In fact, I would go farther, and would recommend a beginner to hire with a practical beekeeper for one season, as the writer did when he started out. This will go far to ensure success.

\*Extract from an address given at the recent annual convention, held in Toronto, by the Ontario Beekeepers' Association.



Mr. John McKinnon, of St. Eugene, Ont., in his apiary. This shows the main yard in which strong colonies are kept for rearing queens.

## Honey Production from the Golden Rod\*

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

AN investigation is being made by the Bee Division at the Central Experimental Farm, Ottawa, into the source of supposedly injurious winter stores in moist hay lands at Amherst, N.S., which the local beekeepers say necessitate the removal of the stores and the substitution of sugar syrup. The whole subject of natural winter stores, which, in many parts of Canada and in some years more than others, are found to produce more or less dysentery or to granulate in the hive involved, is also being investigated. It soon became apparent a study would have to be made of the different species of the golden rods and asters, because these produce a large part of the honey stored for winter in most places.

### Varieties Available.

Eleven varieties of golden rods have been found around Ottawa. We are all familiar with the erect golden rods having a spreading, fern-like inflorescence so common on our roadsides and in meadows and pastures. Examining the underside of the leaves of most specimens of these, one finds that they have only three conspicuous veins or ribs. This proclaims that they belong to the *canadensis* group, of which *canadensis*, with its small flowers and nearly smooth stem, is usually the most abundant in dry places, and *altissima*, a taller plant with the stem and underside of the leaves downy, in

moist, rich places.

Fully 75 per cent. of the golden rods around Ottawa belong to the *canadensis* group. Individually, the members of this group produce comparatively little nectar, but their great abundance makes them important collectively. During the first two weeks of their blooming period, that is from the end of July until the middle of August, they are neglected by the bees if the weather is dry.

### Another Species.

A very distinct species of golden rod is the narrow-leaved golden rod, *S. graminifolia*. The leaves are narrow and ribbon-like, and the small flower heads are bunched in little terminal clusters. This species is much complained of as a weed in damp hay meadows in the Eastern Provinces. The bees have been seen working on its heads, both at Ottawa and at the Experimental Farm, Nappan, N.S.

It is often hard to discover whether a plant is a large honey producer or not. Bees will often crowd on golden rods and other plants that are producing very little, and appear busy on them when other more abundant sources of nectar are first cut off. In plants with tubular flowers, such as golden rod and aster, a very good help in estimating the quantity of honey a species will yield is to squeeze firmly the head so as to express the nectar. Where minute drops of nectar can be thus squeezed out of the tubes, the plant is a good honey producer, provided the tubes are not so long that the

honey is largely or wholly inaccessible to the honey bee.

This test confirms the importance of two late-flowering species of golden rod that grow in dry or sandy soil, *S. puberula* and *S. squarrosa*. In these the inflorescence is compact and occupies a considerable length of the upper part of the erect and strong stem. *S. squarrosa* may be known from all other species of golden rod by the abruptly-spreading tips of the bracts of the involucre. Two colonies of bees taken on August 25th this year to a sandy plain forty miles north of Ottawa, gathered in three weeks about forty pounds of surplus honey from these two plants. It is estimated that at least three-fourths of the honey came from *S. puberula*, which was much more abundant than *S. squarrosa*.

### Color of the Honey.

This honey is of a light color, and the flavor and aroma are pleasant and distinctly suggestive of golden rod. All this honey was gathered after a frost on August 27th had killed potatoes, buckwheat, corn, and bracken. The golden rods were uninjured by the frost. The browning of the tops of some of the plants, which a casual observer might have ascribed to frost, was due to the fact that in a flower head of golden rod the first flowers to open and to wither are those at the top or tip of the stem. *S. hispida*, another late-flowering species very like *S. puberula* in general appearance, but with a hairy stem, was also present on the plain and contributed a little of the honey.

The golden rods come into flower earlier in the north than in the south. At Ottawa the flowers appear about two weeks earlier than in Southern Ontario. When the flow from aster and golden rod is cut short and followed by cold weather, the honey may fail to ripen completely and may remain uncapped, the bees at this time of the year being less inclined to produce heat than in summer. The partly ripened honey may ferment and thus become unwholesome and cause winter loss. Fermentation is more likely to occur in moist coastal regions than in the interior. Another disadvantage consequent on the lateness of the flow from golden rod and aster is that the honey is collected by bees that are to pass the winter, and the work ages them and increases the rate of mortality of the bees in the colony in winter and spring.

Beekeepers should stick by the Association. The Ontario Beekeepers' Association has done much for beekeeping. To-day we might not have a foul brood act, honey shows, inspectors and college assistance, but for its efforts.—Wm. Couse, Streetsville, Ont.

\*Extracts from a paper read at the recent convention, in Toronto, of the Ontario Beekeepers' Association.

## The Annual Convention of the Ontario Beekeepers' Association, 1915.

THE Assembly Room of the Carls Rite Hotel, Toronto, was well filled at every session of the annual convention of the Ontario Beekeepers' Association, held November 23rd, 24th, and 25th. The president, Mr. J. L. Byer, Markham, briefly reviewed the past season, mentioning in particular the heavy winter loss of bees, especially so in apiaries where little or no fall feeding was done. Possibly the heavy loss was due to the inferior stores gathered from the hard maple. Generally speaking the crop of honey was good from Toronto west, and light from that point east. The demand for good honey had been exceptionally keen, and, generally speaking, the prices recommended by the Crop Report Committee realized.

While American Foul Brood may be under control, European Foul Brood is rapidly spreading. The Government grants are inadequate for the inspection needs, and under present conditions are not likely to be increased. The only thing to do is to try by every means possible to educate every beekeeper to be his own inspector.

The secretary-treasurer reported a membership of 1,130, and a balance on hand of \$233.92. He reported that a larger number of members than ever had taken advantage of the opportunity to purchase pure-bred queens co-operatively through the Association. The executive committee, Mr. D'Arcy Scott, of Ottawa, and Mr. J. D. Evans, were selected to petition the Dominion Government to take measures to control the importation of bees from diseased districts.

"Temperature and Humidity of the Hive in Winter," by Dr. E. F. Phillips, in charge of Bee Culture Investigation, U. S. Department of Agriculture, Washington, brought out the results of many of his experiments in wintering.

These proved that the winter loss of colonies was due to two causes: (1) Lack of stores, and (2) excessive heat production. Bees generate heat at the expense of their vital energy when the outside temperature is too hot or too cold. While Bulletin No. 93, of the U. S. Department of Agriculture contained his results his personal explanation made the conclusions more forcible.

Many lantern slides of apiaries in all parts of the United States added interest to Dr. Phillips' evening lecture on "Some Beekeepers of the United States." The systems of management of the different apiaries were largely dependent on local conditions. The notable works of the late Rev. L. L. Langstroth, late Moses Quinby and Dr. C. C. Miller were briefly mentioned.

Mr. F. W. L. Sladen, Dominion Apiarist, Central Experimental Farm, Ottawa, spoke about his recent investigations on "Honey Production from the Golden-rods and As-ters." Mounted specimens of the fall plants and a sample of the honey, served to illustrate his remarks.

Mr. H. G. Sibbald, Toronto, an extensive beekeeper using the quadruple wintering case at all his apiaries, described his method of "Outdoor Wintering." He made great preparations for the winter, but the bees had to winter themselves after he packed them. The colonies were headed by young, vigorous queens, to assure plenty of young bees, and were fed up to weigh about seventy pounds without the cover. The four hives were packed in the one case and since the apiary was situated in a sheltered place about three inches of planer shavings were sufficient packing.

The Provincial Apiarist, Mr. Morley Pettit, gave a "Brief Summary of the Year's

Work." As usual a well attended short course was held at the Ontario Agricultural College, Guelph, last January. No great changes had been made in the system of apiary inspection. Sixty demonstrations were held in apiaries in all parts of the province, with an average attendance of thirty-two. These were proving an important factor in educating every beekeeper to be his own inspector. He had been able to test out various apiary appliances that had been sent to him. The refuse sent in by a beekeeper from a common wax press had been re-rendered in the Hershiser Press under steam, and from 160 pounds of this slumgum, 20 pounds of nice clean wax, was obtained. The Peterson capping melter, when care was used to regulate the heat, was very satisfactory.

### Outdoor Wintering.

"Outdoor Wintering," by Dr. Phillips, was followed with much interest. When the temperature of the air immediately surrounding the bees falls 57 degrees Fahrenheit the bees form a cluster, consume food and generate heat by muscular activity. Bees wear themselves out generating this heat, hence the great need for young, vigorous bees at the beginning of the wintering period. If the food is of an inferior quality there will be a large accumulation of residue in the intestines which will set up an irritation that will cause an excessive production of heat. The heat of the bees should be conserved by sufficient packing, the kind and amount varying in different locations and districts. The winter entrance for each hive in the quadruple wintering case was reduced to three-eighths of an inch wide and an inch and a half deep. Packing the bees early and leaving them late in the spring before unpacking was generally advisable. If there was a need of feeding it should be done before the cold weather set in in the fall. A syrup could be made by boiling two parts of the best granulated sugar in one part of water for fifteen minutes. One ounce of tartaric acid should be used for every sixty pounds of the feed, the acid being added before the boiling.

Mr. Wm. Elliott, Adelaide, used several large drawings to illustrate his remarks on the subject of "Modern Apiary Equipment and Buildings." To save extra time and heavy lifting he had the extractor, uncapping can, and storage tanks conveniently arranged. The honey was taken from the extractor by gravity and by the honey pump.

### An Informal Banquet.

A banquet afforded an excellent opportunity for the old friends to meet and talk over the past season, and for the new faces to meet the veterans. Mr. D'Arcy Scott, of the Dominion Railway Commission, was the principal speaker. Many toasts were responded to by the various members.

Mr. F. W. Krouse, when speaking of "Summer Protection and Swarm Control," showed the advantage of leaving the winter packing around the hives all summer. The use of individual packing cases permitted this without inconveniencing the summer manipulations.

A model of a stand for holding supers of wet combs after extracting to be cleaned out without disturbing the yard was exhibited by Mr. G. A. Deadman, Brussels. Mr. Deadman had for his subject "Apiary Appliances," and besides describing his little invention, he also told of his method of making sugar syrup by percolation.

Two resolutions followed the address by Professor Caesar, Provincial Entomologist, O. A. College, Guelph, on "Poison Sprays

and Their Relation to Bees." Professor Caesar had only started his investigations along this line about a year ago. These "Bait or Sweetened Poisoned Mixtures" were being commonly used to control the grasshoppers, army and cutworms. He described his experiments to show that the use of such bait or poison mixtures would not be injurious to the bees.

Messrs. J. D. Evans, McIntyre and Ross were appointed to petition the Government to have the fine in the present Act against spraying trees in full bloom be not less than \$25 and not more than \$100, as it was felt that the present fine of not less than \$1 nor more than \$25 was too small to stop such sprayings. Mr. Morley Pettit was asked to further investigate the sweetened poisons and poisoned baits.

The directors selected the following officers for 1915-1916: President, Mr. F. W. Krouse, Guelph; First Vice-President, Mr. Jas. Armstrong, Selkirk; Second Vice-President, Mr. W. W. Webster, Little Britain; Secretary-Treasurer, Mr. Morley Pettit, O. A. College, Guelph.—G. F. K.

## Poison Sprays and Poison Baits.

(Continued from page 275.)

of them or else a sweetened poison spray may soon prove to be the best remedy against cabbage and onion maggots.

