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Reducing the Cost of Production*

Prof. H. A. Surface, Harrisburg, Pa.

GOOD fruit land is generally cheaper than rich or more level farm land that may be less desirable for fruit production. Proper fruit soil produces trees of good size, and fruits of best quality and in large quantity; thus reducing the relative cost of production. Proximity to market or shipping station, to reduce the cost of hauling, is an essential factor.

Where there is good air drainage or local elevation, spring frosts do not so often injure blossoms or tender buds or fruits, and thus there are more frequent and larger crops, resulting in relative cost reduction.

Well drained soil means healthy, vigorous trees. Wet soil means poor trees, and worst of all, apple tree diseases, such as root rot, collar blight, and others. Instead of a good income from a fine crop on healthy trees money must go to replace dead ones, or there will be very serious loss that comes from leaving vacant places in the orchard. Wet orchards should be well drained; but the economy of dynamiting is yet to be proven in general, for we know where it has been very unsatisfactory.

Good varieties are quoted constantly in price above poor kinds. Compare today's quotations on Stayman Winesap, Rome Beauty or Baldwin, with those of Ben Davis, Smith Cider or Shockley.

Adapted varieties give finer fruits and larger yields than those not adapted to the region, and of course as these sell more easily and for higher prices, they help to reduce the relative cost. A very important economic consideration is that it pays all commercial growers of a community to put their efforts into growing perfectly only those varieties (often but one or two) that are decidedly best there.

Healthy young trees from reliable nurseries mean ready vigorous growth without stunting by transplanting, and large early crops, if properly handled. Trees not true to variety ordered may mean years of loss.

Plant at sufficient distance, and on the square system. The writer now plants all permanent apple trees forty feet apart and all others at twenty. This permits profits from inter-cropping, cultivating

each direction, and the development of large trees with full crops.

Low-headed tops cheapen the cost of production by reducing the work of pruning, spraying, thinning and picking; and prevent heavy loss by wind falls, as well as mulch their own soil.

Reduce the necessity for expensive commercial fertilizers by growing legume cover crops. The writer uses chiefly crimson clover with buckwheat and harvest the latter. One orchard gave eighty-four bushels of buckwheat this year. In another the crimson clover was sown with cow horn turnips, and we now have a good stand of the former, with over one hundred dollars worth of excellent turnips, without detriment to the young trees.

Nitrogen, the expensive element in commercial fertilizers, is not needed where the legumes are grown in an orchard. We need buy only muriate of potash and acid phosphate, and need but little of these where orchards are comparatively young and occasionally cultivated.

Pruning can be done at any time of the year, if not too severe; and necessary severe pruning can be done at any time during the dormant season. Thus it is a "filler" job that can be done with economy when more important work is not pressing.

For cover crops we grow our own seed between the cultivated tree rows in the young orchards, and in any orchard that will not produce fruit that year.

A uniform head of symmetrical trees helps to maintain the income by insuring fruit where otherwise there would be vacant spaces.

Plant varieties to ripen in succession, and thus keep the pickers engaged.

We make all our own spray materials, saving time and expense by preparing stock solutions during bad weather.

We spray as many times as are necessary, but no more. This is four (or at most, five) times in the year for pomes, and three times for drupes.

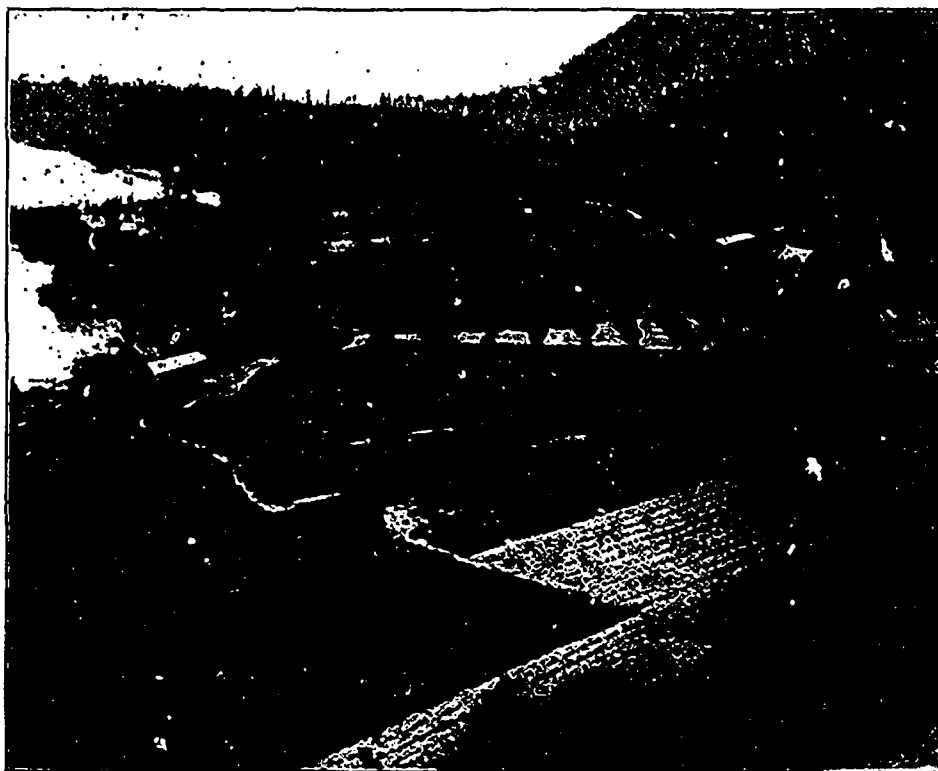
Owing to our low-headed trees the thinning is done easily and quickly, mostly from the ground, and chiefly by



A Revenue Producing Orchard in the Georgian Bay District

*Extract from an address delivered before the members of the Niagara Peninsula Fruit Growers' Association.

This orchard, owned by Wm Reekie, Camperdown, Ont., has been sprayed, pruned and fertilized. It consists principally of Gravenstein, Snow, Spy, Baldwin and Spitz varieties. At the time the photograph was taken Mr. Reekie expected it to produce two hundred barrels an acre.



A Productive Strawberry Plantation in British Columbia

This four-acre strawberry plantation, owned by O. J. Wigen, Wyndel, B.C., produced 53,000 quarts of strawberries. Mr. Wigen grows Kellogg thoroughbred plants. (Photo copyrighted by The R. M. Kellogg Co.)

women and girls, thus greatly reducing the cost.

There is much less financial loss from fallen fruits from trees with very low spreading tops, because less droppings and less bruising.

Low trees permit economy in time and methods of picking.

Cooperative or wholesale buying of supplies and selling produce helps much in reducing the cost.

Our friends may expect us to recommend the elimination of spraying for the scale by the introduction of scale parasites (of which much recently has been printed) but we can not yet be sure that in all orchards they will do their work as thoroughly as they have in our own and in hundreds of others we have carefully inspected in Pennsylvania. It is surely worthy of careful consideration. We have discovered and published regarding certain entomological conditions, and have been criticised by a few who have been too narrow to understand or believe them, and of course by certain agents of scale-spraying materials. We have seen enough to give firm faith in the adequate reduction of the San Jose Scale by minute internal hymenopterous parasites. If any unprejudiced person will come to Harrisburg, Penn., and go with me to see a score or more of orchards that have been cleaned of San Jose Scale by the parasites, and then not agree that these natural agencies have been efficient in suppressing the scale I am willing to pay

the expenses of the trip. Hence, our recommendation to "Reduce the cost of production by the application of modern methods."

How Often and When to Spray*

Prof. L. Caesar, Provincial Entomologist, Guelph, Ont.

IT is difficult for one who has not lived in Nova Scotia to advise Nova Scotia growers how often and when to spray. We shall, I believe, all agree on at least two of the applications, namely one just before the blossoms burst, beginning with the earliest varieties, and then going right on with the later, and the other just after the blossoms have nearly all fallen, say eighty to ninety per cent. of them off. Without these two in a wet cold May or June no one need hope to control apple scab. One of these is almost as important as the other.

There will be a difference of opinion as to the other sprayings necessary. I think you should carefully test the value of one earlier application. Try it on at least one-third of the orchard and continue it for at least four or five years, as one year's results are often quite inconclusive. When this application should be put on is a debatable question. If you have oyster shell scale, blister mite or much canker to combat it should be before the buds burst or just as they are ready to burst. If these things are not troublesome I should feel like suggest-

*Extract from an address delivered before the Nova Scotia Fruit Growers' Association.

ing that the spraying be done not before but as the buds are bursting, or just after they burst, so that the unfolding leaves may be covered with the spray mixture and protected against scab until the application just before the blossoms open can be given.

As for any later sprays one must be guided by the weather. I think it probable that it will pay to spray again about ten days after the codling moth spray. It seems to me that better results will be got by not waiting for two weeks as ordinarily recommended, because each week after the blossoms fall the danger of apple scab begins to grow rapidly less and the all important thing is to get the apples safely through June because there is seldom danger in July.

All are aware that two years ago the injury by apple scab was done chiefly in the latter part of August and September. This injury could have been largely prevented by an application of spray mixture the last week in August, supplemented perhaps by another about two weeks later.

The Production of Gooseberries*

L. B. Heary, B.S.A., Winona, Ont.

ONE difficulty in growing gooseberries is to bring them to maturity without having them become slightly scalded. A few hours exposure to a very hot sun will scald them very badly causing the skin to become tough and destroying the flavor of the berry. I remember three years ago we lost quite a quantity of fruit which was exposed in this way. We have one patch of three thousand bushes planted out in the open and that particular year we had them just a little over half picked by a Saturday night. Sunday was a roaring hot day and as a result we had stewed gooseberries by Monday. You could notice the cooked odor quite a distance.

At the same time another patch of nearly one thousand bushes, just across a lane but planted under peach trees remained practically uninjured on account of the shade afforded by the trees. Gooseberries seem to require shade for their best growth. Even in England the best and largest berries require shade for their best growth.

They can be grown in an orchard with very little extra work as they can be cultivated lengthwise when the orchard is worked and a one-horse cultivator can be used crosswise. Two bushes can be planted between the trees in the row. Spraying can be done easily and the picking of them is more of a pleasure than being picked and pricked to small bits in the sun. Our Whitesmith patch under

*Extract from an address delivered at the last annual convention of the Ontario Fruit Growers' Association.

the trees averaged six quarts to the bush, while the other one which is in the sun averaged three quarts.

English varieties are not propagated to any extent in this country, the main part of them being imported, as nurserymen find that they can do this cheaper. American varieties are usually grown by mound laying, which consists in throwing up the earth in June when the young shoots are a few inches long. They root in this and are left on the stools for a year when they are planted out in the nursery rows for another year. English varieties may be propagated in this way, but they are usually left on the stools for two years.

Cuttings six or eight inches long, taken in August or September, and stored as currant cuttings will succeed with American varieties and with English sorts in England but stronger plants are produced by the layering methods.

Gooseberries require the same cultivation as the currant. It is important that it should be shallow and frequent. Some people use a mulch system claiming that they can obtain good results and also prevent mildew to a large extent. Plantations thus treated have borne large crops for twenty years. The mulch which is usually straw should be at least six inches deep and may be thrown on

the bushes in the winter and placed in the spaces in the early spring. It conserves moisture, prevents weeds and keeps the fruit clean. Its chief advantage is the prevention of mildew but its use has largely disappeared on account of improved methods in spraying.

PRUNING

Gooseberries bear on two-year-old wood and canes should not be allowed to remain after they are five years old. The young bushes do not require much pruning for the first three years except to cut back about half the new growth each year. This encourages the development of fruit spurs all along the branch instead of having them situated mostly at the ends. Low branches and those which have been injured should be removed as well as superfluous new wood.

When pruning we have to keep in mind that the bearing canes or branches will not last forever, so young shoots should be saved to take their places. For English varieties leave five or six bearing branches and as many more young shoots. More branches may be left in an American variety on account of their smaller size.

The idea of thinning out the bush to admit sunlight is altogether wrong, as the crop may be severely injured by the hot rays of the sun.

The Culture of Raspberries and Strawberries

Jos. Frappe, Stirling, Ont.

TO make a success of growing small fruits one should not do things simply because others do. There should be a good clear reason back of everything. The more thought and intelligent workmanship one puts into any work the more pleasant and agreeable it

becomes; and this is abundantly proved in the culture of berries. There is a pleasure in the great windrows of luscious fruits, the work is light and agreeable, and the profits to the painstaking are often large.

For the little care and work that are

required, no farm house or even village home with a small garden should be without an abundance of the most wholesome, delightful and fragrant of foods—the delicious strawberry and raspberry. They are far better than medicine, for with ripe fruit in the home sickness often becomes a stranger. The little toil required in setting out, caring for, and picking is repaid a hundred fold in health and happiness.

It is better to have the soil for strawberries rich with some good fertilizer, as barnyard manure. On poor soil the same amount of work is required, with only a quarter the crop.

If the ground has been cleaned by a summer fallow or some hoed crop, such as potatoes, it will save a good deal of labor. Weeds grow fast in strawberries. The ground must be well drained. Berry plants "cannot stand wet feet." A place well sheltered so that snow is likely to remain long on the ground is favorable.

For ordinary cultivation the plants are set out in rows four feet apart and eighteen inches apart in the row. Some place the rows as closely as three feet, and if they are kept narrow enough by trimming the ends of the runners the plan is good. But it is never wise to have the rows too wide or matted, as besides giving weak plants it interferes with the picking.

For a small patch dig small holes with a hoe, make a small cone shaped mound in the centre of each, and over this place the plants, letting the roots hang around the cone, but deep. Then cover and pack tightly. This enables the moisture to rise by capillary action. Lastly cover with a loose layer of earth. This keeps the moisture from escaping.

