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Enemies of the Bee 197

*Harvey from Blueberries
173*



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The Canadian Horticulturist

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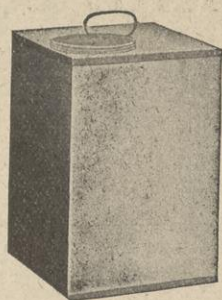
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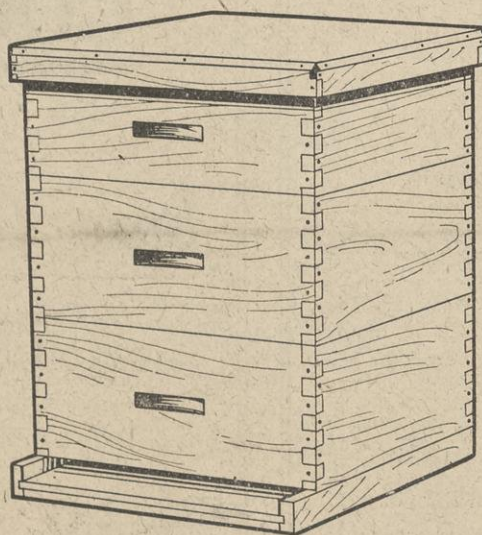
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Vol. 24

PETERBORO, JUNE, 1916

No. 6

Some Phases of Packing and Marketing Basket Fruit*

By P. J. Carey, of the Dominion Fruit Division, Toronto

WITH the fruit grower and fruit handler there is always something new. Each year brings its lessons and calls for some new lines of action on the part of the growers in order to combat what seems to be an ever-increasing trouble along the different lines of fruit handling. It would seem, then, as necessary to preach the gospel of good practice from time to time to the grower as it is to hear the Sunday sermon. It was easy in the old days for the lecturer to impress his audience. There were scores of theories advanced fresh and untried, many of which have since been exploded. Speakers in addressing meetings in those days had a habit of saying pleasing things to the growers in the different sections, and the meetings used to turn into a sort of a mutual admiration society.

A different audience faces the speaker now-a-days. He feels that every word he utters is under fire, and may receive sharp criticism. The time has arrived now for plain talk, and I intend to say plain things.

*Extract from an address delivered in the Niagara Peninsula.

The subject I am discussing is a large one, and I will touch only what strikes me as the most important points. First, I intend to deal with inspection work for a short time. While not a fruit inspector, my duties are still not far removed from that work, and I take a hand in it when necessary.

Most growers may think that we should have made greater headway along the line of better packing of fruit. There were between twenty and thirty prosecutions on basket fruit last season mostly in the Niagara peninsula. This, of course, was in the overfacing of baskets, and I may say, that many of the cases were very pronounced.

Every grower is vitally interested in this matter of faulty packing. It has the most damaging effect on the trade. The consumer who has purchased a fraudulently packed package of fruit is never very ready to believe that there is such a thing as an honest fruit-grower, and is loud in proclaiming the misdemeanor to the whole community. In some cases he will overdraw the picture.

Now, as all the cases of violation in small fruit are in over-facing, and, of

course, in having a fraudulent complexion, it has a much more damaging effect than in the matter of apples in barrels and boxes. As in the latter, it is largely a question of grading which often may be met by the packer setting up that it was accidental or owing to a lack of judgment as to what constitutes the grade called for.

In the case of apples when below grade fruit may still be useful, while in the case of small fruits, where they are largely used from the hand, when a package contains a large percentage of trash it is rendered almost useless. In the case of small fruits the violation is much more readily detected and consequently more damaging to the trade.

As regards the relative degrees of gravity of the two characters of violations "below grade" and "over facing." The first named might be accidental or due to a lack of knowledge. It leaves a hope that the accused may still be honest, but when we find inferior to useless fruit systematically placed in a basket with a layer of beautiful specimens on top, it is hard to make out a case for the defence.

Now, I would not like to say that all



That this crop of strawberries was a money-maker may be surmised by a glance at it. Grown by W. H. Rodgers, Northumberland county, Ont. Photo courtesy R. M. Kellogg Co.



The orchard of F. H. Johnson, Bridgetown, N.S., in which clean cultivation is practised.

those prosecuted for the over-facing of packages were dishonest, in fact, I believe that some packers who have had bad training will pack a fraudulent package when their employer would not wish it packed in that way, but he would still be responsible for the violation.

Where it is fairly evident that a violation has occurred through a lack of knowledge of the work or of the requirements of the law the inspectors are instructed to set the packer right and give him another chance, but the Dominion Fruit Commissioner has taken strong grounds on all cases of the over-facing of packages, and has given sharp instructions to stamp out this trouble by prosecuting in every case where the evidence will warrant it.

There are three grades of violators. The first is the slovenly fellow who never does anything right, for whom there is but little hope. The inspectors are slow to act harshly with a fellow of this kind, but there is a limit, and he must pick up the requirements if he wants to remain in the fruit business. In the second grade there are many varieties. There is the "want to be good" sort of a fellow who blames it on the hired man, or, perhaps, on his wife. Some justify a little shady packing by setting up the excuse that the other fellows are out to do you, anyway, and it is better to do them first. From this grade or middle class the inspectors make many good converts when they are shown where their actions lead.

The third grade is the "out-and-outer," who has no love for the inspector or the law, and who, if he has nothing but good fruit to put up, would put it up almost grudgingly.

There are but few of this latter class, and, for that matter, the number in all classes of faulty packers is a small percentage of our growers, and is steadily growing less.

It is surprising what a large percent-

age of peach growers have not grasped the best method of placing fruit in baskets. We have scores of good basket packers, and we also have many who make a very rough job of it. Some blame the basket, but it would seem that the basket does not cut much figure now that so many are following the practice of using the heaped basket.

The grading of peaches and other basket fruits is a very advanced step in proper packing. It insured honesty of packing by removing the cause. It gives to the man to whom money is no object just what he wants, and he is ready to pay well for it. It gives to the men less fortunate a grade, the price of which is within his reach. It does away with the necessity of putting fruit of different sizes within the same basket, and enables the packer to do better work. The inspector never finds much trouble in graded basket fruit.

Pleasing the Consumer.

If there is one thing more than another with which the growers can be blamed it is their lack of effort to please the consumer. Perhaps less than fifty per cent. of those engaged in fruit growing as a business have any thought for the future standing of their shipments on the market or make any attempt to build up a reputation by making a special effort of pleasing the consumer.

Pleasing the customer after all is a key to the whole situation. It is the impression the consumer has of the last package of fruit used that does the ruling as to whether he wants another package. The difference between a good and a bad impression may mean the difference between success and failure to the grower.

The strength of a chain is shown in its weakest link. In the face of the present situation there should be no broken link if fruit growing is to have

any more than a fighting chance as a business.

Much has been said of commission men, transportation companies and faulty marketing, but the strongest link in the chain of marketing fruit is forged at the orchard or packing house when the grower puts up properly matured fruit honestly packed in strong packages, and starts it on its journey under the best conditions possible. The man who instead has no thought but to get the best of the deal by placing attractive fruit on top covering culls below, or the slovenly packer who may be honest enough but packs his fruit in a careless and unattractive manner have in my judgment broken a link in the marketing chain that cannot be repaired.

If a stronger feeling of responsibility, more public spirit and an aim at higher ideals was worked up among the growers it would be productive of much good. Successful growers will tell you that the effort is not a difficult one, and if one were to ask them what was the greatest pleasure they felt in their season's work, the answer would be in the knowledge of the fact that they had pleased the consumer.

Another substantial way to please the consumer is by lengthening the period of the life of the fruit. Too large a percentage of the basket fruit reaches the consumer in a wasted condition, caused by heating in transit. Peaches with discolored spots are not desirable either from the hand or to be used for canning. In many cases fruit otherwise of good quality has to be cut half away before it is fit for use. Some method of pre-cooling or at least of using refrigerator cars would meet the requirement and go a long way in helping the sale of more fruit. Freshly picked fruit put into box cars where the temperature is often eighty to ninety degrees, perhaps to remain in the cars over night, is sure to give poor satisfaction and often is in the first or second stage of decay before it reaches the consumer. It would be argued by some that these precautions mean additional expense, but the sooner the growers wake up to the fact that without the consuming public they would have to shut up shop, the better for the success of their labors. It pays to satisfy the consumer.

Fair to good success has attended the shipping of small fruits to the north-west markets with the exception of peaches and strawberries. I am afraid our peaches are too tender for long distance markets except under special treatment. For export market our peach shipments are likely to remain in the experimental stage for some time. The same can be said of the north-west markets as far as shipping in a general way is concerned.

The key to the situation is distribution. In 1904, when I took up the work on small fruits in Toronto, it was the common practice of commission men to at once restamp thousands of baskets of peaches and reship them to the towns and villages of Ontario. In some cases the fruit was in the first stages of decay. We did not take long to arrive at the conclusion that this was a faulty method of marketing. I have had an opportunity at times to be at the receiving point when this reshipped fruit reached its destination and the consumers were not always anxious to repeat their orders.

I hold no brief for the express companies who are not blameless, but I think that they have received all this condemnation that is coming to them. While travelling from Brockville to Renfrew not long ago I took the trouble to stop off at each station to watch the small shipments being put off at the different stops. In three cases the dealer to whom the fruit was shipped refused to take it off the hands of the express company, and I did not blame them. The baskets were weakly, the

covers loose, and in many cases fruit had been pilfered. This can be said of thousands of baskets of small fruit in Ontario.

We have thousands of consumers, including farmers all over Ontario, who are anxious to have some Canadian peaches if they can secure the fruit in fair condition. Straight shipments direct from the orchards to the towns and villages all over Ontario seems to be the only proper method. Surely reliable men can be found to look after the local distribution. In order to put the best methods into practice, cooperation seems to be the only plan. In the fruit business it looks like the survival of the fittest, and in my judgment the cooperative associations are the fittest.

With the increased production and the high priced land that has been taken up by many fruit growers in the peninsula these questions constitute a serious matter for those concerned. Nothing but the closest attention and the employing of the very best methods on the part of the growers will save the day.

Results from the Skinner Irrigation System*

O. J. Robb, Horticultural Experiment Station, Vineland, Ont.

OUR Skinner Irrigation system covers nearly three acres of medium soil, some of which is sandy and some heavy. This system has been operated during two seasons. In 1914 we learned that tomatoes were not benefitted by watering if proper cultivation was given them. We had no small fruit under the system in 1915, but we had two plots of strawberries and one of raspberries each with adjoining check plots.

Results from the season of 1915 show a decided advantage from watering the strawberries, but with the raspberries the unwatered plot gave the larger yield, which amounted to 33%, in spite of the fact that the watered section had larger and better foliage and appeared much stronger every way. One point noticed here was the condition of the plants early in the spring. The plants that had been watered the previous season were killed back and showed much more injury than the unwatered plants. All the raspberry plants were only two years old this past season. Better results are looked for during the coming season. Three varieties were included in this test and two systems of cultivation were practiced.

The results with the strawberries were more satisfying and clearly demonstrated the value of a good supply of water at the right time. Only once during last season did the berries suffer for lack of rain in our section, but at

pion, Sample and the Williams. These were planted in rows sixty feet long and made up an area .137 of an acre with an adjoining check plot of similar size.

The yield on the watered plot amounted to 781.5 boxes, whereas the yield on the unwatered plot amounted to only 605 boxes, a gain of 176.5 boxes on the watered plot. This extra yield for one acre amounts to 1,288 boxes. These, if sold at eight cents a box, would bring in \$103.04 as revenue from irrigating. Deducting from this the estimated cost of applying the water as figured out by counting a ten hour day as sufficient time to apply one inch of water over one acre this would cost:

\$1.20 for gasoline.

.50 for oil.

1.50 for labor.

.46 for depreciation on investment.

This gives \$3.60 as cost of applying one inch of water on one acre. But 10.3 inches of water was applied during the season so the actual cost of irrigating this plot of berries per acre was $\$3.60 \times 20.3 = \37.08 ; $\$103.04 - \$37.08 = \$65.96$ as actual profit per acre from irrigation. In a dry season this would be much more favorable.

Other crops showing increased yields were asparagus, celery, carrots and beets. A decided loss was observed with the onions. Practically all the irrigating was done during the months of May, June and July. August was a very wet month and no irrigating was done.

In an ordinary season with good cultivation no extra heavy yields may be looked for from irrigating except in growing a crop like celery or asparagus. The main advantage of the system is its use in a dry section, and in seasons where a fruit crop such as

the same time the watered plants came on earlier, bore later, and looked fresher all the time than the unwatered plants.

One plot contained forty-five varieties under test where irrigation gave various results, but with few exceptions all were in favor of irrigation. Only one row of each variety was planted, thus the results from watering are not so reliable as on a larger area.

Our commercial plot consisted of four varieties planted in duplicate, namely, Michael's Early, Steven's Late, Cham-



Thinning Duchess apples in a Northumberland county orchard, bordering Lake Ontario.

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



An orchard in which beans have been grown as a cover crop. This crop is grown by a considerable number of the growers in Southern Ontario.

strawberries may suffer from a long hot spell. It is needed then and needed badly. It often makes the difference between a good substantial profit and a heavy loss. It is a good investment.

An experiment to test the temperature of the soil at different depths on the watered and unwatered blocks was carried out last season. We found that the watered soil is somewhat lower in temperature at six inch depths, ranging from two to three degrees. It often

equalled the unwatered soil temperature during the day, but it always dropped much lower during the night. The temperature at thirty inch depths was warmer on the watered than the unwatered soil. The greatest factors in controlling soil temperatures are heavy rains with low air temperatures and the action of sunshine. Under ordinary conditions irrigation will not lower the soil temperature to any extent.

Spraying at Different Dates*

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

IN order to gather information as to the value of the early sprays as compared with the later ones a series of tests in which plots were sprayed twice before, and twice after the blossoms in 1915, were compared with those sprayed once before the blossoms and twice after.

In one series of experiments the one spray before the blossoms was put on about midway between the first spray, which was put on just after the leaf buds were nicely opened May 17th, and the second spray put on just before the first petals opened May 31st, or just before or about the time the blossom clusters were showing pink. This we have called a midway spray.

In the other test the one spray before blossoms was put on just before the petals of the flower clusters opened.

There was a difference of from two to three per cent. only in favor of two sprays before the blossoms. The two most important sprays were the ones just before and just after blossoming. From results obtained it would seem that should the period between the

opening of the leaf buds and the opening of the petals of the flower clusters be short owing to weather conditions, one spray may be sufficient to give practically clean fruit, but should this period be extended two sprays should be given.

A study of results from soluble sulphur plots sprayed at different dates indicates that the early spray was quite an important one, and that the two applications before the blossoms were advisable. On the day following the application of the midway spray at Berwick there was a sharp rainfall of about quarter of an inch, as was the case with the spray after blossoming, which showed that soluble sulphur is not an adhesive spray, and that a heavy, quick rainfall may reduce its fungicidal value and bring about increased burning, as was the case with these sprays.

It would seem, therefore, that it is wise to make two applications before blossoms: first after the leaf buds open, and second just before the blossoms open, which dates correspond with those advised for the best control of insects.

Fruit Pests to Fight Now

If you are a cherry grower and have been troubled in previous seasons with white maggots in the cherries, spray just before the blush begins to appear on the Montmorencies, using the following mixture: Two to three pounds arsenate of lead (paste) to forty gallons water, sweetened by the addition of one gallon of cheap molasses. Do not spray the early varieties at this time. In applying the spray, the trees should be given just a moderately thorough application, so that nearly every leaf will be lightly covered.

Pear slug is troublesome on both pears and cherries. The small, blackish, slug-like larvae feed on the upper surface of the leaves, causing the foliage to present a brownish appearance. They can be easily controlled by spraying with two or three pounds of arsenate of lead to forty gallons water, whenever the slugs are numerous enough to warrant it, unless the fruit is beginning to ripen, applying the spray to the upper surface of the leaves. If you have only a few trees, dust them with hellebore or air-slaked lime.

The brown rot of peaches, plums and cherries annually causes great loss to Ontario fruit growers. For peaches, spray with self-boiled lime-sulphur about one month after the fruit has set. If the trees have been well pruned earlier in the year, so as to admit plenty of sunshine and a free circulation of air, the disease is much easier controlled on both plums and cherries, as well as peaches, as it thrives most in a close, humid atmosphere. If rot starts to develop as the fruit of either plums or cherries is ripening, spray with ammoniacal copper carbonate (copper carbonate, five ounces; ammonia, three pints; water, forty-five gallons). Go through the orchard after the fruit is all harvested, pick or knock all diseased fruit from the trees and bury or plough under. These "mummy" fruits, if allowed to hang on the trees, serve to carry the disease over till the following season.

Pear blight cannot be controlled by spraying. The only effective remedy is to keep the diseased wood cut out. Throughout the growing season, watch for and remove promptly all blighted twigs or branches as they appear, cutting well below the diseased portion. Disinfect pruning tools and cuts at once with corrosive sublimate, one to one thousand.

Strawberries are about ninety-seven per cent. water, and as this water forms in the berries while they are maturing and ripening, it is essential that the plants be supplied with plenty of moisture during the fruiting season.

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

Best Packages for Tender Fruit Shipments*

J. M. Creelman, B.S.A., Dominion Cold Storage Division, Grimsby, Ont.

IN peach packages there has been quite a controversy as to just what packages are best. We have tried out a number, namely, the six-quart and eleven-quart Climax baskets, the six-quart and eleven quart Leno baskets in the Hunter and Woolverton crates, the Michigan bushel basket, and the Standard peach box. These packages we observed and had others express their opinions on them.

The method of behavior of the Climax basket is, in long-distance shipments, more or less known to us. It is fairly satisfactory under some circumstances, but it is not a trustworthy package; that is, it is very easy to put up a dishonest pack. In fact, it is easier to do so than otherwise, and this is not a satisfactory condition, and it is very easily broken, and does not display its contents overly well.

The Hunter crate is a two-story affair which holds four eleven-quart or six six-quart lenos. It is of rough undressed lumber, which rather depreciates from its appearance. Further, it is very heavy, weighing about eighty pounds. It is a bulky package, and not an appealing one to look at. Further, it is not altogether satisfactory for long-distance shipments, as the fruit on the top cannot be packed perfectly firm and moves slightly with the motion of the car. A long journey is likely to cause a bruise or soft spot from this rubbing. It may have its use as an express package, but it is not pilfer-proof and is unattractive. Dressing of the wood might help this to a great extent.