The Kansas remedy is composed of twenty pounds of bran, one-half pound of Paris green, two or three ground up lemons or oranges, half gallon molasses and two or three gallons water. For grasshoppers the mixture is scattered so thinly over the ground that four pounds are sufficient for an acre.

For grasshoppers it is put on between five and seven a.m., and for cutworms and army worms after sunset. These are times of the day when bees are not likely to find it, and it will be dry in both cases, and so have lost most of its attractiveness, before they would normally have begun feeding. However, here again we have plenty of good evidence that the bees are not enticed to feed on it. I have myself made this mixture up and applied it on a considerable scale, and have no proof that bees are attracted to it. Furthermore, I had an assistant at Guelph place molasses and bran around Mr. Pettit's hives at a distance of about twenty feet. Only two bees in the course of about an hour alighted near it, and these apparently did so for some other reason than the mixture because they almost at once flew away again. The mixture was then held in a vessel near the hive until the bees, possibly to emphasize the fact that it had no special attraction for them, stung the assistant and caused his withdrawal.

### A CORRECTION.

An error in punctuation appeared in the November issue of The Canadian Horticulturist on page 255. The article reads: "The queen is the mother or egg machine of the colony; the drones—male bees—mate with the queen and the workers." There should be a period or semi-colon after the word "queen." The last three words, "and the workers," should have been connected with the next sentence. Needless to say, drones mate only with queens and never with workers. The workers are the most numerous about the hive and are the slaves or laboring bees.

Hokus—Why do you liken Harduppe to the busy bee? He isn't particularly industrious, is he?

Pokus—Oh, no; it isn't that. But nearly everyone he touches gets stung.

# Marketing Problems of the Beekeeper

Morley Pettit, Provincial Apiarist, Guelph

In spite of the heavy winter loss and the season not being favorable in many parts of the province, the honey market in Ontario has been perhaps more unstable than it had been for a number of years. This is probably due to several causes. First, the beekeepers lost their nerve over the large crop of 1913 and have not regained confidence in themselves nor in the report of the honey crop committee. Then conditions are somewhat unsettled on account of the war, and wholesale houses generally are carrying low stocks of all kinds of goods, honey included. This slowness on the part of wholesale grocers to purchase honey has caused still more uncertainty amongst beekeepers and led many of them to sacrifice their crops, some selling as low as eight cents a pound, although the honey crop committee, for the very best of reasons, set the lowest wholesale price at ten cents. So we find that beekeepers have sold their honey all the way from eight cents to twelve cents per pound wholesale, for no other reasons than that some beekeepers are better salesmen than others, and some have risen above the old worn-out theory that honey is only a luxury and can never become a staple.

## Selling Honey.

When it comes to selling honey, Canadian beekeepers have several marked advantages over all others. The first of these is perhaps the fact that the majority of the honey produced in Canada is, as a dessert article properly handled, equal to the highest priced confections, and equal, if not superior, to any other table honey produced in the world. Second, the Canadian market for this honey has scarcely begun to be developed, as witness the fact that honey is almost never found on the tables of public or private dining rooms outside of the homes of beekeepers and their immediate friends or relatives. Third, the Canadian market is protected by an import duty of three cents a pound, plus seven and a half per cent. ad valorem. Doubtless other advantages could be named.

## Some Handicaps.

Unfortunately, the sale of honey is handicapped in several ways, not the least of which is the prevalent idea fostered by pessimistic beekeepers that honey is a luxury, and never will be a staple. That this idea is unfounded is proven by the fact that honey is a sweet with a positive food value, coupled with the other fact that human beings crave sweet and require food. Another handicap to the sale of honey is the utter absence of any effort to call public attention to honey as a food. I mean advertising. There is a trite saying that "If your business is not worth advertising, advertise it for sale." The usual objection to advertising is that if I advertise my honey I may help the sale of the other man's honey. While this is at least a selfish view, it is also an erroneous one. The point is to have your own brand of honey with the name on the package and in the advertising.

A third handicap to the sale of honey is the lack of pulling together on the part of beekeepers, and on the other hand the lack of confidence in self and product. For instance, in a certain neighborhood, not a hundred miles from Toronto, honey had been retailing at ten cents a pound. A member of the association in that neighborhood had the temerity to raise the price

to that recommended by the association. His neighbor beekeepers, seeing the advantage, raised their price, but not to that asked by their leader, but to just one cent below him. What was the result? They secured the benefit of his increased price, but injured the sale of his honey and turned public sentiment in the neighborhood against him as being responsible for the general increase in the price of honey. I would not like to believe that any beekeepers are intentionally malicious, but frequently their actions in local honey selling have the same results as though they were. My answer to the complaints of such cases, which frequently come to me, always is, why not get together and buy out the man who is anxious to sell cheap; but almost invariably I find that the beekeepers are afraid. I would not say they were cowards, but they lack confidence in themselves as salesmen and in the honey as an article to be sold.

We have so often been told of the great Canadian West as a market for our honey, that it seems superfluous to mention it again. Many beekeepers throughout Eastern Ontario are practically ignoring the local demand for honey because of the under-cutting of neighbor beekeepers, and are shipping West to regular customers at good prices.

## Quality First.

Marketing unripe honey is another serious handicap. Some beekeepers are not properly equipped with hive storage for honey. No good colony should in an ordinary season have less than two supers, and perhaps best results are obtained by having sufficient super room for the whole crop. This gives the bees time to ripen properly the honey before it is taken from them. It should then be stored in sealed containers as soon as possible. Honey extracted unripe or left exposed to damp atmosphere for any length of time fails to granulate evenly, and starts fermentation usually before it reaches the customer. I have seen a whole crop of extracted honey granulate in five-pound pails where every pail had a half-inch of liquid on the surface—a most uninviting appearance to say the least. This was where the beekeeper had only one super for each hive, and was under the necessity of extracting much honey that had never been capped.

## Best Honey Package.

The style of package is another important matter. The west seems to prefer granulated honey, while the east, particularly the city consumers, prefer it in a liquid form. During the extracting season the beekeeper is under the necessity of deciding which market he will seek with his honey. If his honey is to go west, he must decide again whether it is for the city or country trade. For the city trade two and a half and five-pound pails, lithographed, are preferred. For the western farmer trade, the ten-pound pails are almost the exclusive package. If for local or eastern city trade, the sixty-pound tin is probably the best. These should be liquified, the honey strained and filled into the selling packages as it goes out to the local dealers or consumers, making sure that it reaches the consumer in a clear liquid state.

There is a bottling business growing up both in the west and in the east. A firm in Winnipeg is buying honey in bulk for bottling, and there are several firms in Toronto and Hamilton, and other eastern cities that are doing the same. I am advising them to purchase in barrels as being

the cheapest and most easily handled package. I consider that far too much first quality clover honey is going into sixty-pound tins. If the market were properly developed it would not be necessary for any of our best clover honey to be used in any way except as a table honey. Much of that which goes into sixty-pound tins has to be sold to manufacturers to be used where cheaper grades of honey would answer. This is perhaps one of the greatest causes of the low price now offered for honey in sixty-pound tins.

I am not sure that wholesale grocers and commission men are the right people to handle honey at all. Honey is rather unique in that it is not perishable, and yet it is perishable. It will keep indefinitely, and at the end of that time it is likely to be spoiled, or if it is not spoiled the one who undertakes to liquify and get it into selling packages for the consumer may spoil it. The wholesale grocers to-day are not particularly satisfied with the honey business, and might not object so seriously if they were relieved of it.

## Successful Methods.

Some methods of the Tri-State Honey Exchange of Minneapolis, Minnesota, are worthy of consideration. Honey is purchased from members or other beekeepers at a low wholesale rate. It is bottled and sold and the profits divided among the members. The retail stores of the city are canvassed periodically by a man with a light motor truck. He takes with him a stock of bottles of freshly liquified honey, bearing, of course, the label of the Tri-State Honey Exchange. Where the grocer already has a stock of their honey, he looks it over and picks out any bottles which show granulation, replacing them with bottles which are freshly liquified. He also, of course, sells more to those whose stocks are low. By this means a constant supply of honey in the best of condition is on the counter of all retail grocers in the city. The name of Tri-State honey gets to be known. It is always the same, flavor, color and everything, so that when a woman buys one bottle of Tri-State honey she knows it will be just the same as the last bottle she had. The experience in Minnesota is that wholesale grocers are giving up the honey business entirely, and it is working into the hands of the Tri-State Honey Exchange. The consumption of honey is being greatly increased and the honey business is on a much better basis than ever before. Of course, the secret of success of the Tri-State Honey Exchange is that they have a very capable manager, who understands business, honey and men. The only way this could be worked out in Toronto or any other place would be either by the private enterprise of some one who has sufficient capital and ability to carry it through, or by the co-operation of a number of beekeepers, with confidence, first, in themselves, then in their honey, then in one another.

For the success of such an undertaking it would be necessary to have an all year round supply of honey. The theory that honey can be sold only in the fall is only a notion which could be overcome by educative advertising and by having a stock constantly on hand. The Dominion Government is spending thousands of dollars advertising fruit, yet I have not heard that any body of beekeepers has approached them with reference to advertising honey. Of course, the trouble is that most beekeepers are unable to sleep if they see the approach of winter and still have any honey on hand—so the dealers get it early at their own price, and then it is too late for the producer to reap any benefit from advertising.

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

## Ontario Vegetable Growers' Annual Convention

F. G. H. Pattison, Winona, Ontario

THE Annual Convention of the Ontario Vegetable Growers' Association was held in the Parliament Buildings, Toronto, on November 9th. A noticeable feature was the spirit of optimism and patriotism which pervaded the proceedings. President F. F. Reeves, of Humber Bay, in his presidential address, called attention to the great progress that had been made by the association during the past nine years.

Great anxiety and loss was suffered by vegetable growers during the past season owing to the heavy spring frosts and continued wet weather during the summer. In spite of this a spirit of optimism prevailed throughout the vegetable growing fraternity, and over a million pounds of desiccated vegetables had been sent to the troops at the front. The Field Crop competitions had proved as successful as usual, and as a result, some excellent crops were shown by the prize-winners at the Toronto, London, and Ottawa Exhibitions. The Minister of Agriculture was commended for the interest he and his staff had taken in the work of the association and for appointing the President, ex officio, a member of the advisory board of the Vineland Experimental Farm.

Prices for vegetables had ruled on an average 25 per cent. lower than for the past few years. The seed market was unsettled owing chiefly to the wet weather experienced in the seed-growing centres of the United States. Reliable seed of onions, spinach, beans, and celery is likely to be scarce for the coming season.

Vegetable growers continued to have great difficulty in securing sufficient labor. The need for a suitable standard package for vegetables was very apparent. It was suggested that the association, with the assistance of the Department of Agriculture, should gather information as to the acreage and condition of vegetable crops at various seasons of the year, and issue this information to the growers. A concerted effort should be made to specially advertise Ontario vegetables.

Reference was made to the response Canada has made to the call of Great Britain to fight for the laws of freedom and justice. The address concluded with the following words: "Like all other classes of men, the vegetable growers have given of their sons and their wealth, and are prepared to give even further in this great world struggle."

Secretary-Treasurer J. Lockie Wilson presented his report, of which the chief items were: The continuous rains during the summer and early fall caused rust, blight, and rot to attack, and in many cases ruin, vegetable crops.

Detailed accounts from the various Local Branches showed them to be in a flourishing condition. The membership has remained about the same, but a large increase is looked for in 1916. The Field Crop competitions excited great interest amongst the growers. Four kinds of vegetables were selected: tomatoes, onions, celery, and early potatoes. For the first time the Central Association had provided neat boxes for the exhibitors to ship their products in to the exhibitions. This, and the wrapping and packing of tomatoes in two-layer boxes, were regarded as great improvements. The directors had curtailed expenditures as much as possible in this time of stress and strain.