Avoid planting too deep, or too shallow. Large patches may be set out by using a spade, trowel or better a dibble. An opening is made, the plant inserted the proper depth, the roots shaken well out, and then the earth is pressed tightly against it with the hand or foot.

In the spring after the leaves are nicely started I go through and trim off the ends of the branches, cutting off a third or a quarter of the length, and removing dead wood. The remainder will do much better if this is done.

Directions given for the strawberry are also applicable for the raspberry. Land sloping gently to the north is favorable to the raspberry as the changes of temperature are not so sudden. This location also more nearly approaches the state of the wild strawberry. What is termed "winter-killing" is more properly spring killing.

Plants are generally set in rows six feet apart and three feet apart in the row. If the soil is good a row of carrots or other vegetable may be grown in the intervening spaces the first year.



A Well Sprayed Apple Orchard

In this orchard, owned by W. J. Owens, Duntroon, Ont., fifteen pounds of lime to the barrel was used. This gave the trees their white appearance and assisted in the making of a thorough job.



Prospects for a Bumper Apple Crop in an Essex County, Ont. Orchard

Many varieties of raspberries will do well in one locality, and produce small stunted plants and crumby berries when grown not more than a mile away. As an instance of these I might name the London, though there are many others with this fault that are sold at high prices.

Factors in Fruit Growing

Prof. H. A. Surface

Avoid injury from insects by knowing those that are most liable to appear, and watching for them or their work. For their suppression, follow the teachings of the most modern entomologists. In all cases, for economy of production, practice the methods of prevention rather than of remedy. Spray for insects once when dormant, with strong lime-sulphur; for the apple aphid make this application immediately after leaf buds burst; also use an arsenate with the fungicide for each of the subsequent sprayings.

THINNING PRACTICE

Modern horticulture so emphatically demands that the operation of thinning be practiced that especial attention must be directed to this process as a means of (a) increasing the size of fruit, (b) obtaining uniformity of size, (c) eliminating defective fruits, (d) equalizing the distribution of the load, and in consequence opening the top uniformly without breaking the branches, (e) giving uniformity of color, and (f) above all else, preventing exhaustive production this year, thus making it possible to set fruit buds for next year's crop, resulting in annual rather than biennial crops.

Fallen or bruised fruits are prevented by growing them on very low headed trees, which properly brace themselves with their branches; also by picking before they are dead ripe. Injury from

falling is avoided by a good mulch under the trees.

The bruising of fruit by harvesting must be avoided by careful handling from start to finish. Any person who cannot handle fancy fruit more carefully than eggs should grow only Ben Davis apples and Kieffer pears. The grain bag over the shoulder is still too often used for picking. Pick in baskets or picking buckets. Do not press, bruise, or rub fruits. Handle just as little as possible,

and keep the "bloom" on apples and plums particularly, as this is one of the elements in the quality we wish to produce.

Finally, to obtain the highest degree in quality let the fruit mature on the trees. Fruits picked green do not develop with their best flavor or color. This is why, in every region, fancy "home-grown fruits" are preferred by consumers to those grown elsewhere and picked unripe to stand shipping.

Thinning the Apple Orchard*

J. M. Robinson, Kentville, N.S.

THINNING should always go hand in hand with spraying. The following table shows results obtained from twenty of the most careful sprayers in ten companies of the United Fruit Companies of Nova Scotia, giving the per cent. of number threes obtained. The percentage of poor fruit could have been greatly reduced by thinning, as can be seen by the figures taken from thinned apples from very large trees at Kingsport. This is not necessarily a correct comparison but is given to show that the per cent. of number threes can be cut down by thinning:

	1912 %	1913 %
	No. 3	No. 3
Gravenstein, 20 best sprayers	36	35
Blenheim, 20 best sprayers . . .	15	28
King, 20 best sprayers . . .	22	36
Ribston, 20 best sprayers . . .	25	32
Gravenstein, thinned (1913) . . .		19
Blenheim, thinned (1913) . . .		12
Ribston, thinned (1913) . . .		16

These figures show that even though thorough spraying is done we often have fifteen per cent. or more of scabby and defective fruit on the trees. Often too a great many varieties set so full that it is impossible to get a high percentage of number one fruit and consequently the percentage of number threes is high, which generally gives poor markets. In each of these cases it will pay the grower well to thin.

In paying visits to a number of orchards last season I was very much impressed by this fact. Blenheim and Ribston bore heavily generally and though free from scab would not give good satisfaction in packing on account of the great number of small and poorly colored specimens. If from twenty to thirty per cent. of these apples had been removed a surprising difference would have resulted in the grade obtained.

Again, the percentage of number three and cull grade is often nearly proportional to the percentage of scabby and defective fruit on the trees, and by thin-

*Extract from an address delivered before the members of the Nova Scotia Fruit Growers' Association.

ning off sometimes fifteen to twenty per cent of this part of our crop the grade will be raised greatly and the yield not materially decreased. The expense of thinning moreover is not great and the work is easily done. In Kingsport last season large trees bearing eight to ten barrels, were thinned in three quarters to one hour each, or at a cost of approximately two cents a barrel, calculating labor at twenty cents an hour. The extra expense in grading unthinned fruit easily offsets this and the gain in grade is from thirty-five cents to fifty cents a barrel tree run.

I consider thinning of great importance as it aids greatly in appearance, which is our weakest feature in fruit growing in the Annapolis Valley. Greater profits for money expended may also be had from thinning than from any other orchard operation.

What they Cost. -It often happens that when we continually hear of the ravages of certain insect pests, that we suddenly realize the enormous amount of damage they are doing, and immediately adopt measures to render their attack less and less in the future. When we hear in cold figures what the annual loss in orchards amounts to every year, it makes us "sit up and think." In the year 1904, Mr. C. L. Marlatt, of the U. S. Bureau of Entomology, went very carefully into the question of what our insects cost us, and he estimated that the annual loss due to fruit insect pests amounted to the enormous sum of \$27,000,000. That is, twenty per cent. of all fruit crops grown in the Republic to the south of us is annually destroyed by injurious insects. Some years the percentage in some districts will be as high as forty per cent.—Arthur Gibson, Chief Asst. Entomologist, C.E.F., Ottawa.

Basic slag, which is a cheap form in which to apply phosphoric acid, can be used to advantage in large quantities by crops which are gross feeders. If the soil is rich in vegetable matter or acid, the acids will help to dissolve the insoluble forms of phosphoric acid and make them available for the plant.



Cottesmore Hall, Cobourg, Ont., One of an Increasing Number of Suburban Mansions in Canada—Fig. 1

The Gardens of Cottesmore Hall, Cobourg, Ont.

T. S. Hall-Abell, B. Sc., Cobourg

NOT very far from the gardens of Bagnall Hall, Cobourg, a description of which appeared in the January number of *The Canadian Horticulturist*, lies the beautiful residence and gardens of Mr. Wallace H. Rowe, the president of the Pittsburg Steel Company. All that the ingenuity of man could accomplish has been done to make this residence a palace, the grounds fairy-haunted glens, and the gardens veritable wonderlands. Bounded on the south by the old Kingston Road; on the west by Cottesmore Avenue and on the east by a meandering creek which flows from the Baltimore hills out into Lake Ontario, the whole vista is so pleasant that one has to be quite strong-willed to drag oneself away.

The Hall itself is built most substantially of cut Kingston stone, the frontage being one hundred and sixty two feet. In figure one a good view of it is obtained. The bush hydrangea in the right foreground, the weeping ash and maples also show well in this cut, which gives the south west aspect. The front entrance from Kingston Road has massive hammered iron gates with heavy lamps, flanked by maples. It opens invitingly into an avenue of more maples that are in excellent keeping with the rest of the estate. These gates were made by the Canada Foundry Company, weigh quite a few tons, and cost several thousand dollars. Part of the finer work on them required two or three years to accomplish.

Most of the trees shown in the illustrations have been in the hands of the

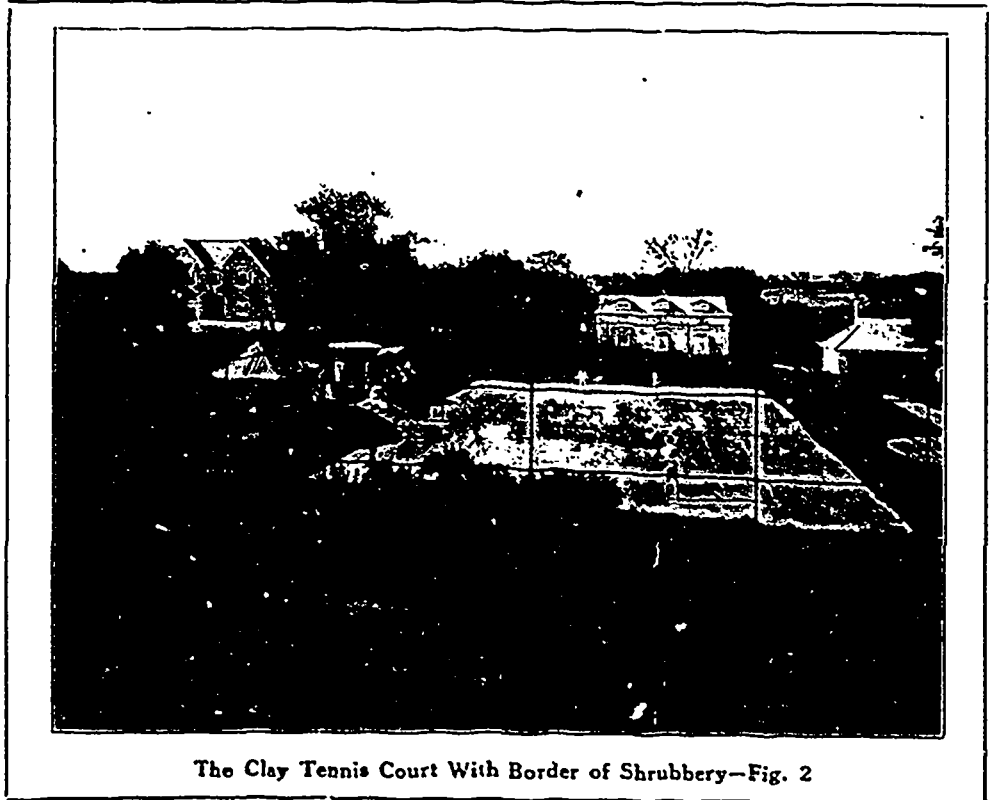
dentist. All rottenness has been removed, and all holes filled. They look good enough to stand for centuries.

The driveway is made on the Telford Road system. The other paths are macadam on ten inches of crushed stone.

Figure two is the clay tennis court—originally the upper half of the vegetable garden—enclosed by a cedar hedge, and surrounded again by lilacs, high bush cranberries and bush honeysuckles. In

the background of this illustration and to the left are the stables, to the centre the poultry house; and to the right the tool house, while two beautiful English white hawthorns also show up well to the right of the willows. This photograph was taken from the nursery window in the rear of the house, and the view is due north.

In figure three we see part of the formal garden laid out in double Maltese



The Clay Tennis Court With Border of Shrubbery—Fig. 2

Summer Care of Roses

By an Amateur

Frequent cultivation will keep rose plants thrifty and strong and will counteract the ravages of insects materially. After the leaves are well out an application of arsenate of lead, two ounces to a pail of water, applied with a sprayer so that every leaf is covered, will kill all chewing insects. The arsenate of lead leaves a white sediment on the leaves, but this will be all washed off by the rains and by the necessary sprayings with pure water before the roses open.

Weak solutions of ordinary soap dissolved in warm water and applied with a sprayer to the under side of the leaves will hold the thrip in check, while spraying with the garden hose in the evenings will get rid of the aphid, which infects the young and tender growths. Mildew will not likely trouble plants in good locations, but if it should appear, it is best held in check by dusting the plants with flowers of sulphur or soot while the plants are wet with dew, and allowing it to remain for a day or two and then washing it off with water from the hose. If it appears in the autumn, when cool nights follow warm days, it will not do any considerable harm.

While the first cost of many varieties of peonies may seem high, it is really the most economical plant one can buy, from the fact that it represents a permanent investment and one which pays annual dividends of increase of at least one hundred per cent.—J. H. Bennett, Barrie, Ont.



The Formal Garden Showing Part of the Perennial Border—Fig. 3

Cross formation. Perennial borders circumscribe all the beds, and the rose here reigns supreme. One is not exaggerating when one says there are thousands upon thousands of rose bushes here. McGredy of Porterdown, Ireland, supplied the majority of these, and they consist of the choicest the earth produces. One bed alone contains the following: In the centre, King George V., and around are Mrs. Maynard Sinton, Mrs. Muir MacKenna, General Jacqueminot, Madame Abel Chatenay and Etoile de France. Others are Mrs. Wallace H. Rowe, Kaiserin Augusta Victoria, John Laing, Liberty and Frau Karl Druschki, the last the best white rose in cultivation.

The two large chestnuts on the left of this cut and the apple tree to the right, stand on the spot where one of the three brick houses originally stood. These houses, of course, were demolished at the time the plans were approved of. In figure four is pictured an artificial pond formed by damming the creek; and the German irises in the foreground with the dogwood, *Cornus Siberica*, altogether make this spot a charming retreat on a summer day. The maples on the east side of the entrance drive can also be seen well in this cut.

Mr. Rowe bought the land in 1904, and in 1908 was in residence. The landscape architect, Mr. F. G. Todd, of Montreal, the man who laid out Sir William McKenzie's palace, spared no pains, brains or money, and from motley cut-up farms covered partly with old brick houses, has been evolved a most splendid residence and grounds, a pleasure to

its owner, a valuable asset to the town of Cobourg, and a beauty spot for Canada. Mr. Buckler, the gardener, and his staff of assistant gardeners are to be congratulated on the very smart and correct appearance of the whole at all seasons.