The Woolverton crate is a much more attractive crate. It is smaller and is built in two sizes, for three six-quart or three eleven-quart leno baskets. The cover is solid, of two pieces, and the sides are near the top, which makes it pilfer-proof. It is rather open at the bottom, and so allows for good ventilation. It is strong, and yet is not heavy, as it weighs about thirty-five pounds for the six quarts and sixty pounds for the eleven quarts, or maybe a little heavier. It is a much more attractive package, but has the same fault as the Hunter crate, in that the jarring causes trouble from bruising. This package, however, seems to be admirably suited for express shipments of small lots. Its worst fault is that it is too bulky to be of use for carload shipments. That is, you fill your car full and yet have not your minimum weight. This last is also a fault of the Hunter crate.

Bushel Baskets.

There has been an impression gaining headway among some fruit growers

that the bushel basket, as used in a number of the American peach-growing districts, was just what was needed in this country. With this idea, we made a shipment of Elberta peaches in bushels to Winnipeg. These were picked hard ripe and packed in these baskets, which had a post in the centre for support and a paper pad over the top for protection. The fruit arrived in Winnipeg in excellent shape, but would not sell. In fact, they hardly brought the freight and icing on them.

Package Not Satisfactory.

Here seems a funny state of affairs. The package was attractive, in its way; was strong enough, it loaded easily in the car, was cheap, but the market didn't want it. Why? Well, I simply summed it up this way: Peaches in Winnipeg, as in nearly all the west, are more or less of a luxury, being comparatively high-priced, and being so they were used to them in an expensive package, so did not take to these. They expect their expensive fruit put up right, and will pay for it that way. This practically throws the bushel basket out as a peach basket for long-distance shipments, because it means that, although it may carry the peaches in good shape, by the time they go some distance, they are too expensive to bring good prices in a large package, because people can't afford to pay a high price for a lot.

In the west they desire a high-class package for peaches. We find there the standard western peach box, 18½ by 11½, and with varying depths from four inches to five inches. Practically

all the peaches that enter the west are in this case, at least all that come in from Washington, Oregon, and British Columbia. In it the peaches are packed in a diagonal pack and are wrapped in tissue paper. This seems to be the ideal package. It is strong, attractive, displays the fruit well, if properly packed, loads easily in cars, is excellent for express shipment, pilfer-proof, with cleats, allows plenty of ventilation, is the most efficient to handle, if trucks are used, and it is not hard to pack. It is, in my opinion, the ideal package for peaches. I believe it is also the only package in which peaches can be shipped to England.

I have always heard it said that to put peaches in England the shipper ate up all his profits in packing. All I saw packed were certainly eating up a bunch of profits in excelsior and similar material.

Seeing no reason why hard ripe Elbertas should not go to England in a straight commercial pack, last summer, when the Grimsby Co-operative Growers were shipping three cars of pears to Glasgow, we put in thirteen cases of Elbertas packed commercially, that is, just wrapped in paper. To make it perfectly commercial, I had one of the girls pack them up, and I told her nothing except that I wanted them packed. Although there was some waste in the pears, the peaches arrived in excellent shape and sold for fourpence to sixpence apiece.

For shipment to the Canadian west, I would use for strawberries and sweet cherries the British Columbia full pint Hallock crate; for sour cherries, the six-quart Climax basket, and for peaches the Standard western peach box.



Handling strawberries on a commercial plantation. Note the type of picker's basket used.

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



A Woodpecker after the borers and with a billful of wood-boring larvae. They are great destroyers of codling moth and other insect pests.

Useful Birds

Two useful birds that deserve to be encouraged and protected are the Woodpecker and the Chickadee. The Woodpecker feeds on larvae and small insects, which are found in crevices of the bark; securing them with its protrusible tongue. This tongue is sharp, hard at the end, has barbs directed backward, and can be extended several inches. The red-headed Woodpecker, besides digging insects out of bark, seizes them on the wing. In the examination of over seven hundred stomachs of Woodpeckers, animal food, mostly insects, was found to constitute seventy-six per cent. of the diet, and vegetable matter twenty-four per cent. The animal food consists largely of beetles and caterpillars, and includes many harmful species.

The Chickadee is another most active insect destroyer. It is especially active in the vicinity of any timber or wood chopping. The birds will become very familiar, and will readily make friends. Not being equipped, as the Woodpecker is, with a long bill, they take advantage of the cutting of cordwood, etc., to secure the grubs found under the bark or exposed in the cutting. As a rule, however, they feed upon the insects of the orchard, the bush or shrubbery.

The Woodpecker and the Chickadee are only two of many birds which are of great service both in the city and country. They should be protected in order that they may continue their valuable work.

Lime Sulphur and Paris Green

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

ONE plot of Kings at Berwick, containing three trees, in 1915 was sprayed four times with lime sulphur, sp. gr. 1.008, with $1\frac{1}{2}$ pounds of paris green per 100 gallons. These trees were sprayed on the same dates as other King plots. The hand pump was used at a pressure of 140 pounds. The amount of bloom was the same on these as adjoining trees.

As a result of this application not only was the foliage badly injured and the trees practically defoliated, but the fruit clusters were so damaged that all the fruit dropped soon after blossoming and not a single fruit developed. This experiment would show that paris green cannot be used in the lime sulphur spray without causing very great injury to foliage and possibly the loss of an entire crop of fruit.

What Co-operation Means

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

Co-operation is a call to reason; it represents a deliberate effort on the part of the growers to secure for themselves a larger part of the consumer's dollar, through the elimination of much needless expense in the sale and distribution of their products.

It means better packing, the elimination of glutted markets, protection of the grower's interests, prompt collection of just damage claims, and better prices for what you buy and what you sell.

It means a discontinuance of the custom of allowing the "dealer" and speculator to place a mortgage of from 10 to 25 per cent. on the crops you produce.

It means that the grower will do his own gambling, and have a chance at the results.

"High-Cost-of-Living" prices don't help the farmer, because he doesn't get them; his part of the consumer's dollar is only THIRTY-FIVE CENTS.

It is a fundamental principle of economics that higher prices stimulate production, but it will not work unless the increased price goes to the producer, where it belongs.

As the population of our cities has increased a great deal faster than the population of the country at large, the difference in the price paid by the consumer, and that received by the producer, has increased in like proportion, until a condition of commercial piracy exists, which has no justification whatever, and must be fought by every means available.

The producer must receive his legitimate proportion of the value of his product. Co-operation, direct selling, and the elimination of all needless expense and commissions are all means to this end.

There are many things which the grower needs—things which are vital to his success, but individually he can do little or nothing toward their attainment. We need and must have better transportation facilities—a wider distribution of our products to every nook and corner, where they will be appreciated and consumed, and better and saner legislation on all matters affecting our business.

The freight rates charged by the transportation companies, on peaches in particular, should be reduced.

The Compost Heap

Successful gardening operations necessitate the possession of a good compost heap. It is easily made and a wonderful convenience and help. It stimulates growth in flowers and produces bigger and more highly colored blooms. For roses especially it is unequalled. A compost heap of manure from cow barns is used by all big rose growers.

The foundation of a compost heap is manure which is best obtained from a cow stable. In case this is not available, strawy manure from horse stables or droppings from poultry houses will serve.

Pile the manure about a foot deep, then alternate layers of sods, lawn clippings, weeds and any other vegetable material with manure. In dry weather the heap should be watered and should then be left until the material begins to decay. Turn the heap over occasionally and add some fertilizing material; also some additional clippings, weeds, leaves and other similar material. One advantage of a compost heap is that it affords a means of converting almost every kind of garbage into valuable fertilizer.

A compost heap of this character should stand a year to be really most valuable as a fertilizer. If, however, it has been kept damp and turned frequently it can be used in the course of two or three months. In a year's time a compost heap should be mellow, fine and black and sufficiently moist to make a ball when squeezed in the hand. It should not be wet nor should it emit an offensive odor. Once started, a compost heap may be maintained year after year by occasionally adding the materials from which it was originally made.

A Velvety Lawn Adds Beauty to the Garden

B. C. Tillett, Hamilton, Ont.

THERE is no feature of our garden more important, if we would have it look well, than a perfect piece of lawn. It may be said to be the frame to the picture—the finishing touch. A really good velvety lawn is, in fact, worthy and generally receives as much admiration as the flower borders behind it. There are some lawns, hardly worthy of the name lawns, that never were good and never will be, except by relaying. A perfect lawn depends, to a very great extent, upon the seed used. This must be the best lawn seed and guaranteed free from hay, meadow grass or clover seed.

A new lawn can be laid down either in the spring or in the fall. Spring planting makes the new grass to become well established before frosts arrive, but fall planting has this advantage that any weeds coming up will be killed before they can seed. Of the two plans spring seeding is the most recommended. Before putting the seed on the ground it answers to thoroughly well prepare the soil. All weeds, roots, stones and rubbish must be removed. Indeed, if one can spare the time, and the lawn is not to be a very large one, it is an excellent plan to put the surface soil through the sieve, so as to get a dressing of an inch deep or so, of perfectly clean soil all over. If the soil is

a very poor one, some well rotted manure must be mixed in with the sifted soil or at any rate kept near the surface. After the soil has been carefully levelled with the rake it should be rolled, or carefully trodden or beaten down. It must then be raked over gently again. This raking must be very carefully done so that the surface is left absolutely level and free from even a single small stone. For this purpose employ the back of the rake when the soil is fairly dry.

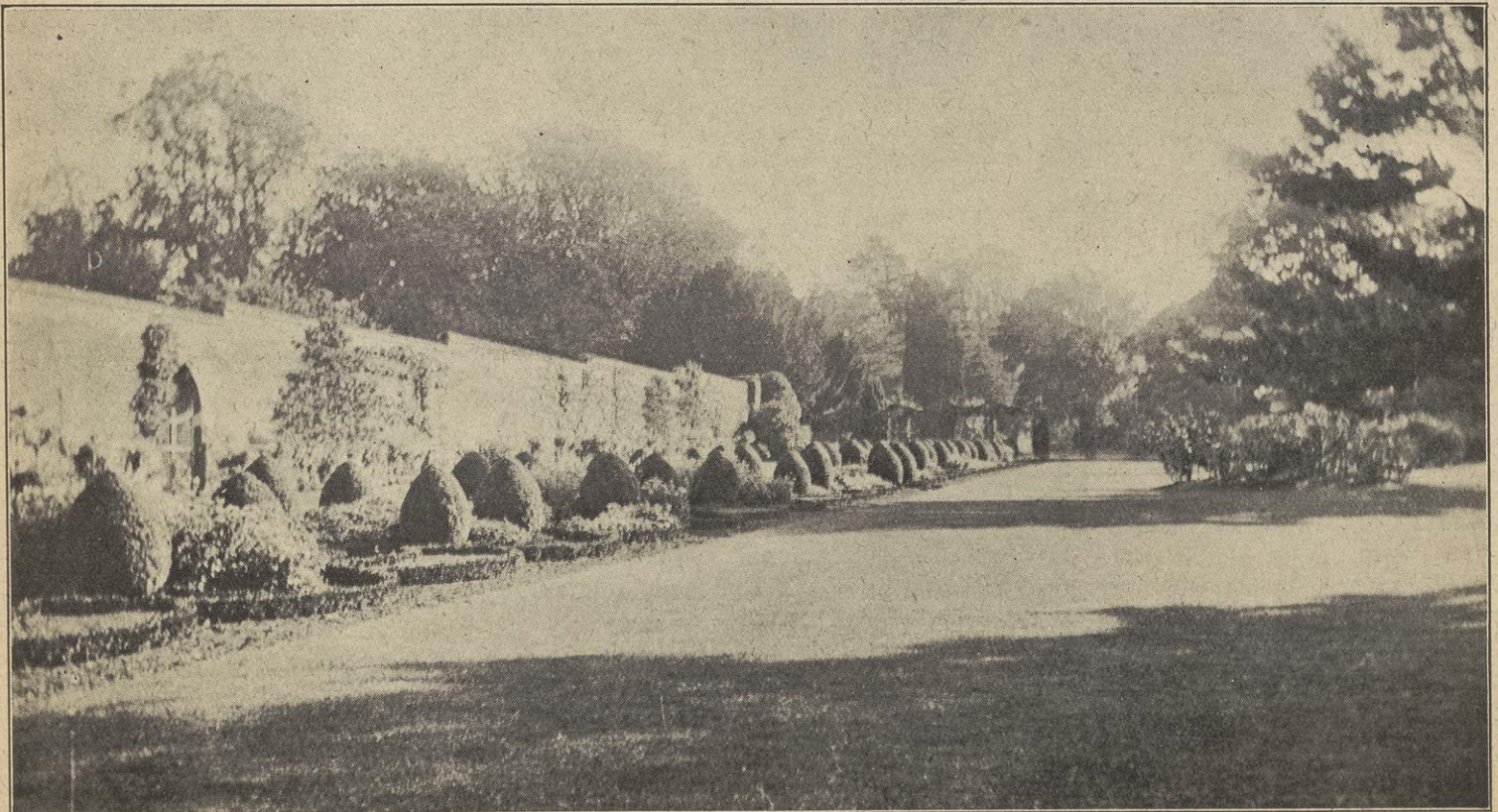
It is essential that the seed should be sown on absolutely even ground. It must not, therefore, be trodden on again after the final raking. In order to avoid this, a strip of ground about three feet wide should be marked off with the garden line. After this has been sown, rake out the feet marks, and measure off another strip of the ground in the same way, each time levelling out the sower's feet marks.

The seed must be evenly sown and fairly thickly, so that all the ground is well covered. It should then be lightly raked in, taking care that the evenness of the ground is not disturbed, and that no footprints are left. The ground should then be rolled in order to bury any uncovered seed, which will then germinate with the first shower of rain. If the weather re-

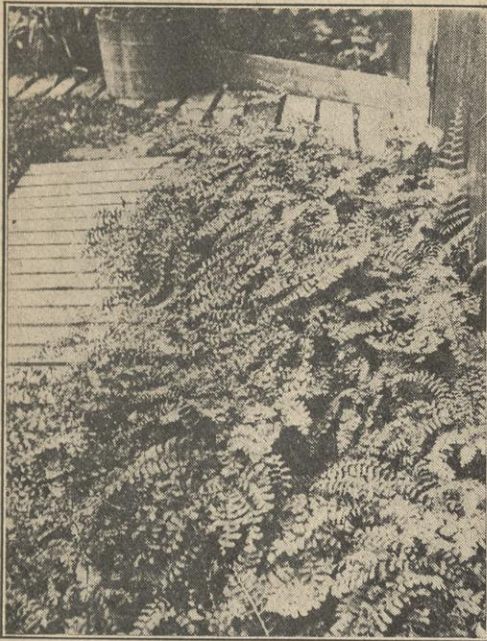
mains dry, the ground may be syringed over. As to the quantity of seed required, one pound will sow about thirty square yards of ground.

The grass should be allowed to grow until it is four inches high and should then be cut with a sharp scythe; afterward the machine may be used, setting it high; cutting too close weakens the young plants. Those who have made new lawns this year, will find them making good growth by now. If there are any bare places these should be re-seeded. The new lawn should be cut regularly once a week, and when there is little rainfall, watered in the shade of the evening. Never water grass when the sun is overhead. A suitable tool should be used to remove weeds, such as dandelions, daisies, plantains, docks, etc. These will always appear even when the best seed has been sown, as there are certain to be some weed seeds in the ground, but, if taken in time, the grass will soon become master of these, and they will disappear.

In order to possess a fine lawn, there must be constant cutting, rolling, and watering. Nor should the broom be spared, a thorough brooming does a lawn good. Always use a catcher on the mower. It is a mistake to leave the clippings on the lawn. If the weather is excessively hot and dry, there is



A really good velvety lawn, such as the one here shown, is worthy of as much admiration as the flower border which constitutes its frame.



A bed of maiden hair ferns, 9 years old, in the garden of Dr. Douglas G. Storms, Hamilton, Ont.

some advantage in leaving the clippings as they help to conserve the moisture, but they do not improve the appearance of the lawn. In very dry weather the lawn should not be cut too close. This can be avoided by lowering the roller a little.

It pays to roll the lawn. The best time to do this is early morning when the dew is fresh upon it. If there are an abundance of worm hills, brush the lawn over first, and spread this valuable new soil over it.

Nothing enhances the looks of a well kept lawn more than well kept edges. There is an art in edging. A line should always be used when making a new edge, especially around a curve. Edging need only be done once or twice a year. Grass that overgrows the edge can be readily kept back with the long handled edging shears. Neatly trimmed edges, whether around a lawn, around trees, walls or borders is the artist's finishing touch, as is the ribbon to the bride's bouquet.

Where practicable, use winding paths and small strips of grass dividing your flower beds or vegetable garden beds; these greatly increase the beauty of a garden. Over such strips a pergola may be arranged and a charming effect given to the whole by training over the pergola some climbing roses such as Crimson Rambler or Dorothy Perkins.

It is important in establishing a lawn to choose a site where the soil is deep, fertile, and in good physical condition. If these conditions are not found naturally they should be obtained artificially by drainage, cultivation and liberal manuring.

Transplanting Ferns

Dr. Douglas G. Storms, Hamilton, Ont.

The accompanying illustration shows a bed of *Adiantum Pedatum* (Maiden Hair Fern) in my garden. At the time of photographing these plants were seven or eight years old. The plants were taken from the woods at any time that I chanced upon them, some in the latent state, others half grown, and still more full grown.

The plants were taken up with lots of the natural mould about them and planted in the bed as soon as I reached home. After once being planted they were never touched, but left severely alone. The bed was located on the north side of an out-house in the rear of my garden, but was exposed a good part of the day to the full heat of the sun, which, by the way, does not affect this particular variety of fern, harmfully. Anyone wishing to make a bed of the Maiden Hair Fern has only this to remember, plant them carefully and then do not coddle them.

June Vegetable Reminders

Set out a strawberry and a raspberry bed.

Make another sowing of peas, spinach and radishes.

See that a bird bath is built, out of reach of the cat.

There is still time to sow grass seed and establish a good lawn.

Every garden should have an herb border. Many of the herbs are ornamental as well as useful.

Keep the onion field clean and well cultivated.

Make another sowing of peas, beans, beets, carrots, spinach, and Swiss chard.

Clean seed, clean soil, and good cultivation should give a good crop of potatoes.

Thorough cultivation must be given vegetables, fruit and flowers, if best results are to be obtained.

Peppers and egg-plant should not be planted outside until settled warm weather arrives.

Peas and beans may be planted between rows of newly-set raspberries to advantage.

A few radish seed scattered with onion or other slow growing seed will mark the rows so that cultivation may begin even before the plants are up.

It pays to prepare vegetables as well as fruits neatly for market. Clean, attractive packages do not cost much more than unattractive ones and bring much better prices.

Soak celery or tomato plants thoroughly for several hours before transplanting. This will enable you to carry more dirt with the plant.

A good hand cultivator makes gardening easier. With proper attach-

ments, furrows may be opened, seed covered, and weeds killed.