Sympathy was expressed for the president's son, wounded on the battlefield in France. Scores of the members of the association had joined the ranks of the fighters for their country.

A short course at the O. A. C. for judges in the field crop competitions was recommended. Further investigation into the matter of co-operation by the Central Association was left in abeyance until the war is over.

This report concluded as follows: "It is the bounden duty of those of us who remain at home to do our part in increasing the products of the soil, and in making every possible sacrifice so that victory may perch on the banners of the men fighting for freedom's cause."

The balance sheet presented by Mr. Wilson covered the eleven months—Nov. 30, 1914, to Oct. 31st, 1915, and showed receipts of \$1,330.98; expenses, \$796.48; balance on hand, \$534.80.

After some discussion it was decided to allow any member competing in the Field Crop Competition to exhibit at the Toronto, London, and Ottawa shows, but the association would pay express only on the exhibits of prize-takers in the local competitions. It was also decided that Field Vegetable Crop Judges should take the short course at the O. A. C., as recommended by Secretary Wilson.

The convention heard with deep regret of the death of Mr. M. F. Rittenhouse, of Chicago, and placed on record its sense of deep appreciation of his splendid personal qualities and of his generous and intelligent interest in horticulture in Ontario, his native province.

During the morning session the president welcomed two visiting delegates from the National Vegetable Growers' Association of the United States—Prof. C. W. Waid, of Lansing, Mich., and Mr. Howard W. Selby, of Philadelphia.

Prof. Waid expressed great pleasure at being with the vegetable growers of Ontario. The past season had been a trying one for gardeners in the States, as well as for those in Ontario. He highly complimented the Ontario growers on their thorough organization, and said that it was a question if any vegetable organization in the States was accomplishing as good work as they were. Mr. Selby said that from the moment they had crossed Suspension Bridge till their appearance before the convention, they had been more and more impressed with the great national spirit evinced by the Dominion of Canada during the present crisis. At the last meeting of vegetable growers in Philadelphia he gave the slogan "Co-operation must be put in operation." They had not accomplished much in that way as yet, but were getting down more to the business side of their work. "Getting the money out of it," said he, "is the most serious and interesting side of our work owing to the prevailing low prices." This had been the key-note of the Philadelphia meeting and of every other meeting throughout their country. He extended the greetings of the United States National Association and hoped that the Ontario Association would send more delegates over to the American convention next year. During the noon hour the association entertained the delegates and visitors to an excellent dinner. The health of "The King" was duly honored, as well as that of the American visitors. Short speeches were made by President F. F. Reeves, Secretary J. Lockie Wilson; the two American delegates, Prof. Waid and Mr. Selby; C. W. Baker, London; Thos. Delworth, Weston; J. J. Davis, London, and the representatives of the Farmer's Advocate and "The Canadian Horticulturist."

A number of interesting addresses and reports were given at the convention. During the morning, in addition to the president's address and secretary's report, the chief were the report of President Reeves as delegate to the American Growers' Convention held in Cleveland, Ohio; the report of the vegetable specialist, S. C. Johnston, and a paper on "Fertilizers Best Suited to Vegetable Crops in Ontario," by Leslie Elmsley, Central Experimental Farm, Ottawa.

At the afternoon session, reports on experimental work at the O. A. C., Guelph, and Central Experimental Farm, Ottawa, were given by Messrs. J. E. Britton, and A. J. Logsdail. A paper on "Tomato Blight" was given by D. H. Jones, O.A.C., Guelph. "The Skinner System Necessary for Successful Market Gardening" was the subject of an interesting address by Thos. Delworth, Weston.

In the evening, "Greenhouse Problems" were dealt with by Prof. C. W. Waid, of Lansing, Mich., and "Problems in Marketing," by H. W. Selby, Philadelphia. "Vegetable Work at Vineland, with Special Reference to Seed Improvement," was described by F. M. Clement, of the Vineland Experimental Farm.

Separate references to some of these reports appear elsewhere in this issue, and more concerning them will appear later. The attendance of delegates was good.

## Activities of the Fruit Division

The offices of the Fruit Division of the Dominion Department of Agriculture at Ottawa have recently been moved from the Canadian Building, Slater Street, to comfortable new quarters on Cliff Street, in the commodious building previously occupied by Railway Commissioner McLean. This has caused a separation from the offices of the Dairy and Cold Storage Division, which remain in the old quarters. The relations that have existed between the two branches have been most cordial.

A representative of The Canadian Horticulturist had an interview recently with Fruit Commissioner Johnson, who described the work his Division is carrying on of inspecting fruit at points of shipment. The new system has given excellent results. By it the quantity of bad fruit that reaches the markets has been reduced. The boxes and barrels are examined and inspected just before they are shipped, and in cases where bad fruit is found, or over-facing is discovered, the owner of the box or barrel is prosecuted under the Inspection and Sales Act.

The system of sending inspectors and experts through the country to give the growers and packers pointers and advice along the line of packing and shipping fruit is showing excellent results. "Occasionally we have come across a few who have refused to allow our representatives to give them advice," said Mr. Johnson, "but under the Inspection and Sales Act we are able to punish those who break the law." He added that by this method the Division is able to see that the fruit leaves the shipping point honestly packed and graded.

Commissioner Johnson is pleased with the results being obtained from the system now followed of distributing information. It seems to be working almost to perfection. "We have our representatives wire us twice a week regularly, giving us information as to the condition of fruit throughout the country," he explained. "They advise us as to how the fruit is growing, what the quality of it is, and how much there is likely to be on hand at certain periods. We have our officials in consuming centres, advising

us as to the condition of the markets, the quantity of fruit, and the prices being realized. All this is made up in the form of a summary report, and is sent out to the various shippers and dealers interested in the fruit business. Any shipper or grower can write or wire us and we will give him the latest information possible. In fact there are a number of the largest shippers who have asked us to keep them posted regularly as to market conditions."

"We have had to prosecute a number of shippers this year for violating the Inspec-

tion and Sales Act by overfacing their packages of fruit. Many still have the habit of piling the large fruit on top of the packages and the smaller fruit underneath. We intend to put a stop to this, and our officials have forced many packers to repack their fruit before they were allowed to sell it. The violations are not by the large and responsible growers and shippers, but by men with a small knowledge of the fruit industry, and who lack an established reputation to uphold."—E. G. W.

## English Market Prospects for Apples

J. Forsyth Smith, Canadian Fruit Trade Commissioner, Manchester, Eng.

**G**REAT difficulty is being experienced by shippers and importers' agents in securing required steamer space, and the trade expect that although this will seriously handicap the apple business, it may prove a factor of considerable importance in maintaining values on British markets. The high freights on the other hand (\$1.25 to \$1.50 per barrel, and 80 cts. to \$1.00 per cubic foot for box apples) will increase the risk taken by apple buyers in Canada, and make it necessary that fairly high prices be obtained if apples sold on shippers' account are to yield satisfactory returns.

### Conditions of the Market.

War conditions, additional taxation, and the increased cost of living, together with the general tendency to restrict the number

### Fruit Imports into Great Britain.

The following tables show the quantities of various fruits imported into the United Kingdom during the month of August, and during the eight months ended August 31 for 1915, 1914, and 1913.

### Fruit Imports for September.

The following quantities of fruits were imported into the United Kingdom in September, 1914 and 1915:—

	1915.	1914.
Apples .....	Cwts. 33,677	43,078
Apricots and peaches...	" 77	170
Bananas (bunches) ..	593,917	650,000
Oranges .....	Cwts. 5,185	6,205
Pears .....	" 35,745	31,187
Plums .....	" 1,244	963

### Quantities of Fruit Imported.

Fruit.	Month of August.		8 Months ended August 31.			
	1913.	1914.	1915.	1913.	1914.	1915.
	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.
Apples .....	58,028	7,354	29,415	1,705,774	1,179,184	2,092,009
Apricots and peaches	1,005	1,500	56	7,831	29,833	8,890
Bananas, bunches ...	798,262	1,143,104	970,583	4,952,091	5,851,165	5,997,263
Oranges .....	19,404	20,274	11,039	4,299,694	3,716,047	4,648,044
Pears .....	188,829	54,671	68,923	257,118	178,988	102,521

Banana and orange statistics are included in the tabulation for purposes of comparison.

of banquets, dinners and similar public functions are expected to lessen the demand for fancy box fruit. Labor, however, is fully employed at wages considerably higher than normal, and the working classes will be able and probably willing to buy apples freely. Sound No. 1 and No. 2 barrel apples will be in good demand. The prospects for No. 3 apples appear more doubtful, especially while quantities of English apples are moving, but there is a distinct section of the consuming public calling for cheap fruit, and the large No. 3's especially (No. 1 in size and color, but showing scab or other defect) will experience a fair demand.

### Price Prospects.

Prices are so variable, and depend so much upon fluctuating conditions of satisfactory supply, glut or market bareness, condition, quality, etc., that forecasts are always of doubtful value. The trade in Glasgow, however, agree that prices as follows may reasonably be expected for good No. 1 Ontario apples: Kings, 25s. to 30s.; Baldwins, 23s. to 26s.; Spies, 25s. to 30s. The size of the Nova Scotia barrel may be expected to make a difference of from two to four shillings. Any good varieties of No. 1 box apples, Jonathans, Spitzenbergs, Newtowns, Rome Beauty, should sell from ten to twelve shillings, possibly at a slightly higher price. Cox's Orange Pippin, in strong demand but of which there is a limited supply, may quite possibly reach fifteen or sixteen shillings, or higher. General price expectations are lower in Liverpool than in Glasgow, and in London lower than in Liverpool.

## Douglas Gardens

OAKVILLE, ONT.

At the date of writing (15th Oct.) the following named plants are showing good bloom, viz.:

### BEDDING PLANTS—

Antirrhinums—"Silver Pink."  
Pansies.  
Salvia—"Bonfire."

### PERENNIALS—

Coreopsis—(Second Crop).  
Delphiniums—(Second Crop).  
Echinacea—(Rudbeckia) purpurea.  
Gaillardia.  
Hardy Asters—Nos. 22, 23, 26, 34 and 40.  
Helenium—4 sorts.  
Holly Hocks.  
Kniphofia—"Pfizeri."  
Phlox—"Miss Lingard" (Second crop) "Jeanne d'Arc."  
Shasta Daisies.  
Veronica Spicata.

Garden makers would do well to keep these plants in mind for late bloom.

## JOHN CAVERS

Receivers complain of the way the English apple is packed, and this, we think, is largely due to the difficulty growers have experienced in obtaining necessary labor. Most of the English cooking sorts will be

## The Early Spray Gets the Worm

Spray early—Spray thoroughly—Spray with a good Sprayer. Insects and worms are most prodigiously prolific, and it takes an early start with a first-class Sprayer to get ahead of them. Insects do not confine their devastation to this year's crop; they injure the trees permanently. They are the worst enemy of the orchardist and the gardener. Make up your mind to get after these injurious pests and destroy them with the one, best all round efficient Sprayer—the

## AYLMER SPRAYER

It throws an unusually powerful, fine, misty spray which penetrates into crevices of bark, buds and foliage, where the insects and their eggs are hidden. The Aylmer Spray is used by seven Governments, has won medals, and is made on the original lines of strength and durability. The outfit consists of Pump, 10 feet hose, couplings, 2 Bordeaux nozzles, brass stopcock, one Y, one long extension rod, without barrel ..... **\$15.25**  
With Barrel, add \$3.00.