When transplanting many varieties of rooted plants the iron trowel is very useful.—H. M. Speechly, Pilot Mound, Man.



The Artificial Pond, A Charming Retreat in the Garden—Fig. 4

Lawn and Garden Hints for June

PLANTS for bedding may be placed in the open early this month. In color schemes, harmony should be the first consideration. Do not attempt too much.

Be sure to have plenty of mignonette in the annual flower beds. It is a useful flower for cutting. Other common annuals worth growing in every garden are marigold, petunias, zinnias, poppies, portulaca, calliopsis, and balsam.

Keep the perennial border well cultivated and clean. Pick off all flowers when they commence to die.

Plant some gladiolus bulbs, and plant some more two weeks later for a succession of bloom.

Get the window boxes ready and put them in position as soon as danger of frost is past. The time has come to look after your hanging baskets.

You can increase the size of your pansy flowers by watering two or three times a week with water in which cow manure has been soaked. They will take lots of it.

Hollyhocks are well worth growing, but do not plant them singly. They make a better effect when grouped.

Keep ahead of the insects on rose bushes. If you have not already done so, give the leaves a good sprinkling of helebore.

Sprinkling plants and bushes once a day with water alone will keep down many pests.

Dahlias planted now usually will give better results than if planted earlier.

For best results in the flower garden, four essentials in June are thinning, weeding, cultivating and watering.

Sweet peas should be watered often. Never let the ground get thoroughly dry, and do not keep it too wet.

Old geranium plants that have become tall and unsightly can be cut back to within a few inches of the old hard wood. Keep them in soil that is moist but not wet. When growth starts re-pot into a pot one or two sizes smaller, using soil composed of two parts of loamy potting soil and one part of fine sharp sand. Water well and let them grow.

Do not allow weeds to get a start in a newly-made lawn. Keep the turf thick and velvety, and the weeds will be in the minority.

Keep the mower going. The body of the sward can be increased by frequent mowing. It is better to mow often rather than too closely.

To have large flowers of sweet peas, disbud and allow only a few of the buds to grow to maturity.

Keep the walks and drives clean.

Keep the soil about the shrubs spaded and suckers cut down.

Portulaca, candytuft, sweet alyssum, and phlox may still be planted.

Canna beds of one color are more effective on a lawn than mixed colors.

It is safe to set out any of the annuals or vegetable plants after June first.

Keep the blossoms picked off the pansies and sweet peas if you want flowers throughout the season.

Cultivate the vegetables, fruits, and flowers thoroughly if you would be successful.

A good time to trim the spiraea Van Houttei and other spring flowering shrubs is just after they are through flowering.

Watch the roses for insects and either keep them picked off or spray with insecticides. Soapsuds makes a good spray to get rid of the aphid. Use a clean soap that is free from chemicals.

vegetables for winter use at small expense.

Tulips may now be dug to make room for other plants. Take up tops and all and store in some cool, shady place until the foliage dries, then they may be cleaned and put in a cool place in the sacks till October, when they may be replanted.

Spiraeas and other plants blooming early in the spring may now have some of the wood that bore flowers taken out, making room for the new growth which will produce the flowers next year. Careful attention to these things means better plants next year.

VEGETABLE GARDEN

Set out late cabbage and celery.

Continued cultivation means success in the garden.

Early peas should be in evidence now.



Spring's Ever Welcome Feast of Beauty: Garden of C. O. Stillman, Sarnia, Ont.

Transplanting is almost entirely done in May and June—as soon as the seedlings can be handled with the thumb and finger. A good tool to use is a sharp pointed stick about the size of a pencil. The plant can be loosened with this without disturbing those that are to be left in the row. It is also a good tool for making the hole for the plant. For larger plants, as those transplanted from hotbeds or cold frames a trowel or large dibber will be useful. Keep all the soil possible about the roots, and firm the soil around the ones left in the row as well as those reset.

Do not let the roots dry out, and shade the reset plants for three or four days if the sun is bright.

Keep the dahlia plants pruned and tied to stakes for best results. Too many stems produce poor and inferior flowers.

Have you looked up any of the canning outfits? They save the fruit and

Better plant a few rows more for later use.

Dwarf horticultural or cranberry beans make excellent shell beans. It is not too late to plant them now.

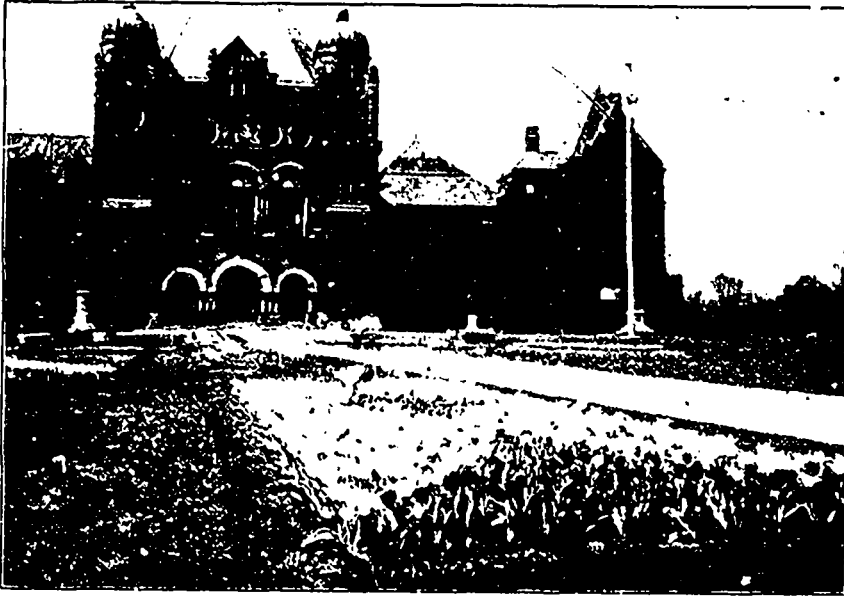
Cucumbers may be sown now with good results.

Have you made several plantings of peas and corn?

Swiss Chard takes the place of other leaf crops for "greens" in hot weather, and kale makes good "greens" late in the fall. Plant them now.

Remove all blossoms from newly set strawberry plants. They take too much strength from the plant and thus do not allow it to make the best growth of vine.

Don't plant small fruits or bushes between the tree in the orchard. They soon become a nuisance. Potatoes or beans may often be planted to advan-



Tulip Beds, Queen's Park, Toronto, Ont.

tage. Corn should not be used, as it shades too much.

Because of limited space the rows of vegetables in a home garden are usually close together, and often the seed is planted thickly in order to have a large yield. This is a mistaken idea, as the plants cannot develop to their full size if crowded. Vegetables grown for their roots should be given as much space as a mature plant needs. The very early radishes which are ready for the table in three or four weeks can be thinned out as used, but the larger varieties should be allowed two or more inches of space. Beets can be thinned out and used for greens, giving those left to mature, about three inches of space.

Plants grown for their foliage, as lettuce, parsley, and spinach need more room than those whose roots are edible; and those which bear fruit, need plenty of room in which to develop the fruit bearing branches.

Seeds of vining plants, as cucumbers, melons, squash, and pumpkin are usually planted thickly, as the early bugs and cutworms take some of the plants. Only three or four should be allowed to grow in each hill. Nearly all plants can be transplanted, some of them, as lettuce and parsley, seeming to grow faster after being reset than before. The best guide as to the room needed is a good reliable seed catalogue or garden text book, which usually gives the size of a fully developed plant.

To bring the best price on the market, strawberries must be clean, evenly graded, and of good quality. Do not use old packages for marketing. They are unsanitary and detract from the selling value of the fruit.

Are the currant bushes well filled with

nice, large fruit? Small fruit is not always chargeable to a poor variety, but is sometimes due to poor culture and no pruning. Currants are borne largely on wood three or four years old. Older wood should be pruned out and enough young wood also to prevent crowding. This may be done early in the spring or in the autumn. Cultivate and add barnyard manure to the plants occasionally.

Results from Home-Grown Seed

Leslie HERRIS, Bromo Co., Que.

I have been experimenting to test the relative merits of seeds saved from my own garden as compared with those obtained from the seedsmen, and find that it is well worth while to collect as much as possible of my seed myself. I had often been warned not to risk the failure of my flower and vegetable gardens by planting my own seed since, it was said, Canadian-grown seed was almost sure to be perfectly ripened owing to the early frosts and uncertainty of the seasons in our climate. But anyone with good judgment can distinguish seeds that are plump and properly ripe from those which are not, and it is my experience that home-grown seeds germinate better and in larger proportion than bought ones.

Having bought a large quantity of sweet peas of the rarer varieties (some of them cost me a cent a-piece for the seeds) I wished to test them in comparison with some of the same varieties which I had saved from my garden last year. I planted them in individual pots in the greenhouse, to be set out in the open later when the ground should be ready. Ninety-five per cent. of my own peas came up promptly and were growing strongly before the bought ones had

put in an appearance. Several days later the bought seed began to come up in a half-hearted way, but only about one in ten of those planted germinated, and most of the plants were spindling and weak-looking.

I made the same test with pansy, aster, larkspur, and other seeds, with the same results, though in a less marked degree, all the bought seed used being from the most reliable dealers, yet in every case proving less vigorous than that grown in my own garden.

Killing Dandelions

Cut the dandelion roots off below the surface of the ground.

Gasoline or kerosene, applied at the crown of the dandelion, will kill individual plants.

When only a few stray plants appear persistently use the spud, or knife.

On badly infested lawns, good results may be obtained by spraying with sulphate of iron. Use one and one-half pounds of iron sulphate, which can be purchased at any drug store, to one gallon of water, remembering that it will discolor clothing and cement walks.

Apply the spray three days after the lawn is cut, on a bright day when the possibilities of rain are slight.

The solution should be applied with a sprayer which gives a fine mist-like spray—a sprinkler is not satisfactory.

The lawn should be sprayed about once a month during the summer, and not cut or watered for three days after the solution is applied.

Whatever method of eradication is used, it is always well to reseed the lawn in April, June, and September.

For reseeding, eight or ten pounds of seed should be used on a lawn, one hundred by one hundred and fifty feet. The seed should be sown broadcast, raked in, then watered.

A good lawn-grass mixture is fourteen pounds of Kentucky blue-grass, two of white clover, and two of red-top seed—buy good clean seed and mix it yourself.

Besides this reseeding, it is well to scatter nitrate of soda over the lawn before a rain or just before the lawn is sprinkled. Fifty pounds will fertilize a lawn one hundred by one hundred and fifty feet.

We have learned by experience that in a border where continuity of bloom is desired all the tall plants should not be put at the very back. The late blooming sorts are most of them tall, and if they are all kept in the rear there is a dearth of bloom near the front in late summer or autumn unless annuals are used, most of which do not go well with perennials.—W. T. Macoun, C. E. F., Ottawa, Ont.

Chrysanthemums and Their Culture

Wm. Hunt, O.A.C., Guelph, Ont.

CHRYSANTHEMUM plants, whether plunged in the ground in pots or planted out in the open garden, require plenty of water at the roots, as well as spraying to prevent insect pests. The tips of the young growth from time of starting of each shoot should be pinched off when the growth is about eight inches in length. This "pinching off" or shortening should be discontinued early in July and the plants allowed to grow after that. The last repotting should not be later than the second week in July. Early in September, or perhaps late in August, the plants planted out should be dug when the ground is wet, and potted into large pots into rich soil. Give them some shade for a few days or a week. Keep the soil well moist at the roots and spray the tops every day with clear water. Those in pots should be lifted and treated in the same way, except that they would not require to be potted.

Keep the plants out of doors as late as possible under partial protection, the early white frosts will not injure them if slightly protected at night. Take them into the window toward the middle of September so that they will not be exposed to more than two or three degrees of frost. By protecting them on cold nights, they may sometimes be kept out of doors until quite late in the fall. This is better than taking them indoors too early.

The buds of the large flowering varieties may be thinned when they are about the size of peas if large flowers are wanted. Thin out the smallest and weakest buds here and there on each branch or shoot. I do not advise disbudding to only one bud to a stem, for amateurs. If this is done, leave the largest and best buds near the top of each stem or branch, what is known as the crown bud. Pompons or single, small flowering varieties are best not disbudded at all. The Pompons make splendid pot plants for the window.

One of the best remedies for almost all of the insect pests that attack chrysanthemums is to fumigate the plants with tobacco or hydrocyanic acid gas. It is not possible for amateurs to fumigate plants with these unless with special conveniences. The next best remedy is to spray the plants with strong tobacco solutions or with kerosene emulsion. The last-named should not be quite as strong as is used for fruit trees. One of the best solutions I have found is to make a kerosene solution by boiling in two quarts of soft water, two ounces of finely sliced common soap until dissolved. Take it away from the fire, and at once, while the soap solution is quite hot, stir in half a pint of coal oil, stirring it well for ten minutes, then add three gallons of cold water and mix thoroughly with the soap mixture. Instead of using water as last mentioned, the

same quantity of water in which about one half pound of tobacco leaf stems, refuse from the cigar factory, or dried tobacco leaves, or even a large plug of smoking tobacco had been boiled, will make the solution more effective.

Apply the solution when cold in a fine spray to the tips of the shoots for the plant bug, and to the other parts infested with the insects, more especially to the under side of the leaves for red spider. Kept in a cool place the solution will keep good for several weeks. Dusting the terminal points of growth with dry Pyrethrum Powder, dry, soft coal soot, or tobacco dust when the foliage is damp (not wet) after the kerosene emulsion has been applied, is an additional remedy for the attacks of the Tarnished Plant Bug.