Plant a few pots or berry boxes of cucumbers, melons, or other vegetables for early use. Keep in cold frame or hotbed until the first week of June, when all danger of frost is over, and then plant out.

June Floral Suggestions.

Roses should have been pruned before this, but may be gone over now. All weak or injured wood should be cut out.

Don't forget to plant a few nasturtiums, California poppies, petunias, or other annuals in the garden.

Liver of sulphur (powdered sulphur) dusted on the leaves of roses and other garden plants inclined to mildew will keep it in check.

Plant a few gladioli bulbs. They provide excellent cut flowers in early autumn. The bulbs are cheap this year and should be planted in quantities.

Set out shade trees and shrubs if it has not been attended to. Spread the roots well and fill in with fine rich soil. Always make this soil firm about the roots. Leave the top soil loose.

Flowering cannas require a warm, rich soil and must be given plenty of water in hot weather. Many varieties flower well. The bulbs are easily stored over winter if not allowed to get wet or too dry.

Mignonette is hard to transplant, but the seeds may be sown where it is desired they shall bloom.

Ferns from the woods and swamps will make attractive the shadiest spots about the house. Leaf mould or decayed chip dirt will provide a soil which develops a luxurious growth almost equal to that in their native haunts.

If you have a bare, dry spot that gets the sun all day, where other flowers do not thrive, seed it to portulacas. They will crowd out the weeds and give you an abundance of bright, cheery flowers all summer long.

Keep the lawn mowed this month if a close, fine sward is wanted. Nitrate of soda is a good fertilizer to apply for quick effect on the lawn. Use at the rate of from 150 to 200 pounds per acre. Put on just before watering or during a rain. It should be applied two or three times during the summer.

The Baby Rambler rose succeeds very well planted out. The flowers of the Baby Rambler are often nearly single. They succeed better out of doors than in the window. They are not good window plants. Monthly roses will not flower the year round successfully. A month or two of partial rest is essential.

The Control of Enemies of the Rose

F. E. Buck, Central Experimental Farm, Ottawa

THE rose is troubled with many enemies. It is no exception to the rule that every living thing has its enemies. Being "Queen of the Flowers," its enemies are not the less but greater in number than of many humbler flowers.

The beauty and worth of the rose, however, make the task of defending it against its enemies more interesting than irksome. Although its enemies are numerous, but few are serious. The whole secret of successfully fighting its enemies might be implied in these six words:

Be prepared. Be thorough. Be cheerful.

Its enemies may be placed within three groups:

Group 1—Insects which chew or feed on its leaves and buds.

Group 2—Insects that weaken its vitality by sucking the sap from its leaves and growing shoots.

Group 3—Fungous diseases which attack leaves, growing shoots or mature branches.

Be Prepared.

To be prepared is to have on hand, as a good housewife would have simple remedies on hand for household troubles, a few mixtures to meet all emergencies of the rose garden in their early stages. Prevention, not cure, should be the first aim of the rose lover.

The recommended preventatives are of three types:

First—A poison to apply to the leaves so that any insect which feeds on the leaves will immediately succumb to its effects.

Second—A soapy or caustic (smothering or burning) solution to apply in the form of a fine spray, or dry, and very fine powder, so that any insects

which injure the plant by sucking its juices will be killed by contact.

Third—Some chemical compound, preferably one containing copper, which can be applied to the foliage in the form of a spray and which will adhere to the foliage and prevent the growth of mildews and other fungous diseases or blights.

The poisons generally used to effectively prevent the ravages of insects of the first type are either paris green or lead arsenate. Both are sold by seed stores, the first generally as a powder, the second as a paste or powder. Both are easily mixed and it requires a very small quantity to be effective. About one teaspoonful of paris green or two of lead arsenate to a gallon of water is all that is required.

The compounds used to combat the second type of insects, of which the green aphids or plant lice are typical, are either a mixture composed of nicotine (tobacco extract) and sulphur, or a simple soap solution. The first is very effective and is sold as nicotine sulphate or under other trade names. The second may be made at home by using any soap which contains a percentage of oil, such as fish oil soap, or "Ivory" soap.

The compounds used to prevent or destroy fungous diseases or mildews, etc., consist of copper compounds or sulphur compounds. In as much as some forms of the commercial nicotine sulphates (used to kill green fly), contain a small percentage of sulphur, it is often found that this spray is helpful in keeping down fungous diseases as well as insects. However, ammoniacal copper carbonate is a good spray to prevent "leaf spot," and liver of sulphur (potassium sulphide) is another spray used to prevent "mildew."

Be prepared by having on hand the following:

A. Paris green or lead arsenate. If the plants are few, picking off these insects by hand will answer equally well. B. Nicotine sulphate. C. Liver of sulphur. D. A spray outfit.

Total cost, from two to five dollars.

Watch for chewing or feeding insects in May and June.

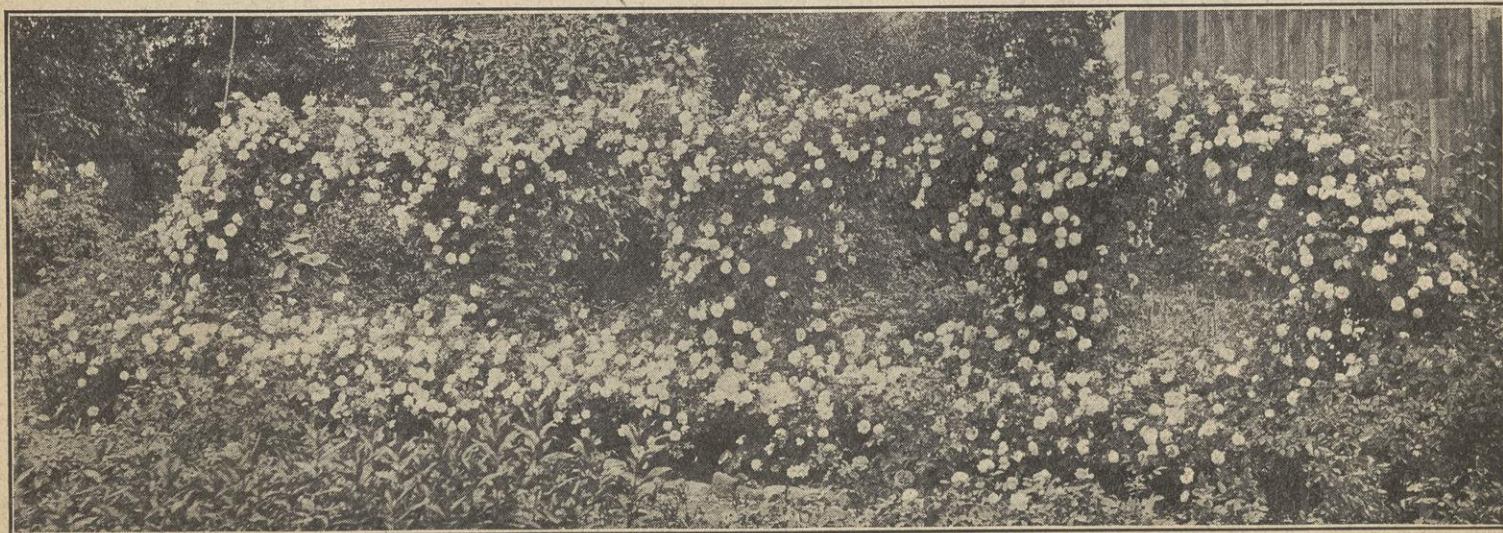
Watch for sucking insects (green fly or plant lice) in June, July and sometimes later.

Watch for fungous diseases in July, August, September and in June if the spring is wet or cold.

Be Thorough.

Thoroughness is essential. For instance, one plant louse may increase from one to sixty-five millions in about six to eight weeks. In fact, the rate of increase of this pest is so extraordinarily wonderful and rapid that it can be best emphasized by citing what would actually happen if Nature was not kind enough to help us fight the pest by means of birds, the lady bird beetle, and in other ways. One female produces about eighty to ninety young ones. Each one of these producing young in the same proportion and at the maximum rate of increase will produce aphids enough to cover the four walls of about twelve rooms thirty by twenty feet. And this even when they are packed very close together as sheep in a pen are packed. Be thorough for the reason that unless all are destroyed spraying appears to be ineffectual. It is the extraordinary breeding habits that account for the continuance of this pest.

By cheerfully performing these services for our garden friends we gain additional interest in their habits and needs. If the work is performed grudgingly



A bank of roses in the rose garden of Mr. John MacGrady, Pointe Gatineau, Que., near Ottawa. Many Ottawa citizens visit this garden each year while the roses are in bloom.



A spike of Madonna lily, 4 feet tall, with 14 perfect lilies on it. Grown in the perennial border of Mrs. Laura Rose Stephen, Huntingdon, Que.

ingly it is seldom performed efficiently and the results are not satisfactory. A little stroll around the garden in the early morning or again late in the evening will reveal many interesting things, and although it is next to impossible to keep any garden free from all visits of insects and fungous diseases a cheerful expectation of the enemy and the knowledge that he can be combatted without much difficulty turns the work of fighting him into an interesting phase of gardening effort.

Enemies of the Rose.

The eating or chewing insects that attack the rose consist of various small caterpillars, beetles, saw-fly larvae and the leaf-cutting bee. None are very troublesome except in certain special cases. Remedies—Hand picking or a poisoned spray.

Sap sucking insects include Green aphid or plant lice, the one really troublesome insect in this class. Leaf hoppers, which cause a mottling or marbling of the leaves. Their larvae work inside the leaves. Frog-hopper or the Cacker-spit insects. Scale insects, not common. Remedies—A nicotine or soap mixture, or in the case of number two, picking off the affected leaves in the early stages.

Leaf-miners are the larvae or maggots produced by a minute moth. They are generally troublesome in June and in August. The minute maggots live

and feed inside the leaf under the epidermis, also causing the leaf to turn mottled or brown. Remedies—Picking off the affected leaves as soon as they appear, or frequent sprayings with nicotine will keep them under control.

Thrips are a minute insect produced by a small fly. This trouble is similar to that produced by leaf hoppers. Remedies—Nicotine, cold water, or hand picking of leaves.

The red spider is a very minute spider-like insect working on the under side of the leaves, seldom visible to the naked eye. Results, a mottling and yellowing of the leaves. Remedies—Spraying with cold water, liver of sulphur or nicotine.

Diseases.

Black Spot is the most troublesome disease of roses in eastern Canada. It appears in the form of large black or purplish spots in the leaves. First appearance generally about late July or early August. Remedies—Thoroughness with any copper or sulphur spray, such as ammoniacal copper carbonate, or liver of sulphur. Lead arsenate will also keep it under control.

Mildew is a troublesome disease of the rose in western Canada, and in the east during damp or cool weather. It generally appears late in the season in the east. This disease causes a whitened or mouldy appearance on the leaves and terminal shoots. Remedies—Liver of sulphur as a spray or flowers of sulphur dusted on.

The Amateur's Fruit Garden

M. B. Davis, Central Experimental Farm, Ottawa

Tree fruits should be pruned in early April or in June. Wounds made in June will heal much better than wounds made a little earlier. At that time it will be well to cut out those old canker and diseased areas, and paint the same over with pure white lead and oil. If you did not remove the old canes from the raspberries last fall, it should be done at once, as they will only interfere with the new growth. The currant and gooseberry plantations may be pruned any time now.

Aphis and caterpillars will bear watching. For aphis use a weak tobacco extract, and spray it on them, or if you have only a few bushes, dip the leaves in the solution. Kerosene emulsion is also good, and can be made by anybody. For the caterpillars use Paris green, one ounce to six gallons of water, mixed with a little milk of lime. Watch for the currant worm, and get that first brood with Paris green, one ounce to ten gallons. For the second brood use hellebore dusted on the bushes when they are wet with dew.

Helping Flowers To Last

Flowers should if convenient be gathered at some other time than during the heat of the day and be placed in water in a cool place as soon as possible. After this treatment, they will keep much better than they would if not induced to fill up with water. Most flowers keep and look better if gathered when in bud just before opening. This is true of roses, poppies, peonies and others. Double flowers as a rule keep longer than single kinds.

For cut flowers in the house it is very desirable to have kinds which will continue to develop buds into flowers after being placed in water. Perhaps no kind has this quality in a more marked degree than the gladiolus. During parching hot winds it is possible to have such in their greatest beauty in the house when the weather will not permit such conditions out of doors. Before storms it is well to secure a supply of flowers for indoor use that their beauty may be enjoyed while those out of doors are recovering.

Some kinds which have a milky juice like the poppies and some others, as the dahlia will keep better if the tips of the stems are dipped in very hot water before they are cared for in the ordinary way. It is well nigh impossible to have the oriental poppies hold up fresh without such treatment.

Poppies should always be gathered in the bud just before they are ready to push through the calyx. With kinds which last well in water it is desirable to renew the water often, otherwise the smell of decay at the base of the stems sometimes becomes offensive, which is not healthful.

For aphis (green lice) on roses, spray with a nicotine solution. A perfectly good solution may be made by pouring two quarts of boiling water over a pound of tobacco stems. This decoction may be used with safety on roses without dilution. Do not **boil** tobacco in water; this drives off the nicotine; just **steep** the stems. Almost any form of tobacco will answer, but the stems are cheap.

The first consideration, when planning the perennial border, is a suitable background. This may be trees, shrubs, vines, or even the taller growing herbaceous perennials. The smaller growing species should be brought to the front of the border, so they will not be hidden by taller kinds. An irregular profusion of plants and bloom is more interesting and pleasing than any attempt to arrange the various kinds in formal lines or square blocks.

A Beekeeper's Retrospect of 1915*

Mrs. Rose A. Hambly, Rose Isle, Man.

IT has been said that there are two kinds of work in the world—that which men do strenuously for their bread, and that which they do joyously for their recreation. In beekeeping, the two are combined. People are sometimes forced by circumstances into uncongenial employments, but I cannot imagine anyone taking up beekeeping under compulsion. It is first a hobby or labor of love before it is a business.

After I had been the happy possessor of bees for several years, I felt myself quite learned in the subject, being in some degree like one of Tennyson's characters, "crammed with theories out of books." That pleasant feeling departed long ago, crowded out by a growth of unsolved problems and the realization of my mistakes. This perhaps is the great charm of bee-keeping: a study that could be mastered in a year or two might be flung aside like an out-grown garment, but one which rewards us with an ever-widening prospect of new truths and beauties is a splendid pursuit for which a lifetime is all too short.

There are two great problems confronting all beekeepers: to have each hive brimming with bees at the commencement of the harvest, and to prevent waste of energy through swarming; that is, to induce the bees to store great quantities of honey instead of following their natural inclination in times of prosperity to found new colonies.

Last year our bees were taken from the cellar on April 7th, during a spell of beautiful warm weather. It is not in accordance with the practice of most authorities to set out bees till pollen is obtainable. The cellar, however, was quite warm and close in spite of its nightly airing, and the bees were restless from their long confinement. Comparing the chance of severe weather with the certainty of a rapidly increasing death rate, we decided in favor of immediate flight. On the eleventh of April, the first pollen from the alders and willows rewarded their ardent search. Following our usual custom, the floors were cleaned and turned shallow side up. A spare bottom board was given the first hive, and its bottom board, after being scraped, given to the next one. The entrances were contracted by blocks to an inch, and each light hive was given one or two frames of sealed honey saved over for that purpose. Formerly, I have advocated feed-

ing candy in the spring, but I have come to question whether anything can encourage brood rearing more than the presence of an abundance of natural stores. To conserve the heat of the hive, a newspaper blanket was added to the quilt, and a straw cushion set on inside a super. It is well to have these cushions loosely filled, and larger than the hive, so they can be packed snugly around the edges to prevent any leakage of warmth.

Until last year, our plan has been to encourage early swarms. Usually the bees were feeling crowded by the 24th of May, and the first week in June swarming was well under way. The parent colony was moved away, and the swarm hived on the old stand. In place of one colony, we then had two, and perhaps by the first of July, just when the basswood was commencing to flower, there would be three or four, and a greatly diminished prospect of a crop. Suppose we are able to confine our increase to one natural swarm; these two divided forces will not, unless the season is exceptionally propitious for building up, produce so large a surplus as they would if united in one strong colony. The beginner is anxious to increase the number of his colonies; the experienced beekeeper is more anxious to increase the number of bees in each colony. It is not the case in beekeeping, as in mathematics, that 30,000 bees in one hive, plus 30,000 bees in another hive, equal 60,000 in one group. Then, again, for some days before the swarm issues, the queen lays a lessening number of eggs, and afterwards it is a little while before she is laying at the old maximum rate. This loss of eggs may be prevented by making a shaken swarm before queen cells

are started. In theory this is an excellent plan, since the old and new colonies may be made of equal strength at the pleasure of the beekeeper. In practice, I am not so sure that it is. We still have no guarantee against after swarms, and you may have noticed that a forced swarm does not set to work with the vim and ardor of a natural one. It sometimes happens, too, as last year, that a dearth of nectar occurs in June. Should this find us with newly-made colonies and no reserve combs of honey, daily feeding is then necessary if brood-rearing is not to be checked. This is quite easy with five or ten colonies, but with a hundred it is no light task, and for outyards is out of the question. Dr. Miller, granting the advantages of shaking over natural swarming, does not practise it until he finds queen cells started, since if a colony were not inclined to swarm, on no account would he force it. From the best of these non-swarming colonies, he chooses his breeders, and by many years of selection has built up a strain with far less than the average inclination to swarm. Perhaps most of us do not lay sufficient emphasis on the careful selection of our breeding stock.

In the third year of my beekeeping, the average was 90 sections of comb honey and an increase of 300 per cent. by the happy-go-lucky plan of letting them swarm to their hearts' content and allowing plenty of super room. Last year the average was 41 sections plus 3 lbs. of extracted honey, and an increase of 150 per cent. No fall feeding was necessary, and a number of combs were set aside for spring use. Judging solely by results, it would seem that I am retrogressing, but when I remember what a poor season (it al-



A general view of the apiary of F. W. Jones, Bedford, Que.

*A paper read at the annual convention of the Manitoba Beekeepers' Association, February, 1916.

ways is the season) we had last year, I am persuaded that there would have been no crop at all had I followed the old plan. There is no clover at the home yard, and we depend entirely on basswood for our surplus. On the 18th of June there was frost so severe that the basswood buds were shrivelled, save on the tops of the tallest trees, leaving not a tenth of what we look for in normal years. Usually the bees are busy on basswood early in July, but it was the end of August before it commenced to bloom.