Send money Order and Sprayer will be shipped on next freight, prepaid, to your R. R. Station, anywhere in Ontario.

Write for free booklet—"SPRAYING."



Aylmer Pump & Scale Co. Ltd. 127 Water St., Aylmer, Ont.

over by the middle of November, and what dessert apples may be held in store will hardly be of sufficient importance to interfere with arrivals from the other side.

Spies, when good, are a particularly

## THE BEEKEEPERS' DIRECTORY

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

**E. E. MOTT,**  
Glenwood, Mich.  
Northern Bred Italian Queens.

**J. P. MOORE,**  
Morgan, Ky.  
Try Moore's Strain Next Year.

**W. R. STIRLING,**  
Ridgetown, Ont.  
Fine Italian Queens.

**J. I. BANKS,**  
Dowelltown, Tenn.  
Italian "Queens of Quality."

**P. TEMPLE,**  
438 Gladstone Ave., Toronto, Ont.  
Canadian Bred Italian Stock.

**THE DEROW TAYLOR CO.,**  
Newark, N.Y.  
Northern Bred Italian Bees and Queens.

**M. C. BERRY & CO.,**  
Successors to Brown & Berry,  
Hayneville, Ala.  
Best bred Italian Queens and Bees.

**THE PENN COMPANY,**  
Penn, Miss.  
Bees and Queens.

**F. W. JONES,**  
Bedford, Que.  
Bees by the pound, also best Italian Queens.

**H. C. CLEMONS,**  
Boyd, Ky.  
Three band Italians bred for business.

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

**A. E. CRANDALL & SON,**  
Berlin, Conn.  
"Quality" Italian Queens.

**JOHN A. MCKINNON,**  
St. Eugene, Ont.  
Best northern bred stock.

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

**STOVER APIARIES**  
Mayhew, Miss.  
Not a single complaint.

**J W K. SHAW & CO.,**  
Loreauville, La.  
Everyone knows their strain of three-band Italians.

favoured variety on the Liverpool market, and should realize twenty-five to thirty shillings per Ontario barrel, but unless the quality is good these figures will be doubtful, as a poor Spy will probably find a worse market than a poor Baldwin. On the same basis, allowing for the difference in weight, Nova Scotia Spies may be expected to make twenty to twenty-five shillings.

Were the crop large, we should not be at all inclined to encourage the shipment of No. 3's in view of the high cost of transportation. If, however, supplies prove inconsiderable, and, as we anticipate, prices for No. 1's and No. 2's reach a fairly high level, No. 3's may then be required for the lower class trade.

Apples are now considered an article of food rather than a luxury, and the working classes seem to be handling so much money that they are unlikely to neglect apples. Good boxed Yellow Newtowns will sell well in Liverpool at ten to twelve shillings. Rome Beauties also find a ready outlet here, but the price prospects, say ten shillings, are not so high.

With regard to Canadian pears, we are sorry we cannot hold out much prospect for shipments, as refrigerated space is now practically impossible on board steamers from the other side, and ordinary stowage will not give satisfactory results. A quantity for sale at Liverpool on October 8, received per ss. Corsican, turned out very poor, and prices realized will leave heavy losses to senders.

In our opinion, if Canadian pears can be landed at Glasgow in a sound and satisfactory condition, they will meet with a good demand at satisfactory prices.

### Ontario Horticulturists Meet

(Continued from page 279.)

point," Mr. Macoun said that that state was not to be compared with Ontario in the summer season. The climate was so dry that only the best drought resisting flowering plants would grow, and since these are usually covered with dust they lacked the green setting which so entrances the beauty of the flowers of our northern landscape. The growing of grass for lawns was almost an impossibility. In the winter, however, the increased precipitation made gardening much easier.

Geo. Baldwin, who had charge of vacant lot gardening in Toronto during the past summer, outlined the nature of the work which, he said, was instituted to provide an opportunity to those in need for acquiring material supplies by their own efforts, in cultivating tracts of vacant city land. Besides this, it tended to improve the health of city workers, created in them a love of nature, and instructed them in the work of practical gardening.

One of the most able addresses was that of Thos. Adams, of the Conservation Commission, Ottawa, who dealt with town planning from the horticultural standpoint. With the assistance of lantern slides, he showed the striking difference that exists between some of the Old Country cities, such as Edinburgh and some of our Canadian cities, such as Toronto. In the former the sky line was formed by church spires and monuments of historic interest, while in the latter the unattractive sky scraper and the hideous water tank all too frequently dominate the city. The lack of attention shown by Canadians to beautifying their cities by planting trees, shrubs and flowers was also freely commented upon. Our whole city life, said Mr. Adams, seems to be entirely divorced from nature, and we have yet to learn that the gardener should be the partner of the architect.

A resolution was passed asking the Gov-

ernment to have 14,000 copies of the annual report of the association printed, and requesting that a copy be sent to each member of the horticultural societies of Ontario. A committee was appointed to look into the matter of running excursions to the Experimental Farm, Ottawa, and to Rochester, N.Y. R. B. Whyte, of Ottawa, was appointed a delegate to the Canadian Town Planning League. Rev. A. H. Scott, Perth; Mrs. Cadwell, Windsor, and J. Lockie Wilson were appointed representatives to the American Civic Association, and W. B. Burgoyne, St. Catharines, representative to the Canadian National Exhibition. It was decided that in future the retiring president be the only honorary director.

The following officers were elected: President, Rev. G. W. Tebbs, Hamilton; First Vice-President, Dr. F. E. Bennett, St. Thomas; Second Vice-President, Prof. Crow, O.A.C., Guelph; Treasurer, C. A. Hesson, St. Catharines; Secretary and Editor, J. Lockie Wilson, Toronto; Honorary Director, J. H. Bennett, Barrie; Directors, Rev. A. H. Scott, Perth; H. J. Clarke, Belleville; R. Whorley, Halleybury; T. D. Dockray, Toronto; James Ogilvie, Hamilton; Wm. Harvey, Seaforth; R. W. Bothwell, Stratford, and W. E. Dignac, Sandwich.

### Apple Box Competition

In October, the students at the Oka Agricultural Institute had an occasion to show their ability as fruit packers, when Rev. Father Leopold's annual special course in apple box packing ended by a competition. Valuable prizes had been generously offered, which contributed to make the competition very keen. The first one was ten dollars, presented by the Minister of Agriculture for the Province of Quebec, the Hon. C. E. Caron. Many other prizes were offered by some of the prominent members of the Pomological and Fruit Growing Society of the Province, and friends of the Institution.

The Dominion Fruit Commissioner, Mr. Dan. Johnson, acted as judge, with the assistance of Mr. Philippe Roy, B.S.A., from the College, whose competency was recognized by the students.

Mr. Johnson gave a severe test to the competitors by opening the boxes by the side instead of the cover. It was therefore a strictly commercial test. After three hours hard work, the judges came to the following decisions:

1. Xavier Rodrigue .....	96
2. Romeo Cossette .....	90
3. Alphonse Lafrance .....	89
4. Arthur Tremblay .....	88.5
5. Bernard Baribeau .....	88

There were nineteen competitors in all.

The points allotted were 100 as a maximum, divided as follows:

Fruit: Size .....	10
Color .....	20
Uniformity .....	20
Quality .....	15
Pack: Appearance .....	5
Bulge .....	10
Solidity .....	10
Alignment .....	10

100

After the awarding of prizes, Mr. Johnson congratulated the competitors and their professor for their excellent work, and said that it was the best competition in apple boxing that he had ever seen. The boxes were so well and uniformly put up, it had required much labor to establish the difference between the first, second, third, and fourth prizes.

Fruit Commissioner Johnson also made another statement which made the boys feel

## Notice to Beekeepers.

Customers will please note that our special Winter discounts and terms on all lines of Beekeepers' Supplies commence November first. Beekeepers would do well to take advantage of these offers, not only on account of the saving, but the satisfaction of having their appliances ready for the bee season when it opens. Now is also the best time to order goods that have to be made especially. We are anticipating a busy season and desire to give our beekeeping friends the best possible service.

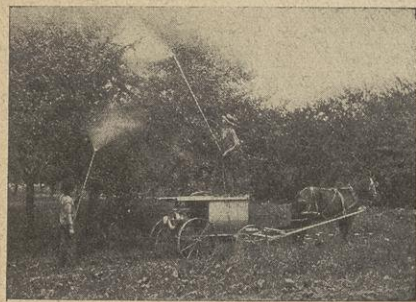
THE HAM & NOTT CO., Ltd.  
Mfgs. Beekeepers' Supplies  
Brantford, Ontario.



### FOR PROFIT

Plant our Top Notch Fruit, Shade and Ornamental Trees this fall. Evergreens, Shrubs, Roses, Vines, Bushes. Ask for Price List (no agents) at Central Nurseries.

A. G. HULL & SONS,  
St. Catharines - Ontario.



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LIGHT WEIGHT  
LARGE CAPACITY

## FRIEND POWER SPRAYER

Rough or Soft ground, or Steep Hill-sides are easily covered by this lightest "King" of which W. H. Grinnell, Albion, N.Y., writes: "After five years of spraying my 20-acre Apple orchard it is to-day the best outfit in the neighborhood."

The two types of Friend Sprayers, "King" and "Queen" (under slung), received the majority of all Sprayer awards at the Panama-Pacific Exposition because of these features:

NEAT mounting—LIGHT weight—EASY drawing—SHORT turning—LARGE capacity—DIRECT PROPELLOR agitator—combined UNIT of motor and pump—QUICK accessible, ADJUSTABLE and DETACHABLE parts—UNIQUE pressure regulator—COMPLETE—HIGH-GRADE—GUARANTEED throughout.

"Friend" has a hand or power sprayer for every man who sprays Fruit or Crops in hill or level country.

Write to-day for our catalogue of Friend Sprayers, illustrated with photographs sent in by Friend owners, with each statement backed by men who know. Then put your individual problem up to our experts. We can furnish the sprayer that is most economical for you to use. Splendid opportunities open for agents.

### FRIEND MFG. COMPANY

24 East Ave., GASPORT, N.Y.

Largest Exclusive Sprayer Works.  
Every part of every sprayer built in our own factory.

## NOW IS THE TIME TO ORDER YOUR NURSERY STOCK



We have a large quantity of fine stock to offer for spring planting. Write at once for our FREE Catalogue of fruit and ornamental trees, small fruits, shrubs, roses, etc. Address,

J. H. McCOMB'S UNION NURSERIES

Fonthill, - - Ont.

## The Root Canadian House

185 Wright Ave., Toronto, Ont.  
HONEY WANTED—Comb and Extracted.  
All kinds of bee supplies, journals and books.  
Early discounts. Catalogue free.

CHAS. E. HOPPER & CO.

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## The Beekeepers' Review Clubbing Offer For 1916

The REVIEW for 1916 .....	\$1.00
Oct., Nov. and Dec., 1915, free.	
American Bee Journal for 1916 .....	1.00
Gleanings for 1916.....	1.00
One REVIEW HONEY QUEEN .....	1.00
Total .....	\$4.00

ALL FOUR  
FOR ONLY  
\$3.00.

For description of REVIEW QUEEN see another column. Add for Canadian Postage—Gleanings, 30c.; A. B. J., 10c.; Review Free.

Address, with remittance,

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## A New Bee Book Entitled BEEKEEPING

By Dr. E. F. Phillips, of the United States Department of Agriculture. 435 pages of interesting reading, with numerous illustrations, by an established authority.

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(Mailing weight 2 lbs.)