The Tarnished Plant Bug is a small insect barely half an inch in length, of a bronzy brown color. It punctures the extreme point of growth, causing "blind" or non-flowering growths. It is very quick in its movements, especially in the heat of the day. It does not seem to work very much in the shade, and can be caught with the hand very early in the morning. Shading the plants during July and August would be beneficial. Spraying every day early in the morning with clear or soapy water through the hot weather is a good preventative for the attacks of all insect pests. Sulpho-Tobacco Soap, to be had at seed stores, is a good insecticide.

Summer Care of Palms

B. Tillett, Hamilton, Ont.

After the apple blooms fall, place palms outside in a sheltered position, where they can be given plenty of water. At this time, if they are not repotted, bone meal should be worked into the surface of the soil and a liquid manure of bone meal given once a month or so during the growing season.

Both during winter and summer, shower the leaves frequently with as forceful a stream as possible, to prevent scale and mealy bugs getting a start. Keep the leaves and stems clean by wiping off every once in a while with a soft cloth and soapy water, syringing with clean water afterwards.

Close to the house on the south side is not a good position for a climbing rose. The heat is too intense and concentrated in the summer to get good roses. Insect pests are also induced in this position by the heat. An east or west aspect is the best for climbing roses. The north side, if not too close to the building, would do fairly well. In any case, the roses should not be trained too close to the house. A few inches of space to allow for spraying and circulation of air is best.



A First Prize Porch in a St. Thomas Competition: That of J. A. McCance

Successful Methods with Strawberries and Tomatoes

J. C. Inman, Eden, Ont.

A DOZEN years ago a school teacher in southern Ontario began to study the complex problem of living and coming out in the end with enough hard cash to tide over the winter of old age. School teaching, while one of the most important branches of national upbuilding, was not what could be called a money-making occupation.

Viewing things from this attitude the school teacher began to search for some employment which would yield larger monetary returns. After careful study, he decided on farming. In the back yard of his simple home he had some money from a small piece of land, and by using the ordinary act of multiplication he had determined the amount he should make from a ten acre lot.

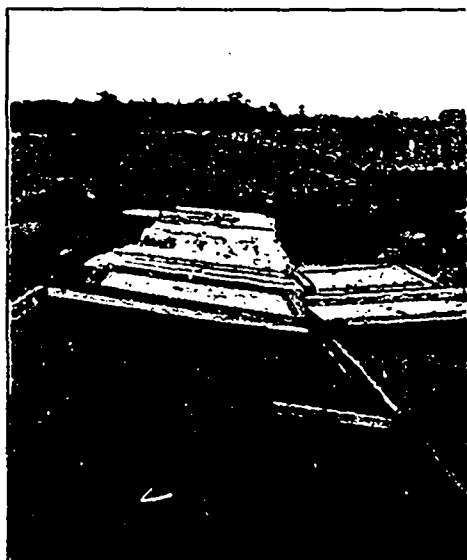
In due time this school teacher, who, we might state, is Mr. William Walker, of Port Burwell, Elgin, Ont., moved to a twelve acre lot on the edge of Port Burwell, which, after taking out the ground occupied by the buildings and waste land contained about ten acres. To his friends the idea of making a living from ten acres was as new as it was absurd. Although Mr. Walker did not know a great deal about his new vocation, he did know that the sandy hilltop soil on the edge of the town was adapted for the production of small fruits and tomatoes, which were just then coming into publicity. He had also observed that the hilltop was the last piece of land to get hit with the frost in the early autumn.

A part of the ten acre farm was what is commonly known as "a low spot." It had never produced much under the old management, but it had been left as nature designed it. In wet years it was practically useless. Mr. Walker felt sure that the low spot should be drained and made productive. He had an idea, too, that it would improve the whole farm if it were properly tiled. So he put in what is known as a deep drain twenty rods apart, over the whole ten acres. While it cost considerable, he has not kicked since about "wet spots," or a cold unnatural soil.

One of Mr. Walker's next steps was to contract with the two town livery men for all the manure produced in their stables. It comprised a lot of fertilizer, but he thought that he knew what he was doing, so he spread it all on the little ten acres just as fast as it came. This was done in spite of repeated warnings from kind friends who feared that he would sour the soil. The first year he did not do much but fit the land up although he did plant some of the ordinary farm crops, from which he secured some wonderful returns.

The preliminary work was money and time well spent. When a small patch of tomatoes was planted the next year they produced a crop that gave Mr. Walker some new ideas regarding making a living off ten acres. The strawberries also did well, and as there was a good market for them he planted out more the next year and began to feel the genuine pride of the man who grows things and gets well paid for his labor.

The story so far is much the same as



Mr. Walker's Tomato Starting Bed

It is not very artistic but has proved decidedly efficient as a money-maker.

any other story of its kind, so we may as well skip ten years and come up to 1913. Last season the crop was as follows: Strawberries, two and a half acres, tomatoes four acres, and three and a half acres in raspberries, cauliflowers, cabbages and potatoes. The returns from this three and a half acres were not kept track of except in a general way, but they paid for the general expense of running the farm, such as hired help, repairs, interest on investment, and living expenses. It may hardly seem possible to make three acres do all this, but that it did will not be doubted when the exact proportions of the other six and a half acres is given.

Taking the strawberries first: the two and a half acres produced seven hundred and sixty four crates or three hundred and five and three-fifths crates per acre, which sold at an average of two dollars and sixty cents a crate at the farm. After deducting fifty cents per crate for crates, picking, and so forth, we get sixteen hundred and four dollars as the income from two and a half acres.

The tomatoes returned two thousand one hundred and fifty-two bushels. At thirty-five cents that equals seven hun-

red and fifty-three dollars, besides seventy-four dollars for early tomatoes. This brings the total up to eight hundred and twenty-seven dollars and twenty cents, and a grand total of twenty-four hundred and thirty-one dollars for the six and a half acres.

The method of strawberry culture followed is perhaps not a great deal different from the average but it is at least worth outlining. The first requirement is to have the land well fertilized with manure and an occasional application of the commercial product. The plants come next, and although he may be old fashioned Mr. Walker sticks by the old stand-by (Williams) because he believes he can get no better. He selects the largest and healthiest plants and places them in rows four feet apart, and two feet apart in the row. He has also experimented with the block system but as yet prefers the rows as they require less work in proportion to the returns. The rows are allowed to become two feet wide and are kept from fruiting the first season. An application of manure is given in the fall, and the plants covered with a good straw mulch, in which condition they are left through the winter. When the first real warm days of spring arrive the straw is raked between the rows and acts as a weed preventative and as a knee rest in picking. The plants are kept from spreading as much as possible in order to force the growth into the berries to get them as large and uniform as possible. This is very important as it is the well formed, good colored and uniform fruit which commands the top price regardless of market conditions.

Only one crop is taken off as it has been found rather risky to depend on a crop the second year, as if the season is dry, the berries will dry up and the crop will be practically a loss. The following spring the plants are dug up and sold to future strawberry growers at a good profit and the area put into tomatoes.

Tomato growing is different from strawberry growing but the two crops have grown together admirably. The waste strawberry plants and wheat strawberry form a good mixer for the soil, and put every foot of it in truck garden condition.

The plants which are raised in a hot house until eight or ten inches in height are planted about the middle of May, or after all danger of frost is over. The method followed may be a little new and startling to most people. The plant is set in a hole, partially filled with good manure. The plant is laid flat on the ground, as it has been found that the



Cultivating Strawberries on Mr. Walker's Farm. Mr. Walker and his Hired Man are Shown

plant will keep more moist and alive when lying down than when standing up, in which position it often wilts from the fierce heat of the sun. The plants are set four feet apart each way and cultivated continually until they become too large to allow a cultivator to pass through without injury. At least twenty loads of manure are applied per acre previous to plowing and this in addition to the portion given to each individual plant brings the total up to twenty-five loads, which is as much as some one hundred and sixty acre farms get in grain growing sections. Great care is taken to select strong, healthy, well advanced plants, before the early fall frosts. Chalk's Jewel and Matchless are the varieties grown.

The tomatoes are picked in bushel crates and drawn on wagons to the factory, a quarter of a mile away, the price being thirty-five cents per sixty pounds. The first few that get ripe bring a much better price, from a dollar and a half up to two dollars and seventy-five cents for an eleven quart basket. These tomatoes go direct to the cities to satisfy the early tomatoe hunger of those who are rich enough to pay the price.

AN EARLY VARIETY

Mr. Walker is constantly obtaining new ideas which improve on his past attempts. For instance he struggled along for years trying to perfect an early tomato plant, which would be certain to mature before the fall frosts, and while he has greatly improved on the old original, he still loses from one to four hundred bushels per acre from frost. With the idea of saving this he started to experiment with different coverings to be put over the plants in the spring to save them from the late frosts and to enable him to get the plants in earlier. The main difficulty was to get something inexpensive. After various experiments he has decided on cheese cloth bells on wire frames which can be manufactured for about four cents apiece, and which may earn their cost several times over the first season.

During 1913 the receipts were nearly twenty-five hundred dollars net, not including the amount received from plant sales in the spring, which amounted to over six hundred dollars.

Tomatoes Under Glass

In the annual report of the Central Experimental Farm, Ottawa, for 1912, the results of a variety test of tomatoes in a small greenhouse at the Central Experimental Farm were recorded. During 1913, eighteen varieties and strains were again tested in the same house. This house is used for ornamental plants as well, and only part of the space was available for the tomato plants. The plants were set fifteen inches apart in a single row on the benches on each side of a central walk, sufficiently far back so that a row of begonias could be grown in front of them. As they grew, the plants were tied to wires and kept pruned to single stems. Four plants of each variety were used, two plants of each variety being on each side of the walk opposite each other. The seed was sown on June 12, 1912, germinated on June 18, the young plants were pricked out in a cold frame on June 24, and planted in the greenhouse on July 24.

The plants made rapid growth and the first ripe fruit was picked on September 16 from Sparks Earliana No. 10 strain. Early in the season, the plants produced large clusters of flowers, the fruit set well, and there were prospects of a good crop, but, during the months of August and September, there was much rain and dull weather, there being 99.9 hours less sunshine than the average during August, and 108.0 hours less than the average during September. As a result there was a poor setting of fruit during September. By the end of that month the plants had reached the top of the house and, as there was practically no fruit on them except near the bottom, it was decided, as an experiment, to head them back to within three feet of the soil. This was done on September 28.

Most of the plants, though checked

severely, recovered from the effects of the heading-back and made medium growth again. On the new growth some moderately good fruit set, but the results obtained from such severe checking of the plants were not such as to warrant recommending it, as the different varieties did not recover equally well from the heading-back.

The yields obtained in 1912-13 are not reliable, but, as indicating the varieties which are likely to give the largest yields in an unfavorable season, and under such treatment, the following record is given of the six most productive sorts, the varieties tested being Winter Beauty, Industry O.A.C. Selected 1910, Industry O.A.C. Selected 1910-11, Improved Express, Sutton's Satisfaction, Sparks Earliana No. 10, Bonny Best, Sparks Earliana (C.E.F. 2-12), Chalk's Early Jewel, Dobbie's Champion, Dominion Day, Wealthy, Sutton's A1, XXX Earliest Scarlet, Cox's Earliest, Greater Baltimore, Livingston's Globe.

Last year, in a test of twenty-one varieties and strains, the most productive six in order of yield were Industry (O.A.C. Selected 1910), Sutton's Satisfaction, Industry (O.A.C. Selected 1910-11), Livingston's Globe, Dobbie's Champion, and Bonny Best. It will thus be seen that the three varieties which did best for the two years were Industry, Sutton's Satisfaction, and Bonny Best.

Potato Scab

Prof. E. M. Straight

If the soil on a certain area is free of scab, it may be kept so by paying proper attention to the seed, bags, baskets, barrows, plows, planters, cultivators—all of which may carry contagion, if they have been in contact with diseased tubers.

One of the cheapest and simplest disinfecting agents is formalin. Formalin is a liquid, having a sharp, pungent odor. It is a solution of formaldehyde gas, containing about forty per cent. Formalin should cost about forty cents a pint.

The formula commonly used is as follows: Add one-half pint of commercial formalin to fifteen gallons of water, stir thoroughly and soak uncut tubers for two hours in this solution.

Growing Melons.—The most suitable soil for melons is a rich, warm, deep, sandy loam, having a southern or southwestern exposure. The latter is to be preferred, as it gets the last rays of the sun and the soil is thus warmed up for the night, and being sheltered from the northern and eastern winds, holds the warmth until the morning. This makes several days' difference in the ripening of the fruit, which may be equivalent to quite a sum per acre in the value of the crop.—John Gall, Inglewood, Ont.

The Canadian Horticulturist
COMBINED WITH
THE CANADIAN HORTICULTURIST
AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.
Published by The Horticultural
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PETERBORO, ONTARIO
H. BRONSON COWAN Managing Director

The Only Magazines in Their Field in the
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edition several pages of matter appearing in the
first issue are replaced by an equal number of
pages of matter relating to the bee-keeping in-
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2. Subscription price of The Canadian Horti-
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CIRCULATION STATEMENT

The following is a sworn statement of the net
paid circulation of The Canadian Horticulturist
for the year ending with December, 1911. The
figures given are exclusive of samples and spoiled
copies. Most months, including the sample cop-
ies, from 12,000 to 15,000 copies of The Canadian
Horticulturist are mailed to people known to
be interested in the growing of fruits, flowers
or vegetable.

Table with 4 columns: Month, 1913, 1912, 1911, Total. Rows include January, February, March, April, May, June, July, August, September, October, November, December, Average each issue in 1907, 1911, 1912, 1913.