The early part of the season was favorable to brood rearing, and by the 24th of May most colonies had six or seven frames of brood, and the time was ripe for commencing to carry out the Miller and Doolittle plans studied during the winter. Following the Doolittle method, a full depth super of combs containing more or less honey was placed over each hive and separated from it by a sheet of perforated zinc. Owing to a scarcity of reserve combs only five hives were treated in this manner. Before setting on the super, two outer frames of pollen and honey were given to it from the brood chamber, replacing with empty comb. This allowed more room for brood, but not as much as Mr. Doolittle likes since he uses ten frame hives, while ours are eight. Downstairs was the nursery, upstairs the store room. If unfavorable weather set in brood rearing need suffer no check from fear of famine, and if the bees were able to gather a surplus there were empty cells to receive it. When these hives had eight frames of brood I gave two to the super, filling in again with empty combs.

The hives chosen for the Miller treatment were also given full depth supers about the 24th of May, but no excluders were used, so that the queen had the run of 16 frames. Dr. Miller sometimes sets the second story under the first.

At the same time eight nuclei, totalling some twelve frames of brood, were sent to an outyard, to be used later in making increase.

By the 10th of June affairs were progressing so happily that I decided to move ten of the Miller hives to a new location five miles north, and gather in a ton or two of honey that was wasting "its sweetness on the desert air." Moving such populous hives was not an easy task, but it was safely accomplished by reducing to one story and fastening on a comb honey super to give room and air. The queens were clipped, but to make assurance doubly sure guards of perforated zinc were placed at the entrances and above the brood chambers. These entrance guards proved a serious obstruction to ventilation, and many bees lost their pollen getting

through. Dr. Miller uses a two inch bottom board all the year around. In summer a false bottom or rack is pushed in. This prevents the building of comb below the frames, while allowing almost the full benefit of the deep space to keep the hive from overheating.

I planned to visit these hives in ten days, but fearing they might be crowded in the interval, a second super was given. Nine days later I arrived on the scene, to find a swarm in the air. In a few minutes it returned and I proceeded to examine for queen cells, and found them in four hives. This did not seem very encouraging, coupled with the fact that the supers were as innocent of honey as when they went on. A week afterwards the neighbor in whose garden this outyard was situated, called to report that a swarm had clustered but refused to enter the spare hive provided for it, in spite of an inducement of cream and sugar that the hired man spread at the entrance. I explained that had a queen been present there was no doubt this crafty plan would have been highly successful. In a day or two I looked through the hives again and cut from nine of them some 75 fine fat queen cells. As you may imagine swarming was going forward at a tremendous rate, but the spare hive was still untenanted in spite of the valiant efforts of the bees, seconded by the watchfulness of their guardians.

My neighbor's wife and I were by this time fast friends in adversity, her mission being to forsake churning, or baking, or babies, when the sound of a swarm arose and follow it in true bee-keeping spirit—not for promise of bees, or honey, or any earthly reward, but for pure love of the pursuit. Before the season was over my friend achieved a hive of her own and had the satisfaction of taking from it thirty-two sections of honey. This was a little square hive, known as "The Mystery Box" or "Yarrow Unvisited." Its internal anatomy was a profound secret, into which I did not venture to pry, but I suspected it of being a box hive, making a gallant attempt at movable frames. I had been saving it as a surprise for our Inspector, but it served an equally good purpose since the initiation of a new bee-keeper consists of a certain amount of tribulation.

Matters were much worse on my next trip, for some of the swarms determined to leave home, and unable to settle independently, had with one accord, following the way of the world, attached themselves to a prosperous neighbor in hive No. 3. Lack of room had prevented some of them from getting in, and several pailfulls were clustered about the hive and in the grass. I took off the crowded supers, exchanging them for empties, smoked in the outsiders

and again changed supers, dividing them among the ten colonies as evenly as I could. The next morning these bees were on their old stands in the home yard and I was busy introducing new queens.

Comb honey supers were put on the rest of the hives during the second week of July. Had I waited till the beginning of August it would have been better. The second story of each Doolittle hive was set on a bottom board on the old stand, after placing a frame of unsealed brood in the centre, and a comb honey super put on over an excluder. The bees were then shaken at the entrance. In a normal year the store house would have been heavy with honey and the queen so cramped for room that the bees would have been obliged to move the honey into the sections. So little honey, however, had been stored about the only advantage derived was that of shaking the bees on drawn comb instead of foundation. The brood was placed over strong colonies and when it was sealed distributed among nuclei. The honey flow did not commence for three weeks and these colonies were then much weaker than when they were shaken, since losing nearly all their brood, there were no hatching bees to replace those who died.

The rest of the Miller hives were reduced to eight frames of brood, and comb honey supers set on. The balance of the brood and honey was stacked up over some prosperous nuclei. Contrary to the experience of others, one of these five story colonies swarmed. Quite likely the reason was lack of ventilation, as I did not leave openings between the stories, fearing robbers. These piles gave an average surplus of twenty-eight extracting frames of sealed honey. This was set aside for spring feeding.

Sometimes when a swarm issued I used one of Mr. Doolittle's plans. The queen was caged and left in the care of the bees. In five days the queen cells were destroyed. After waiting another five days the queen cells were again cut out and the queen released.

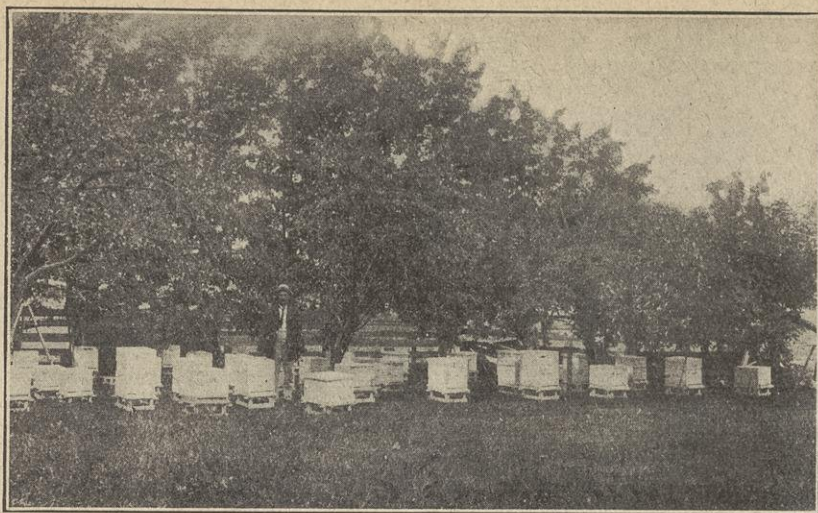
Quite often when a swarm came out the queen was captured and a nucleus containing a young queen put on the old stand, and the swarm allowed to take possession. Only once did I notice any quarrelling over this arrangement. The nucleus, however, was a very strong one and defended its entrance with vigor.

The outyard to which the eight nuclei were taken on the 24th of May was situated six miles away in a ravine of the Pembina Hills. Because of its beauty and pleasant associations we call this among ourselves, "The Happy Valley." The swift river that once

wore down the hills has dwindled to a slender stream. A few feet from its banks I set my hives in two rows. It was near the end of June before I saw them again. The weakest colony seemed to be barely holding its own, but three re-

quired more room. Instead of drawing brood to form fresh nuclei or help weaker colonies, I gave them full depth supers.

Two weeks later I paid another visit. Hive number 1 was put on a new stand, number five of its row, and one or more frames of brood, preferably sealed, were taken from two, three and four. These four or five frames, with a queen in an introducing cage, were placed in a new hive and set on stand num-



Apiary at the Dominion Experimental Station, Ste. Anne de la Pocatiere, Que.

ber one. The field bees of number one returning to the old stand greatly reinforced the new colony. This was repeated as often as practicable, and in October we brought home, in place of our dozen frames, sixteen heavy colonies. We hope to make use of this yard this season for extracting, as it affords excellent pasturage, having clover, basswood, raspberry, willow-herb and golden-rod.

A Successful Wintering Experiment

H. B. Durost, B.S.A., Instructor in Beekeeping, Woodstock, N.B.

IT may interest beekeepers, especially those in New Brunswick, to know that we successfully wintered bees out-of-doors in this province during the past winter. This should be good news to those who would like to keep bees but have no suitable place to house them during winter. While we would not advise those who have been invariably successful with cellar wintering to change to outdoor wintering, yet we are sure that many would have better results if they did so.

While our results are for but one season we feel that they are sufficiently conclusive to warrant another attempt on a much larger scale. Out of twenty colonies packed in quadruple cases eighteen came through the winter in fine shape. Two cases were packed at Woodstock, one in the city of St. John and two in Kings County, thus giving us results from both the inland and coastal portion of the province.

The bees were put into the packing cases much too late for best results. In fact, with no previous preparation, the colonies were packed about the time (Nov. 15th) they would otherwise have been put into the cellar. With one exception, no choice of colonies could be made, there being but the number necessary to fill the case available.

The packing cases used were made from a model supplied us by the kindness of Mr. Morley Pettit, Provincial Apiarist for Ontario. In the two cases at Woodstock the material used for packing was planer shavings. This material was also used in St. John. In the two cases packed in Kings County we used oat chaff mixed with short straw. In some of the honey-boards (used as covers) on the hives, were holes of 2 or 2½ inches diameter for feeding and to allow for upward ventilation. Over these holes we placed folded sacks under the packing. On half of the hives the honey-boards were tight. Owing to the fact that we knew little of the condition of the colonies when packed we were, of course, unable to note any differences due to either the material used for packing or the difference in provision for ventilation.

We are of the opinion that the two colonies that did not survive would have perished under the most favorable conditions. Neither colony contained much over a pint of bees to begin with. One showed dysentery very early.

We were unable to observe very closely any of the bees except those packed at the Agricultural School,

Woodstock. In this particular case the bees were packed November 10th. They had no flight from this date until March 26th. We were somewhat alarmed several times during the winter at the numbers of bees that ventured out on bright days, alighted on the snow and remained there. We also lost a goodly number on their first flight in a pond of water that surrounded the case. We filled the pond with excelsior and thus saved the lives of many bees.

On April 16th we observed the first pollen coming in. At this time red or swamp maple and poplar were in bloom. Our latest examination of these bees was on May 15th. On that date we found two colonies with eight frames of brood, drones in the hive and queen-cell cups started. We gave these colonies a second brood chamber.

One of the greatest advantages of out-door wintering with us will be the protection afforded the bees during the early spring. During this spring, for instance, we have had for the past three weeks almost continuous cold north-east winds. Many colonies of bees that were put on their summer stands fairly strong have been reduced to the verge of starvation, in fact, many have starved outright, because of the large consumption of stores necessary to keep up the temperature of the hive. Much brood has perished from exposure, because the cold nights have driven the bees into smaller clusters. Such results are bound to follow when bees are carried out of the cellar early in the spring and left without protection from the cold winds.

QUESTION BOX

Conducted by Prof. Morley Pettit, O.A.C., Guelph, Ont.

When I was at the Beekeeping Short Course two years ago you recommended a hive cover, which consisted of a galvanized tin tray and hair felt in a tray of lath. Can you give the dimensions, number of lath, kind of wood used for the lath, size of felt, and tin tray used for a 10 frame hive? What is the cost per cover? Can the whole cover be got from Ham & Nott? Is it any better than the ordinary cover? Mr. Holtermann uses a similar cover with heavy strawboard. With either cover a honey board would need to be used to preserve the bee space over the frames and to prevent the bees from propolizing it. Which cover is the best, the one with felt or the strawboard?

About what do you think would be a reasonable charge for one to introduce queens per queen for a beekeeper who will not undertake it himself?—W. H. S.

The cover I recommended, with hair-felt packing, is very satisfactory; the best cover I know. You can get full particulars as to the cost from the Ham & Nott Co., Brantford, as I cannot remember the figures. The felt, I think, would be warmer than the straw board.

I could not say what would be a reasonable charge for introducing queens. You would have to figure out how much time it took you, and charge for your time.

X Rearing of Good Queens

W. F. Geddes

THE matter of rearing queens with a view to the improvement of our bees is of importance to the beekeepers. In rearing queens it is necessary to study the conditions which exist when queens are reared naturally, namely—under “the swarming impulse.”

This swarming fever usually takes place under the most favorable circumstances. The colony is in the most prosperous condition; it is crowded with worker bees of every age; drones make the air resonant with their wings; both honey and pollen are coming in abundantly and the atmosphere within the hive is maintained at an even temperature. The queen cells that are built are well developed because the bees know well how to rear queens. The food is bountifully supplied and the queens that come forth are good specimens of this class.

Keeping in mind these natural conditions of a colony of bees when building queen cells, the principles of queen rearing may be formulated into the following propositions:

1. The hive must be well filled with bees and the bulk of them must be young ones.
2. There must be an abundant supply of both pollen and honey.
3. The amount of brood supplied should be limited in quantity in order to concentrate the working force of the colony, and it should embrace eggs just hatching or larvae not over one day old.
4. The temperature should be warm enough not to chill the brood.
5. The drones must be flying.

Collateral influences which can be brought to bear on these natural conditions so that they can be aided and directed toward bee improvement are the following:—

1. Careful selection of the breeding stock with special reference to those qualities that it is desirable to perpetuate and add to.
2. Selection of drones from the most vigorous queens whose worker progeny are noted for size, strength and honey gathering capacity.
3. A rigid system of pruning cells and killing defective queens.

How far this improvement can be carried with the bee is difficult to determine. The organs of reproduction in the queen, as well as her fertilization, are so unlike the breeding of our domestic animals, the queen-breeder will always have immense difficulties to contend with.

The Grading and Sale of the Honey Crop*

The production of honey requires a knowledge of bees and skill in their management, but it is equally necessary to know how to grade and otherwise prepare the honey for the market. As the production of comb honey in this country is exceedingly small, I will confine my remarks to extracted honey.

As honey is produced from many entirely different classes of flowers, it is always advisable to pack the different grades separately. I have found that in times of scarcity the grade of honey stored is usually poor in quality and the color dark. But honey produced during the height of the honey season is usually of good quality and bright in color.

You have often noticed that certain producers of honey have been able to place on the market a uniform sample. Each year's

production has the same flavor and color. This uniformity is no doubt attained by a blend of different grades. By this careful blending an article may be offered for sale which gives uniform satisfaction every year, thus securing a ready market at remunerative prices.

Where honey is produced in large quantities, it may be advisable to use five gallon square tin cans, but as a rule such containers are not advisable, as our storekeepers object to the labor and mess resulting from the use of such large containers. As a rule, much smaller packages are preferred, viz., two and a half, five or ten pound packages. These may be tin cans, pails or fruit jars and jelly glasses, or what is still better, a suitable glass container of your own design.

An unattractive label may spoil the appearance of your package and greatly reduce your sales. A very fair stock honey label, with your name inserted, may be obtained cheaply, but a large producer will be many times repaid if he has a distinctive and attractive label printed or lithographed for himself.

The granulation of honey in bottles or glass jars spoils its appearance and lessens sales. This granulation may be prevented by heating the honey first to a temperature of 130 F. and holding it at that temperature for two or three hours until every crystal has dissolved. The temperature is then raised slowly to 160 F., at which point the honey should be put into warm bottles and hermetically sealed while hot. It will then remain liquid for some time.

In some portions of the United States, notably in Colorado, they have established Cooperative Selling Associations, which undertake the sale of all the honey produced by their members. Some such plan may prove advisable here. The Winnipeg and Brandon farmers' markets might prove suitable places to try out this plan. The home market is well worth our attention. It is close by, we avoid freight and commission charges, and if we supply a first class article the demand will increase from year to year.

Immense quantities of honey are imported into Manitoba each year. Most of this comes from the eastern provinces, but the United States also sends us a large quantity. Our honey is equal to any on the American continent, and providing we prepare and sell it properly we should be able to keep the market to ourselves.

Foul Brood Regulations

Wm. E. Scott, Deputy Minister of Agriculture, Victoria, B.C., writes: Owing to the continuance of foul brood in certain districts of British Columbia, which has been directly traceable to bees imported from outside points into the province, the Minister of Finance and Agriculture has issued a public notice to the following effect:

“Notice is hereby given that any or all bees imported, with their hives, into British Columbia shall be quarantined at the point of entry, or at such other place as may be appointed, for a period of not more than nine months, and if such bees are found to be infected they shall be destroyed; and to further recommend that bees imported by the pound, in packages, or crates, may be admitted into British Columbia upon production of a satisfactory certificate, from a State or Provincial Inspector, of freedom from foul brood at point of origin.”

Officials of the staff of the Department have been instructed to see that the im-

portation of bees into the province is closely watched in order that no infractions of the regulations may be permitted.

Toronto Field Day

The annual field day of the Toronto Beekeepers' Association was held May 24th at the apiary of Mr. Robt. Caldwell, Bolton, Ont. King's weather graced the event, and a goodly crowd was on hand.

The apiary consists of 87 colonies, mostly in Langstroth hives, the remainder in Jumbo hives. Mr. Caldwell winters in the cellar, which stood at the rear of the yard jutting into a high hill, which forms a natural windbreak. This cellar is one of the best structures of the kind it has been the good fortune of the writer to examine, and was favorably commented on by many of the older beekeepers present.

The programme was as follows: P. Temple, introducing queens, first by the starvation plan, and second by the smoke method; C. Kitchen, clipping queens; J. W. Walton, opening hives properly; Chas. E. Hopper, pound packages of bees; Geo. Prance, handling colonies during swarming; C. Kitchen, organization of beekeepers; Alex. Goodfellow, question box.

The programme was concluded, a light refreshment was again provided, after which all present parted with a feeling that beekeepers are about the most sociable class of people on earth.—C. E. H.

Summer Course in Beekeeping

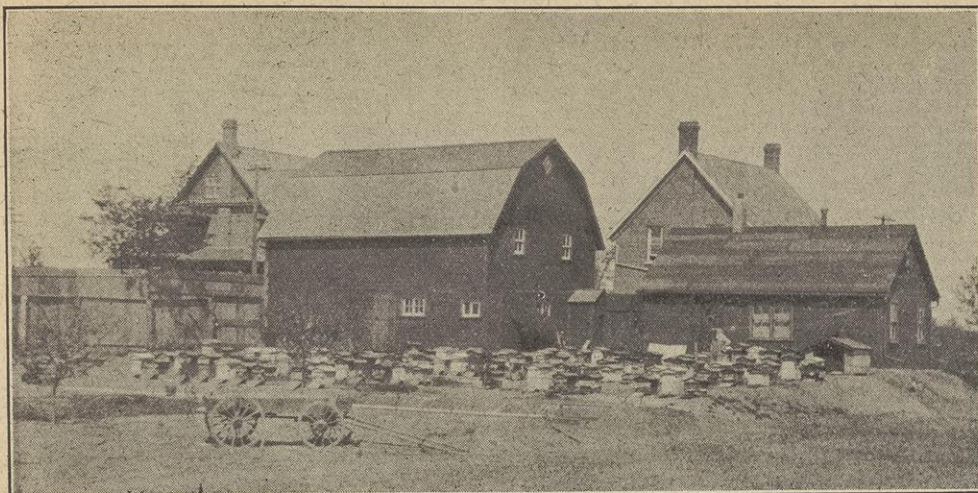
Morley Pettit.