By special arrangement we can offer this book, postpaid, with a year's subscription to American Bee Journal, both for \$2.50.  
(Canadian postage 15c. extra.)

AMERICAN BEE JOURNAL, Hamilton, Illinois

## QUEENS OF QUALITY

The Editor of the BEEKEEPERS' REVIEW and his sons have 1,100 colonies of bees worked for extracted honey. With all those bees working with equal advantage, all having the same care and attention, they have an opportunity unexcelled to ascertain without a reasonable doubt, colonies desirable as breeders from a honey producer's standpoint. Likely, never in the history of beekeeping, was there a better opportunity to test out the honey getting strain of bees than this. Think of it, 1,100 colonies with equal show, and a dozen of those colonies storing 250 to 275 pounds of surplus honey this last poor (with us) season, while the average of the entire 1,100 being not more than 40 pounds per colony. We have sent two of our very best breeding queens (their colonies producing 275 pounds surplus each, during the season of 1915) to John M. Davis, and two to Ben. G. Davis, both of Spring Hill, Tenn., and they will breed queens for the Review during the season of 1916, from those four superior honey gathering breeding queens. Those young queens will be mated with their thoroughbred drones. Our stock is of the three banded strain of Italian, also that of John M. Davis, while Ben. G. Davis breeds that disease resisting strain of goldens, that is becoming so popular.

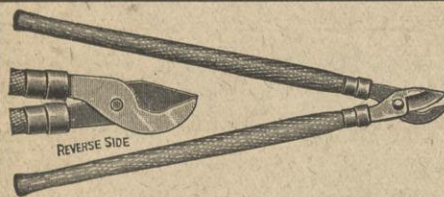
By this time you are likely thinking that your strain of bees may be improved some by the addition of this superior strain of Review queens and how you can secure one or more of those superior honey gathering queens as a breeder. We will tell you: They will be sold to none except Review subscribers. If you are a paid-in-advance subscriber to the Review for 1916, we will mail you one of the daughters of those famous queens in June for a dollar. If not a subscriber to the Review for 1916, send \$1.75 for a year's subscription to the Review and one of those famous young queens. Those queens are well worth two dollars each, compared to the price usually charged for ordinary queens, but we are not trying to make money out of this proposition, only we are anxious to have every subscriber of The Beekeeper (Canadian postage free), a subscriber of the Review, and we are taking this way to accomplish the object. A few of the very first orders for queens that we receive can be mailed in May, but the majority will not be mailed until June. Orders filled in rotation. Have your order booked early and avoid disappointment.

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THE BEEKEEPERS' REVIEW, Northstar, Michigan

GRASELLI SPRAY MATERIALS ARE AS  
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GRASELLI CHEMICAL CO., Limited  
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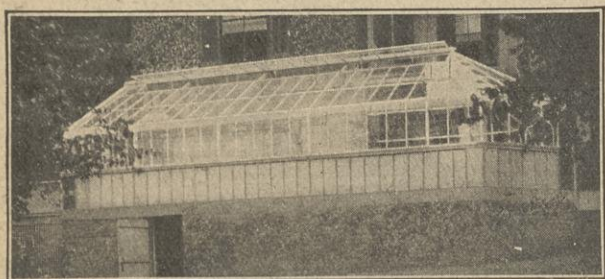


### Cronk's Pruning Shears

To introduce a high-grade pruning shear at a very low price, we are now offering direct, provided your dealer does not have them, our 25-inch No. 09 1-2 guaranteed pruner at \$1.25 per pair, via parcel post, prepaid; cash with order, or ask your dealer for same.

CRONK & CARRIER MFG. CO., ELMIRA, N.Y.

## Green-House Flowers The Prize Winners



**T**HERE is only one sure way to raise prize winning flowers. That is under glass where you can control atmospheric conditions. Out in the open you are at the mercy of the seasons, heavy rains,

winds and cold snaps. Flowers that you are nursing along carefully may be killed off any night, and you are helpless.

We are erecting some of the biggest and finest green-houses in Canada, as well as small but highly efficient houses that represent a very limited outlay. We will be glad to figure on your requirements. You will find the cost moderate, and the workmanship thorough,

Write NOW for Booklet "B".

### GLASS GARDEN BUILDERS, LIMITED

201 Church Street,  
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Room 1013, Transportation Bldg.,  
St. James St., MONTREAL

proud of their College. He said that the best apples at the World's Fair at San Francisco were the Canadian Fameuse apples, and that the best Fameuse had been supplied by the Oka Agricultural Institute. Mr. Johnson encouraged the students to continue their work in order to stimulate the development of the fruit industry in this country.

### Annapolis Valley

Eunice Buchanan, Berwick, N.S.

A few miles of barren bog separates the apple centre of Berwick from the cranberry districts of Aylesford and Auburn, where the crop, with the exception of about a carload, has been shipped chiefly to Montreal and then to other points in upper Canada and the prairies. This year's yield of cranberries has been about six thousand barrels; the fruit is of excellent quality, having been free from pests and diseases, and consequently is keeping well.

This year the Auburn growers are receiving \$4.50 to \$4.75 per barrel; by the carload the price is around \$5.00. If it had not been for careless packing in the past, the grower should now be receiving one dollar more a barrel; dealers give more for Cape Cod cranberries because of the reliable pack and a standard barrel. Cape Cod barrels hold 95 quarts, whereas many of our barrels hold only 80 to 85 quarts.

A slight frost in August injured some of the cranberries, but where the bogs were well sanded they were not hurt until the frost of September 25, but most of the crop was gathered by that date.

One to two cents a quart is paid for picking the berries by hand, but the progressive growers use scoops, which reduces the time and frost risk, also the cost of picking to about 40c per barrel. The fruit is put into bushel crates made of lath, with solid ends, where, when placed in the cellar, they keep much better than in barrels.

The varieties of cranberries grown in Nova Scotia are determined by their shape, namely, cherry, olive, bugle and bell. A well kept bog will yield from 50 to 75 barrels per acre, but a neglected bog will not grow more than 10 to 20 barrels.

There are vast tracts of bog yielding nothing more profitable than blueberries, but it costs from \$75 to \$100 per acre to cut off the top growth or turf, then from \$40 to \$60 more to spread a layer of sand over it, and finally a few more dollars, the least part of the expense, to plant the vines.

The apple crop in the Auburn district is about 50 per cent. of a full crop; much of the fruit is deformed and spotted. The market for apples is reported from \$2.00 to \$2.50 and more; this information comes from a buyer, but there seems to be little real knowledge with regard to prices. Private shippers are satisfied with their returns, even if the freights are high. Wages in England have never been so high as at present, and for this reason fruit should be in good demand.

The weather has been mild and much plowing has been done; also it is becoming the fashion to plant apple trees in the fall, a few hundred having been planted in this vicinity.

The present year has not been a favorable one for vegetable growers in Ontario. Speaking at the recent Lambton County Horticultural Exhibition, the provincial vegetable specialist, Mr. Johnson, of Toronto, said that the continued wet weather from July 1 to the end of August caused considerable losses in many part of the province. Also there had been more insects which damage vegetables than had been known in the past twenty-five years.

## Niagara District Notes

F. G. H. Pattison, Winona

THE past month in this district has been characterized by fine mild weather. Up to the night of the 16th no frost had occurred in the western portion to do any real damage. On the nights of the 16th, 17th and 18th sharp frosts took place, but since then the weather has remained mild. On the 19th heavy rain fell, which proved a great boon to both fruit growers and farmers, enabling them to get their fall plowing properly done. Previous to that many had ceased plowing, owing to the hardness of the land, especially where it had been tramped on by horses during the summer.

East of St. Catharines, and in the neighborhood of old Niagara, fruit and vegetable growers have not had a very favorable year. Peaches and blackberries were a good crop, but their chief market, Toronto, was glutted most of the season, and prices were very low. Strawberries were rather a short crop. Apples and pears were very light; potatoes a failure. Except along the lake shore and along a portion of the Niagara River, most of the grapes were frozen in May, and yielded little or nothing.

The accommodation at the old Niagara wharf was insufficient. Many times fruit shippers had to wait hours and hours to get their stuff on board the boat. This was partly owing to the large amount of freight coming in for the soldiers, but the arrangements made by the steamboat company for handling this freight and the fruit seem to have been utterly lacking in system. Instead of having one place to drive in and unload fruit, and another place to take away freight, they had the whole thing mixed up. This caused much delay and waste of time for the fruit growers.

Fruit shipping is now done for the season, few apples even being left, except in cellars, where some still remain to be packed. On the whole, the apple crop west of St. Catharines in the Niagara and surrounding district has been about as good as anywhere in Ontario this season. Lately there has been a keen demand for apples, especially Spies, at very remunerative prices. Even No. 3's have sold well.

Around Winona and Grimsby fruit growers have not done so badly. Peaches did fairly well, also plums. Currants, apples and grapes were a great help, all selling for good prices. The fruit growers in this section have reaped considerable benefit from the action of Sir George Foster, who secured large orders for the jam factories at both Winona and Hamilton. In consequence of this, they were enabled to purchase large quantities of black currants, plums, peaches and apples at prices fairly remunerative to the growers. The Winona jam factory alone purchased in the neighborhood of forty-five thousand baskets of plums.

The grape season was well prolonged, owing to the absence of frost, and the growers had a good chance to get the crop off without being frozen. Prices were good, but the crop was not heavy, and a large percentage of red grapes were never picked, owing to mildew.

Keiffer pears were a fair crop and sold well, as they generally do when the apple crop is light.

The executive of the Niagara Peninsula Fruit Growers' Association met recently in St. Catharines to finish up the season's business. The chief item of business was winding up the accounts of the advertising committee. As all the collections were not yet completed, the executive adjourned to meet once more.

It is generally felt that the advertising campaign conducted this season has been

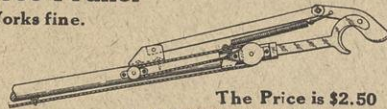
## Practical Vegetable Grower Wanted

The owner of land, with railway flag station on the premises and water pressure by gravity, wants a practical man who will supply overhead irrigating piping and plant, also operate the land on shares. Send references when replying.

Box 5, Canadian Horticulturist.

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Works fine.



The Price is \$2.50  
G. W. BULL, Mfr., Warton, Ont.

## SKINNER SYSTEM OF IRRIGATION

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

The Skinner Irrigation Co.  
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1866

1916

## The Standard for Fifty Years

Our 1916 Catalogue of Flower and Vegetable Seeds will be ready for distribution early in the New Year.

It is free for the asking, and we want every reader of The Canadian Horticulturist to have one.

It is a complete catalogue of the best and most prolific varieties of garden seeds, and will be a guide to you in the selection of your supplies next spring.

We want every reader of this journal to help us make this—our FIFTIETH YEAR—the biggest year in our history.

Drop us a Post Card to-day for your copy.

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Pretty big claim that, but fully justified by the facts. At the Canadian Government Spraying Contest, Grimsby, Ont., the SPRAMOTOR took first prize with ease from eleven competitors. That puts SPRAMOTORS in the lead among all makes.

The outfit illustrated here is our latest model C. Gasoline Power Machine—used throughout the country by the principal fruit growers, and one which has demonstrated its superiority to all other spraying outfits. We make SPRAMOTORS in many styles and sizes, for the largest farm and for the smallest, at prices from \$6 up to \$400—every one the best outfit for the money. We are

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and have been making nothing else for the past twenty years. Over 20 patents covering features you can get in no other machine but Gold Medals and First Awards in all parts of

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write us, giving some idea of your spraying needs and we will send you free, a copy of our valuable treatise on Crop Diseases, also full details of a SPRAMOTOR that will best fill your requirements.