Sworn detailed statements will be mailed
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We guarantee that every advertiser in this
issue is reliable. We are able to do this because
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ticulturist are as carefully edited as the read-
ing columns, and because to protect our read-
ers we turn away all unscrupulous advertisers.
Should any advertiser herein deal dishonestly
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amount of his loss, provided such transaction
occurs within one month from date of this issue,
that it is reported to us within a week of its
occurrence, and that we find the facts to be as
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Rogues shall not ply their trade at the expense
of our subscribers, who are our friends, through
the medium of these columns, and we shall not
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scribers and honourable business men who ad-
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THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

The late Linus Woolverton

The announcement of the death of the
late Linus Woolverton was heard with a
sense of personal loss by an unusually lar-
ge number of Canadians. From 1887 to 1904
Mr. Woolverton was the editor of The Cana-
dian Horticulturist. In this position he
became widely known to those interested
in horticulture all through Canada. Being
a recognized authority in agricultural mat-
ters, Mr. Woolverton was a worthy succes-
sor of his predecessor, the late D. W. Bead-
le, and did much to establish the reputa-
tion of The Canadian Horticulturist as an
authority on horticultural matters.

Probably Mr. Woolverton's greatest mon-
ument is his book entitled "The Apples of
Ontario," on which he spent many years
of work and which is the recognized author-
ity on this subject in Canada. He also ac-
complished much on behalf of the interests
of the fruit growers of Canada while he
was secretary-treasurer of the District
Experiment stations of Ontario. Mr. Wool-
verton was ever ready to help the novice or
to give aid whenever opportunity allowed.
His death removes one who never spared
himself to advance the interests of his
brother fruit growers.

AN ENTOMOLOGICAL DIVISION

Several years ago The Canadian Horti-
culturist pointed out editorially that the
Dominion Government might well pay more
attention to the work of the Entomological
branch of the Dominion Experimental
Farm. Attention was called to the fact
that there was no sufficient reason why this
branch of the work of the Department of
Agriculture should be classed with the work
of the experimental farms. It was sug-
gested that it should be made a separate
department with a head responsible only to
the Deputy Minister and the Minister of
Agriculture. Such a division has now been
made. Credit must be given to Hon.
Martin Burrell, for inaugurating the
change.

The Entomological Division is one of the
important branches of the United States
Department of Agriculture. This has been
because its head has had greater power of
initiative than would have been the case had
the work of his department been maintain-
ed as a mere branch of some other line of
governmental activity. Under the new ar-
rangement we may expect to see our Cana-
dian Entomological Division increase in
importance. It should also receive more
liberal financial assistance than it has hith-
erto.

This division is charged with the re-
sponsibility of preventing the introduction
and spread in Canada of injurious insects,
the investigation of insect pests affecting
agriculture, horticulture, forestry and the
health of domestic animals and man, and
the imparting of the information so obtain-
ed to the public by means of bulletins, press
notices, addresses, and in other similar
ways. Its chief, Dr. C. Gordon Hewitt, is
well qualified for the position he holds. He
may be expected to take full advantage of
the increased opportunities he will now have
for public service.

CIVIC BEAUTIFICATION

In young countries it is always difficult
to arouse public interest in schemes of
civic beautification. An evidence that Can-
ada is advancing out of the pioneer stage
of development is found in the fact that
towns and cities throughout Canada are
giving more attention this year than ever
before to comprehensive plans for civic im-
provement. Cities in the prairie provinces
are fully abreast of the cities in the east.

"Clean-up" campaigns as conducted in
the smaller centres are becoming increas-
ingly popular and are another expression
of the same desire for improvement. In
some centres a commendable move has
been made to improve the back premises as
well as the front by the tearing down of
ugly sheds and board fences, and the re-
placing of the latter by neat wire fences.
This has led to the converting of many
back yards into gardens and lawns. The
international congress on city planning be-
ing held in Canada this year for the first
time is an indication of advancement.

All over the continent steady even rapid
progress is being made in the direction of
placing the fruit industry on a firmer busi-
ness basis. Guesswork is fast being elimi-
nated. It was estimated last year that the
fruit growers of the four Pacific Northwest-
ern States, Washington, Oregon, Idaho and
Montana, lost two hundred and fifty thou-
sand dollars on account of the lack of reli-
able crop estimates. Early in the season the
crop was estimated to be fifty per cent.
greater than it was. This year the North
Pacific Distributors, the Central Selling
Agency controlled by the growers, has
arranged to take a tree census in
the four States, in an effort to se-
cure reliable and approximately cor-
rect information as to probable tonnage
in the various districts. Every grower in
the branches affiliated with sub-centrals of
the distributors, will make a detailed esti-
mate on his crop, tree by tree, and variety
by variety. The estimate of the growers
will not be taken as final but inspectors
will visit every district and work on the
basis of acreage and average in former
years, and actual conditions on stated
areas. These men will be experts, and by a
double system of estimating fairly approx-
imate figures can be secured. Using this
system of estimating the Yakima Valley
Fruit Growers' Association one season esti-
mated within two carloads of its entire ton-
nage, and another season within twenty car-
loads. The general adoption of methods
such as these will ultimately give the grow-
ers full control of their industry.

The extensive scheme of civic improve-
ment that has been launched by the Peter-
boro Horticultural Society, including as it
does a complete plan of parks driveways, is
an indication of the truth that it is often
easier to accomplish things on a large than
on a small scale. Many organizations put
forth more effort and achieve less returns
by trying to do small things in a small way
than could be effected were they to take a
broader view of the problems in hand and
devise a plan and method of work that by
its uniqueness would be sure to challenge
attention and enlist public support. Other
horticultural societies may not be able to
carry out just such a scheme as the Peter-
boro Society has launched, but they may be
able to learn something from the methods
that the Peterboro Society has followed.

SOCIETY NOTES

HAMILTON

A number of novel and interesting lines of work are being carried out this year by the officers of the Hamilton Horticultural Society. Arrangements are being made for a series of meetings in some of the best gardens of the city. This is a most popular and helpful line of work. Photographs are to be taken in a number of gardens which will be used for lantern slides at winter meetings. A perennial border has been started at Dundurn Park for educational purposes. A June flower show is planned.

PETERBORO

The officers of the Peterboro Horticultural Society have launched a most ambitious scheme of civic improvement. The city of Peterboro has many natural advantages. These have never been properly utilized for the benefit of the public. The city is without a park commissioner. Its expenditures for horticultural purposes have been small.

Feeling that there was little use in waiting for the city fathers to move in the direction of civic improvement the officers of the society, early in the year, appointed a committee to consider the matter. This committee held numerous meetings, as a result of which a parks driveway was drafted which would link up all the parks, residential and manufacturing districts, and other points of interest. An effort was made to raise \$1200, in part from the Horticultural Society, and in part by private subscriptions. The required sum was raised in a few hours' canvass. This money is to be expended during the next three years in prizes for the best lawns, verandah decorations, flower beds and window boxes owned by residents along the driveway.

Manufacturers and business men were interviewed and asked to improve their places of business by the setting out of window boxes and the planting of shrubs and vines. The response was immediate and enthusiastic. Officers of the Board of Trade and the Ad. Club cooperated. This preliminary work was carried on quietly for several weeks. Recently a citizens' banquet was held, attended by the mayor, members of the city council and other leading citizens. A map of the city showing the proposed driveway was produced and the plan of civic improvement explained in detail. The scheme was enthusiastically endorsed. The city council was asked to improve the roadways and to look after the boulevards and the planting of trees along the several miles of roadway. Its cooperation was promised. Park Commissioner C. F. Chambers, of Toronto, was in attendance and gave a most helpful address, warning the city against mistakes that it might easily make, and giving valuable suggestions based on what he had seen during an automobile trip over the proposed route made earlier in the day. Mr. Morton, of the Forestry Division, Ottawa, described the best varieties of trees to plant.

A committee is now at work appointing ward committees to look after the work in each ward. The people living along the route of the driveway are to be canvassed, and urged to give their cooperation. The chairman of each ward committee will be a member of a central committee that will have general oversight of the whole work.

Among the main workers have been President, C. Beal; vice-president, F. Wise; Secretary, C. Williamson; R. Denne, H. B. Cowan; B. Hall, president of the Board of Trade, and G. O. Cameron, president of the Ad. Club.

ST THOMAS

Mayor J. H. Bennett, of Barrie, the president of the Ontario Horticultural Association, gave an address recently before the members of the St. Thomas Horticultural Society, on the subject "Hardy Perennials and Herbaceous Peonies."

The Society took advantage of the visit to the city of the Duke of Connaught, Governor-General of Canada, and his daughter, Princess Patricia, to have the Duke plant an English oak in one of the city parks. Dr. F. E. Bennett, president of the society, presented their Royal Highnesses with a spade prepared for the occasion. During the proceedings a beautiful basket of flowers was placed in the royal auto by members of the society. The basket bore an engraved card, which read as follows: "To the Princess Patricia: May it please your Royal Highness to graciously accept this basket of flowers collected from the gardens of the members of the St. Thomas Horticultural Society."

The spring flower show of the society was held recently in one of the city stores. Fifty exhibitors had one hundred and twenty-five entries on exhibition. The exhibits were in the main tulips, but hyacinths, pansies, polyanthus and violets were also shown. The ladies of the society served tea in the gallery of the store. The store was kept open until ten o'clock, when the flowers were sold.

Some trouble having been experienced through the depredations of tulip thieves, the society recently offered a reward of ten dollars for information which would lead to their detection and conviction. Five lads, ranging in age from five to thirteen years, were caught and their parents were required by the police magistrate to pay fourteen dollars and costs incurred by reason of the

depredations. The boys were let off with a warning.

The society on May 9th conducted a tree planting ceremony at Pinafore Park. The trees planted included Willows-of-Babylon, Weeping Teas, elms, magnolias, and catalpas. Each tree was nicely labelled by an iron sign, giving the common and botanical name, habitat, and words "Planted by the St. Thomas Horticultural Society." The mayor of the city cooperated in the ceremonies.

A party from the society, headed by President Bennett, visited Rochester on Victoria Day to see the azaleas and rhododendrons in bloom, and the other horticultural features of the city.

OTTAWA

The children that are members of the Ottawa Flower Guild met recently in the garden of Mr. R. B. Whyte, where Mr. F. E. Buck, of the Experimental Farm, gave a practical demonstration of seed planting. The secretary's report, read at the recent annual meeting of the Guild, showed that there were two hundred and thirty-three children enrolled. The officers of the current year are President, R. B. Whyte; vice-president, J. A. Ellis, M.L.A.; secretary-treasurer, Miss E. McManus. Mr. W. T. Macoun and Mr. F. E. Buck are on the executive committee.

PICTON

The Picton Horticultural Society held a meeting recently at which the subject discussed was "Beautifying Picton." The main speaker was Mr. E. Edward Starr, of Whithy. The society is arousing an interest in civic beautification.

ST. CATHARINES

On May 16th the membership of the St. Catharines Horticultural Society passed the nine hundred mark, which is one hundred and twenty more than the total for the previous year. The officers expect to reach the nine hundred and fifty mark.



Floral Exhibits in a Merchant's Store Window

These exhibits were arranged by the officers of the St. Thomas Horticultural Society. They were much admired by the citizens.

Cooperative Work in the Annapolis Valley*

A. E. Adams, of the United Fruit Companies, Ltd., Berwick, N.S.

YOU are all familiar with the formation of the Cooperative Fruit Companies in the Annapolis Valley of Nova Scotia, and are to a greater or lesser extent familiar with their history. It is a curious fact that the originators of the movement here knew little or nothing of the movement elsewhere, and shaped their course purely by what they considered the immediate necessity of the moment.

Our leading fruit growers felt and knew that there was something radically wrong with the method in which the products of their orchards were being handled. They knew that individuals speculating with their fruit were making money much faster than was the producer.

They had the right idea, the same as that of the pioneers of the movement across the water, namely that profit derived from apples should go to the producer of the apples. That is the principle under which we are working to-day. Unlike Denmark, Nova Scotia started on the marketing end of cooperation first and having got that fairly under way is now giving her attention to cooperative buying, but whichever end is handled first the result is and must be the same. Cooperation is bound to be a success wherever and to whatever problem it is applied, the only thing necessary is that all members thoroughly understand the great principle for which they are working.

FURTHER COOPERATION NECESSITATED

When, owing to the success that had attended the initial efforts of the fruit companies, others had been formed, it was realized that through the multiplicity of companies they were defeating their own ends, inasmuch as they were competing the one with the other to market their products, and the wily speculators were pitting one company against the other, and thus securing the apples almost as cheaply as ever. On account of this multiplicity of companies they were unable to accomplish that which they set out to do, namely, "bring producer and consumer closer together," they were as it were so many units whose power for good was ineffectual on account of their lack of central organization. Instead of working together they were fighting against one another. At last their leaders realized:

"Cooperation—not strife—
Is the Divine law of life."

And proceeded to incorporate all the companies into one central association, obtaining a special charter from the provincial government for that purpose. Thus did The United Fruit Companies of Nova Scotia, Limited, come into existence.

My paper would be incomplete without naming John N. Chute the father of cooperation in Nova Scotia, John Donaldson, S. C. Parker, your president, and A. E. MacMahon, who by their zeal and untiring efforts without reward, alone made this important centralization possible.

THE WORK ACCOMPLISHED

Possibly it is unnecessary for me to give in detail the splendid work accomplished by the Central during its brief existence. In the first year before it was incorporated, realizing that the record crop with which the Valley was blessed would never be harvested with the help at hand,

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

it brought in some four hundred helpers, and thus saved the situation for many a grower.

The same year, realizing that the steamship companies had utterly failed to provide sufficient transportation for the tremendous crop and that thousands of barrels of soft varieties were lying at Halifax sweltering in the sun, it made arrangements with the Intercolonial Railway (the People's railway) and sent train load after train load up to Montreal to load in the fast mail boats.