A summer course in beekeeping is being arranged at the Ontario Agricultural College for the week of June 12th. It will consist of apiary demonstrations and practice. Day sessions will be conducted in the apiary as far as possible, and four illustrated evening lectures will be given during the week. Such special subjects as wintering, swarm control, bee diseases, queen rearing and requeening will be taken up and demonstrated by means of the bees and appliances in the apiary. Students will be given practice in the various manipulations under discussion. Instruction will be given by the Provincial Apiarist, assisted by Mr. James Armstrong, vice-president of the Ontario Beekeepers' Association, and other prominent Ontario beekeepers.

Mr. Frank C. Pellett, State Apiary Inspector of Iowa, will assist in the instruction. He will also give illustrated evening lectures on “Beekeeping in the Mississippi Valley” and on “Our Back Door Neighbor.” The latter subject deals particularly with the economic importance of wild life, including bees and insects. Many years of time have been spent by the speaker in its preparation, single families being under observation for months at a time. Many of the slides, made from photographs taken from life by the author in the field, were secured with great difficulty. Mr. Pellett is an excellent speaker and a master of the different subjects which he will discuss.

Judging by the correspondence to hand, the interest in this course will be excellent. There are no tuition fees charged, the only expense being for railroad fare and board while in attendance. The Wellington County Beekeepers' Association is arranging to hold a field day at the college during the week of the summer course. Beekeepers who find it impossible to attend for the whole week, are cordially invited to enjoy the good things of the field day, the exact date of which will be announced later.

*A paper read at the last annual convention of the Manitoba Beekeepers' Association.



The apiary of N. S. Hunsberger, Berlin, Ont., is here shown. Mr. Hunsberger has 99 colonies of mixed bees. The bee house is 18 ft. x 30 ft., and in the basement of this the bees are wintered. In 1913 Mr. Hunsberger had 33 colonies. From these he secured 3,500 lbs. of extracted honey and 38 young swarms; in 1914, 60 colonies, 1,800 lbs. of honey, and 10 swarms, the poorest year he has had in five years.

Spring Report of Beekeeping in Ontario

This year the forms for reporting the winter loss and the condition of the clover were sent out earlier than usual. From the first reports a heavy winter loss was anticipated, but those received later are more favorable. Eight hundred beekeepers reported 27,738 colonies in the fall and 24,953 colonies in the spring, showing a winter loss of 2,785 colonies, or 10 per cent. There are probably fewer beekeepers in this province to-day than a few years ago, due largely to the winter loss, diseases and possibly to the extra farm work and shortage of labor from war demands.

The mild spell in January caused the bees to rear brood and draw heavily on their stores. This, with the high price of sugar last fall causing a stint on feeding heavily, resulted in many colonies starving towards the end of the cold weather. A few warm days early in April gave the bees a splendid cleansing flight and their condition now is reported as very good. The continued cold, wet weather has retarded building up and the gathering of fresh stores, and many colonies may perish if neglected.

While the reports were only sent to a revised list of active beekeepers, 164 were returned with the remark "Not a beekeeper." The careless, indifferent beekeepers with only a few colonies are rapidly disappearing, and the honey producing industry is becoming a specialist's occupation. At least it may be stated that while the number of colonies of bees in the province has not increased, there are more extensive producers and fewer small beekeepers. From the standpoint of honey production, this is a much desired condition, indicating that the industry is getting on a better business basis from year to year.

Further evidence of the progress of the industry is the number of honey extractors in use. Some of the 800 beekeepers reporting undoubtedly produce comb honey, and hence, have no extractor, but 574 extractors of different sizes are in use. Twenty-one beekeepers are using power machines. Many more could probably be profitably employed. Of the 553 hand honey extractors in use, 201 are two-frame and 178 four-frame. Sixteen beekeepers are

using motor cars to advantage. The increasing number of out-yards will increase the number in use.

The clover prospects are good throughout the province. The latter part of the season of 1915 being wet, gave the new seeding an excellent start and the scarcity of farm labor has increased the acreage seeded down. The honey market in Canada seems to be practically bare, and dealers are already contracting for 1916 crops at advanced prices. The scarcity of sugar assures a good market for a large crop of honey.

The British Columbia Beekeepers' Association

The first meeting of the newly incorporated Beekeepers' Association of British Columbia was held at Vancouver in April. The question of making an exhibit at the Vancouver Exhibition; the standardization of hives; the using of a standard label, and summer demonstration meetings were under discussion. Addresses were delivered by various members of the association on the following subjects: "Spring management and swarm control on the Lower Mainland of B.C.;" "Honey exhibits at the fair;" "The work of the queen;" "The Hive;" and "Suggestions to beginners."

The officers of the association are: Hon. president, W. E. Scott, Deputy Minister of Agriculture, Victoria; hon. vice-presidents, E. S. Knowlton, Vancouver, John Reagh, Ladner; Rev. Thomas Menzies, Sandwick, V.I.; president, D. Mowat, McKay, B.C.; vice-president, W. H. Turnbull, Sullivan, B.C.; hon. secretary treasurer, William Hughes, Victoria; directors, John Brooks, Fred E. White, Wilfred M. Smith, George Coe, H. L. Chittenden, A. Smith, H. L. Johnson, J. W. Winson, A. W. Findlay, W. Till-Tout, C. Sprott, J. P. W. Rant, W. H. Lewis, W. G. Mills, George Dennis, George Parks, A. P. Glen, Mrs. C. A. Troughton and J. Robinson.

Foul Brood in British Columbia

Owing to the continuance of Foul Brood in certain districts of British Columbia, which has been directly traceable to bees imported from outside points into the province, the Minister of Agriculture issued a public notice under authority of Order-in-

Council No. 468, approved April 27th, 1915, to the following effect:—

"Notice is hereby given in conformity with Section 12 of the Foul Brood Bees' Act, 1911, Chap. 18, that any or all bees imported with their hives into the province of British Columbia shall be quarantined at the point of entry into said province or at such other place as may hereafter be appointed for a period of not more than nine months, and if such bees are found to be infected they shall be destroyed; and to further recommend that bees imported by the pound, in packages, or crates, may be admitted into the province of British Columbia upon production of a satisfactory certificate, from a state or provincial inspector, of freedom from foul brood at point of origin."

Apiary Demonstrations, 1916

The Ontario Department of Agriculture is arranging to hold Apiary Demonstrations in all parts of the province. The practical nature of the programme is very inviting to all interested in beekeeping. A specially trained practical beekeeper is sent to take charge of the meeting and handle the bees, and he is generally assisted by local beekeepers. Several hives are opened and the actual working of the bees explained. Often a queenless colony or one preparing to swarm serves as an excellent object lesson. No matter how many or how few colonies you keep, you are sure to learn something at one of these meetings.

Arrangements are well under way for over fifty of these meetings. The Department of Agriculture attends to all the advertising and supplies the speaker, so that the beekeepers do not incur any expense. Interested beekeepers desirous of having demonstrations in their apiaries should communicate immediately with Mr. Morley Pettit, Department of Apiculture, Ontario Agricultural College, Guelph, so that arrangements can be made for the meetings.

Items of Interest

Mr. Burton N. Gates, who is in charge of the beekeeping division of the Massachusetts Agricultural College at Amherst, Mass., has asked The Canadian Horticulturist and BEEKEEPER to announce that he desires to obtain additional specimens, to those he secured last year, of bumble bees taken in or about beehives. Bumble bees so sent, or any other insects caught robbing the hives or taken dead from inside of the hives, should be forwarded in a strong box and bear the name and address of the sender. Mr. Gates would like to receive a letter also stating the circumstances and date of the capture.

The firm of Chas. E. Hopper & Co. have removed from 136 Simcoe Street to 1568 Queen St. East, Toronto. This firm has been having considerable difficulty lately getting bees through the customs, in spite of the fact that there is no duty on bees. The trouble has been experienced with the Canadian Express Co., not with the Dominion Express Co. Over 200 packages of bees have been lost through delays in the customs. Recently when a representative of The Beekeeper was speaking to Mr. Scott, a member of the firm, there were 50 packages of bees dead in the yard at that time, the company having refused to accept delivery and the express company having refused to take them away. In addition to the delays in Toronto, it is believed that bees have been held up at the border.

British Columbia's Fruit Growers Helped*

R. C. Abbott, Coast Markets Commissioner, Victoria, B.C.

DURING the season of 1915 my time was spent principally looking into the marketing conditions in the Pacific coast cities with the view of ascertaining the real reason why the markets in the past had made such poor returns to the grower. I endeavored to find if the prices paid by the consumers were in keeping with the returns sent to the grower, in assisting whenever and wherever possible in the quick movement of perishable farm produce sent in on consignment, in using my efforts where possible to protect the consignor against any advantage that might be taken of him by the unnecessary slaughtering of his consignment, and in urging upon the commission houses the necessity of making "quick returns" to the growers. Much time was spent in encouraging the trade and the public to buy home-grown fruit and produce in preference to that brought in from other countries during the season in which our fruits and produce were being marketed.

Our fruit and vegetable markets are continually being demoralized and kept in an unsteady condition by growers shipping their fruits and produce in on consignment irrespective of the condition of the market. Not only do they ship without previous notice to the commission houses but in many instances they continue to ship large quantities of perishable fruit even when requested by the commission house to stop. The outcome is, that the commission house has to get out from under this stuff, and in order to do so breaks the market. The loss falls not only on the offending shippers, but on many other shippers who are trying to solve the question of proper distribution and better markets. While we deplore this practice and have a thorough knowledge of the disastrous results caused by it, it will not be entirely overcome, as long as we have independent shippers, who from their end are unable to keep in daily touch with market conditions.

Shipping Direct to Retailers.

In a large city like Vancouver, which is the central marketing point for local fruits and produce, direct shipment to retailers on the consignment plan is detrimental to the best interests of the producers. Direct shipping to retailers at a set market price should not "hurt" our markets, but consigning to "cut-rate" retailers has brought little profit to the shipper and ruinous results to our markets.

It is impossible for any grower living at a distance to measure the selling capacity of a retail store, and invariably we find the retailer being over-loaded, who in turn either slumps this perishable produce off at ridiculously low prices or after holding it in his store until it is almost rotten, sends it to the commission houses to sell.

Patriotism and Economy.

Many appeals have been made to the consuming public of late to be more patriotic in their purchasing and the response has been greater than was anticipated. These have been strenuous times in the cities and many consumers have been forced to the point of placing "pocketism" ahead of patriotism, and these must not be judged too harshly, for many a man who in good times would give preference to home-products irrespective of price, has now to consider price first and price only.

*Extract from a report read at the recent annual convention of the British Columbia Fruit Growers' Association.

Regular weekly market reports were issued from Vancouver from April 10th to December 31st. These reports were issued and mailed each Saturday night so as to be in the hands of the farmers Monday morning if possible. In making up these reports care was taken to have them give the true conditions of the markets and also to give the farmer an accurate list of market quotations.

In addition to the regular weekly reports private and individual reports were given out whenever requested.

Advertising.

Publicity work along with my other work became a necessary feature and although not carried on as extensively as I would have liked to have done, yet the results obtained proved to be of excellent value to our producers. The city press was made use of whenever the opportunity occurred. Good results were obtained from interviews and news items given to the public, acquainting them with crop conditions and the available supply of the various commodities. We find the consuming public hungry for such information. Reliable information given out regularly to the public along these lines brings remarkable results. The newspapers in the cities have supported us most admirably and given us free advertising, which we appreciate very much.

During our strawberry campaign our newspaper boosting was given free, and occasion was taken to place before the public information whereby they could gain some knowledge of the extent of our berry industry. The wholesale trade worked in conjunction with your markets commissioner, and on his suggestion carried, for three weeks, canvas banners on their delivery trucks bearing the words:

BUY

B.C. Grown
Strawberries,
Preserving Dates
June 1st to 14th.

Previous to our strawberry season and just when the heavy imports were likely to come in, 500 display cards were distributed

to the retail grocers in the cities. This gave me an excellent opportunity to converse with these people and to place before them the facts in regard to the fruit growing industry of British Columbia, and to make an appeal to each of them to assist in promoting the sale of our products by buying only those grown in British Columbia.

These display cards covered both strawberries and raspberries, and appealed to the people to support "Grown in B. C. Berries," and thus keep at home some \$85,000, which had been spent in 1914 in imported berries alone.

"Best time to buy B. C. Fruit" cards were also distributed through the retail stores.

A "British Columbia Fruit Booklet," containing some 225 recipes, besides other valuable information, proved one of our best, if not the best medium for advertising the merits of our fruits. Five thousand, seven hundred of these were distributed through this office. Of this number over four thousand were given out individually to consumers.

This little booklet might be termed the growers "Silent Salesman" and it has been the means of materially increasing the consumption of our fruits.

Those who put up their fruit without sugar met with good success, and large quantities will be done this way this season.

The consumption of tomatoes, just when there was a likelihood of a break in the market, was greatly increased by press notices and the issuing of circulars on the "Home Canning" of tomatoes.

During the season for soft fruits "Fruit Talks" were also given before the different Women's Organizations in the city.

After careful consideration had been given to the matter of putting on an "Apple Week" in the coast cities it was thought advisable to abandon this idea, and to direct our efforts to obtaining a greater and quicker movement of our apples by newspaper advertising.

This advertising was run in the four dailies, and brought direct results which were very encouraging. The advertising kept prominently before the public the great necessity for keeping their money in circulation within our own province by purchasing only "British Columbia produce."

Railways' Concessions to Fruit Growers

G. E. McIntosh, Transportation Secretary Fruit Growers' Association of Ontario, Forest, Ont.

PRESENT indications are that the fruit crop in Ontario will be heavy, and we therefore will require every possible assistance from the railways in the marketing of it. The Transportation Department of the Ontario Fruit Growers' Association has been active of late in procuring for the growers throughout the province some local, also general improvements. The following information, therefore, may be of value:

During the seasons of 1914 and 1915 the shipper who loaded vegetables in a car with fruit for points east of Port Arthur, had to either pay the less carload rate on vegetables and the carload rate on the fruit, or pay third class rate, minimum 20,000 pounds, on the fruit and vegetables. Instances were reported, however, where the privilege was allowed, but not by authorized tariff, thus making the shipper liable to prosecution. Complaint was made to the Railway Commission and referred to the Canadian Freight Association. The complaint was favorably considered, and the mixing of fruit and

vegetables between stations in Ontario and Quebec and to points in the Maritime Provinces to or from which through class rates are published, is now authorized by a tariff effective March 24th, the following rates applying:

Lots of less than 10,000 lbs., 1st class rates.

Lots of 10,000 lbs. or over, 2nd class rates.

Carloads, minimum 20,000 lbs., 4th class rates.

This service will be a decided advantage, and should open markets for mixed orders.

False Floors.

Under an order of the Board of Railway Commissioners, the railways allow shippers three dollars for the material used in putting in a slatted floor in refrigerator cars not so equipped. This order is now amended by adding thereto a further allowance of 500 pounds from the weight of such cars. During the present season shippers are requested to keep a record of all cars floored, including those for which the authorized

allowance is collected. Such information may be required at a later date.

Because of the heavy production of berries at Vineland and Jordan, the early arrival of the fruit train, and the fact that they have but one outlet for their shipments, a better service was considered an absolute necessity, and we therefore supported an appeal by the local associations before the Railway Commission. The result which follows may in time lead to improved service throughout the district, and we therefore hope the shippers at other points will not look upon the matter as discrimination towards them. It was impossible at the present time, because of the delay of train 97 making connections doubtful, to have the service extended even to St. Catharines, where it would also be beneficial, but our efforts are in the right direction, and partial success should be satisfactory to all.

Order 24976, dated the 15th of May, 1916, provides

(a) That Ottawa shipments be accepted daily, except Sunday, on train 97 from Jordan and Vineland, and when necessary, train 97 be held at Vineland for three minutes, the shippers to help place shipments in car.

(b) That a car be placed at Jordan, daily, except Saturday and Sunday; that shipments for the following points be accepted in such car: Port Hope, Cobourg, Trenton, Belleville, Napanee, Kingston, Gananoque, Brockville, Prescott, Morrisburg, Cornwall, Lancaster and Montreal, said car to be picked up by train 97 and transferred to train 20 at Hamilton and train 18 at Toronto.

(c) That, when necessary, train 18 to be held five minutes at Toronto, or until 8.35 p.m., in the event of No. 20 being late, to enable the transfer of said car.

(d) The service mentioned is to be furnished from July 1st to August 31st.

The decision of the Board will be appreciated by the shippers at the points concerned, because of the great benefit it will be in marketing the berry crop in particular, and I therefore urge the shippers not to abuse the privilege of the pick-up car or train 97, by holding back shipments from the regular fruit train. In other words, every basket that can possibly be loaded on the fruit train should go forward by that train. In order to hold the service for another year, it will probably be necessary to show a good tonnage via the pick-up car at Jordan, and for this reason I also urge the Vineland shippers not to hold back shipments for train 97 at Vineland, which can be loaded into the Jordan car.

Icing Charges.

The railways issued a new tariff on April 11th, to become effective May 15th, increasing the charge for ice from \$2.50 to \$3.00 per ton, and making a charge for hauling the ice, based on the distance the car travels, ranging from \$2.60 per car for 350 miles or less, to \$10.90 per car for 1,450 miles. An appeal was made in behalf of the fruit shippers, and on May 3rd the effective dates of the new tariffs were suspended until further notice. Therefore icing charges in effect last season will at least stand until the proposed new charges are considered by the Railway Commission, when you will be duly notified.

Niagara District Notes

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

MAY up to date (May 22) has been characterized by constant rain and uncertain weather. The season is early—indeed much earlier than last year—and there is an abundant bloom on almost every kind of tree fruit. Sunday, May 21, was "Blossom Sunday," and as it was a beautiful day, immense crowds journeyed down to see the fruit country in the beautiful season of bloom. Many came down by electric car, and as many or more by the automobile route.

Early in the month fruit growers had considerable difficulty getting on the land to do their spraying, but as the month went on conditions improved, and nearly all managed to give all their fruit a thorough application.

Birds are peculiarly plentiful this year. Robins, blackbirds, Indigo Buntings (blue birds), song sparrows, wrens, yellow buntings, mourning doves, orioles, etc., are particularly numerous.

A report from Port Dalhousie says "that the fruit growers there have completed both their first and second sprayings. Several students from the O.A.C., Guelph, arrived at the Vineland Experimental Station early in May to spend the summer there acquiring some practical experience."