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Limited

More Trappers and Fur Collectors  
send their Raw Furs to us than to  
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Result, we are the largest in our  
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deal with a Reliable House.  
No Shipment too small or too large to  
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All these books fully  
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FREE ON REQUEST.

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**KANT-KLOG SPRAYER**

9 sizes of sprays from one nozzle. Starts  
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work. Send for catalog. Agents wanted.  
Rochester Spray Pump Co.  
195 Broadway Rochester, N. Y.



**Small Fruits**

Josselyn Gooseberries  
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Price list on application

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Under-noted are Canadian and British firms wishing consign-  
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Receivers and shippers of local and car-  
loads lots Potatoes, Apples, and Mixed  
Vegetables.

### HERBERT PETERS

88 Front St. E., Toronto, Ont.

Wholesale Fruit and Produce

See advertisement on page 248.

### H. J. ASH

44-46 Church St.

TORONTO - ONTARIO

Consignments of fruit and vegetables so-  
lited. We give personal, consistent and  
reliable attention to every consignment.  
Shipping stamps furnished on request.

### Dawson, Elliott Co.

32 West Market St.,

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Telephone Main 1471.

Consignments of Apples and Vegetables  
solicited. Highest prices obtained.

Bankers:  
London County and Westminster Bank,  
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Established 1880.

### John Robinson

FRUIT IMPORTER AND SALESMAN,  
3 Rochester St., Borough Market,  
LONDON, ENG.

Telegraphic address: "Redsoil, London."  
A.B.C. Codes.

I shall be pleased to have your consign-  
ments of Apples. Regular market reports  
sent on request.  
Correspondence is invited.

### Rogers Fruit Co. Limited

WINNIPEG, MAN.

Largest fruit and vegetable dealers in the  
West. Write or wire your offerings.

The Oldest  
Commission House  
in Toronto

**McWILLIAMS & EVERIST**

Send your  
Consignments.

## GLADIOLUS

Nothing will please your flower loving  
friend better than a Christmas box of Gladi-  
olus. Next August the flowers will be a  
pleasant reminder. 10 bulbs, in four choice  
named varieties in four colors, 30, 50 or 100  
cents postpaid. 100 America 1½ in., 80c,  
charges collect. The crop has been dis-  
appointing in America and Holland. Prices  
are tending higher. Order now. Circular.

**H. P. VAN WAGNER,**

R. R. No. 5, Hamilton, Ont.

### GILSON Johnny-on the Spot

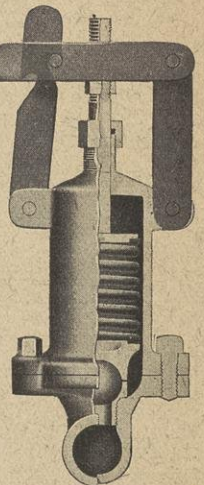
A husky trouble chaser. Will  
pump water, churn, separate  
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chores. Lengthen your  
days by lightening your  
labors. Write for cata-  
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Gilson Mfg. Company.  
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"FRIEND" unique  
Power Sprayer Pressure  
Regulator. Positive ac-  
tion on any desired pres-  
sure; quick change of 50  
lbs. by movement of  
handy lever. Quick by-  
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power sprayer. Satisfac-  
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**"Friend" Mfg. Co.**  
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Branch Warehouses:  
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Send for  
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## Fruit and Vegetables Solicited

WE GET YOU BEST PRICES

OUR facilities enable us to realize top prices at all times for your fruit,  
vegetables or general produce. Aside from our large connection on the  
Toronto Market, we have established branch warehouses with com-  
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through these branches. We never have to sacrifice your interests.

**H. PETERS**

88 Front St. East, Toronto

References: The Cana-  
dian Bank of Commerce  
(Market Branch) and  
Commercial Agencies



quite successful, and the association intend to carry on a similar campaign next season, only on a larger and more ambitious scale. The annual meeting will be held next month at St. Catharines.

The chief subjects of discussion amongst the fruit men of this district during the winter are likely to be: "Advertising Our Fruit," "Better Packages in Shipping Fruit," and "A Larger and Better Co-operation of the District in Marketing Our Fruit."

Early on the morning of Nov. 7 occurred the death in Chicago of Mr. M. F. Rittenhouse, the well-known millionaire lumberman, who was born at Vineland, and who has been so generous, both to his native land and to the Province of Ontario. Mr. Rittenhouse spent thousands of dollars on improvements in the neighborhood of Vineland. He erected at his own expense that splendid public building, Victoria Hall, where educational lectures and entertainments are given, and added a beautiful park, together with a band-stand. He purchased and presented to the Ontario Government the land on which the Vineland Experimental Station has been established. He bore half the cost of the Rittenhouse school, famous for its beautiful gardens, added a library and stocked it with two thousand volumes. He also built a splendid, up-to-date road, at great expense, extending from Queenston and Grimsby stone road to the lake, a distance of over three miles. For ten years past Mr. Rittenhouse has contributed in many ways to the welfare of that part of the district, and his death will be much regretted by all who knew of his good work.

Mr. Rittenhouse set a fine example to other wealthy men in the admirable way in which he spent his money for the benefit of his native place and province. His funeral took place on Nov. 10 to Vineland Cemetery. There was a large attendance from all parts of the country. The following, amongst many others, were present: Municipal Council of Lincoln, Township Councils of Louth and Clinton, Dr. Mills, P. W. Hodgetts, Dr. C. C. James, of Ottawa, and Dr. Creelman, of O.A.C., Guelph.

The children of the Rittenhouse school sang "Nearer My God to Thee," and the flowers sent from friends and others were very numerous and beautiful.

The scarcity of potatoes is somewhat serious here as well as in most other parts of Ontario. Locally, at Winona, potatoes of fair quality have been freely obtainable at \$1.25 per bag. Now, however, they are soaring again, and have reached \$1.75 in Toronto. Two dollars a bag is spoken of as likely by the end of February.

Twenty thousand gallons of peaches and also a quantity of pears have been put up at the Vineland Experimental Station private cannery, and will be sent to Great Britain and France for use in the Canadian hospitals. This fruit is a donation from the Ontario Government.

Robt. Buchart was recently fined \$10 and costs in Hamilton, being convicted on a charge brought against him by F. L. Gabel, Dominion Fruit Inspector, of having packed apples for export in violation of the Inspection and Sales Act of Canada.

After a remarkable season's business the Toronto fruit market at the foot of Yonge Street closed in the second week of November. A very large business was done there during the summer, but the prices of most kinds of fruit, and of many kinds of vegetables were so low as to constitute a record for the past few years.

Prof. Bottomley's discoveries and experiments with bacterial peat, or "Humogen," have roused great interest in England, and an influential committee has been formed to conduct experiments on a large scale.

# RENNIES SEEDS

**PUREST-CLEANEST  
MOST RELIABLE  
FOR SALE AT BEST  
DEALERS.  
WRITE FOR CATALOGUE**

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## RAW FURS

WOOL AND HIDES

At all times, whether peace or war, you will do best by shipping your raw furs to the fastest growing and most reliable fur house in Canada. We have a large demand for all kinds of raw furs, and are paying highest market prices. It will pay you to ship to us.

We pay all express charges, give honest assortment, and make remittances same day shipments are received.

Price list and tags sent on request by personal letter.

Write to-day and be convinced.

**BRITISH RAW FUR COMPANY**

28½ West Market Street, Toronto.

## SANDER & SONS ST. ALBANS, ENGLAND

**ORCHID GROWERS.** The Finest

Stock in the World

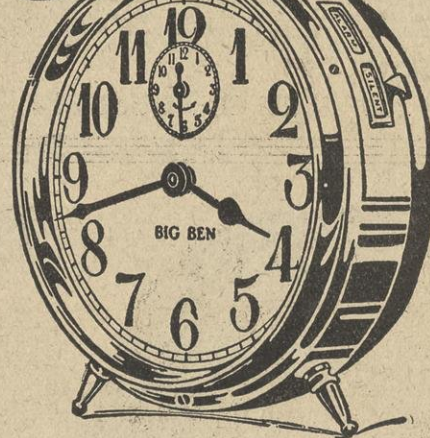
Catalogue on Application

## NEW AND RARE SEEDS

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

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

# Big Ben



**You set the hour--he'll wake you up**

If it's *two-thirty* to get the milk to town, he calls you right on the dot. If it's *five o'clock* when work is light, Big Ben lets you get the extra sleep.

Dodge him around—*two* today—*five* tomorrow—give him a thorough try-out. Any hour

you say suits Big Ben. Just arrange it with him at bed time.

It's his business to get you up on time and he does it loyally—punctually—cheerfully. He stands seven inches tall; has great, strong keys that make him easy to wind; a big, deep-toned gong that makes him pleasing to hear—a round, jolly face that makes him easy to read.

If your dealer hasn't him, a money order addressed to his makers, Westclox, La Salle, Illinois, will bring him to you postpaid. \$2.50 in the States—in Canada, \$3.00

Wholesale

Retail

## Northern Grown Fruit Trees for Northern Planters

Look for a view of a section of our Nurseries in this issue.

Specialties—Crimson Beauty, North Star, Wealthy and Stark Apples;  
Black Champion Currant.

ALBERT NURSERIES.

Albert, New Brunswick



### Price Need Not Stand in the Way!

Don't let the question of price prevent you from owning a SPRAMOTOR and getting better crops. We make a SPRAMOTOR as low as \$6, and from that all the way up to \$400.00. Our \$6 outfit is as good value in proportion as the \$400 machine. There's a

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

for every need—the small farmer and the thousand-acre man. The knapsack outfit at the left is all high-grade and sprays at high pressure. We guarantee it to spray paint, whitewash and

chemicals. The SPRAMOTOR is all brass, with dashing agitator around screen, automatic plunger, brass ball valves and patent hand valve. In galvanized or brass 5-gal. tank.

Barrel outfit consists of all-brass No. 2 SPRAMOTOR, with two 10-foot lines of hose, couplings attached, patent hand valves, two bamboo extension rods with brass cupped ends and patent drip guards, two double-nozzle clusters, complete, mounted on 50-gal. cask. Can be used for all kinds of work.

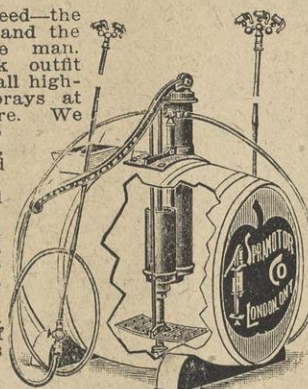
**FREE** Write us giving some idea of your spraying needs. In return we will mail you without charge a copy of our valuable illustrated treatise on Crop Diseases, also details of a SPRAMOTOR best suited to your requirements.

MADE IN CANADA.

NO DUTY TO PAY.

SPRAMOTOR WORKS,

2701 King Street, LONDON, Canada



### NORTHERN GROWN NURSERY STOCK FOR SALE

Our nurseries are situated on the tableland of the Ottawa Valley. We are the originators and direct propagators of the famous McIntosh Red apple tree. We do all of our grafting on Crab Roots, which assures a strong, hardy root system. All of our Scions are taken from our thoroughbred McIntosh Red Orchard. Every tree in this orchard was grafted from the original tree that gives the fruit the same beautiful color and delicious flavor as the original. In continually grafting from one tree to the other the parent stock has some influence, and in time a good part of both color and flavor is lost. We also grow some other hardy varieties of Apple, Pear, Plum, Cherry, Small Fruits, Flowering Shrubs, Shade and Ornamental Trees.