It followed this up by chartering four great steamships of the Warren Line and lifted forty thousand barrels of fruit which would otherwise have rotted. This action forced one of the greatest steamship companies in the world to buy out the Warren Line, and has thus secured for the fruit growers of the Valley a service of splendid fast steamships to carry the fall fruit. It thus saved all growers, whether cooperators or not, thousands of dollars.

In the same year the company opened up the western markets for our famous Gravensteins, and thus gave a new lease of life to that excellent apple. It also secured for the Valley a supply of specially lined cars almost equal to refrigerators by which every grower in the Valley benefits during the cold weather. In spite of the opposition in its own membership it reduced the price of fertilizer in the Valley by five dollars or six dollars a ton.

COOPERATIVE MARKETING

Before starting to explain the advantages of cooperative marketing I would like to impress on you one aspect of cooperation that I am afraid is not properly understood by our fruit growers. I feel this lack of knowledge among our membership and even I am sorry to say, among the directorate, hence my excuse for dealing with it here.

Very few of the members seem to realize that they are themselves The United Fruit Companies, they speak of letting the Central have their fruit as though the Central were some speculating firm buying their apples. They speak of buying their feed and flour, their fertilizer and seeds, from the Central if the price is right, all of which is evidence that they do not understand the situation.

The United Fruit Companies do not sell an ounce of anything to any member, they simply distribute what the members have authorized them to buy for them. It is exactly similar to the case of the English cooperators and his pair of boots that I cited a while back.

When that humble artisan goes to the store and gets his boots he pays a sum of money spot cash for them which is not a cent less than he could get a similar pair for from the store next door. He does not concern himself with the price; all he bothers about is the quality. He wants a certain kind and a certain quality, and gets it; the price is immaterial. Why? Because he knows that at the end of the season all the profit made on those boots, after necessary expenses are deducted, will be refunded to him in his dividend.

Had this cooperator and his fellows told the manager of their store that they could get a similar pair of boots next door for the same money and had got them, would the cooperative movement have developed as it has in England? Certainly not. It

is simply the abiding faith of these co-operators in the ability of their servants, the Central, to ultimately do better for them than they can themselves, their absolute loyalty to their fellows, that has made success possible.

Efforts are constantly being made in England to get cooperators to be disloyal to their fellows by offering them snaps, but these cooperators so thoroughly understand the great principles of their movement that all these efforts are futile.

SIMILAR EFFORTS HERE

Yet here in the Annapolis Valley a company manager will write to Central which has been instructed to buy the year's fertilizer by that actual company, stating "Please quote your prices and if right our members will probably buy." They don't seem to realize that we have already followed their instructions and have bought their fertilizers for them, and have made all arrangements to, in due time, distribute it.

They don't seem to realize that if some local agent has given them what they consider a tempting price, it is only done to fight their own society, only done in an endeavor to kill their own business.

They don't seem to realize that if fertilizer agents are quoting low prices it is only the fact of their own action in co-operating in buying, that has forced the fertilizer agent to bring his price down.

They don't seem to realize that they themselves can through their own tremendous buying power, obtain their supplies lower than any that can be supplied by middlemen.

They don't seem to realize that certain firms are prepared to sink a large sum of money to supply goods at a price as low as the Central's if by doing so they can not discredit and disrupt this cooperative movement.

Cooperators must be loyal to themselves if the great benefits of cooperation are to continue.

I know of actual cases that I can prove by documentary evidence, of wholesale firms right here in the Valley, supplying whole carloads of fertilizer at over a dollar a ton less than it cost them in order to keep certain companies out of the central, and even then did not get as low as central's price. I hope that all cooperators will think of that aspect of cooperation, and understand the true import of it.

Recent Bulletins

Circulars and bulletins that have reached The Canadian Horticulturist recently, include the following:

"Ten Years' Profits from an Apple Orchard," is the title of Bulletin No. 376, by U. P. Hebrick, of the New York Agricultural Experiment Station, Geneva, N. Y. This bulletin contains valuable information relating to the cost of tillage, growing of cover crops, pruning, spraying, harvesting, as well as the average profits of an orchard.

Another valuable bulletin by the same author and station is one entitled "Tillage and Sod Mulch in the Hitchings Orchard." This is bulletin No. 375. This bulletin is a most instructive one, is well illustrated and should be applied for by all grower interested in the subject.

The New Hampshire Experiment Station, Durham, N.H., has issued Bulletin 68, by J. H. Gourley, entitled "The Effects of Fertilizers in a Cultivated Orchard."

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THE CLIPPER



There are three things that destroy your lawns - Dandelions, Buck Plantain and Crab Grass. In one season the Clipper will drive them all out. Your dealer should have them - if he has not drop us a line and we will send circulars and prices.

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Will operate your cream separator, honey extractor, pump, washing machine, pulper, etc. for one cent an hour. Can you afford to be without him? He costs only \$47.50.

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toes, though all the principal kinds of vegetables were under experiment.

ORNAMENTAL GARDENING

Under ornamental gardening comes the culture of ornamental trees, shrubs, and herbaceous plants; the study of their individual characteristics, such as height, form, coloring, and season of bloom, so that information will be available to Canadians to enable them to plant their places in such a way that the trees, shrubs, and herbaceous plants will blend or be contrasted with one another to form pleasing landscape effects. The education of the people by lectures and bulletins on ornamental gardening and the encouragement of the beautifying of their surroundings, so much needed in Canada, is also a part of ornamental gardening which received attention during the year. In addition, large collections of roses, irises, phloxes, peonies, lilacs, gladioli, geraniums, and other ornamental plants have been got together to study. There was a fine display of these at the Central Farm in 1912, and visitors were much interested in them and pleased with the ornamental grounds as a whole.

The forest belts, planting in which was begun in 1888, furnish interesting data on the relative growth of the different timber trees and the merits of having the species or planting them in blocks of one kind. The annual measurements of a number of trees were taken in 1912, as in previous years.

PLANT BLEEDING

The improvements of fruits, vegetables, and ornamental plants by cross-breeding and selection and the study of the laws of inheritance in different kinds and varieties of horticultural plants is, in brief, the field of work which is covered in plant breeding in the Horticultural Division. Up to comparatively recent years, Canada has had to depend almost entirely on other countries for her new varieties of fruits, vegetables, and ornamental plants, and while many of these succeed admirably in this country, it is felt that, if originated in a climate more nearly like where they are to be grown than has been the case in many instances in the past, those that show special merit are likely to prove more useful than those introduced from climates very dissimilar. During the past twenty-five years, much attention has been paid to the breeding of horticultural plants at the Central Experimental Farm. Many varieties of hardy hybrid apples, crosses between the Siberian Crab (*Pyrus baccata*) and the apple originated by Dr. Wm. Saunders, have already been introduced into the prairie provinces and have proved hardier than any previously tested there. Second crosses made by Dr. Saunders with more blood of the larger apples and having fruit of good marketable size were propagated in 1912 for introduction. Many varieties of apples of handsome appearance and good quality have originated in the Horticultural Division and the best of these have been sent out for test to different parts of Canada to compare with those already in the market. More than two hundred of these new sorts have been propagated, and eighty-two of the best, named.

A large number of seedling straw-berries has been raised in the Horticultural Division, and some of the best are being propagated for introduction. Special attention is being paid to the development of early strains of vegetables which will be of great value in the colder districts of Canada as well as in the more temperate parts. Good progress was made in this work in 1912 and provision has been made for greater

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He'll guarantee to get you up either of TWO WAYS—with one long, steady, five-minute ring if you need a good big call, or on the installment plan, with short rings one half-minute apart for ten minutes, so you'll wake up gradually, and he'll stop short in the middle of a tap during either call if you want to shut him off.

Big Ben is a mighty pleasant looking fellow. His big, open honest face and his gentle tick-tick have earned him a place in thousands of parlors.

The next time you go to town call at your dealer's and ask to see Big Ben. If your dealer hasn't him, send a money order for \$1.00 to his makers—*Watches, La Salle, Illinois*—and he'll come to you prepaid.

PURE - BRED ITALIAN QUEENS
 AFTER JUNE 15th
 Untested Queens \$1.00 each, \$10.00 a doz.
 Warranted purely mated Queens \$1.10 each,
 \$12.00 a doz. Tested Queens \$1.50 each, \$15.00
 a doz. Breeding Queens \$2.50, \$5.00 and \$10.00
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QUEENS
 by return mail or your money back. Guar-
 anteed purely mated. J. E. Hand strain of
 three-banded Italians. Write for price list
 and free booklet, "How to Transfer, Get
 Honey and Increase."
J. M. GINZERICH, ARTHUR, ILL., U. S. A.

 Well-bred
 Italian Bees and Queens
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 Illustrated Price
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IN CARNIOLA
 Pure Carniolan Alpine Bees
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 Untested, \$1.00 each; dozen, \$9.00.
 1 lb. package Bees, \$1.50 without Queen, with un-
 tested Queen \$2.50.
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QUEENS
 Tested, \$1.00 each; 3 to 6, 90c. each.
 Untested, 75c. each; 3 to 6, 70c. each.
 Bees per lb., \$1.50, no Queens.
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**3-BAND LONG-TONGUED RED-
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 For Sale. — My long-
 tongued Goldenes are
 proving themselves to
 be the bee to clean Foul
 Brood. This is why I
 have such a large trade
 in Canada. Mr. E. L.
 Cox, of Jesup, Iowa, in-
 troduced 50 of my 3-band
 queens in Foul-Broody
 colonies in 1912; and he
 said the disease was
 cleaned up where each
 of those queens was put.
 They gathered such a
 large crop of honey in 1912 that he bought 50
 more in 1913.
 One Untested, 75c; 6, \$4.00; 12,
 \$7.10; 25, \$13.50; 50, \$25.00.
 Double the above for tested queens. Bees
 by the pound: One lb., \$2.00; 2 lbs., \$4.00.
 One frame nucleus, \$2.00; 2 frame, \$3.00; 3-
 frame, \$4.00. To all the above packages add
 the price of queen. I will begin to send out
 queens in April.
 Positively no checks will be accepted. Send
 money by P. O. Money Orders. All queens
 arriving dead will be replaced if cage is re-
 turned by return mail.
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 Not inclined to swarm, roll honey in.
 1 Untested \$1.00, 6 \$5.00, 12 \$9.00.
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 A specialist of 17 years' experience.
 Safe arrival and satisfaction guaranteed.
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**Three Banded Red Clover
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 Bred from Tested Stock
 Untested Queens, \$1 each, \$5 for six
 Selected untested, \$1.25 each, \$7 for
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 Tested Selected Guaranteed Queens,
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QUEENS AND BEEES
 We can supply choice Italian Queens
 promptly at the following prices:

Untested	\$1.00	\$5.65	\$10.50
Tested	\$1.50	\$8.50	\$16.20
Select. Tested	..	\$2.00	\$11.25	\$22.60

 For prices on larger quantities please
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 We can furnish Italian bees from the same
 stock as above in 1, 2 and 3-pound packages,
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 We have a full stock of bee-keepers' sup-
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WE WANT MORE BEESWAX.
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FINEST THREE-BANDED
 **Italian Queens**
 from selected stock of
 the best strain of
 honey gatherers for
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Prices—April till
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 6 for \$5.00; in lots of 25 or more,
 75c. each. Selected Tested, \$2.00.
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 Plans, "How to introduce Queens," 15c.
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Am now shipping untested Queens from my
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 My Bees are the product of many years of
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 Hardy stock, Bred for a Queen
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 Bees more beautiful, more gentle, more
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 The highest award.
 Extra Breeding Queens, \$3.00; Selected,
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 dozen or more Queens. Safe arrival guaran-
 teed.
 Dominion of Canada
 Department of Agriculture,
 Central Experimental Farm,
 Ottawa, 5th Sept., 1914.
 I am pleased to inform you that
 the three queens were received in
 good condition, and have been safely
 introduced.
 I have the honor to be, Sir,
 Your obedient servant.
 (Signed) C. GORDON HEWITT,
 Dominion Entomologist.
ANTHONY BIAGGI
 PEDEVILLA, NEAR BELLINZONA ITALIAN SWITZERLAND
 This country, politically, Switzerland Re-
 public, lies geographically in Italy and pos-
 sesses the best kind of Bees known.
 Attention in writing.—The Canadian Horticulturist and
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available has been so limited that it was not possible to do much experimental work under glass, but with the five ranges now available it will be possible to do much more and better work.

Annapolis Valley Notes

The season still continues cold, and is probably the latest on record, the leaf buds of apple trees just beginning to unfold by the twentieth of May. Readers of The Canadian Horticulturist will remember that in August, of 1912 the Nova Scotia Government by special orders in Council passed a regulation prohibiting the importation of nursery stock from countries known to be infested with San Jose Scale unless such stock bore a certificate from Government officials that the nursery from which it came was free from this scale.

Under this regulation, no stock from Ontario was admitted into this province in 1913. But the Nova Scotia market for apple trees is very profitable for our Ontario friends, and consequently their nurseries received in homely parlance "a lick and a promise," which was enough, however, to obtain the desired certificate from their provincial inspectors for the stock to be marketed in 1914.

When this stock began to come to Truro and Dieby, the Nova Scotia ports of entry, this spring, it had to undergo a different kind of examination and was found to be pretty generally infested with living scale, and was, of course, rejected. The United Fruit Companies had taken large orders among their members, all of which had to be cancelled at the last moment. Because of this careful work, the Provincial Entomologist, Prof. W. H. Brittain, received a vote of thanks from the Executive of the Nova Scotia Fruit Growers' Association that met at Kentville on May 5th, where the following resolution was passed:

Whereas, nursery stock coming from points in the United States and Canada have been found to be infested with the San Jose Scale; and


Whereas, by prompt action and at great expense, this pest has been practically exterminated from Nova Scotia, after having been introduced on nursery stock from Ontario and the United States, and,

Whereas, the introduction of the San Jose Scale into Nova Scotia would seriously jeopardise the fruit growing industry of the province;

Therefore resolved, that the Executive of the Nova Scotia Fruit Growers' Association, here assembled, petition the Nova Scotia Government to refuse entrance to all stock found bearing Scale, whether from Ontario or from the United States.