A report from Beamsville says: "Cherry, plum, peach and pear blossom is very abundant. The Beamsville Preserving Company will get water from the town council at the rate of 6 cents per gallon for the year 1916, and the rentals of the meters will be 10 per cent. of the cost of the meters per annum."

Fruit farm labor is very scarce through the district. Men who would have been available in other years have got more re-

munerative posts in munition, powder and steel works. Hamilton factories absorb the men from one end of the Peninsula, and St. Catharines factories from the other. Women help for berry picking will be harder to get than ever because husbands and sons are getting good wages either in the factories or the army, and the major part of this pay in 75 per cent. of the cases is coming home to the wives and daughters to take care of. They seem to have plenty of money for all purposes without working.

A conference was recently held at the executive offices of the Canadian Red Cross Society in Toronto to consider the question of putting up fruit for the Canadian hospitals in England and France this season. The executive expressed themselves as greatly pleased with the results of last year's work, and they will, at the first meeting, consider the plans to be adopted for the season. The Canadian Red Cross will largely finance the work this year, receiving such subscriptions as may voluntarily come in for the work.

The permanency of the splendid road along the township line between Clinton and Louth, commenced by the late Mr. M. F. Rittenhouse as a model thoroughfare to Victoria Hall and the Government Experimental Station near the lake, is likely to be maintained. The two townships are contributing together \$600, and the Provincial Government \$300, to be expended on this piece of road.

Strawberry plants have come through the winter exceptionally well and present a healthy appearance. They are of a fine dark green color, with but few gaps in the rows. Some of the early varieties are blooming freely.

Douglas Gardens OAKVILLE, ONT.

IRISES.

In order to encourage the planting of Irises in the month of August—the best time for setting out Rhizomatous Irises—we offer a special discount of 20% on all orders for any Irises named in our Planting List, except Japanese Iris and Monspur and Orientalis, received up to the 31st August; and carriage to any part of Canada will be prepaid on all such orders.

16 vars. of Tall Bearded Iris.

5 vars. Interregna Iris.

6 vars. Pumila Hybrids.

also Florentine Alba and Pseudacorus. Planting list sent on request.

JOHN CAVERS

Peerless Hardwood Climax Fruit Baskets AND BERRY BOXES



Heaviest, Strongest and Best

In the market. Especially suitable for long distance shipping.

Protect your requirements by ordering EARLY

**Canada
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"Fruit Package and Basket Specialists"

QUEENS Reared in Canada
From the Best Italian Stock
\$1.00 each; Six for \$5.00.

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NORTHERN BRED ITALIAN QUEENS

Friends, have you E. F. Brood? If so, I have many letters saying that they are great resisters of E.F.B. I have hundreds of queens in Canada. Three band strain bred to right brightness to resist best. Unt. \$1.00, choice Sel. Tested \$1.50. Plans how to "Introduce Queen and Increase," 25c. List Free.
E. E. MOTT, Glenwood, Mich.

QUEENS BY RETURN MAIL

or your money back. Guaranteed purely mated, three banded Italians, northern strain, bred for gentleness, honey gathering and wintering.

Select untested, \$1.00 each; 6 for \$5.00.
Write for price on large orders.
State Inspector's certificate. Satisfaction guaranteed.
J. M. GINGERICH - KALONA, IOWA, U.S.A.

Northern Bred Italian Queens

of the E. E. Mott strain. Untested, 90c; Guaranteed, \$1.00 for June. July, unt., 75c; Guaranteed, 90c. Send for list. Safe delivery and satisfaction guaranteed.

EARL W. MOTT - Glenwood, Mich.

FOR SALE

Leather Colored Italian Queens

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

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

A few choice cols. of Italian bees in 9 frame hives at \$10.00 per col.
Tested Queens \$1.50 each.

JOHN A. MCKINNON
St. Eugene - Ontario

Reports from many parts of the province say that the tent and other caterpillars are already becoming numerous, and that unless the early sprayings are carefully attended to they will almost be a worse nuisance than they were last year.

Favorable reports have been received lately as to the condition of peach and other

THREE BANDED ITALIAN QUEENS

Bred from imported mothers. Guarantee that all queens will reach you in good condition and to be purely mated.
April 1 to May 1.

Prices.		1	6	12
Untested	\$.75	\$ 4.25	\$ 8.00	
Select Untested90	5.00	9.00	
Tested	1.25	7.00	13.00	
Select Tested	2.00	11.00	20.00	

L. L. FOREHAND - Fort Deposit, Ala.

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The Finest Stock in the World

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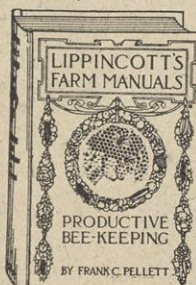
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135 illustrations. 316 pages. Octavo. Hand-some cloth. \$1.50 net. Postage or expressage extra 10c.

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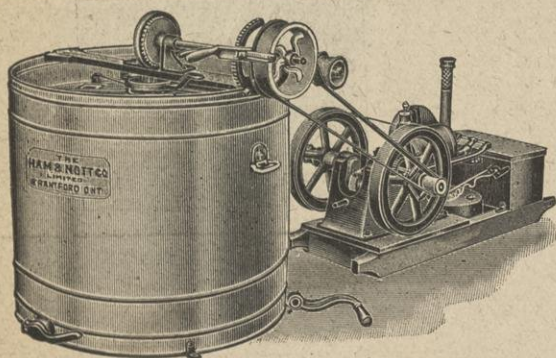


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PRODUCTIVE BEEKEEPING

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

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

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Regular price \$1.50 postage extra.

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

134 illustrations, attractive cloth binding.

AMERICAN BEE JOURNAL,

Hamilton, Illinois

fruit trees in the Leamington district. All varieties of peaches are showing a heavy bloom and have come through the winter without any frost injury. Growers anticipate that the larger portion of the crop will be of the Elberta and New Prolific varieties. The peach growing industry has been reviving in that district the last few years, and there are now nearly as many peach orchards as there were before the great freeze-out about twelve or thirteen years ago. Other fruits also promise well. Both sweet and sour cherries have an abundant bloom, and pears and apples appear to be going to have a large crop, although the acreage devoted to the two latter fruits is not large.

Experiments with sea-weeds in Nova Scotia have shown that these are rich in potash, and possess a considerable quantity of nitrogen and phosphoric acid. Sea-weeds, in their natural state, have long been used by the farmers of Nova Scotia for manurial purposes, and the fact that they rapidly decompose when spread upon the ground seems to enhance their value as a possible commercial fertilizer. The Government is now seeking means to dry and grind the weeds.

Toronto Prices.

Apples in Toronto are pretty well cleaned up by this time. On May 13 some were sold by auction at 75c per barrel, and the buyers found some of these not worth taking away. A good many very poor apples are coming into Toronto lately, but some really good Russets sold at \$5 per barrel.

Asparagus has been coming in large quantities into Toronto from Fonthill, the St. Catharines district, and the district east of Hamilton, and it sold at \$1.25 to \$2 per basket.

Hothouse tomatoes are arriving from Leamington and sold at 22c per lb. for No. 1 and 15c for No. 2. Old beets and parsnips are reported a drug on the market. Canadian lettuce sold at from 20c to 70c per head; green onions, 20c per dozen; radishes, 35c to 40c; Leamington hothouse cucumbers, \$1.50 to \$2.25 per basket.

Reports received from several quarters of the province indicate that, owing to the lack of labor, apple orchards all over will be more or less neglected this season. The only exceptions are where the returns from the apple orchard form one of the chief sources of income. This will have more tendency than ever to put the small orchards of from three to five acres, adjuncts to farms, out of business. Even in the Niagara district this sort of spirit is likely to prevail in some spots. This should be fought to a standstill. If the quality of the fruit be only kept up, I believe that there are better prospects than for the past two years, and it would be a great pity to jeopardize this by neglect.

Not to Organize.

The organization of the proposed large co-operative company to encompass practically all the present co-operative companies, the dealers, and 90 per cent. of the growers in the district between Hamilton and Jordan, will not be completed during the present fruit season, but prospects seem brighter for its being brought into action for 1917. Some of the dealers previously opposed or lukewarm towards it, are experiencing a change of mind, I am informed, and now feel favorably disposed. If the dealers and growers will only come together on any reasonable basis, the project is almost sure to be a success.

Lake Erie counties report a lot of scale in the older orchards. Apart from that, the general outlook for all classes of fruit is favorable, apple buds giving a better promise than for years.

Montreal Fruit Trade

E. H. Wartman, Dominion Fruit Inspector

On March 29 our first full car of berries came to hand from Louisiana in fine order, and selling well, all in pint boxes. Since that date twenty-nine cars have arrived, with few exceptions in good order. In some cases from the time of picking up to date of sale six days elapsed, and still these berries were in fair order. The cars being well iced and weather very cool here prolonged their life.

The transportation, icing and duty on this fruit is a big item. I am of the opinion that the net profits to dealers have been small. There is a fascination in the trade, as when one makes \$300 to \$400 net on a car it is an encouragement to proceed. But it is quite as easy to lose these amounts, which growers then conclude is their bad luck.

Our supplies of strawberries to-day are from Tennessee in quarts and crates, marked 24 full quarts. One feature is very satisfactory in these berries; the boxes arrive uniformly full. Last year boxes of Ontario berries were better filled than in previous years, yet some packers seemed to begrudge the extra handful, and their boxes were sold as slacks and the shipper was the loser in the end.

Our first mixed car of California fruits arrived May 22 in good order and sold well. It comprised cherries, plums, apricots and peaches. The importer was Geo. Vipond & Co., who have had a long experience in the importation of these fruits.

Reasons for Cooperative Failures

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

Although the principles of cooperation are founded upon a rock, and wherever properly carried out will infallibly lead to success, yet, in both our own and other countries the march of cooperation to final success is attended by a considerable percentage of wrecks and failures along the road.

Cooperation is a plant which naturally seems to grow more easily in European than in American or Canadian soil, and Great Britain, Ireland, Denmark, Holland, Sweden, and many other European countries have already experienced its manifold benefits for many years.

The United States, however, of recent years has made great progress, over a billion dollars' worth of agricultural products being sold annually by cooperatives in that country, while more than 1,000 cooperative fruit and produce associations are carrying on business there more or less successfully.

In Canada, too, while much of the work is still educative and experimental, cooperation is fast passing beyond the experimental stage, and in the fruit business alone a fair number of cooperatives have attained success, probably the most successful of all being the United Fruit Growers of Nova Scotia. One feature stands out prominently, however, in the history of fruit cooperation in both Canada and the United States, and that is that few communities attain cooperation until necessity compels them; in other words, till they are squeezed into it.

In Ontario some of the fruit growing cooperative associations have failed altogether, and others have attained but a small measure of success from one or more of the following causes:

1. Lack of the proper co-operative spirit to start with. This is the chief cause of failure, and therefore it is not advisable to start a cooperative association in any locality until the people are possessed of a certain amount of faith in the principles of cooperation, and are determined to give it a fair trial and not to be frightened by some failures and discouragements during the inception of the business. No great business, whether corporate or private, was ever built up without a number of such failures and discouragements, especially at the start.

Many associations have gone to pieces from lack of a good business manager. In a cooperative very much depends upon the manager. It is essential that he should be

a good business man. To obtain such, a fair salary must be paid. No association can attain success if there is disloyalty to the Association and individual jealousy between the members. Therefore it is wise to establish a severe penalty for anyone who disposes of his fruit outside of the Association. It is simply impossible for the manager to make a good showing if members sell their best fruit privately, and give only their second class stuff to the Association. A good reputation cannot be built up in this way for the Association, and therefore all the fruit of the individual members should be sold through the Association.

Jealousy, too, as to one member getting a little more than another should have no

EUROPEAN FOUL BROOD

is spreading in various parts of the country. The first step in its cure is a vigorous strain of ITALIANS

The Root Strain of Bees have shown .. Themselves to be Highly Resistant ..

While we do not claim their introduction will alone cure European Foul Brood, or that it will not make a start in their colonies, we have reports of where they have, with a little help, fought themselves nearly clean of European Foul Brood which was all around them in black and hybrid colonies.

These queens will be ready for delivery about June 1. Orders will be filled in rotation. Later in the season we will make delivery promptly. PRICES.—Our regular price is \$1.50 in June and \$1.00 after July 1 for untested queens; but we will club them with Gleanings in Bee Culture for one year and a queen for \$1.50, provided we can fill orders for queens when we have a surplus of them. This will probably be July and August.

The A. I. Root Company - - Medina, Ohio

Three Banded and Golden Italian Queens

Untested—\$1.00 each; 6 for \$5.00; 12 for \$9.00.

Selected untested—1 for \$1.25; 6 for \$7.00; 12 for \$14.00.

W. R. STIRLING

Queen Breeder. RIDGETOWN, ONT.

Send for Price List. Cash with Order.

QUEENS

Three band Italians, bred for honey and gentleness. From imported stock of medium color.

	1	6	12
Untested	\$0.75	\$4.25	\$ 8.00
Select untested ..	1.00	4.75	9.00
Tested	1.50	8.75	17.00

Breeders, \$3.00 to \$5.00.

Every queen PURELY mated. Safe delivery and perfect satisfaction guaranteed.

N. FOREHAND,

Fort Deposit, - - Ala., U.S.A.

Bees by the Pound, Nuclei or Colonies

We are still booking orders. Northern or southern bred, and bred for business. Hard to excel.

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All kinds of Bee Literature. Ask for Catalogue.

Address—

THE ROOT CANADIAN HOUSE,
185 Wright Ave., Toronto, Ont.



Italian Queens Three-Banded

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

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

QUEENS OF QUALITY
The genuine "QUALITY" kind of dark Italians. Unt., 75c each, \$8.00 per doz. Circular free.
J. I. BANKS, DOWELLTOWN, TENN.

BEES FOR SALE

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

THE DERROY TAYLOR CO.
Box C., - - NEWARK, N.Y., U.S.A.

WE STILL MAKE FOUNDATION FOR SALE

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

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

CARNIOLAN GOLDEN

and Three Banded Italians.
Untested—1, 85c; 6, \$4.80.
Tested—1, \$1.25; 6, \$7.20.
Bees—\$1.25 per lb.
Breeding Queens—\$4.00.
Nuclei, without queen—1 fr., \$1.75; 2 fr., \$2.75; 3 fr., \$3.50.

D. L. DUTCHER - - Bennington, Mich.

Bees and Queens

Ours are choice stock and Northern Bred; are more desirable for Canadian Beekeepers. Ask for Catalogue B.

Bee Supplies—We sell Root's goods only. Let us quote you prices on what you need. Ask for Catalogue A.

M. H. HUNT & SON
LANSING - - MICHIGAN

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00. Select untested, \$1.25; six, \$6.00; 12, \$11.00.

Safe arrival and satisfaction guaranteed.

Circular free.

J. P. MOORE

Queen-breeder. Route 1, MORGAN, KY.

BEEKEEPERS!

We can ship supplies promptly.

Jones' Weed Process Comb Foundation, Improved Model Hives, and all other kinds of Bee Supplies. We can also mail queens within a few hours of receipt of order. Leather colored, hardy stock. Try us.

	1	6	12
Untested	\$1.00	\$ 5.25	\$10.00
Tested	1.50	8.00	15.00
Select tested	2.00	11.00	20.00

Breeding Queens, \$5.00 each.

We guarantee safe delivery of all queens. Bees in pound packages a specialty.

More beeswax wanted—cash or exchange.

Catalogue on request.

F. W. JONES

BEDFORD, QUE.

place. It is often difficult to work out a system whereby everyone is treated exactly alike, although the difference is usually small, and if all the members are better off than they were before they adopted co-operation, there should be no kick coming from individuals, for if constant jealousy and bickering prevails, farewell to success. There must be a certain margin of give and take amongst the members.

As a rule, when cooperation is a new thing it is best to start on a small scale with a few members of like mind and aims, uniting together with the determination to stick together through good and bad times and to make the Association a success. A certain sinking of the individuality there must be. Each member should have the good of the Association as his main idea. As success comes, the Association can be enlarged to take other men of like character and aims. Members who will not obey the rules as regards packing properly, spraying, etc., should be dispensed with, for one or two such men will ruin any organization.

The board should keep in touch with and know exactly what the manager is doing at all times. While a certain latitude must be given him, still it is not right for the directors to leave everything to him and be ignorant of what he is doing. Some Associations have been wrecked in this way, the manager speculating with the fruit of the Association.

It is not only a great safeguard, but it is essential to the success of the co-operative that each individual member should take a keen interest in the proceedings of the Association. If the members show slackness, the manager and directors are apt also to become slack, and as much energy and business acumen is needed on their part, so also must the ordinary member back them up by assisting them in every possible way. Any cooperative which is careful to avoid the causes of failure mentioned is practical and certain to be a success.

Cooperation in the fruit business has come to stay, for the simple reason that it is the only means whereby the growers can fight other organizations with whom they have constantly to deal, and thereby obtain all that is coming to them.

Vacant Lot Gardens

On Saturday, May 13, Controller Thompson officially inaugurated the vacant lot garden work of the Toronto Rotary Club. The ceremony opened with a march past a cinema camera, after which Chairman F. G. Robson, of the vacant lot garden committee, reviewed the good work done last year, and added that already applications had been received for lots from one hundred and ten persons, sixty-four of whom are returned soldiers.

The committee expect that more than \$16,000 worth of vegetables will be produced this year.

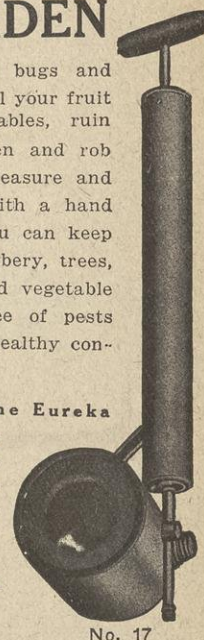
Controller Thompson was then presented with a silver spade, and after a few eloquent remarks, sowed several onion seeds. W. D. McPherson, M.P.P., chairman of the Returned Soldiers' Commission, said that there is nothing that can be done for returned men that will be beyond their merits, and praised the work of the Rotary Club in encouraging the patriotism of production.

Mr. Glossop, who last year won the club's prize for the best garden, has been appointed to instruct the amateur gardeners this year.

SPRAY YOUR GARDEN

Why let bugs and worms spoil your fruit and vegetables, ruin your garden and rob you of pleasure and profit? With a hand sprayer you can keep your shrubbery, trees, flowers and vegetable garden free of pests and in a healthy condition.

No. 17 The Eureka Continuous Sprayer. One quart size. A splendid sprayer giving a mist-like spray.
Price. 75c and \$1.00.



No. 17

No. 22 Solid Brass Spray Pumps. As per illustration. Lasts a lifetime. Length over all two feet. Each 75c.

GEO. KEITH & SONS
124 KING ST. EAST
Toronto, Ont.