Send want list for prices to

McINTOSH NURSERY CO., DUNDELA, ONTARIO

Already experiments have shown that one ton of "Humogen" applied to the soil produced 41 per cent. more potatoes, 26 per cent. more turnips, 43 per cent. more beets, 46 per cent. more onions, and 28 per cent. more carrots than eighty tons of barnyard manure from the same soil.

### English Apple Crop

Mr. J. Forsyth Smith, Fruit Trade Commissioner  
Manchester

The English apple crop was a good average one, in spite of the off year, but a large proportion of inferior fruit is in evidence, and the quantity of high class apples is limited. While the supply of cooking varieties is good, scarcely any first-class dessert apples are available, except the Worcester Pearmain, Cox's Orange, and the Blenheim Orange. These varieties have been on sale in all markets, the first being especially popular on account of its bright red color.

The English apple crop has only a small effect upon the price that may be obtained for Canadian apples. During the summer months, its comparatively poor quality, and the fact that it is placed upon the market with little attention to grading and packing, make the English apple a serious competitor of Canadian No. 3's only. This effect disappears towards the second week in November, when the bulk of the crop has gone into consumption.

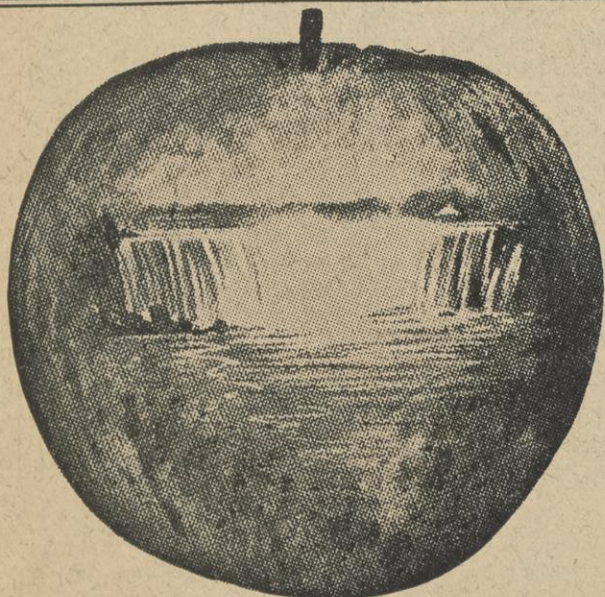


### The Harvest Tells

what fields need. Plant-food the most. Ask us to help you build up your soil. A 52-page book, "Bumper Crops," is full of valuable pointers on fertilizing.

FREE if you mention this paper.

**Gunn's** Shur-Crop  
**Fertilizers**



Trade Mark—Registered.

## Does Spraying Pay?

Ask the Farmer who sprayed this year and got three to four dollars for his fruit. He knows better than the Farmer who did not spray and sold his fruit to the evaporator. Let us solve your spraying problem. We are the oldest manufacturers of sprays in Canada. Lime-Sulphur. Soluble Sulphur. Arsenate of Lead. Hand Pumps. Power Pumps and all accessories. Quality that gives results and profits. Write to-day.

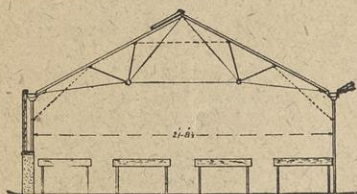
**Niagara Brand Spray Co., Limited**

Burlington - Ontario

## An Unfortunate Episode

Those Canadians who have appreciated the sympathetic feelings of most of the people of the United States to the Allies in the war might have obtained some light on why the people of the United States have not done more than they have had they attended a banquet held in Cleveland in connection with the big Cleveland flower show in November. Among the Canadian exhibitors were the Dale Estate, of Brampton, and John H. Dunlop, of Toronto, both of whom were quite successful. During the banquet some complimentary remarks were made about Canada, and while the toasts were being proposed, as there were a number of Canadians present, "Tipperary" was sung and joined in heartily by the great majority of those sitting at the festive board.

It happened that there was a considerable German element present. The singing of "Tipperary" was too much for them to stand, and led by one prominent German florist, they stood up at the same time and sang "The Watch on the Rhine." Not satisfied with what they had done, the leader clenched his fists and shouted, "Take that, will yer!" This was too much for the loyal representatives of Canada present, who got up immediately and retired to the rotunda of the hotel. Later, when the toast to "Our Canadian Visitors" was being given there was no one there to respond. The incident was much regretted by the majority of those present.



STYLE C

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

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

KING CONSTRUCTION CO.,  
40 Dovercourt Road - Toronto.

## FREE LAND For the SETTLER in NEW ONTARIO

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

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

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

**H. A. Macdonell**

Director of Colonization

Parliament Buildings, TORONTO

HON. JAS. S. DUFF,

Minister of Agriculture  
Parliament Bldgs., Toronto

## Big Drop in Prices of FURS AND FUR GARMENTS

No matter where you live or what you or your family want in Furs, or Fur garments, you can buy cheaper and better by dealing direct with us.

It will pay you to send for our Fur Style Book, 1915-16 edition, SENT FREE on request which contains 34 Pages of Illustrations of beautiful furs, and will tell you how you can buy cheaper and better from us under our system of

No. 112  
Muskkrat  
Coat  
\$34.50



No. 113  
Muff to  
Match  
\$5.50

### FROM TRAPPER TO WEARER

When you realize that we are the largest cash buyers of Raw Furs in Canada, purchasing direct from the trapper, you will appreciate the unrivaled opportunity we have to select the finest skins, manufacture them into desirable Fur sets and Fur garments, then by selling direct by mail save you the middlemen's profits.

You will be astonished to see the beautiful Furs you can purchase from us for a little money, every one a gem in its class.

This season furs are lower in price than ever before, owing largely to most of the European markets being closed on account of the war, but the stock of Raw Furs in America now is so low, that prices are stiffening up, and it looks to us as if they will advance steadily from now on. You should buy your furs this season without fail. Remember our Fur Style Book prices mean goods delivered to you, as

### WE PAY ALL DELIVERY CHARGES.

Every article is sold under OUR POSITIVE GUARANTEE to SATISFY YOU OR REFUND YOUR MONEY.

The furs illustrated here are taken from our Fur Style Book, and give you but a faint idea of the numerous bargains offered to you, which are shown in our Fur Style Book. Should the furs shown here meet with your approval, send us their price, and we will ship at once, delivery charges paid by us, and guaranteed to be satisfactory.

### MUSKRAT COAT BLACK WOLF SET

112.—This MUSKRAT COAT is This is a beautiful 50 inches long, made from evenly set made from long matched Muskrat skins in this hated—good quality popular style. This coat is very whole skins. The way, lined throughout with and back—giving good protection against cold—good quality brown satin. Deep is trimmed with head and tail over shoulders and shawl collar and cuffs, fastens tails at each end—lined with good quality satin with large crochet buttons and and warmly interlined.

113.—MUSKRAT MUFF to match above coat, in large pillow shape, silk lined, down bed and wrist cord. Price \$5.00

Price \$34.50

Same coat 45 inches long Price \$32.00

on good down bed giving great warmth and comfort—lined with good satin—with wrist cord, Price \$5.00

No. 224, Stole . . . \$6.25 No. 225, Muff . . . \$6.50

Black  
Wolf  
Set  
\$12.75



No. 225  
Muff  
\$6.50  
No. 224  
Stole  
\$6.25

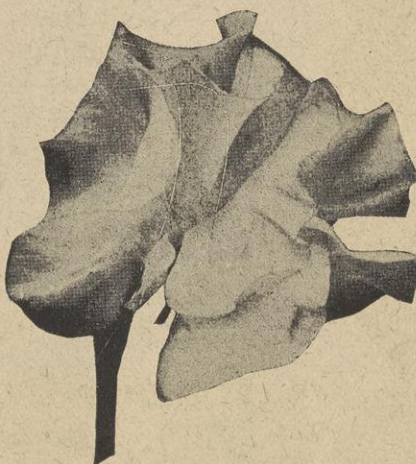
Do not wait but send to-day to

**John Hallam**  
Limited

Room 280, Hallam Bldg., TORONTO, CANADA

WE ARE THE LARGEST  
CASH BUYERS OF  
RAW FURS IN CANADA.

## DUPUY & FERGUSON'S CATALOGUE OF HIGH GRADE SEEDS FOR 1916



will be ready for distribution about the first of January; the handsomest, most practical and complete seed catalogue published in this country. It tells the plain truth about

### D. & F.'s High Grade Seeds that Grow

The descriptions are accurate, absolutely correct and free from exaggeration and extravagant claims.

Write a post card for a FREE COPY to-day.

60 FIRST PRIZES were awarded at the Montreal Horticultural Exhibition, Sept., 1915, to Mr. F. S. Watson, on products grown from D. & F.'s seeds.

**DUPUY & FERGUSON**

38 Jacques Cartier Sq.

MONTREAL

## 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 Gayman & Co., St. Catharines.

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

### MISCELLANEOUS

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

## FLOWER POTS



We have a Large Stock of all sized  
**FLOWER POTS**  
**FERN OR BULB PANS**  
**3/4 AZALEA POTS**  
and  
**RIMLESS PANS**

Orders Filled Promptly. Send for Prices.

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

## The Sarnia Exhibition

A county fruit, vegetable, flower and honey exhibition was held in Sarnia, Ont., on October 27, 28, 29. It was the only exhibition of its nature held in Ontario this fall. In spite of adverse financial conditions and a small fruit crop, the growers of Lambton county assembled an exhibit which was a credit, not alone to Lambton county, but to the province.

The chief commercial exhibit of apples was put up by the Thedford Fruit Growers' Association. It consisted of five hundred boxes. It is doubtful if ever a finer display of apples was exhibited in Ontario. The Thedford Fruit Growers' Association own and operate a central packing house, and are establishing an excellent reputation for quality fruit. This association is now making arrangements for an association pruning and grafting gang, which will insure greater uniformity from the orchards of the various members.

### Honey and Vegetable Displays.

Two vegetable displays, each consisting of one hundred packages, were put up by the Lambton Growers' Co-operative Association and the Independent Vegetable Growers' Association of Sarnia. These two organizations have worked wonders in developing the vegetable growing industry of Lambton county. Five years ago the township of Sarnia did not produce enough vegetables to supply its own needs. This year over five hundred carloads of produce were handled by these two associations.

The beekeepers of Lambton were also represented by a large display of honey, occupying the whole of one end of the building. It consisted of a huge pile of honey, put up in cans, while arranged on each side was a large display of honey in glasses.

### An Educational Exhibit.

An educational exhibit, which proved a centre of interest, was arranged by the Lambton County Branch of the Ontario Department of Agriculture, in charge of G. G. Bramhill. A feature of this exhibit was the warnings against San Jose Scale. This serious insect pest is making rapid strides in Lambton County, and energetic efforts must be applied by Lambton County Fruit Growers if their orchards are to be saved. The exhibit showed a display of apples from an orchard in Euphemia township, which three years ago was threatened with destruction by San Jose scale. The Department of Agriculture took over this orchard as a demonstration. To-day the orchard is alive and healthy, and two hundred and forty boxes of apples, worth \$1.25 per box, were picked from forty trees. Other specially interesting features of the exhibit were a collection of fungus diseases and insect pests injurious to farmers; up-to-date pruning tools, poultry appliances and exhibits demonstrating proper methods of pruning.

### SEED NOTES.

Seed potatoes are going to be very scarce. Ontario stock is practically nothing. New Brunswick stock is advancing in price every day, as there is only a fair supply. This is all on account of the rot.