M.K.F.

Mr. M. B. Davis, B.S.A., was recently appointed Assistant in Pomology to the Dominion Horticulturist. Mr. Davis is a native of Yarmouth, Nova Scotia. He graduated from the Agricultural College, Truro, N.S., in 1910, and after two years at Macdonald College, P.Q., graduated from that institution in 1912, receiving his degree of B.S.A. He then went to Bridgetown, N.S., where he remained until December 1st, 1913. While at Bridgetown, he was manager of the Sunnyside Farm and Orchards. In 1912 he was elected secretary of the United Fruit Companies, and re-elected in 1913, resigning that office to come to Ottawa.



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Death of Linus Woolverton

Linus Woolverton, M.A., passed away on May 7. As readers of The Canadian Horticulturist are well aware, the late Mr. Woolverton was one of the best posted and most prominent fruit growers in Canada. He was born in Grimsby, sixty-eight years ago, on the farm where he died, and where the first peach orchard in Canada was planted by his late father, Charles Woolverton.

Mr. Woolverton had spent practically his whole life in the fruit business, and his works on different subjects and phases of the business were widely sold and read. He was the author of "Fruits of Ontario," "The Apple Growers' Guide," and a number of other works. He edited The Canadian Horticulturist, and was secretary of the Ontario Fruit Growers' Association from 1886 to 1903, Inspector of the Ontario Fruit Experimental Association and secretary of the Board of Control from 1896 to 1906. In 1893 he was judge in pomology and Superintendent of Horticulture for the Dominion of Canada at the world's Fair in Chicago. Besides the foregoing he held many other important positions in the fruit associations and branches, and was a man whose opinion was always respected on any subject regarding fruit.

About two years ago he suffered from a slight stroke, and was ill for some time. The morning of the day he died he went down town as usual, but became unwell, and returned home at noon. Arriving there he became very ill, and passed away about five o'clock. He leaves a wife, one son, Charles Ernst of Grimsby, and one daughter, Mrs. (Rev.) Mode of Chicago.

Potato Diseases

There has been issued by the Department of Agriculture at Ottawa a well executed folder, Farmers' Circular No. 4, entitled "Potato Diseases Transmitted by the Use of Unsound Tubers," showing in natural colors, representations of specimens of diseased potatoes. Diseases and other blemishes represented are potato canker, powdery scab, hollow potato, internal brown streak, little potato disease, dry rot, wet rot, common potato scab, and stem and rot. Special reference is made to potato canker and powdery scab, the latter of which occurs already in Canada and should be carefully avoided.

The folder points out that, under the Destructive Insect and Pest Act of Canada any person using for seed potatoes infected by potato canker or powdery scab is liable to prosecution. Potato growers who suspect the presence of either of the latter diseases are requested to send specimens to the Dominion Botanist, Central Experimental Farm, Ottawa. This folder, prepared by Mr. H. T. Gussow, Dominion Botanist, will be sent free to those who apply for it to the Publications Branch of the Department of Agriculture at Ottawa.

Fruit Prospects

In Nova Scotia fruit trees have come through the winter in good condition, with no apparent injury to either buds or branches. The prospects are that an excellent apple crop will be harvested, inasmuch as the trees are well set with blossom buds. It has been reported that the conditions during last winter and this spring coincide almost exactly with those

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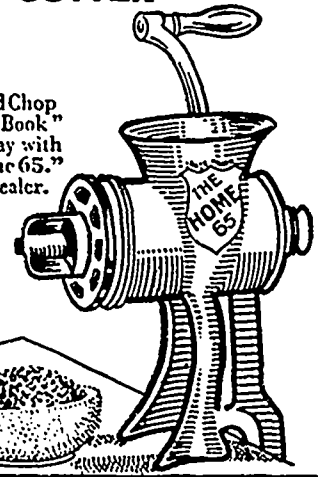
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which preceded the season of 1911, when the record crop of Nova Scotia was harvested. The weather still remains cool and the trees are somewhat late in coming out.

In Ontario conditions are generally favorable. The early winter was very mild, but during January and February severe cold weather was experienced throughout the province and a great deal of damage was done to the peach crop in the Niagara peninsula. All other varieties of fruit seem to have withstood injury and the buds have set for a good crop. There have been reports of a probable shortage in plums, particularly in western Ontario. It is not unlikely that such a condition will prevail, inasmuch as the crop harvested last year was a particularly heavy one, and one which might almost be considered exceptional.

British Columbia reports a mild winter and practically no injury in any of the fruit sections. The spring has been one of the earliest experienced for many years. The general prospects are that a large crop of all varieties of fruit will be produced.—Fruit Division, Ottawa.

Fruit Imports into Glasgow

The great bulk of the fresh fruit imported into Glasgow consists of well-known varieties of apples from Canada and the United States. The Glasgow market supplies all consumers throughout Scotland, and weekly shipments are forwarded regularly to fruit dealers throughout the north of Ireland and the north of England. The wide field that the Glasgow market is called upon to supply accounts largely for the remarkable expansion of the apple trade that has taken place in recent years. The approximate quantity that is imported annually is about 500,000 barrels.

North American apples are preferred in Great Britain to any others. The quality, the regularity of the packages, and the nature of the packages are considered superior to any known in the old world.

Apples are consigned to Glasgow in barrels and in boxes. The standard barrel of Ontario, Canada, containing about one hundred and forty pounds of fruit, is the one most preferred. Next to that is the barrel used by the growers in Western New York. Following that comes the barrel from the New England States, then the Hudson River barrel, and lastly the Nova Scotia barrel, the least favorably regarded of all.

Apples in boxes containing about forty pounds of fruit have been received in the United Kingdom, especially in Glasgow, for some years past, and have been greatly appreciated. The apples are regarded as the finest quality procurable, and sell accordingly. They come for the most part from Oregon, Washington and California, being carried across the continent and shipped at New York, Boston and occasionally Montreal. The business in these western box apples is well established, and the Panama Canal will doubtless be utilized in the trade when it is opened and when refrigerator ships are put on. If it is found that this effects economy in shipping, the business will be still further developed.

The prices of apples delivered vary accordingly to the nature of the season. British Columbia is the only serious competitor of the United States, and there is very little difference between Canadian values and those established in Oregon and Washington. Details of the apple trade are well understood here as it has been in existence many years.—Consular Report.

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Apple Trade Statistics

During the season of 1913, two million nine hundred and six thousand, four hundred barrels of apples were grown in the Dominion, according to statistics compiled by the Department of Trade and Commerce. Of this total, two million barrels were grown in the Province of Ontario, or over two-thirds of all the apples produced in the country.

Recently Canadian apples have been realizing very high prices in the British markets, and it was reported that in Glasgow, Ontario Baldwins set a wholesale price of two dollars and seventy-five cents a box, and seven dollars and ninety cents a barrel. During March at a public auction in Liverpool, fifty-three barrels of Number one Spies from an Ontario packer brought as high as eight dollars and fifty cents a barrel.

According to reports received from the Dominion Fruit Inspectors, the quantity of Ontario and Nova Scotia apples received west of the Great Lakes in 1913-14, was as follows: From Ontario one hundred and seventy-eight thousand eight hundred and thirty-two barrels; Nova Scotia, nineteen hundred and eighty barrels. In the Ontario estimate, twenty-one thousand, eight hundred boxes are included, compared with six thousand five hundred boxes in 1912-13.

Eastern Annapolis Valley

Eunice Buchanan

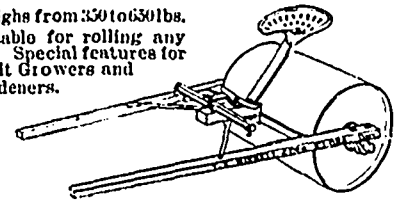
The first aphides were found crawling on apple buds on May 8th, but there being so few or only one on a bud, they were hardly visible to the naked eye. However, an examination under the glass showed that the orchards were badly infested, but as aphides are very susceptible to changes of temperature things may not prove so bad as expected. We have had a cold, long spring, with frequent showers, which may check their development, should the temperature become warm and moist we may expect an enormous increase of the pest. The farmers are now on the alert and the United Fruit Companies have disposed of one thousand six hundred dollars' worth of "Black Leaf 40," and still have had to order more. Last year they handled only fifty dollars' worth. Young trees which were attacked by aphides last season are weak and lacking in fruit buds, where they have not been killed the growth has been arrested.

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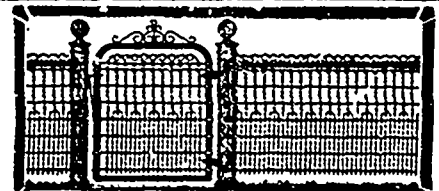
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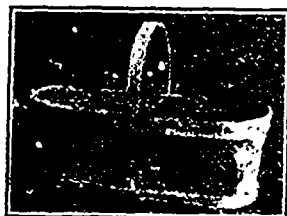
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ST. THOMAS, ONT.

Unlike most insects, the aphid is peculiar in giving birth to living young; it is not unusual to see a big aphid on an apple leaf surrounded by a brood of little ones, very much like an old hen. The number of young produced in a day varies, but it is said to be from eight to twenty-five; these in a few days go on producing other young, so that a chain letter when compared with the multiplication of aphides is insignificant.

Not only do the aphides reproduce viviparously, but also parthenogenetically, until the fall when the males appear as well as females; finally eggs are laid and the insects (in our cold climate) winter in this stage. The eggs are laid, as a rule, at the tips of twigs, so that when they hatch there will be a supply of food near to the young aphides where they may suck the juice in the buds and thus continue the cycle. After the first generation some of the creatures develop wings and fly to other orchards; in this way the pest quickly spreads. The eggs are very hard, and it is difficult to kill them with insecticides, but the adult insect is easily killed if its body can be covered sufficiently to stop its breathing pores (having a long beak of mosquito style, it cannot chew poisoned leaves)—now comes the big "if" again. If we can suffocate it, the increase is arrested, but this must be done before the leaves curl, otherwise it is almost impossible for the spray to find its way to them; so if we can kill the "stem-mother," as the first of the season is called—and persuade neighbors to do the same—the source of the trouble has gone.

Apart from sucking the juices of the plant, the aphid damages the foliage by covering it (thus closing pores) with honey-dew, which they seem to produce for the benefit of ants. So if ants are noticed crawling up the trunk of an apple tree, look for aphid. Sometimes bees are tempted to collect this honey-dew, which spoils the sample of honey. There are many families of aphides, but *Aphis mali* is the one which concerns us at present.

On May 12th we had a severe white frost, with ice on the water, and next day a few flakes of snow fell; on the morning of May 2nd the ground was white with snow, which was followed by rain. A few people spray in the first week of May, but generally farmers began about May 11th, using lime-sulphur and Black Leaf 40. The Government sprayer began work in experimental orchards in Berwick on May 13th.

Planting and seeding are late, and vegetation backward, but there is promise of a big blossom show in the orchards.

The islands of Bermuda have removed the embargo on Nova Scotian potatoes. While this only effects a few Nova Scotians, it makes a considerable difference to many Bermudians, as they supply particular varieties of tubers to the Maritime Provinces to be grown and returned to them for seeding. Ordinary potatoes are not sent to Bermuda.

Germany's Apple Imports

Reporting to the Department of Trade and Commerce, Ottawa, Canadian Trade Commissioner, C. F. Just, writes from Hamburg as follows, regarding imports of apples into Germany:

"The apple imports from Canada fell off fifty per cent. owing to the short crop in eastern Canada. The British Columbia fruit has not yet entered this market, although apples from the northwestern United States

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PETERBORO, ONT.

Peach Crop Injured

The reports, as published in The Canadian Horticulturist and elsewhere, that the peach crop of the Niagara District had been seriously injured by the cold weather last winter led Dominion Fruit Commissioner D. Johnson to send a representative to the Niagara District to investigate conditions. It was found that throughout the Niagara District the situation is a serious one. It is safe to predict that the crop of commercial peaches will be the lightest that has been harvested in twenty-five years.

Following mild weather during December and the earlier part of January, the temperature dropped on January 13 and 14 to between nine and eighteen degrees below zero, depending on the location, and was followed one month later by a similar cold period. The January frost was the cause of most of the injury, since a number of the buds had swollen during the previous six weeks. The cold spell in February also did damage. Throughout the Niagara peninsula the peach buds were greatly injured.

In some orchards not a live bud could be found, and where there were any live buds they were on trees of no commercial value, or trees which had been protected to some extent from frost by proximity to water. Along the shores of Lake Ontario, between Winona and Jordan, there was a scattering of buds on Triumphs and Longhursts. At Queenston on the Niagara River, a few buds were found on Englo's Mammoth and Triumph. In several orchards live buds of white flesh sorts were found, usually on the upper branches, and never more than a dozen on a tree. There is no section in which the injury was not great. More good buds were seen at Queenston than at any other point in the peninsula, and even there the number was so small that the amount of fruit produced will necessarily be very slight.

There are certain features that are worthy of consideration, inasmuch as they are the only ones upon which to base the probability that there will be a few peaches. The most important one is the development of retarded fruit buds. A comparatively large number of very small buds were found at several points throughout the district. These, on account of their size, were not so greatly affected by the extreme fluctuations in temperature. At the time of inspection they were still small, but there is some likelihood that a percentage of them will later develop and blossom, in that they do not show the dark centre which is characteristic of the larger and frozen buds.