NEW AND RARE SEEDS

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

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

SKINNER SYSTEM OF IRRIGATION

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

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

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

The Brown Tail Moth, in Nova Scotia*

Geo. E. Sanders, Annapolis Royal, N.S.

We have on the whole had two very successful years in Brown Tail Moth control. In 1914 we found 18,154 nests in the province against 24,156 nests the previous year, following the big flight from the New England States, or a decrease of 6,002 nests. In 1915 we found on the whole a big decrease, with increases in a few isolated localities. Only ten inspectors are employed, five by the Dominion and five by the province. They have to cover approximately two million apple trees, so they have little time for other than orchard property, excepting when thorn scrub is known to occur. That they have prevented the Brown Tails from ever doing a dollar's worth of damage up to date in Nova Scotia is something that we can point to with pride, for Nova Scotia is the only locality in which the climate is favorable to Brown Tail Moth development where it has been controlled and prevented from doing damage.

We found in 1915 an interesting outbreak which shows in a striking manner what the Brown Tails would do in Nova Scotia if left uncared for. Just south of the church in Torbrook there is a thorn scrub in a pasture which had never been visited. A few nests were found in apple orchards nearby and an irregular line of nests traced from bush to bush until it led to the heaviest infestation we have yet found in any part of the province. Over 1,500 nests have already been taken from this pasture and there are probably 500 more yet to come. The whole scrub does not cover over thirty acres, the most heavily infested portion about ten acres; there were enough Brown Tails present to eat every green leaf off the central ten acres. The infestation had been running there for four or five years.

A campaign for more spraying has given us good returns. We have our inspectors call on each man whose property is infested with Brown Tails and inform him of the fact, advising him to look for more nests after they have finished his orchard. We also persuade him to spray if possible.

*Extract from an address.

Prairie Farmers Object

Strenuous exception has been taken by the farmers of the prairies to the increased tariff of 50 cents a barrel on apples, recently imposed by the Dominion Parliament. This makes the duty 90 cents a barrel, which they consider too high. At a meeting of the Canadian Council of Agriculture some time ago the following resolution was adopted:

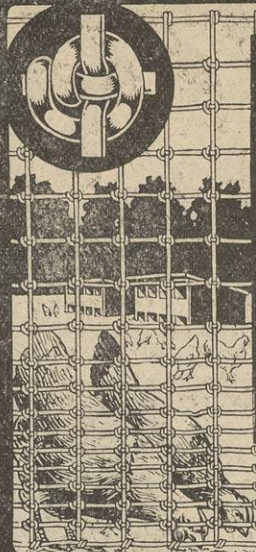
"Whereas, at the request of the British

YOU WILL BE SORRY

If, next fall, you have to pay regular prices for your bulbs, when by ordering them now you could get them for half the money.

Get our import bulb catalogue at once. Orders must be sent in this month.

MORGAN'S SUPPLY HOUSE
LONDON, ONT.



PEERLESS POULTRY FENCE

Does all you could wish of a poultry fence and more. Built close enough to keep chickens in and strong enough to keep cattle out. Even small chicks cannot get between the close mesh of lateral and vertical wires. The heavy, hard steel top and bottom wires, together with intermediate laterals, will take care of a carelessly backed wagon, or an unruly animal and spring back into shape immediately. The wires are securely held together at every intersection by the PEERLESS Lock.

The Fence That Saves Expense

It never needs repairs. It is the cheapest fence to erect because, owing to its exceptionally heavy top and bottom wires, but half the usual amount of lumber and posts are required.

Send for Literature

and address of nearest agent. We also make a complete line of farm and ornamental fencing. Agents nearly everywhere. Agents wanted in unassigned territory.

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

Implements for Orchard and Vineyard

Spring Tooth Harrows

10, 15, or 17 Teeth

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

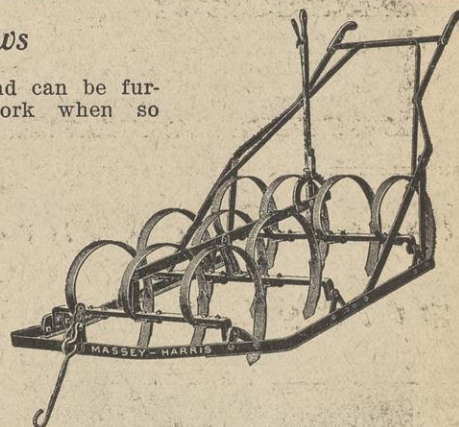
Spraying Outfits

Small outfits on skids—large outfits on wheels.

Hand and Power Spraying Equipment of all kinds.

Vineyard Plows

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



Orchard Disc Harrows

REVERSIBLE

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

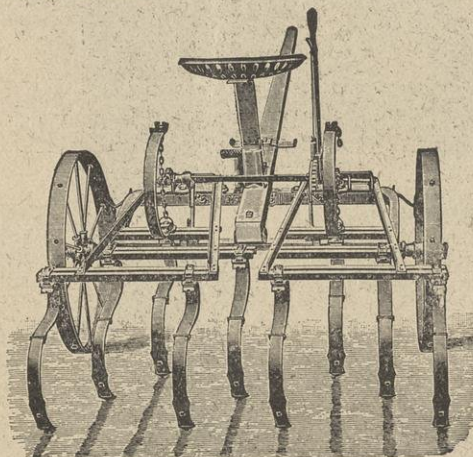
ADJUSTABLE

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

Cultivators

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

Grape and Berry Hoes
etc.



Toronto
Montreal
Moncton
Winnipeg
Regina

Massey-Harris
CO., LIMITED

Saskatoon
Yorkton
Swift Current
Calgary
Edmonton

STEELE BRIGGS

PROVED THE BEST BY EVERY TEST

"CANADA'S GREATEST SEED HOUSE"

FOR SALE EVERYWHERE IN CANADA

SEEDS



Full particulars of this outfit, also useful information about spraying solutions, sent FREE. Write for it to-day.

Spray Regularly

NOTHING is quite so vital to the success of your crops as regular spraying. Blight, bugs, etc., are never idle. Use an

OK CANADIAN

ONE-MAN SPRAYER (Wheelbarrow Type) and you will be certain of a bumper crop. Handy, easy to operate, nothing to get out of order, a thorough sprayer. Can be used for spraying trees, etc. 49-B
Canadian Potato Machinery Co., Ltd.
 498 Stone Rd., Galt, Ont.

Columbia fruit growers, the duty on apples has been raised from 40 cents to 90 cents per barrel; whereas, this is an enormously high duty—approximating 100 per cent. ad valorem on the cost of production of apples in Canada, and whereas, the evident purpose of the imposition of this duty is to force the prairie consumer to pay a higher price for apples; therefore, be it resolved that this, the Canadian Council of Agriculture, in meeting, declares this to be an unrighteous attempt to exploit the prairie farmer for the benefit of British Columbia fruitland speculators, fruit growers and middlemen, and we advise the farmers of Alberta, Saskatchewan and Manitoba, that if this becomes law and they are to be taxed in this manner, they pay these taxes into the federal treasury by purchasing imported apples, rather than pay the same duty together with profit thereon to British Columbia land speculators, fruit growers and middlemen."

Inspection of Small Fruits

The Dominion Fruit Division announces that with the opening of the small fruit season in June, special efforts will be made to prevent a repetition of some of the faults in the packing of these fruits which were so evident in 1915, the under-filling of baskets and the packing of immature fruit. It will be the duty of the inspectors to visit the growers at the beginning of the picking season and to instruct them in the methods which it will be necessary for them to adopt in order to avoid prosecution under the Inspection and Sale Act.

Violations of the Act are often committed through ignorance on the part of the grower or on the part of those who have charge of the packing. The inspectors will therefore be instructed to teach these men and to explain to them the necessity of careful supervision of their pickers in the field. The latter are generally young girls and boys who are being paid according to the number of boxes they fill per day, and naturally the tendency is to fill the box regardless of the quality of the fruit. This also will be looked into carefully by the fruit inspectors, and the foreman will be instructed to exercise special care in the packing houses where the boxes are sorted and put into crates.

The Package Difficulty*

R. C. Abbott, Coast Markets Commissioner,
 Victoria, B.C.

Comments on the package question usually draw severe criticism from the growers who do not yet realize the great necessity of a "standard" package for the different kinds of fruit and the undisputed fact that one of the great features to be considered in "working-up" and "holding a market" is giving to the consumer value for his money.

A great deal of confusion was experienced by the trade and consumers last season on account of the growers using different sizes and different shaped berry crates. While I dislike to mention this fact, I am in duty bound to say, that to the majority of the trade and consumers alike—a crate is a crate irrespective of size, and the prices obtained for the large crates did not warrant their use. It is useless for me to dwell on this subject at length, as most growers are conversant with the situation. I only wish to say this, that as long as the growers continue to use a number of different sized crates for the same kind of berries there will

*Extract from a paper read at the recent annual convention of the British Columbia Fruit Growers' Association.

Start a Backyard Garden This Spring

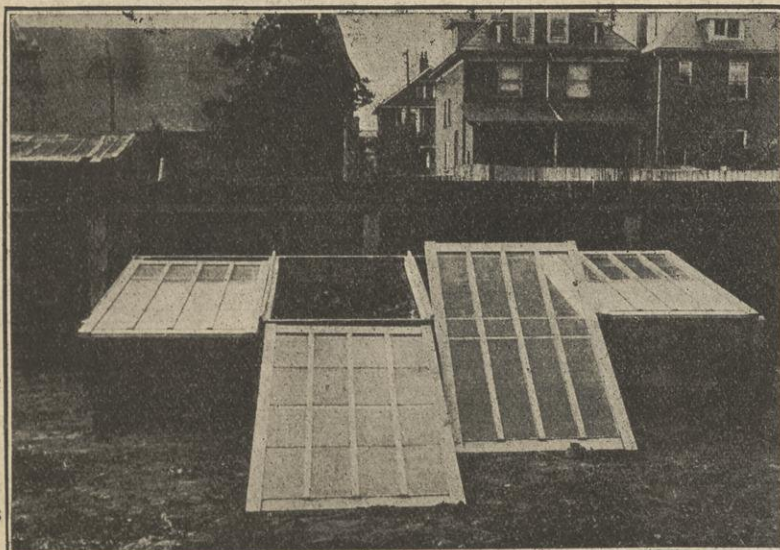
WHY not decide now to have a garden this spring, and prepare your hot beds at once. In another couple of weeks you should have your seeds such as onions, tomatoes, beets, lettuce, cabbage, and of course a number of varieties of flowers for the flower garden all planted.

Hot
Bed
Sash

3 ft.
x
6 ft.
10 inch
glass.

Price
\$1.15

In
Clear
Red
Cypress
Un glazed



Hot
Bed
Sash

8 inch
glass

Price
\$1.20

In
Clear
Red
Cypress
Un glazed

BATTS LIMITED

MANUFACTURERS ALSO OF GREENHOUSE BARS AND SASH

366-415 PACIFIC AVENUE

WEST TORONTO

always be confusion and dissatisfaction over prices, but as soon as we eliminate all the sizes but one,—no matter what size we adopt—then the price will adjust itself accordingly.

The test given the climax basket last season was not a fair one. Growers used the wrong size of basket for certain heavy fruits, and too large a size for certain over-ripe and soft fruits. Teamsters and expressmen abused the basket in handling and wholesalers' salesmen did all they could to discourage its use. I would advise growers to give more attention to the fruits they ship in this basket, and I would further recommend the use of the six quart and eleven to some limited extent for high grade red colored dessert apples, as I believe the use of a smaller package than the present box for this class of dessert apples would meet with the approval of the consuming public, as at the present they who cannot use a whole box at a time have to buy by the pound and carry home in a paper sack. A retailer who has tried out this basket in this respect claims it is much better than the half or quarter boxes. The quarter apple box, 5¼ x 11 x 9 inches, as used by a fruit stand dealer, did not find a very ready sale for two reasons: first, this box has no handle to it and was not convenient to carry, and second, the dealer used it for a low grade cheap apple and consequently the first cost of the packages brought the price of the apples up too high in price.

It is the intention of your markets commissioner to take up the matter of packages through the press during 1916, and make a special feature of this in order to educate the consumer and the trade as to the size and contents of each kind of fruit package.

Nova Scotia's Production of Apples

J. A. Macdonald, "Hermanville Farm," P. E. Island

The apple industry of Nova Scotia has probably advertised the province abroad more than any other of her varied products. By the exports of apples we are able to show exactly what advance has been made during the last thirty-five years. Dividing this period into seven divisions of five years each, we find the average number of barrels exported during each period to be as follows:

1880-1885	23,920
1885-1890	83,249
1890-1895	118,552
1895-1900	259,200
1900-1905	330,406
1905-1910	482,298
1910-1915	643,074

These figures are significant. It is further estimated by the railway authorities that during the last few years 150,000 barrels per year have been consumed in the province. These might be added to the above to show actual production. When it is considered that other farm products, roots, grain, hay, beef, etc., have not increased for many years this gain is the more noteworthy. In spite of the increased production the good paying figure of \$2 to \$2.25 average has been well maintained. Greater confidence is felt in the ability of the grower to control insect and fungoid enemies. The coming and going of little scares about San Jose scale and Brown Tail Moth,—which pests are now being regarded by many as blessings in disguise—are inducing a steadiness of faith that man is to have dominion over these enemies and have tended to lead growers to settle down to real business in enlarging their output.

KILL THEM BOTH

The summer enemies of fruit, codling moth and apple scab, may be conquered in one application. The codling moth requires a poison, and the best is Swift's Brand Arsenate of Lead. The apple scab needs a fungicide, and the most efficient is Soluble Sulphur.

For a complete Summer Spray use

ARSENATE of LEAD and SOLUBLE SULPHUR

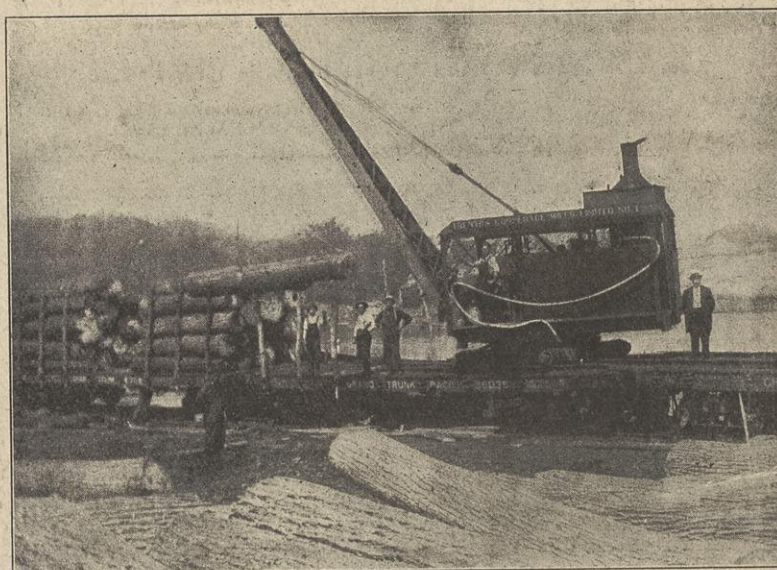
One drum of Soluble Sulphur, weight 100 lbs., will make 4,000 gallons of Summer Spray. A barrel of mushy, wasteful Lime and Sulphur Solution will only make 1,600 gallons. With Soluble Sulphur there is no loss from leakage; no barrels to return; no loss from spoiling; no clogged nozzles. Don't pay freight on water. Buy Soluble Sulphur in powder form. Buy it by the 100-lb. drum. It is 50 per cent. cheaper than Lime Sulphur. It saves time and money and gives results.

Send for prices and details for Summer Spraying.

NIAGARA BRAND SPRAY CO., Limited
BURLINGTON - ONTARIO

Everything for
Spraying.

Soluble Sulphur, Lime Sulphur, Arsenate of Lead, Dust Sprays and Dusters, Hand and Power Pumps, and Accessories.



LOADING OUR LOGS

One of Our Specialties is

THAT GOOD APPLE BARREL

Not made from cull staves the rejections from flour and other stock of various bilges, but cut from absolutely mill run timber with exactly the correct bilge and thickness. Heading mostly basswood which takes a nice brand, is kiln dried and does not warp. Hoops standard. The barrels are all

MADE BY MACHINERY

which insures an even croze and every head fitting. Why be worried with poor barrels causing loss of time? We make sixhoop eight hoop, also six wood and two wire, which is the favorite. If these barrels get wet hoops cannot break. We can ship car loads containing about 330

DELIVERED AT YOUR STATION

We ship thousands of barrels yearly to many large growers, dealers and fruit associations in Western Ontario, besides supplying 80% of the cooperage stock and barrels used in the great Eastern Ontario Apple Belt. Therefore we must give the best value obtainable. Our main plant is one of the

FINEST ON THIS CONTINENT

Write us for prices on cooperage or barrels delivered your station.

"Owing to the uncertainty of labor, we cannot guarantee present prices or prompt delivery except on early business."

TRENTON COOPERAGE MILLS, Limited

TRENTON, ONTARIO.



A Greenhouse to Welcome Winter

There is a wealth of pleasure in a greenhouse when falling leaves and frost in the air herald the approach of Winter, while horticultural work goes on with renewed enthusiasm under the protecting glass.

Why do we speak of winter now, with Spring just arrived? Because a greenhouse for November joys should be under construction without delay. Write for the book of Glass Gardens which explains more about it. Address Dept. B.

GLASS GARDEN BUILDERS LIMITED

201 Church St.
Toronto.

Transportation Bldg., St. James St.
Montreal.

Factory—Georgetown, Ont.

Orchardists are now fully persuaded that commercial fertilizers and cover crops warrant extension without regard to hay land and stock. As their crops have increased they have recognized their ability to handle the greater quantities with as much ease as the smaller and with infinitely greater satisfaction. This largely pertains of course where such crops as 3,000 to 4,000 barrels are harvested when the inspiration and ambition and confidence increases in greater ratio than the business. Men are beginning to realize that fruit growing can be extended as successfully as any other line of industry, and as they separate the profits of the orchard from their other crops they realize the superiority of the apple trees as money makers.

The Profits Earned.

A carefully tabulated statement, which has stood the test of several years, shows the net profits of well-cared for orchards to be about 16 per cent. annually on a valuation of \$1,000 per acre. This statement has been fully verified and endorsed by the Fruit Growers' Association. A dozen years ago a \$20,000 orchard was considered so only on paper. Five years later a \$50,000 orchard was thought impossible. This year some young orchards getting nicely under way, hardly commencing their business career, will pay (or would pay were it not for the war in Europe) better than bank interest on \$60,000. Ten years hence a \$100,000 proposition with an output of over 10,000 barrels of apples is likely to be a reality in Nova Scotia. The war for a time will, and does, doubtless restrict the expansion of the trade to Europe, which had so greatly improved and expanded in the past five years, but new markets are opening. The American market, which was practically ignored by the Nova Scotians in the piping times of peace, is now relied on to take a large quantity of the product. Portland and Boston are good markets which may be relied on.