Onion sets are not well matured either in Canada or the United States, and will be difficult to carry over.

Clover seed, owing to prevailing conditions, rains, etc., will be high in price next season.

Beans have been a very short crop.

I am much pleased with The Canadian Horticulturist and find it very instructive. —C. N. Holdsworth, Barrie, Ont.

## PEERLESS PERFECTION

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

### Peerless Poultry Fence

is made of the best Open Hearth steel fence wire—tough, elastic and springy—and will not snap or break under sudden shocks or quick atmospheric changes. Our method of galvanizing prevents rust and will not flake, peel or chip off. The joints are securely held with the "Peerless Lock," which will withstand all sudden shocks and strains, yet Peerless Poultry Fence can be erected on the most hilly and uneven ground without buckling, snapping or kinking. The heavy stay wires we use prevent sagging and require only about half as many posts as other fences. We also build Farm and Ornamental Fencing and gates. Write for catalog. AGENTS NEARLY EVERYWHERE. LIVE AGENTS WANTED IN UNASSIGNED TERRITORY. THE BANWELL-HOXIE WIRE FENCE CO., Ltd., Winnipeg, Man., Hamilton, Ont.



## Success Depends on Water Supply

WHEN it is simply a matter of turning on a tap, your flowers get all the water they need, and thrive accordingly. So that it really pays you to stop carrying water from place to place, and install a water system, which can be done at very little expense, and gives you all the water you need, when and wherever you need it.

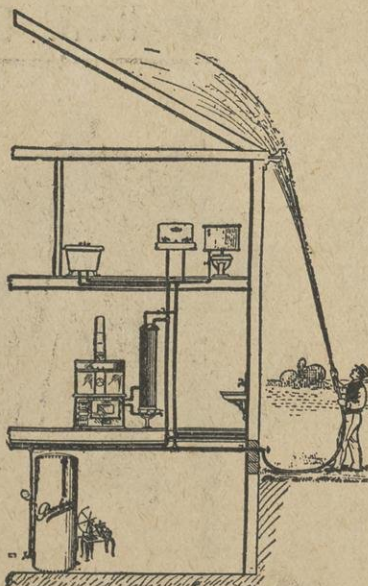
### Peerless Water Systems

The water from your source of supply is pumped under air pressure into the reservoir tank in the cellar or outhouse, or buried underground. The force pump is operated by hand, gasoline or electricity as suits your convenience.

No open tanks to allow water contamination. Water

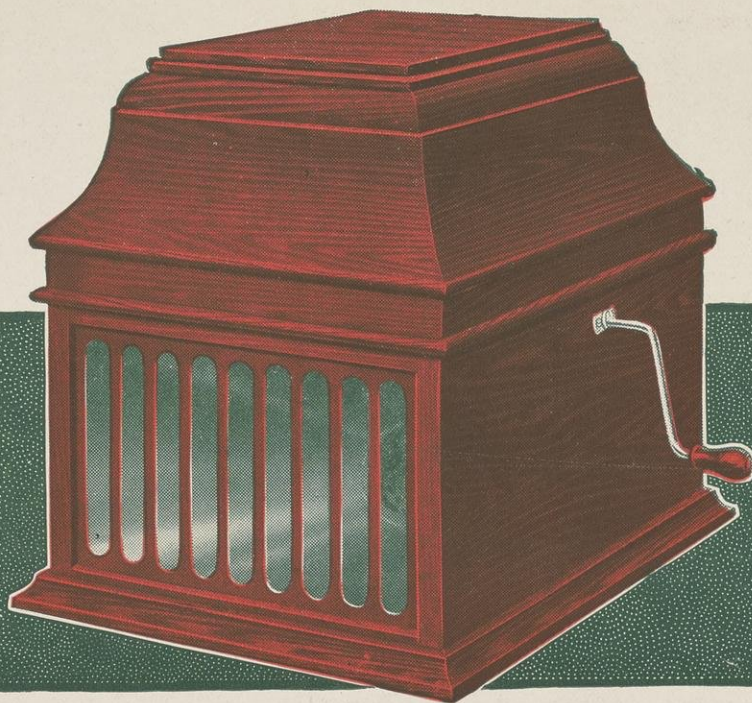
on tap in your bathroom, hot or cold, on tap in your gardens, on tap in your greenhouses—all costing astonishingly little to install and practically nothing to operate.

Write us for full particulars and any special information you may desire regarding your individual requirements.



**National Equipment Company, Limited**  
**9 Wabash Avenue, Toronto**

(Sole Manufacturers of Peerless Water Systems).



# Only \$1<sup>00</sup>

## —and After Trial!

**Y**ES—the great New Edison with the new Diamond Stylus reproducer and your choice of all the brand new Diamond Amberol Records will be sent you on **free trial without a penny down**. The **finest, the best** that money can buy at very, very much less than the price at which imitations of the genuine Edison are offered—a **rock-bottom offer direct from us**.

## Mr. Edison's Own *The Genuine New Edison Phonograph*

Among all his wonderful inventions his phonograph is Mr. Edison's pet and hobby. He worked for years striving to produce the most perfect phonograph. At last he has produced this new model, and now it will be sent to you on a startling offer. **Read:**

### Rock-Bottom Direct Offer

If you wish to keep Mr. Edison's superb new instrument, send us only \$1.00 after the free trial. Pay the balance on the easiest kind of monthly payments.

Think of it—a \$1.00 payment, and a few dollars a month to get this brand new style outfit—the Diamond Stylus reproducer, the musical quality—the same Diamond Amberol Records—all the musical results of the highest price outfits—yes, the greatest value for \$1.00 down, balance on **easiest monthly terms**. Convince yourself—a free trial first! No money down no C.O.D., not one cent to pay unless **you choose** to keep the instrument.

### Our New Edison Catalog Sent **FREE**

Your name and address on a postal or a letter (or just the coupon) is enough. No obligation in asking for the catalog. Get this offer—**while this offer lasts**. Fill out coupon today—now.

**F. K. BABSON, Edison Phonograph Distributors**  
Dpet. 7679, 355 Portage Ave., Winnipeg, Man.

U. S. Office: Edison Block, Chicago

### Entertain Your Friends

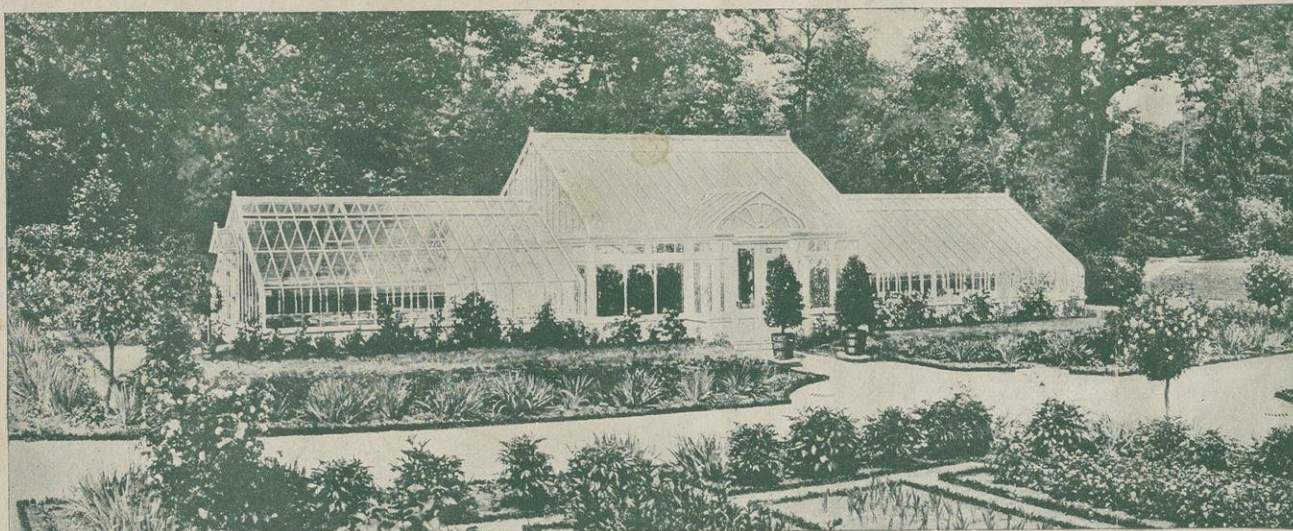
Hear all the latest up-to-date song hits of the big cities. Laugh until the tears stream down your face from laughing at the funniest of minstrel shows.

Entertain your family and your friends with everything from Grand Opera to Comic Vaudeville—then if you choose, send it back.

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Edison Phonograph Distributors  
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355 Portage Ave., Winnipeg, Man.  
Gentlemen: Please send me your New Edison Catalog and full particulars of your free trial offer on the new model Edison Phonograph.

Name.....

Address.....



For a layout conspicuously free from ornamentations you will nevertheless agree it is decidedly ornamental

## Why this Greenhouse is Particularly Practical

**B**ECAUSE of its practicalness and attractiveness, this grouping of four glass enclosed gardens, has sold extensively.

One was ordered from California by telegram.

The first one was erected over in the States ten years or so ago, for Mr. M. J. Kahle, the owner of a beautiful place on Long Island.

Its particular practicalness lies first in the fact that the central house gives ample height for tall growing plants, such as palms and the like.

The two wing houses give goodly sized separate garden plots for roses and carnations and other things requiring different temperatures and treatment.

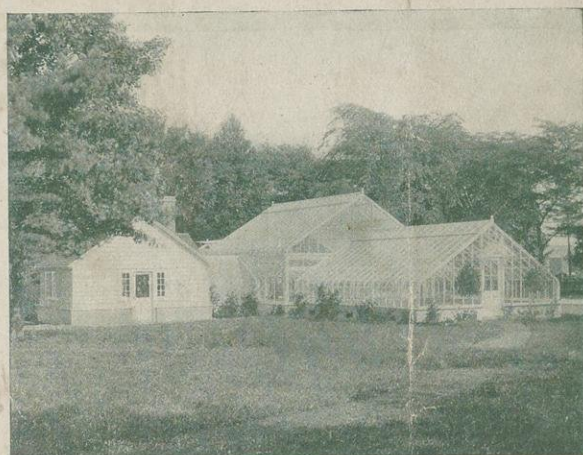
Then the little house at the rear which connects the work room is ideal for ferns, orchids and such shade loving plants.

All the Gardens can be reached easily and handled economically from the work room.

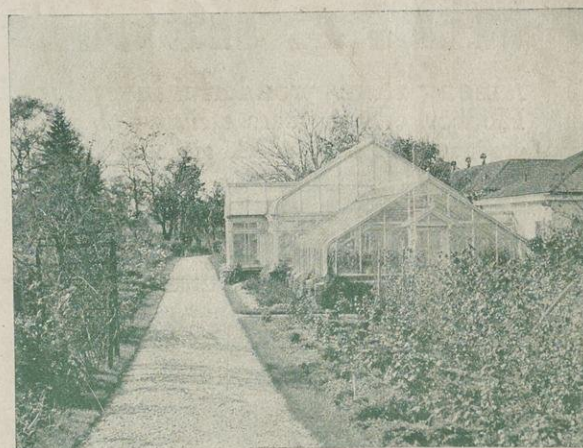
The distribution of the heating pipes from the boiler in its cellar is equal in each direction—another most important economy point.

Let us send you full particulars as to size and approximate cost.

It is fully described in our Two G's Booklet, which you are welcome to.



This view shows you the little connecting garden between the central one and the workroom



Looking at it toward the eables; its balance and attractiveness loses nothing

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