In the second place, there are many orchards which are within a very short distance of either Lake Ontario or the Niagara River, and on account of the protection which they received from frost through more equable temperature, were found to bear a scattering of live buds. Only a few of these orchards were examined, and the conditions found in them must apply to other orchards in which conditions may be as good or even better than in those inspected.

Thirdly, it was noted that in cases where any buds had survived the winter, they were more often located in the upper branches of the tree than in the lower limbs. The tendency of frost is to settle, and in some cases a difference of from three to five degrees in temperature is noted between the ground level and a point fifteen feet higher. It is possible, then, that

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These machines are built at Hamilton, Ont.

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does away with heavy waste, and earns big profits. Built in three sizes - 1000, 2000 and 4,000 cans in ten hours. We have eliminated all middlemen and agents. Every fruit grower, farmer and market gardener needs our free booklet. Write for it to-day before you leave this page.

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

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

many growers, making a hurried inspection of their orchards, would overlook the upper branches and presume from an inspection of only the lower ones that the crop was an entire failure.

OTHER DISTRICTS

The injury in Lambton county has not been so great as in the Niagara District although here, too, the crop has been much reduced by frost. The white flesh varieties and Smocks have a fair percentage of live buds. Commercial varieties have not such a good showing, but the feature noted—that buds on lower branches were more severely injured than upper ones—was particularly noticeable here. The crop in Lambton county is never a large one—comparatively—and this year will be materially lessened. The fact that the injury was not so serious as in the Niagara peninsula may be credited to the fact that the county escaped the severity of the January frost and was only affected to any serious extent by the later one in February. Consequently, many of the hardier buds escaped injury, and on the varieties mentioned the indications are that a fair crop will be harvested and that even on the more commercial sorts the crop will not be a complete failure.

In the Essex peninsula the prospects are that a full crop of all varieties will be produced. In some instances, the fruit will have to be thinned. The entire southwestern portion of Ontario seems to have escaped the worst of the cold weather, and the lowest temperature recorded in Ruthven (Essex) was four degrees below zero. The contrast between that section and the Niagara peninsula is a great one, and prices to the growers will be high. There is still some danger to be expected from a late spring frost, but once that is past the growers may feel assured of a crop quite as large as any harvested in previous years. It must be remembered that the acreage under peaches is yet a small one. Planting is being extensively done, and within a few years the Essex peach crop will have an appreciable effect upon the market. Even this year, in spite of the comparatively small number of Essex orchards in bearing, and in view of the scarcity of the fruit in Niagara, the crop will make a perceptible impression.

A short visit was made to Simcoe, in Norfolk county. Very few peach orchards have reached a bearing age, and on these the buds are practically all killed. Fair heavy plantings are being made.

Items of Interest

In British Columbia Provincial Horticulturist R. M. Winslow, after a trip of inspection through orchards in all sections of the Okanagan Valley, from Penticton north, reports that no sign of damage to fruit trees was found. A record breaking crop is promised for both apples and soft fruit.

While in Calgary recently Mr. T. W. Macoun, Dominion Horticulturist, expressed surprise that so few people in southern Alberta were growing vegetables and fruit. Experiments conducted at the Experimental Farm at Lethbridge, show that fruit can be grown successfully. Vegetables may also be grown to advantage. "The farmer," said Mr. Macoun, "who will grow fruit and vegetables under the trees will make as large a fortune as the one who grows wheat, and wheat only."

have been arriving regularly in large quantities for some years, and are a fully established market.

"The value of the imports of dried apples and apple waste is given at 10,619,000 marks for a quantity of fourteen thousand seven hundred and forty-eight metric tons, almost the whole of which is credited to the United States. Canada's shipments to Germany are known to have been on a considerable scale in 1913, certainly not less than one thousand tons, and these are undoubtedly included in the receipts credited to the United States, the Canadian article being generally shipped through American ports. The German market for good qualities of this article is increasing."

Bird and Insect Life

Editor, *The Canadian Horticulturist*.—Will not you through the columns of *The Canadian Horticulturist*, call attention to the economic value of the birds, bees, and butterflies to tree and plant life? Even the despised British sparrow is the best "fly-swatter" we possess, frequenting, as it does, the manure heaps and garbage piles, just where the house fly loves to breed.

Could all your readers not place in their gardens a hollow pan of water for the birds, thus preventing them from attacking fruit, as it is thirst which drives them to the latter. If fruit growers, instead of killing robins and blackbirds (which, by the way, is against the law, except for fruit growers during the ripe fruit season), would plant mulberry trees in a corner of their orchard the birds will flock to them and leave other fruit alone.

R. BRIERLEY,
Manager, Elgin Humane Society,
St. Thomas, Ont.

Powdery Scab of Potatoes

Some time ago it was found that there existed in the eastern provinces of Canada, viz., Prince Edward Island, Nova Scotia, New Brunswick, and Quebec, a disease of the potato tuber known as Corky or better, Powdery Scab, which had probably been present, at least in some localities, for a number of years, but not distinguished from the disease known as Common Scab.

While this disease, under Canadian conditions, has so far only in one instance given indications of being more destructive than Common Scab, it is nevertheless a very undesirable malady to have permanently established in potato growing land. As a result of the discovery of Powdery Scab, the United States authorities, through fear of introducing the disease, have enacted that potatoes shall not enter the United States except under a rigorous system of certification, which includes a certificate to the Potato Canker or Powdery Scab exists. If the export with the United States is to be regained in face of the existing regulations the methods directed towards the eradication of the disease must be followed intelligently and in a thorough spirit of cooperation.

In order to familiarize the farmers of Canada with this disease, Mr. J. W. Eastham, Chief Assistant Botanist of the Central Experimental Farm, has prepared a comprehensive circular entitled "Powdery Scab of Potatoes," which is Farmers' Circular No. 5 of the Division of Botany, and is available to all who make application for it to the Publications Branch of the Department of Agriculture, Ottawa. The nature, symptoms, and preventive methods are fully outlined, and the following sum-

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The Best In the Market
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Manufacturers of Fruit Sprayers
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Apple Evaporating Machinery
Our complete POWER SYSTEMS for evaporating, when installed by our experienced millwrights are the most practical, sanitary and labor saving to be found anywhere. Our prices and terms always reasonable.
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So used for 30 years. SOLD BY ALL SEED DEALERS.
For pamphlets worth having write H. HAMMOND, Fishkill-on-Hudson, New York.





Deering New Ideal Binder



A Deering New Ideal binder will go into any grain field and cut, bind and deliver all the grain in that field. Any Eastern Canadian farmer can prove this statement to his full satisfaction by studying Deering binder features and trying the machine.
The reel is adjustable for tall, short, down or tangled grain. The special T-shape cutter bar enables the operator to tilt the platform close to the ground when necessary. The bottoms of the guards are almost level with the bottom of the platform, preventing trash being pushed in front of the knife.
Either smooth section or serrated knives can be used. Three packers and three discharge arms aid in doing efficient work. The main frame is made of tough, strong steel bars, forming a unit which the hardest usage can not twist out of shape. Then there is the famous Deering knoter—simple, accurate, unerring.
Get a catalogue from your local agent, or, write the nearest branch house.

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These machines are built at Hamilton, Ont.

BOOKS FOR BEEKEEPERS

1. How to Keep Bees, by Anna B. Comstock - a well illustrated volume on the outfit, first steps and methods in Beekeeping. Illustrated and cloth bound, \$1.00.
2. The A.B.C and XYZ of Bee Culture, by A. I. Root - an alphabetically arranged cyclopedic of everything pertaining to the care of the honey bee. Beautifully illustrated and cloth bound, \$1.50.
3. The Beekeepers' Guide, by A. J. Cook - a manual of the apary, treating of the scientific and the practical part of Beekeeping. Illustrated and cloth bound, \$1.25.

Address Book Dept.

THE
Horticultural Publishing Co.
PETERBORO, ONT.

many of recommendations for control of Powdery Scab are given:

Use only "seed" from a crop free from the disease.

Disinfect such "seed" to destroy any stray disease germs.

Use land known to be free from the disease. In most areas this will have to be land not previously planted to potatoes.

Do not plant potatoes again in land which has shown the disease. If possible, seed such land down to grass.

Isolate the crop from any field showing the disease, and take all possible precautions to avoid the spores from this crop scattered where they infect other potatoes.

Pay special attention to the cleaning, and, if necessary, disinfection of implements which may carry the disease.

The Fruit Trade with South Africa

Reporting from South Africa to the Department of Trade and Commerce, Trade Commissioner W. J. Egan, stationed at Cape Town, writes as follows in regard to Canadian apples shipped to that market last fall:

Opinion among the various dealers varies in reference to Canadian apples received in South Africa this year. Durban dealers report grading and packing of Nova Scotia fruit to be all right in every particular. They complain, however, that Nova Scotian Kings and Wagners of the whole were a great disappointment, as they were poor in color and in keeping qualities. The Ontario fruit, such as Ben Davis, Kings, Russets, and Spies left nothing to be desired.

Port Elizabeth dealers were well satisfied with consignments to them, but state that they did not receive all they had arranged for, one large dealer claiming that although he booked space early last May, he failed to secure accommodation for his second shipment.

A SPLENDID MARKET

The apples which arrived in Cape Town were, with the exception of one lot of Golden Russets on the s s Benguela, in very good condition, but were not graded in all cases as they should be for export. The difference in grading of apples received in Cape Town and other ports must be attributed to the fact that almost all the apples shipped to this port are purchased by local dealers, who visit Canada annually, while the fruit to other ports is consigned by Canadian producers or dealers.

The South African market during October, November, and December is a splendid one for good Canadian apples, and will command high prices. This office invites early correspondence this year with a view of consignments for next year and advise the securing of space in cold storage chambers early in the season.

Items of Interests

The 1914 fruit exporting season in Australia is now in full operation and will continue for over two months hence. The total shipments from Melbourne for Europe this season are approximately 153,634 cases of apples, pears, etc., against 240,529 cases for the corresponding portion of the 1913 season. From Hobart, total shipments to all ports outside of Australia are approximately equal to 156,145 cases, as compared with 208,800 cases during the same portion of last season. Adelaide shipments are equal to about 47,050 cases, against 24,980 cases last season.

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

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Greatest nozzle ever invented. Time, labor, money saved. Cannot clog with any solution. Fits any make of sprayer.
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FREE TRIAL - No money in advance - No bank deposit
Don't let blight, scab, rot or bugs eat your yield in half. Hurst Spray ers pay for themselves in extra profit. Man and horse power - high pressure - cyclone action. Brass bell valves, plungers, cylinder and strainer. No leather or rubber to cause trouble. Guaranteed 5 years. We pay freight. Write today for catalog, price list and our Special Free Sprayer Offer.
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FOR SALE AND WANTED

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, 30 cents, strictly cash in advance.

ALL KINDS OF FARMS - Fruit farms a specialty - W B Calder, Grimsby.

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

ASK DAWSON. He knows.
IF YOU WANT to sell a farm consult me.
IF YOU WANT to buy a farm consult me.
I HAVE some of the best Fruit, Stock, Grain and Dairy Farms on my list at right prices.
H W Dawson, Ninety Colborne St. Toronto.

SALMON ARM. Shusway Lake, B.C. has the finest fruit and dairy land in B.C. No irrigation necessary; mild winters, moderate summers, no blizzards or high winds; delightful climate; enormous yields of fruit, vegetables and hay; good fishing; fine boating amidst the most beautiful scenery, and the Salmon Arm fruit has realized 25 cents per box more than other fruit in B.C. Prices of land moderate, and terms to suit. Apply to F. G. Haydock, Salmon Arm, B.C.

GOLDEN AND THREE-BANDED ITALIAN AND Carniolan Queens, ready to ship after April 1st. Tested, \$1.00; 3 to 6, 85c each; 6 to 12 or more, 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 65c. Bees, per lb., \$1.50. Nuclei, per frame, \$1.50. - C. B. Bankston, Buffalo, Leon Co., Texas, U.S.A.

WANTED - Prime swarms; hives furnished. Address Box 18, The Canadian Horticulturist and Beekeeper, Peterboro, Ont.

BEZZO'S FAMOUS PRIZE ASTERS - Read particular on page 106.

BARGAIN - Greenhouse, Residence and Stock no competition; live village, 30 miles from Buffalo, excellent shipping facilities. Write Ellis Bros., Springville, N. Y.

WANTED - An experienced helper to assist in an apary - G. A. Deadman, Brantford, Ont.

FOR SALE - Foundation Mill, second hand, thin super, 2 1/2 in. by 6 in. Root made in good order for immediate shipment. Price, \$180. Samples of foundation from it on request. F. W. Jones, Bedford, Que.

FOR SALE - A bargain, one two and half horse power sprayer. Two seasons in use. Go! state of repair. Complete, sixty dollars. Lawrence Harvey, Wardsville, Ont.

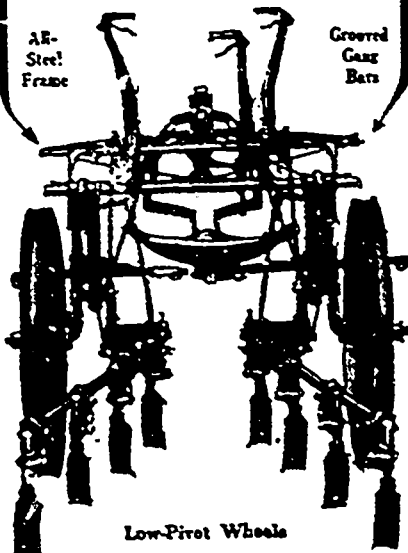
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Increases the yield. It retains the moisture in the ground and permits the chemical properties of the air to get to the roots. The size of the increase depends upon the number of times you cultivate and the kind of a machine you use.

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