Intensive Planting.

The system of intensive planting is every year becoming more popular than the old way of forty permanent trees to the acre. Fillers can be transplanted with not more than one or two years check, and no longer need the beginner in orcharding worry over the purchase or the clearing up and the fencing and cultivation of twenty acres of land in order to plant 1,000 trees. These trees can be easily planted on two to four acres if desired and the encumbrance of larger areas to contain them permanently may be considered later when time and means are smaller factors. With early-bearing varieties as "fillers" applied to this system the ambition of any orchardist to harvest 1,000 or 2,000 barrels may be realized in eight to ten years from the start instead of waiting a lifetime.

For these and other reasons it is plain that Nova Scotia's apple output must naturally increase in greater ratio than during the past twenty years, which ratio has been practically constant. Shortly before the outbreak of the war a large grower in the Annapolis Valley and well-known statistician, stated that during the next twenty-five years, besides local consumption, Nova Scotia will be shipping, 1915-20, 1,085,170 barrels; 1920-25, 1,627,755 barrels; 1925-30, 2,441,632 barrels, and that beyond this latter period it will go beyond the three million mark. We all hope and trust these ambitious figures will be realized.

Tell advertisers that you saw their advertisement in The Canadian Horticulturist.

AYLMER SPRAYERS
have won Medals
and are used by
seven Governments

USE THE AYLMER SPRAYER

Aylmer Sprayer
Outfit D

Fig. 176

Pump complete, 10 ft. hose with couplings attached, 2 Friend Nozzles, 1 Brass Stop Cock, 1 Y. 1 long Iron Extension Rod, without barrel, \$20.00. Lined Bamboo Extension Rod in place of iron, \$2.00 extra; with barrel, \$4.00 extra. Shipped prepaid to any station in Ontario.



Fruit growers use Aylmer Sprayers because they give RESULTS. Aylmer Sprayers have the force to drive the mixture into crevices of bark and buds and make it penetrate the hiding places of the destructive little insects. No time wasted on repairs during the Spraying Season if you get a Sprayer that DOES NOT GET OUT OF ORDER. Any man who has had the exasperating experience of having to stop on account of loose "packing" on the pistons, will be glad to own an Aylmer Sprayer. It is the only Sprayer constructed without troublesome "packing." In the Aylmer, the pistons are made tight by three bronze expanding rings, the same as the pistons in automobile engines. This Sprayer is easy to pump and there is no pressure leakage; every ounce of pressure being turned into spray work. Agitators prevent clogging; nozzles are up-to-date; throw full distance and with full power from a stream to a spray. Every part designed to give perfect service. Prices low. FREE GUIDE TO SPRAY MIXTURES sent on request.

Aylmer Pump and Scale Co. Ltd.
WATER ST., AYLMEER, ONT.

Advertising the Fruit Crop*

Ed. D. Reed, Hamilton Advertisers' Agency Ltd., Hamilton, Ont.

YOU have heard of the results of advertising the great apple crop of 1914. Herewith I present a few reports as to results that attended the advertising of Niagara Peninsula grown fruits last year, which I have gathered from Lethbridge and Calgary in the west to Halifax in the east.

The reports are extracts from letters from express agents, fruit dealers, railroads and grocers. These reports are from the men who actually passed the fruit from your orchards into the hands of the housewife; who was encouraged by our advertising to "put them up," to be later "put down" by the balance of the family.

In London, Ontario, eight carloads of peaches were sold in one day. This was more than had been sold in any whole week before in London.

At Berlin, more fruit was sold by three-fold and at better prices than for years past.

The express agents and grocers of Acton declare emphatically that they handled more fruit than ever before and a much larger aggregate of peaches and grapes from the Niagara District.

T. B. Cramp, Orillia, Ont., writes: "The

sale of fruit in Orillia was simply enormous. I never saw so much fruit sold in one season. I usually sell a large quantity, but in 1915, sales were more than double any previous year.

From Owen Sound we learn that 1915 was one of the biggest, if not the biggest, season for fruit known. In spite of the general depression which affected the country, including Owen Sound, the people purchased as much fruit, and in many cases more, than usual, and this in the face of a very poor year and in the midst of a terrible war.

Voice in Audience—"I don't think those little bulletins telling the housewife when raspberries and plums and peaches become ripe are any good." Mr. Reed: I will read a few letters on that point. Here is one, "We found the housewife bought more intelligently and at the proper time to get the best fruits. In former years the women used to call for fruit weeks after it was all off the market." Another says, "I usually booked orders ahead with many customers by calling their attention to the fruit bulletins." This, gentlemen, is evidence enough, I hope, that advertising pays.

The Same Voice—"But I believe in advertising, but not in such small space."

Mr. Reed: "Right you are and I agree with you. Those small bulletins caught the eye of only such women as made a habit of reading their local news columns. If we

*A report of an address delivered at a meeting in February of the Niagara Peninsula Fruit Growers' Association. The association has decided to continue advertising along the same lines this year.



This
KNAPSACK

Spramotor
It isn't a SPRAMOTOR unless we made it

Complete with
Attachments **\$18.00**

The illustration gives you a pretty clear idea of the Knapsack SPRAMOTOR in action. It is made entirely of brass, except the shoulder straps, which are of wide, heavy grained leather, and the handle, which is of spring steel. It is light, strong and durable. The tank or Knapsack—made of cold-rolled 16-ounce polished brass—has a capacity of 5 gallons. The discharge and air chamber tubes are pivoted on the top of the SPRAMOTOR to be swung from right to left at will, allowing you to change hands instantly while at work. All the labor is done on the down stroke. Operates so simply that any one can master it in a few minutes. Everything is so clearly and plainly told in our book of instructions that you can go ahead and work it the same day you receive it. Drop a card for booklet.

Made in Canada. No duty to pay.

SPRAMOTOR WORKS,

2714 King St., London, Canada



University Fudge

The Lantic Sugar Cook Book gives the recipe for this and many other new sweets. Send a red ball trade-mark, cut from a Lantic package, for a free copy.

Lantic Sugar

"The All-Purpose Sugar"

will please you by its purity, convenience and high sweetening power.

The Sugar with the
red ball trade-mark

Packed in 100-lb. Bags

For book, address

Atlantic Sugar Refineries, Ltd.
Power Building, MONTREAL 11

ADVERTISERS like to know if you are buying goods through their advertising. When you write don't forget to tell them you saw their advertisement in The Canadian Horticulturist.



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

Send for
Shipping Stamp

Fruit and Vegetables Solicited

WE GET YOU BEST PRICES

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

H. PETERS

88 Front St. East, Toronto

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



CLASSIFIED ADVERTISEMENTS

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

REAL ESTATE

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

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.

SEEDS.

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

SPRAYING.

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

BEEES.

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

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

ITALIAN BEEES and QUEENS as advertised on page 160. Catalogue free. Deroy Taylor Co., Newark, N.Y.

BEST THREE BANDED QUEENS at lowest prices, after June 1. Also Bees by the pound. Satisfaction guaranteed. Send for circular. J. H. Haughey, Berrien Springs, Mich.

BEEES—Per pound, \$2.15; per frame, \$2.35; queen, \$1.00. Comb foundation, light brood or extracting, per pound, 60c. Langstroth hives and frames, painted and empty (new), \$1.60 each. Address Aurora Apiary, Aurora, Ont.

FOR SALE—Hardy, healthy honey bees from diseaseless district. Nuclei and full colonies at low prices. Good shipping facilities to all Canadian points, May to October. The Rahn Bee & Honey Co., Ltd., Halleybury, Ontario.

WANTED—A few English Queens (BLACK). Wm. Reid, White Valley, Vernon, B.C.

GOLDEN ITALIAN QUEENS—Bred from a strain of great honey gatherers. Gentle and prolific. Untested—1, 75c; 6, \$4.25; 12, \$8.00; 50, \$32.50; 100, \$60.00. All orders promptly filled and safe arrival guaranteed. L. J. Pfeiffer, R.F.D. No. 15, Los Gatos, Cal., U.S.A.

LET US send you price list and descriptive circular of our bees and queens, and if you will tell us what size and how many packages you may want we will tell what the Express will amount to. R. V. & M. C. Stearns, Brady, Texas.

FOR SALE—Italian queens from the best honey gathering strains — untested queen, 75c; 6, \$4.25; 12, \$8.00; tested queens, 1, \$1.25; 6, \$7.00; 12, \$12.00. Robert B. Spicer, Wharton, N.J.

TRY US—Pure Italian Queens, untested, 60c; 6, \$3.50; 12, \$6.50. Whitt & Lovejoy, Sinking Creek Apiaries, Gimlet, Ky.

BEE SUPPLIES.

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

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

A DAUGHTER of one of Dr. Miller's best honey queens, and the Beekeeper's Review for 1916 for only \$2.00. A daughter of one of the very best honey-getting queens selected from 1,100 colonies worked for extracted honey, from the yards of E. D. Townsend & Sons, and the Review for 1916 for only \$1.75. The queens will be mailed in June direct from our breeders in the South. A rare buy. Beekeepers' Review, North Star, Mich., U.S.A.

could have used larger space, we could have supplied those advertising features which compel or impel the attention of women, and we would have oversold your whole Niagara Peninsula crop at even better prices than those obtained.

The little fruit bulletins were good in their way. They led up to the final large crop—peaches. At the last moment the Dominion Government, through the fruit commissioner, Mr. D. Johnson, gave \$5,000, with which to get real action. And believe me gentlemen, that the display advertising which this government money purchased really saved the day. If we had not had this last extra display advertising you would have been as badly off as the American speaker indicated when he said that had it not been for the tariff wall, last year the New Yorkers would have "buried you in eight feet of peaches." Had it not been for the last seven weeks of large display advertising, you would have had a two-foot layer of peaches on your land to-day. (Applause).

I have been accumulating, for the benefit of your committee, data on the retail prices of fruits as sold in the stores throughout the Dominion. I know the prices at which this fruit was offered by the dealers, and year for year you must admit that you sold peaches in 1915 at better prices than 1914 or 1913 or even 1912. And gentlemen I believe that advertising did it.

Apple Orchards Decreasing

Geo. E. Sanders, Annapolis Royal, N.S.

In talking over the outlook for the apple business with different people, and reading what I could with a bearing on the future, I have obtained several interesting bits of information. Prof. T. G. Bunting, of MacDonald College, tells me that he has investigated and finds that there are fewer apple trees east of the Mississippi or in eastern America to-day than there were twenty years ago. Mr. F. S. Walsh, Agriculturist to the New York Central Railway, whose business it is to know such things for his employers, tells me that there are fewer apple trees in New York State to-day than in 1891.

Several factors explain this falling off in orchards in eastern America. The most important is the San Jose Scale, which has killed thousands of acres of apple and

peach trees in Illinois, Indiana, Ohio, Virginia, New York, Connecticut and Massachusetts. In addition to killing off the uncared for orchards the San Jose Scale is making it almost impossible to grow a young orchard in infested districts as the profits from apples in the middle states are not large enough to justify the extra care necessary. The fact that peaches are a much more profitable crop than apples in some sections has caused a portion of the reduction. Lack of profit and general neglect have also been the cause of a large amount of the decrease in Massachusetts, Maine, New Hampshire and other states.

British Columbia

The work of the inspection of imported fruit, nursery stock, vegetables, trees and plants, and field and orchard inspection work has heretofore been administered by the Fruit Inspection Branch of the Department of Agriculture, under the direction of the late Thomas Cunningham, Inspector of Fruit Pests. A reorganization of this work has been effected, and all field inspection work will hereafter be under the direction and control of the Horticultural Branch of the Department.

R. M. Winslow, B.S.A., Provincial Horticulturist, has been gazetted as Provincial Horticulturist and Inspector of Fruit Pests. W. H. Lyne has been gazetted Inspector of Imported Fruit and Nursery Stock.

The duties of the inspector of imported fruit and nursery stock will be confined to the work now carried on at our Provincial Inspection and Fumigating Station at Vancouver, by enforcing the provisions of the provincial regulations, and also those issued under the Dominion Destructive Insect and Pest Act. The inspection of imported fruit, vegetables, nursery stock, grains, rice, corn, etc., at all ports of entry into the province, will also be undertaken by this branch of the Department.

Items of Interest

The Dominion Fruit Division announces that there is every prospect of a satisfactory production of large fruits in Canada next fall. Trees have come through the winter in fine condition, and from all parts of the Dominion reports indicate that with favorable weather the crop should be well above the average. Frost is reported to have injured the peach and sweet cherry buds in British Columbia and in some fruit districts of the Northwestern States. No frost injury is reported in Ontario or Eastern Canada.

So many new discoveries of new facts by plant investigators, shortcuts and "wrinkles" worked out by plant propagators, and nursery, greenhouse and garden methods simplified or made more effective, have made books hitherto available on plant propagation out of date. A new book by Professor Kains will appeal with equal force to the amateur, the professional propagator, and the teacher in agricultural colleges and schools. The table of contents includes: An introduction on general principles, germination, seed testing, potting, layerage, bottom heat, cuttage, classes of cuttings, graftage, and theories and laws, Daniel's experiments in graftage, tree stocks and scion handling, grafting waxes and wound dressing, methods of grafting considered individually, budding methods, nursery management, and laws affecting nursery stock. Illustrated, 5½ x 7½ inches, 342 pages. Cloth. Price, net, \$1.50. Orange Judd Company, New York.



We have a large stock of all sizes

FLOWER POTS

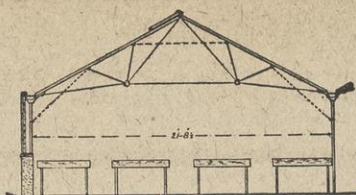
FERN OR BULB PANS

AZALEA POTS
and Rimless Pans

Orders Filled Promptly.

Send for Prices

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



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.

FRUIT MACHINERY CO.

INGERSOLL, ONT.

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

Write for free illustrated catalogue on spraying and evaporating.

Production and Thrift

CANADA'S CALL FOR SERVICE AT HOME

Produce More and Save More

are fighting for you. The Allies need all the food that you can produce. Every little helps. You are responsible for your own work. If you cannot produce as much as you would like, produce all you can. Work with the right spirit. Put fighting energy into your effort and produce now when it counts. The more you produce the more you can save. Producing and saving are war-service.

Make Your Labour Efficient

thing needed now. Let us not waste labour. Canada needs it all. If possible, help to feed the Allies. Make your backyard a productive garden. Cultivate it with a will. Make your labour count for as much as possible.

Do Not Waste Materials

saved from waste is as good as a pound of increased production. The way for a nation to save is for every individual to save. France is strong to-day because of thrift in time of peace. The men and women of Great Britain are not only "doing" but are learning to "do without."

Spend Your Money Wisely

the next Dominion War issue. There can be no better investment.

The Empire needs food. If you are not in the fighting line you may be in the producing line. Labour is limited—all the more reason to do more than ever before. Grow food for the men who

In war-time do not waste time and energy on unimportant and unprofitable work. Economize labour. Put off unproductive work till after the war, and, if possible, help in producing some-

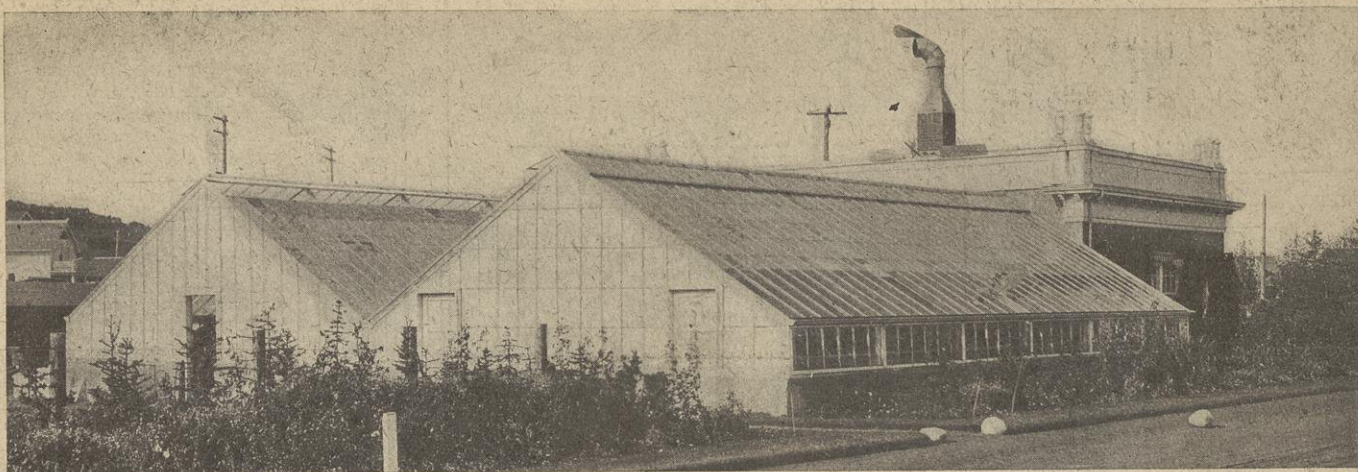
There should be no waste in war-time. Canada could pay the annual interest on her war expenditure out of what we waste on our farms, in our factories, in our homes. Every pound of food

Practise economy in the home by eliminating luxuries. Wasting our dollars here weakens our strength at the Front. Your savings will help Canada to finance the war. Save your money for

THE GOVERNMENT OF CANADA

THE DEPARTMENT OF AGRICULTURE

THE DEPARTMENT OF FINANCE



Exterior Calgary Cemetery Greenhouse

Union Cemetery Greenhouses

At Calgary, Alberta

YOU know how it used to be but a few years ago with cemeteries, how any old greenhouse would do as long as it grew plants. No particular thought was given to making it last. As a result: cemeteries had a lot of old ram-shackle houses that didn't half grow the plants, and cost all together too much to heat and work. But now cemeteries are putting their money into the best houses money will buy. Iron frame houses with concrete walls, cast iron sills and all that sort of thing that means long life and service. This one at Calgary

you see is in a prominent location at the entrance and joined to a most attractive building. If cemeteries cannot afford to build cheap, short-lived houses, surely you can't.

We are dotting Canada with our houses of everlasting lastingness.

The first iron frame house in Canada was Lord & Burnham constructed.

When you are ready to build, look about a bit, and see if we are not the best of the builders.

Send for our Two G's Booklet.



Glimpse Through Arch



Office and Service Building View

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

Royal Bank Bldg., Toronto

Factory, St. Catharines, Ont.

Transportation Bldg., Montreal